

# CONSTRUCTION SAFETY

*YEAR IN REVIEW*

*RECENT & UPCOMING CHANGES*

presented by

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# COURSE DESCRIPTION

- This course will examine construction accidents, injuries and fatalities that occurred in NYC during calendar year 2017 and discuss the trends these statistics reveal. This course will also review Local Law 196 of 2017, which requires workers at various types of construction sites receive site safety training. In addition the course will provide an overview of certain construction safety laws effective in 2018.

# LEARNING OBJECTIVES

At the end of the this course, participants will be able to:

1. Participants will examine construction incident data to determine the root causes and best practices to mitigate accident re-occurrences.
2. Participants will discuss and be able to identify conditions at a construction site that pose potential risks to the public and to workers during construction and demolition.
3. Participants will review Local Law 196 of 2017, which requires that workers at certain construction sites receive safety training.
4. Participants will review changes in construction regulations and discuss how these changes will impact the safety and welfare of workers and the public.

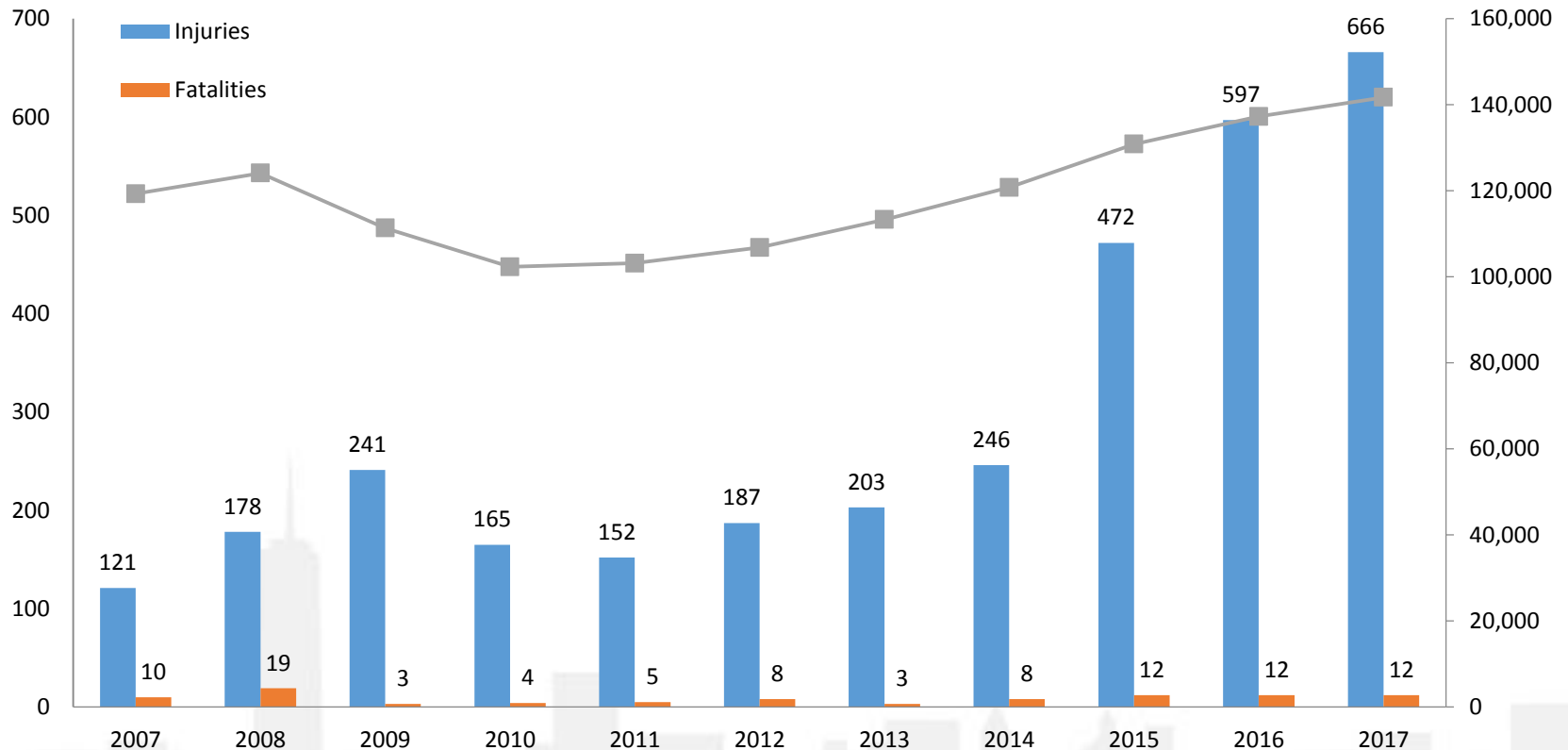
# ANALYSIS

## BUILDING CONSTRUCTION ACCIDENT DATA



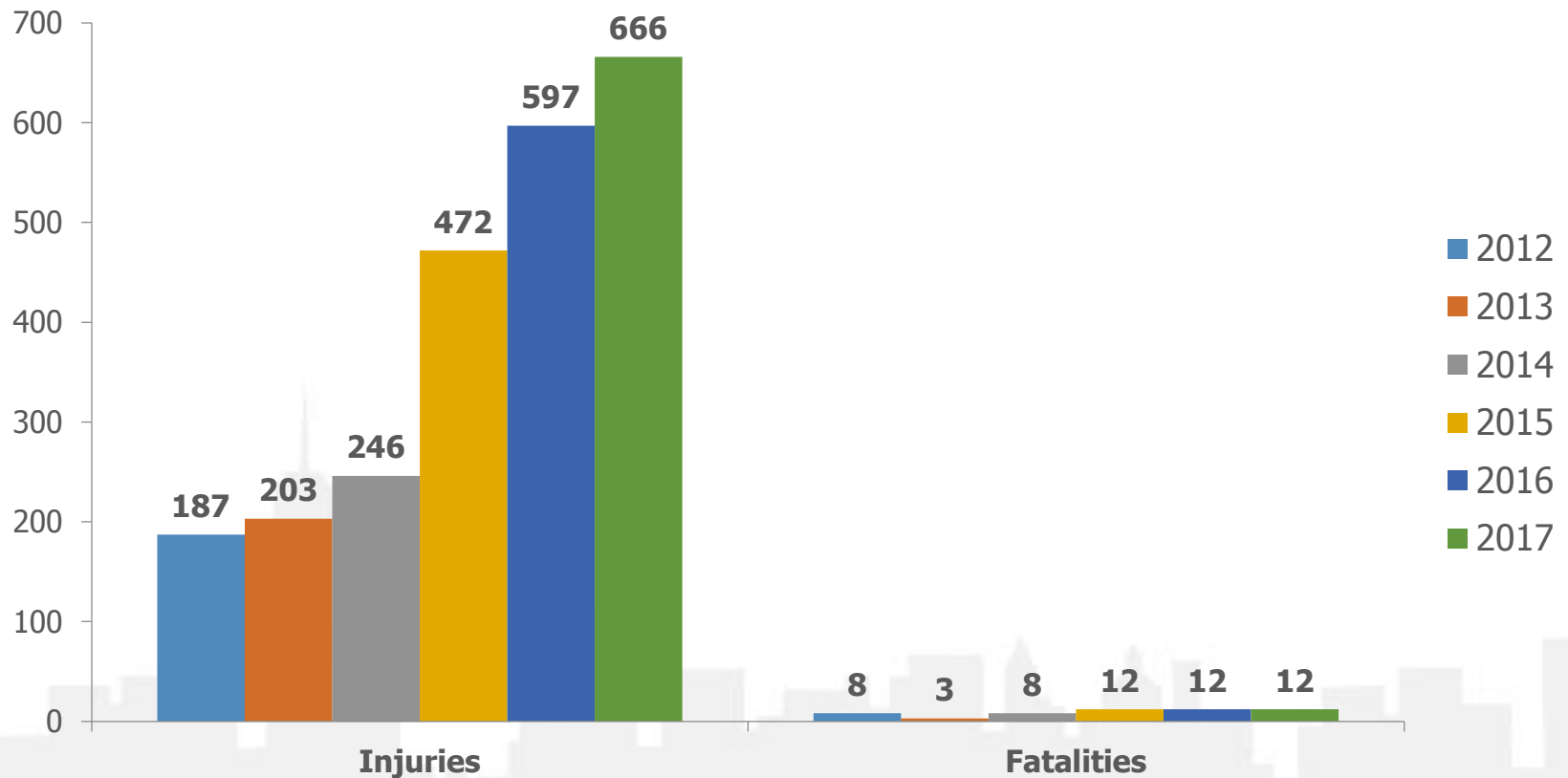
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# ANNUAL BUILDING CONSTRUCTION-RELATED INJURIES & FATALITIES VS. AVERAGE NYC CONSTRUCTION EMPLOYMENT\*



*\* NYC Construction Employment figures based on monthly Current Employment Statistics (CES) survey of construction-related skilled trades occupations in NYC including categories of both Construction of Buildings and Specialty Trade Contractors.*

