

Development of a Coding System to Accurately Categorize the
Causes of Construction Fatalities and Serious Injuries

by

Caroline Louise Charlotte Pedersen

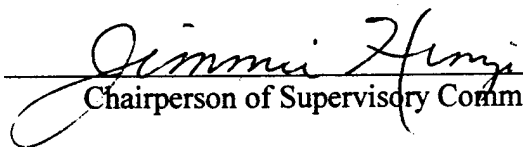
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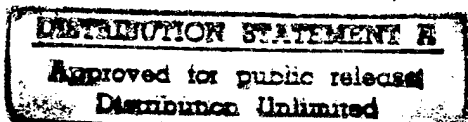

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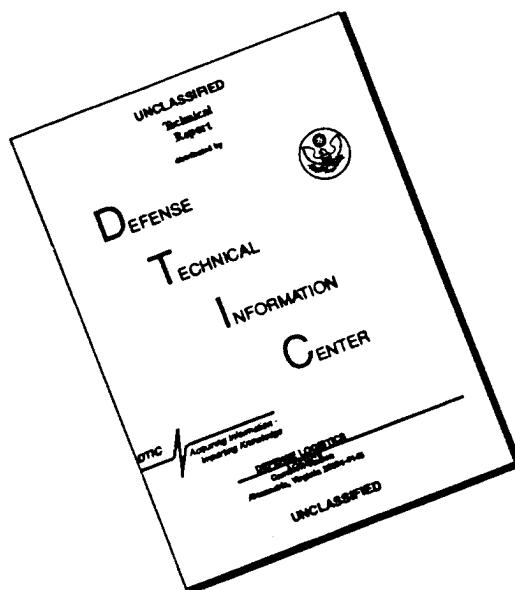
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CHAPTER 1

INTRODUCTION

There are approximately 910 construction worker fatalities in the United States each year (National Safety Council, 1995). Although construction workers constitute only 5.2% of the industrial workforce, they account for over 18.4% of the fatalities and 10.6% of the injuries (Gambatese 1996). The only industries that have higher fatality rates are mining and agriculture.

One of the functions of the Occupational Safety and Health Administration (OSHA) is to investigate and track occupational injuries and fatalities. OSHA's involvement is reduced in the state-plan states; however, these states are still encouraged to contribute such data to OSHA. This information is recorded in OSHA's Integrated Management Information System (IMIS). While various types of information are recorded, particular interest exists in the basic types of causes associated with fatalities and injuries. OSHA classifies all accidents into six event types: Falls, Struck by, Struck Against, Caught In or Between, Shock, and Other.

The accident classifications are designed to provide insight into causation. Despite this, it is felt that the current classification system has numerous shortcomings. The primary failure is that the six event types do not adequately categorize the actual accident causation. In fact, the category "other" historically has accounted for an exceptionally high percentage (about 10%) of incidents.

This thesis was undertaken to develop a system of cause codes to accurately categorize the primary causes of fatalities and related injuries in the construction industry. The information contained in the OSHA database can be extremely useful to contractors and safety professionals if it can be presented and summarized in a usable and detailed

format. If the actual causes of injury can be targeted and tracked, it is felt that the current fatality rate can be decreased significantly. Accurate information on the causes of accidents is fundamental to the success of such efforts.

CHAPTER 2

BACKGROUND

2.1 INTRODUCTION

The Williams-Steiger Act, also known as the Occupational Safety and Health Act of 1970 (OSH Act), was passed by Congress to increase safety awareness in the United States, and contained special provisions for the construction industry due to the high proportion of fatalities occurring in construction. OSHA was formed and tasked with tracking accident statistics. OSHA created the Integrated Management Information System (IMIS) database to manage the information collected on accidents. This database is primarily used by OSHA to produce statistics. Considerable amounts of useful information can be generated from the database.

Currently, six categories (Falls, Struck By, Struck Against, Caught In or Between, Shock, and Other) exist for classifying the causes of accidents in the construction industry. These categories are very general and provide limited useful data since a wide range of accidents fit into each of the areas. The category "Struck Against" is essentially unused, while approximately 10% of the fatalities have been categorized as "Other". Accident classification information would be useful for safety managers and construction professionals if the information would be specific to their actual work classification and if the cause codes clearly defined the accident type.