# CONSTRUCTION-RELATED INJURIES and FATALITIES BY YEAR: CALENDAR YEAR 2012-2017

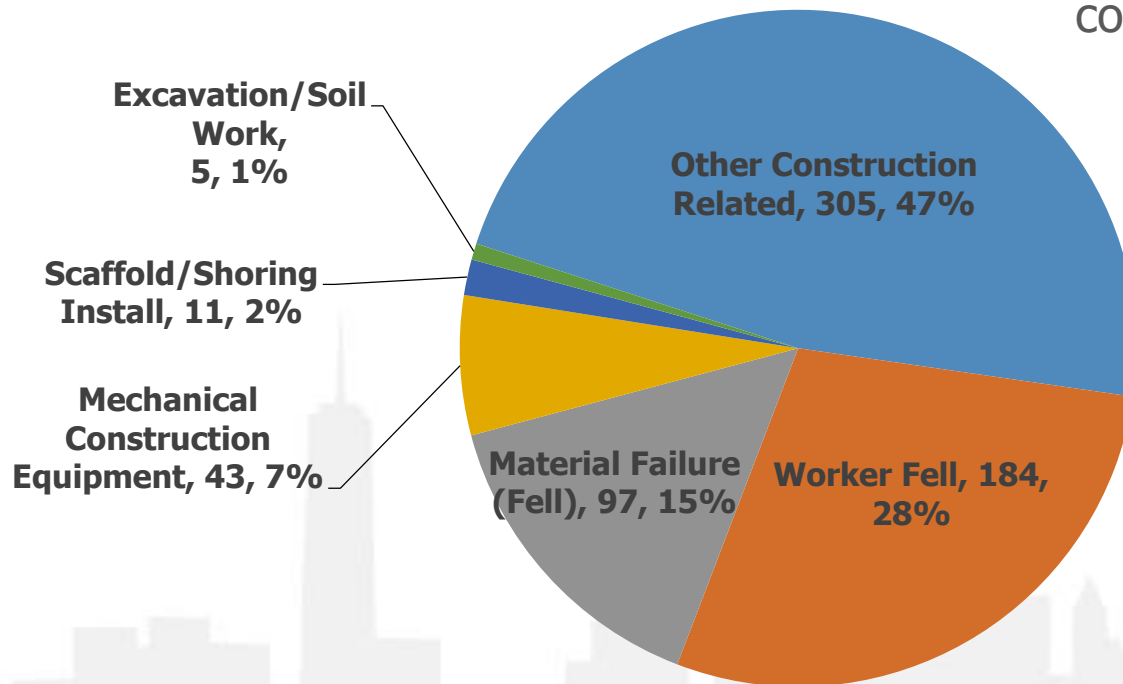




# CONSTRUCTION-RELATED ACCIDENTS BY TYPE

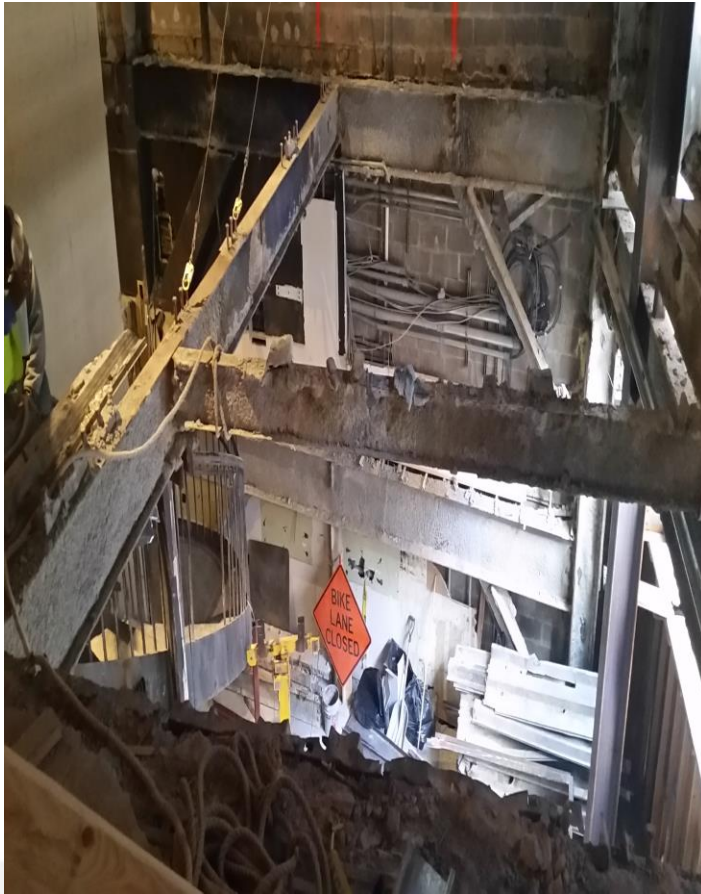
## CALENDAR YEAR 2017

2017 –  
**Other Construction-Related**  
Accidents increased by 10%  
compared to 2016



# PULLED DOWN WITH DEBRIS

## BROADWAY (MN) RESTAURANT DEMO - 4/17/17



### No Tie-off

Harnessed worker on 2nd floor untied 18 feet above grade. Worker lifted a piece of steel cut from slab with a protruding lug on the surface. Worker threw the heavy weight steel, the lug caught his clothes and pulled him over through the opening.

# UNSECURED PLATFORM

WEST 33<sup>RD</sup> STREET (MN) - 6/5/17



## No Harness

Surveyor entered onto a cocoon system that was jumped earlier in the shift. Cocoon was not yet complete and an unsecured section of plywood was on the platform gap. Worker stepped on the plywood which fell through the opening and surveyor fell 5-stories to the setback.



# CARRIED OFF SITE

## MANHATTAN AVENUE (BK) - 7/12/17



### No Harness

Worker found on the street with no harness, later died at the hospital. Preliminary Investigation determined he was from a local work site where staff stated he walked off suffering from heat exhaustion. Further investigation determined the worker fell four stories and was carried off the site by project staff. Job still on Stop Work Order (SWO).

# RE-CLAD PROJECT

## PARK AVENUE (MN) - 7/18/17



### Electrocution

Worker installing molding on the roof line walked backwards and bumped into improperly secured conduit. 440 volt wiring was shorted and the worker was electrocuted. workers who were on the roof originally thought the accident was heat exhaustion.



# ROOF REPLACEMENT

JORALEMON STREET (BK) - 8/16/17



## No Tie-off

Harnessed worker was repairing the roof on a 2½ story home. He untied to change positions, fell off the roof.

# STRIPPING OPERATION - SHAFT WAY

## FIFTH AVENUE (MN) - 8/18/17



### **No Harness/Tie-off**

Worker was stripping platform in second floor elevator shaft. While removing flooring he pulled the supporting joist out of the pocket and fell three stories.



# HIGH RISE PERI SYSTEM MOVEMENT

## MAIDEN LANE (MN) - 9/21/17



### No Harness/Tie-off

8 workers on the platform suspended by a crane (NOT ALLOWED) were trying to move a Peri System wall from one connection track to another on the 28th floor. Only 7 workers were tied-off. Worker used crowbar to separate the mounting shoe from the rail causing the platform to bounce and worker fell.



# SAFETY ZONE FAILURE

## WESY 33<sup>RD</sup> STREET (MN) - 9/21/17



### No Tie-off

*(second death this year at site)*

Two workers with harnesses and lanyards failed to tie-off to the man lift basket. There was a secured access zone below with a spotter. A delivery was received 30 feet up. One of the access zone stanchions was moved a few feet and came into contact with the rear of the basket when the basket was being lowered, stopping the basket. Repeated attempts by the operator to lower the basket caused the stanchion to snap and the man basket to bounce throwing both workers to the ground, killing one worker and severely injuring the other.



# SOLAR PANEL INSTALLATION

50<sup>TH</sup> AVENUE (QNS) - 10/19/17



## No Tie-off

Solar installation project to a multi-family home where the installer wore a harness and tied-off to lifeline; the lifeline was not tied to the anchor point resulting in the worker falling 20 feet.



# SPECIAL INSPECTION

## ST. MARKS PLACE (BK) - 11/3/17



### No Harness

Special inspector no harness was climbing a ladder to a third floor roof and fell off the ladder to the second floor setback.

# SCAFFOLD ASSEMBLY

FULTON STREET (BK) - 11/19/17



## No Tie-off

Harnessed worker with no tie-off was installing 9-story scaffold on an Alt-1 project moving from one side to the other lost his balance and fell 8-stories.



# C-HOOK INSTAL: WORKING OVERHEAD

## 9<sup>TH</sup> AVENUE (MN) - 12/18/17



### No Tie-off

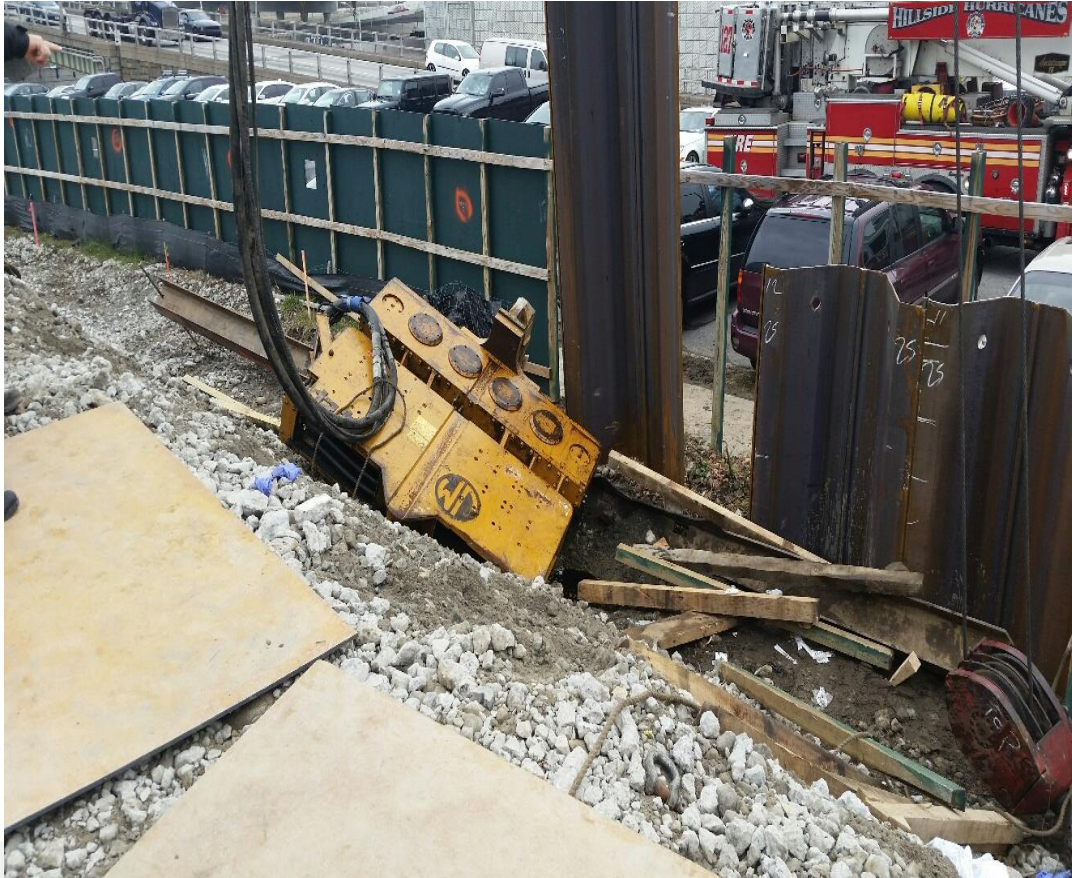
A crew was installing a C-hook on the 12th floor parapet while another worker worked on the side walk shed first floor setback. The crew member lost control of the t-bar standoff bracket. It hit a beam on a lower floor and ricocheted about 30 feet striking the first floor worker on his hard hat.