In addition to the coded information related to injuries and fatalities, most OSHA accident investigation reports recorded in the OSHA IMIS database contain an abstract which summarizes the events surrounding the accident. These abstracts tend to consist of a single paragraph, written in a style comfortable to the individual investigating OSHA compliance officer.

2.2 LITERATURE REVIEW

Although extensive research has been conducted on how to reduce injury and fatality rates in the construction industry, very few have reviewed the OSHA coding system to determine if it contains clear and useful data.

Only a handful of literature sources were located which reference the OSHA coding system. The first of these was an "Analysis of Fatalities Recorded by OSHA" (Hinze and Russell 1995). In this paper, the authors used OSHA's IMIS to examine the causes of past injuries. It was felt that knowledge of past injury causation would help in preventing future injuries. The researchers used data from 1980, 1985, and 1990 to identify possible trends. While some trends were identified, the authors noted that the coding of event types appeared to be inconsistent and then provided numerous example cases. In their recommendations, they stated that the information contained in the database can only be helpful if it is clearly and consistently entered into the system. They further recommended that the coding system be examined to determine if a different coding system would be more appropriate. They felt that more accurately defined codes might allow for more consistency in the information entered into the database. This would make the resulting information more usable.

Several theses have identified the need for a revised coding system. In her thesis entitled "Investigation of Equipment Related Injuries and Fatalities in Construction", Bernandine I. Thomson (1996) recommended that the abstracts in the OSHA IMIS database be more clearly written and that the coding be more precise as to the primary cause of the accident.

David C. Bren (1995) analyzed construction fatalities and injuries due to powerline contacts in his thesis and recommended that more detail be included in the abstracts, as well as accuracy in data entry. He also noted the lack of accurate coding as a fault of the current system.

Katherine Bren (1996) completed her thesis on construction fatalities and injuries due to trench cave-ins. She strongly recommended a coding system which accurately reflects the primary cause of the accident. She found that "cave-ins" were placed in either "struck by", "caught in/between", or "falls" with no real consistency. She also recommended that the abstracts be more carefully written to eliminate the grammar and logic errors which were found in many abstracts. She felt that a standard form might eliminate some of the ambiguity the OSHA database currently contains as to the actual facts of each accident.

The final reference was a report prepared by OSHA (U.S. Department 1990). OSHA analyzed the causes of construction fatalities from 1985-1989 and made conclusions about the causes of fatalities in the construction industry (see Table 2.1).

Table 2.1 Construction Fatalities Investigated by OSHA from 1985-1989*

Source of fatality (1)	Percentage of all fatalities (%) (2)
Falls	33
Electrical Shock	17
Struck by	22
Caught in/between	18
Other	10

*From "Analysis of construction fatalities- the OSHA database 1985-1989", (U.S. Department 1990).

It is clear from Table 2.1 that the current coding system is extremely broad in nature since each code covers a wide range of accidents. For example, the code "Struck By" includes accidents involving equipment, handling of material, falling material, and cave-ins. The "Caught In/Between" classification includes numerous accidents involving equipment, material, cave-ins, and others. It becomes a "judgment call" for the investigating officer to place the accident into one of the event types. Additionally, the data is in such broad categories that it is of limited utility to the construction professional.

Most of the references listed above recommended four common items: 1) all states should be required to report their accident data to OSHA; 2) abstracts should be more clearly written; 3) data entry should be performed with more attention to detail; and 4) the coding system should be specific in nature. The goal of this thesis was to focus on the coding deficiencies and develop a new coding system to accurately classify the causes of fatalities and related injuries in the construction industry.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The goal of this research was to develop a revised coding system to accurately categorize the causes of accidents and fatalities in the construction industry. The research was conducted in four stages: data acquisition from OSHA's IMIS, development of a new coding system, data compilation for the new codes, and data analysis. The development of the new coding system evolved into its final form during the data compilation stage and therefore, these two sections will be presented together.

3.2 DATA COLLECTION

OSHA maintains a database of fatalities and injuries occurring throughout the United States in various industries. The database used for this study was OSHA's IMIS which contains accident information on all industries. The database can present or sort various types of information. The data contains encoded information of various types, including victim age, craft, type of injury, amount of fine, amount of fine actually paid, etc. In addition, the database contains an abstract which is a narrative description of how the accident is presumed to have occurred. OSHA's Region 10 office isolated and sorted the data for all fatalities in standard industrial classification (SIC) codes 15, 16, and 17 (construction industry) for years 1994 and 1995. The data report included data from January, 1994 through December, 1995. The data provided by Region 10 included 894 pages of information which resulted in 954 incidents over the two year period. The following information was provided in the OSHA reports: location, date, SIC, type of citation, abatement status, amount of penalty, abstract of the incident, age and sex of the victim, event type, extent of injury, environmental factor, human factor, and hazardous factor. In addition, the database contained information of the violations, penalties and correctional actions required of the employer.