# SERIOUS NEAR MISSES

- Completely avoidable
- Contractor decision related
- Extensive rescue operations
- Serious injuries

# HOISTING FAILURE

## QUEENS BOROUGH HALL - 4/5/17



### **Jury-Rigged Equipment**

Crane being used as a pile driver was modified due to unavailable replacement parts. Operator activated the brake hold device which failed and dropped a 15,000 pound shearing hammer on the workers legs. Worker survived with serious injuries.



# OVERLOAD COLD FORM STEEL

28<sup>TH</sup> ROAD (QNS) - 6/20/17



Workers were doing a vertical extension on a 3-story building. A block delivery was accepted on the working deck without securing the cold form steel based platform properly. The floor collapsed injuring two workers and trapping another two workers in the basement. It took 4+ hours to dig the workers out and all survived.



# SHORING FAILURE

27<sup>TH</sup> STREET (QNS) - 6/26/17



Workers pouring the deck on the 6th floor of the site building shoring posts were not certified and did not meet job specs. The CSM and Formwork designer failed to observe that the shores were undersized and could not support the weight. Six workers were caught in the collapse that caused 12+ yards of concrete to rain down.

# CRANE FAILURE

## KINGS PLAZA (BK) - 9/26/17



### Outriggers Take Time

Crane operator was operating a small crane on the roof of an occupied mall. Contractor told the operator to hurry up with the load before lunch. The operator failed to deploy his outriggers which lifted the load of roofing materials from the trailer causing the crane to overturn and land on the mall roof. Had it penetrated the roof, a potential disaster would have ensued.



# REPEAT COLD FORM STEEL OVERLOAD

## PARK PLACE (BK) - 10/17/17



Workers were doing an Alt-1 with demo and new construction overloaded the working deck. The cold form steel collapsed the deck injuring six.

# DOB INSPECTORS

## SAVE THE LIVES OF SIX WORKERS - 8/31/17



### **181 Street (QNS) – Partial Demolition**

DOB Plumbing inspectors were conducting an inspection at a nearby location, as they walked out of the site they observed a partial ongoing demo across the street. They recognized the lack of support of the roof and ordered the six workers off the deck. As the workers evacuated, the roof deck where they were working collapsed.

# TAKEAWAYS

- **Tie off** - The ten deaths were preventable if safety measures were taken; the individuals who died would be here today if they tied off.
- Most of the workers that died had at least five (5) years or more experience in their trades.
- Cold form steel must be installed per manufacturer's recommendations before loading.
- Safety is paramount and a necessary precaution.
- Professionals on work sites should lead by example and take construction safety training.

# LOCAL LAW 196

## & OTHER CONSTRUCTION SAFETY LAWS



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# WHAT IS LOCAL LAW 196 OF 2017?

Local Law 196 of 2017, when fully phased-in, will require:

- **Workers** at certain job sites receive 40 hours of safety training; and
- **Supervisors** at certain job sites receive 62 hours of safety training.

# WHO MUST BE TRAINED?

- **Workers** at job sites that are required to designate a Construction Superintendent, Site Safety Coordinator or Site Safety Manager.
- **Supervisors** at these job sites must also be trained. This includes Site Safety Managers, Site Safety Coordinators, Concrete Safety Managers, Construction Superintendents and competent persons.



# WHO DOES NOT NEED TRAINING?

- Delivery persons, flag persons, professional engineers, registered architects, Department-licensees and Department-registrants (excluding safety professionals) are not required to be trained.
- Workers at job sites that only involve minor alterations or the construction of a new 1-, 2-, or 3-family home are not required to be trained.

## ***NOTES***

- If you fall into one of these categories but serve as a Site Safety Manager, Site Safety Coordinator, Concrete Safety Manager, Construction Superintendent or competent person, you must receive training.
- While licensees themselves do not need to be trained, employees working under their direct and continuing supervision do need to be trained.

# CURRICULUM BACKGROUND

- The total number of hours of required training was decided by the Department after receiving recommendations from a task force composed of members with relevant experience.
- The list of topics that could satisfy the training requirements was also decided by the Department in the same manner.
- The task force provided its recommendations to the Department by March 1, 2018 in accordance with the law.

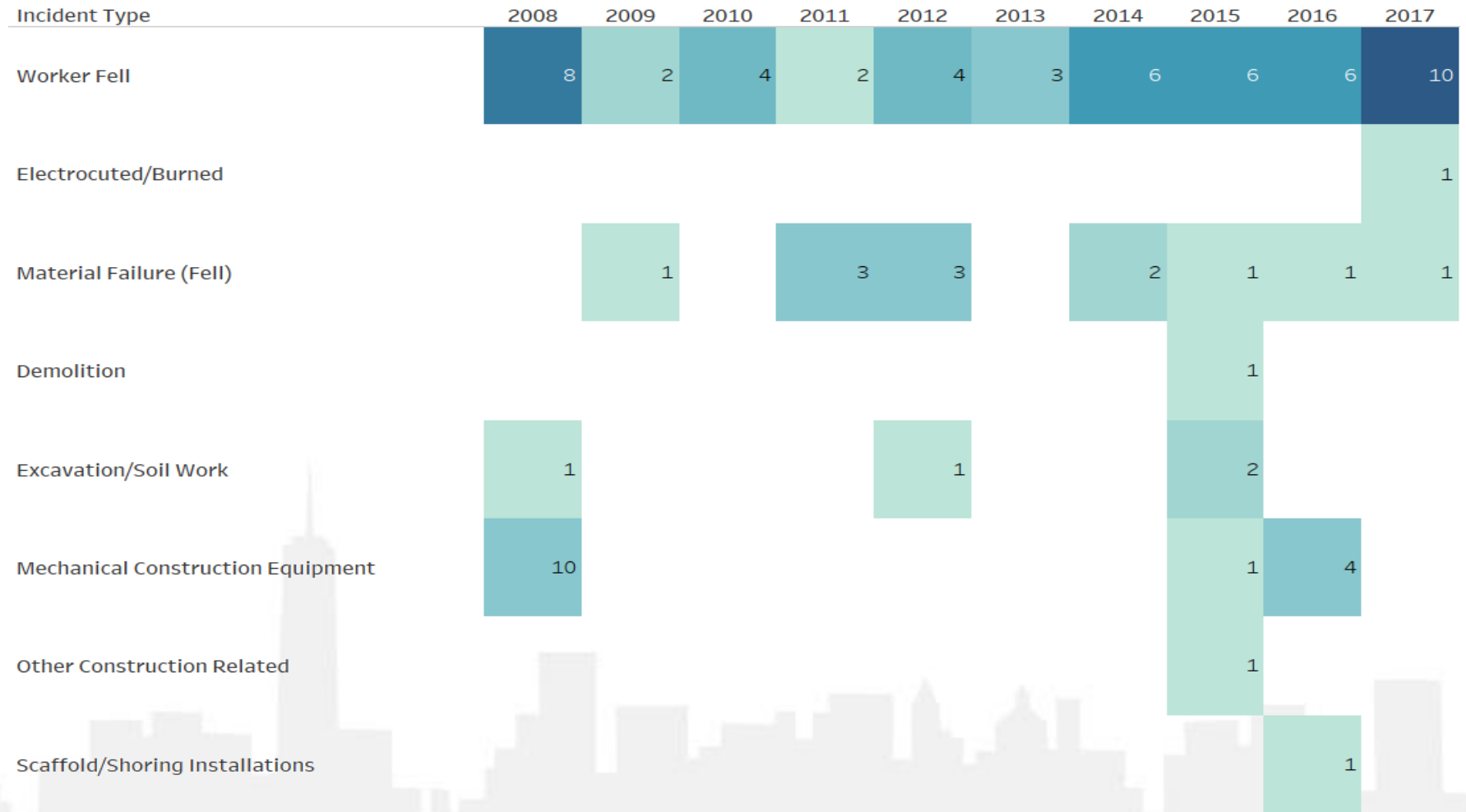
# CONSTRUCTION-RELATED INJURIES BY INCIDENT TYPE