3.3 DEVELOPMENT OF THE NEW CODING SYSTEM AND DATA COMPILATION

The current OSHA construction injury event types include the following: (1) Falls; (2) Struck By; (3) Struck Against; (4) Caught In/Between; (5) Shock; and (6) Other. Since these codes were assumed to not adequately describe the various causes of injury and death, modifications were sought. Using the six OSHA categories as a baseline, refinements were made. The initial revised coding system was developed as shown in Table 3.1.

Table 3.1 Event Types- Version 1

Cave-in	Confined Space
Drowning	Heavy/Earth Moving Equipment
Electrocution- OH power lines Faulty Tools/Cords Other	Falls- Temporary Structures Permanent Structures Other
Lockout/Tagout- Electrocution Mechanical Other	Material Handling Equipment- Surface Equipment Manual (Equipment not Responsible) Cranes/OH Equipment

Using these revised codes, the 1994 data began to be evaluated and the cause of death was described by assigning the new code categories to the fatality cause. After reviewing 30 cases, it was found that the codes in Table 3.1 did not adequately describe the causes of death for all cases. As a result, the checklist shown in Table 3.2 was developed. This checklist, as it evolved, contained 15 cause codes that could be viewed as primary, with additional information providing extra details that would further describe the circumstances at the time of the accident. This checklist was used to categorize the first 120 cases. A Microsoft Access database was used to contain the data generated for each case number.

Most information used to assign the proper cause codes was contained in the case abstracts. Unfortunately, some of the abstracts were so poorly written that the facts of the accident could not be deciphered from the text. In other instances, the abstract would be repeated verbatim for two different companies and incidents. These duplicated cases were discarded from the database.

Table 3.2 Checklist- Version 2

Event Types- Check one of the following:	
<input type="checkbox"/> Asphyxiation (toxic gases)	<input type="checkbox"/> Drowning
<input type="checkbox"/> Caught in/between Equipment	<input type="checkbox"/> Caught in/between Material
<input type="checkbox"/> Cave-in (excavation/tunneling)	<input type="checkbox"/> Cave-in (trench)
<input type="checkbox"/> Electrocution (faulty existing wiring)	<input type="checkbox"/> Electrocution (power lines)
<input type="checkbox"/> Electrocution (faulty const. tool/wiring)	<input type="checkbox"/> Other
<input type="checkbox"/> Fall from elevation	<input type="checkbox"/> Fall from ground level
<input type="checkbox"/> Struck by equipment	<input type="checkbox"/> Struck by falling Materials
<input type="checkbox"/> Struck by material	
Respond to all of the following:	
Lockout/Tagout?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
Confined Space?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
Cause involved other crew members?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown
Type of large equipment involved? (equip w/ a driver- scraper, dozer, etc)	_____
Type of tools or small equip.involved? (hammer, wrench, hand compactor, saw, etc)	_____
Number of workers injured and/or killed?	_____
Type of materials involved?	_____
Type of materials handling?	<input type="checkbox"/> hoisting/lowering <input type="checkbox"/> moving laterally altering
Temporary structure involved?	_____
Permanent structure involved?	_____
Type of project?	<input type="checkbox"/> new construction <input type="checkbox"/> repair renovation <input type="checkbox"/> unknown

After the first 120 cases had been encoded, "Explosion/Fire" and "Natural Causes" were added as event types. The secondary category "Other crew members involved" changed to "others involved". Further evaluation was conducted using the added cause code categories. At case number 185, three other secondary sections were added- "Fall height/Trench Depth", "Fall Protection/Shoring/Personal Protective Equipment (PPE) used", and "Caused by the subject". The last major changes to the checklist were made at case number 400. Under event types, an "Electrocution-Other" category was added for cases which were clearly electrocutions but did not fall into one of the other electrocution sections, and "Electrocution-building power" was added for those accidents which involved a building power system which was functioning properly. Secondary sections were also added: age and sex of the subject, SIC, number of workers injured separated from number of workers killed, natural factors such as weather, vehicle type (project vehicle or privately owned vehicle), and type of work performed by the subject at the time of the accident. A comments category was added for those cases where supplemental information was required to explain how the subject was killed or injured. The final checklist is shown in Chapter 4.