## 2008 - 2017

| Incident Type                     | 2008  | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Worker Fell                       | 53.8% | 47.0% | 41.8% | 40.5% | 41.5% | 32.4% | 38.1% | 30.8% | 29.5% | 30.1% |
| Material Failure (Fell)           | 29.4% | 22.8% | 17.6% | 23.8% | 21.1% | 26.9% | 25.1% | 16.5% | 14.6% | 15.3% |
| Worker Cut                        |       | 4.7%  | 6.5%  | 3.2%  | 4.7%  | 9.3%  | 5.8%  | 12.0% | 17.5% | 14.5% |
| Worker Misc Body                  |       | 2.8%  | 6.5%  | 7.9%  | 7.6%  | 6.6%  | 5.4%  | 12.7% | 10.3% | 12.6% |
| Mechanical Construction Equipment | 7.7%  | 5.6%  | 6.5%  | 4.0%  | 2.9%  | 4.4%  | 4.5%  | 4.9%  | 5.3%  | 6.8%  |
| Object Struck Head/Face/Body      | 0.7%  | 2.8%  | 1.3%  | 4.0%  | 5.8%  | 2.7%  | 6.3%  | 4.7%  | 5.7%  | 5.0%  |
| Other Construction Related        | 3.5%  | 3.3%  | 5.9%  | 3.2%  | 3.5%  | 2.2%  | 4.0%  | 2.8%  | 2.9%  | 4.4%  |
| Worker/Person Tripped             |       | 0.5%  | 2.0%  | 1.6%  | 0.6%  | 0.5%  | 1.8%  | 4.0%  | 3.9%  | 2.4%  |
| Back and Pulled Muscle            |       | 0.9%  | 1.3%  | 0.8%  |       | 3.3%  | 1.3%  | 1.2%  | 3.1%  | 2.4%  |
| Scaffold/Shoring Installations    | 4.2%  | 5.6%  | 5.9%  | 5.6%  | 5.3%  | 5.5%  | 3.6%  | 4.2%  | 2.9%  | 1.7%  |
| Electrocuted/Burned               |       | 2.8%  | 2.0%  | 1.6%  | 2.3%  | 2.2%  | 1.3%  | 1.2%  | 1.5%  | 1.3%  |
| Worker in Motion                  |       | 0.5%  |       | 0.8%  | 0.6%  |       | 1.8%  | 0.5%  | 1.0%  | 1.3%  |
| Demolition                        |       | 0.5%  | 0.7%  | 0.8%  | 2.3%  | 0.5%  | 0.4%  | 0.5%  | 0.5%  | 0.9%  |
| Excavation/Soil Work              | 0.7%  | 0.5%  | 2.0%  | 2.4%  | 0.6%  | 2.2%  |       | 2.4%  | 0.9%  | 0.8%  |
| Concrete Incident                 |       |       |       |       | 1.2%  | 1.1%  | 0.4%  | 1.6%  | 0.5%  | 0.5%  |

# CONSTRUCTION-RELATED FATALITIES BY TYPE

## 2008 - 2017



# WHEN WILL WORKERS NEED TO BE TRAINED?

Training will be phased-in in **three** parts beginning on **March 1, 2018**, with full training being required by as late as **September 1, 2020**.

By March 1, 2018, all workers must have received a minimum 10 hours of training.

By May 1, 2019 or September 1, 2020 if the Department determines that there is insufficient capacity to provide training, workers must have a Site Safety Training Card, which means that they have been fully trained.

By December 1, 2018 or June 1, 2019 if the Department determines that there is insufficient capacity to provide training, workers must have at least a Limited Site Safety Training Card, which includes a minimum 30 hours of training.

*\*This timeline is not intended to be all inclusive.*

# REQUIRED TRAINING BY MARCH 1, 2018

As of **March 1, 2018**, at a minimum, the following training is required:

- an ***OSHA 10-hour class***; **or**
- an ***OSHA 30-hour class***; **or**
- a ***100-hour training program*** approved by the Department

# REQUIRED TRAINING ON DECEMBER 1, 2018

On December 1, 2018 (or June 1, 2019 if the Department determines that there is insufficient capacity to provide the training), **workers** will be required to have a **Limited Site Safety Training Card**:

- **OSHA 10 Version**

- OSHA 10-Hour
- 8-Hour Fall Prevention
- 8-Hour Chapter 33 (Site Safety Manager Refresher)
- 4-Hour Supported Scaffold User

- **OSHA 30 Version**

- OSHA 30-Hour

- **100-Hour Training Program Version**

- 100-hour training program that at a minimum meets the coursework identified in the curriculum for the **Limited SST Card** (OSHA 10 Version) or **Limited SST Card** (OSHA 30 Version).

# REQUIRED TRAINING ON DECEMBER 1, 2018

On December 1, 2018 (or June 1, 2019 if the Department determines that there is insufficient capacity to provide the training), **supervisors** will be required to have a **Site Safety Training Supervisor Card**:

- OSHA 30-Hour
- 8-Hour Fall Prevention
- 8-Hour Chapter 33 (Site Safety Manager Refresher)
- 4-Hour Supported Scaffold User
- 2-Hour Site Safety Plan
- 2-Hour Tool Box Talks
- 2-Hour Pre-Task Safety Meetings
- 2-Hour Drug and Alcohol Awareness
- 2-Hour General Electives
- 2-Hour Specialized Electives



# ELECTIVES

- The option to incorporate electives as part of the training requirement is intended to allow workers to take courses that may be relevant to the work they engage in.
- There are general and specialized electives that a worker can choose from.
- The full list of electives is available on the Department's website.

# REQUIRED TRAINING ON DECEMBER 1, 2018

On December 1, 2018 (or June 1, 2019 if the Department determines that there is insufficient capacity to provide the training), **new entrants** to the construction or demolition work force may begin working with a **Temporary Site Safety Training Card**, a nonrenewable card that expires after six months:

- OSHA 10-Hour

# REQUIRED TRAINING ON MAY 1, 2019

On May 1, 2019 (or September 1, 2020 if the Department determines that there is insufficient capacity to provide the training), **workers** will be required to have a **Site Safety Training Card**:

- **OSHA 10 Version**
  - OSHA 10-Hour
  - 8-Hour Fall Prevention
  - 8-Hour Chapter 33 (Site Safety Manager Refresher)
  - 4-Hour Supported Scaffold User
  - 4-Hour General Electives
  - 4-Hour Specialized Electives
  - 2-Hour Drug and Alcohol Awareness
- **OSHA 30 Version**
  - OSHA 30-Hour
  - 8-Hour Fall Prevention
  - 2-Hour Drug and Alcohol Awareness
- **100-Hour Training Program Version**
  - 100-hour training program that at a minimum meets the coursework identified in the curriculum for the **SST Card** (OSHA 10 Version).

# SST CARD

## PRIOR EXPERIENCE

- An applicant for an SST Card, including a **Limited SST Card**, **SST Card** or **Supervisor SST Card**, who completed the training to comply with the requirements for such SST Card, but who did not complete a particular course topic within the five years preceding submission of an application for an SST Card, must complete the following training in the one-year period preceding submission of an application for an SST Card:
  - 4-Hour Fall Prevention
  - 4-Hour Supported Scaffold User

# SST CARD REFERESHER TRAINING

- SST cards expire after five years and are renewable upon a showing by an applicant that such applicant has, in the one-year period preceding submission of a renewal application, completed the following training:
  - 4-Hour Fall Prevention
  - 4-Hour Supported Scaffold User

# SUPERVISOR SST CARD REFRESHER TRAINING

- **Supervisor Site Safety Training** cards also expire after five years and are renewable upon a showing by an applicant that such applicant has, in the one-year period preceding submission of a renewal application, completed the following training:
  - 8 Hours Fall Prevention
  - 4 Hours Support Scaffold
  - 2 Hours Tool Box Talks
  - 2 Hours Pre-Task Safety Meetings

# ONLINE TRAINING

- Online training in any format received before **October 16, 2017** will be accepted.
- After **October 16, 2017**, only in-person training and actively proctored online training will be accepted. Actively proctored online training is:
  - online training that is taken in a classroom with a proctor; or
  - online training that at a minimum requires the individual receiving the training:
    - to attest that they are the individual that received the training and that the training was received without assistance; and
    - to have their participation monitored at random times to ensure that the individual receiving the training is present for the entirety of the training.



# HOW WILL THE TRAINING REQUIREMENTS BE ENFORCED?

- Permit applicants will be required to certify to the Department that workers who will be working under the permit will have the requisite training.
- If the Department discovers that workers at a construction site are untrained, the Department will issue a violation with civil penalties that go as high as \$5,000 per untrained worker to the owner of the site, the permit holder and the employer of the untrained worker. These civil penalties can be mitigated if an employer sponsors training for such untrained worker.
- If the Department discovers that a permit holder has failed to maintain a log that demonstrated that all of the workers at a site are trained, the Department will issue a violation with a civil penalty of \$2,500.
- The Department will also conduct unannounced inspections at sites where untrained workers have been discovered.

# DATES TO REMEMBER

- **October 16, 2017**

- This is the date the legislation took effect and is relevant to online training.

- **March 1, 2018**

- This is the date by which at least 10 hours of training was required.
- This is the date by which the Site Safety Training Task Force was required to issue its recommendations regarding additional training hours and training topics to the Department.

- **December 1, 2018 or June 1, 2019**

- This is the date by which a Limited SST Card will be required for workers.
- This is the date by which a SST Supervisor Card will be required for supervisors.
- This is the date by which a Temporary SST Card will be required for new entrants to the industry.

- **May 1, 2019 or September 1, 2020**

- This is the date by which a SST Card will be required for workers.

# OTHER CONSTRUCTION SAFETY LAWS



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# LOCAL LAWS 13, 17 & 79 OF 2017 & 2018

- **Local Law 13 of 2018**, which requires that anemometers be installed on cranes, went into effect **April 30, 2018**.
- **Local Law 17 of 2018**, which will require that cranes be equipped with global positioning systems or similar locating devices, went into effect **May 1, 2018**.
- **Local Law 79 of 2017**, which will require all cranes to be equipped with event recorders to collect the following data: crane configurations, any overload condition, status of limit switches, and operator override, will go into effect on **January 1, 2019**.

# LOCAL LAWS 204 & 206 OF 2017

- **Local Law 204 of 2017**, requires workers at certain construction sites receive pre-shift instructions, will go into effect **May 16, 2018**.
- **Local Law 206 of 2017**, requires workers at certain construction sites receive site-specific safety orientation, will go into effect **May 16, 2018**.



# LOCAL LAW 70 OF 2018

- **Local Law 70 of 2018**, which will allow the city to recover penalties of up to \$500,000 for companies and \$150,000 for individuals for a violation of the site safety provisions of the construction code where the violation is accompanied by death or serious physical injury, will go into effect on **July 18, 2018**.

**This concludes the  
American Institute of Architects  
Continuing Education Systems Course.**

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