The resulting database contained 954 records which included 976 fatalities and 106 related injuries.

3.4 DATA ANALYSIS

The data from the Microsoft Access database was exported to Microsoft Excel for analysis. The data was examined to determine how the fatalities were distributed among the 19 cause codes. In addition, the revised coding system was checked or validated. This was done by first selecting (at random) thirty cases from the OSHA database. The information from these cases was given to two graduate students at the University of Washington who had no knowledge of either the current OSHA system or the revised system. The objective of having graduate students use the codes served as a means of

validating the revised cause codes. Each student was asked to classify the causes of OSHA fatalities by using the revised coding system. Instructions for the checklist were provided as shown in Appendix A. The following chapter summarizes the findings of both the data analysis and audit.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

The current OSHA coding system consists of six event types. This research was undertaken to develop a new coding system with more specific categories to more accurately classify the causes of accidents and fatalities in construction. The new coding system will be presented, followed by the findings from using this new coding system on OSHA's data for 1994-1995.

4.2 NEW CODING SYSTEM

The final version of the revised coding system consisted of a checklist of causes as shown in Table 4.1. There are nineteen primary causation factors which are used for classifying the event type which caused the accident. In addition, secondary causation and related factors are included to provide additional information surrounding the accident. These include information such as sex and age of the victim, the type of project, etc..

Table 4.1 Checklist, Final Version

Primary Event Types- Check one of the following:	
<input type="checkbox"/> Asphyxiation (toxic gases)	<input type="checkbox"/> Drowning
<input type="checkbox"/> Caught in/between Equipment	<input type="checkbox"/> Caught in/between Material
<input type="checkbox"/> Cave-in (excavation/tunneling)	<input type="checkbox"/> Cave-in (trench)
<input type="checkbox"/> Electrocutation (faulty existing wiring)	<input type="checkbox"/> Electrocutation (power lines)
<input type="checkbox"/> Electrocutation (other)	<input type="checkbox"/> Electrocutation (faulty const. tool/wiring)
<input type="checkbox"/> Electrocutation (building power)	<input type="checkbox"/> Explosion/Fire
<input type="checkbox"/> Fall from elevation	<input type="checkbox"/> Fall from ground level
<input type="checkbox"/> Struck by equipment	<input type="checkbox"/> Struck by falling Materials
<input type="checkbox"/> Struck by material	<input type="checkbox"/> Other
<input type="checkbox"/> Natural Causes	
Secondary Information- Respond to all of the following:	
Lockout/Tagout? <u> </u> yes <u> </u> no <u> </u> na	Confined Space? <u> </u> yes <u> </u> no <u> </u> na
Fall height: <u> </u> (feet)	Fall protection used? <u> </u> yes <u> </u> no <u> </u> na
Personal Protective Equipment used? <u> </u> yes <u> </u> no <u> </u> na	Trench shoring used? <u> </u> yes <u> </u> no <u> </u> na
Trench Length: <u> </u> (feet)	Trench Depth: <u> </u> (feet)
Others involved? <u> </u> yes <u> </u> no <u> </u> unknown	Caused by the subject? <u> </u> yes <u> </u> no <u> </u> unknown
Type of large equipment involved? <u> </u> (equip w/ a driver- scraper, dozer, etc)	Type of tools or small equip.involved? <u> </u> (hammer, wrench, hand compactor, etc)
Vehicle Type: <u> </u> project <u> </u> private <u> </u> na	Number of workers killed? <u> </u>
Number of workers injured? <u> </u>	Natural factors: <u> </u> (wind, rain, lightning, heat, etc)
Time of accident: <u> </u> AM/PM	Sex of subject: <u> </u>
Age of subject: <u> </u>	Type of materials involved? <u> </u>
Type of materials handling? <u> </u> hoist/lower <u> </u> lateral <u> </u> altering	Type of Project: <u> </u> new construction <u> </u> repair <u> </u> renovation <u> </u> unknown
Temporary structure involved? <u> </u>	Permanent structure involved: <u> </u>
Work Type: <u> </u> (painter, electrician, etc)	SIC: <u> </u>
Comments: <u> </u>	<u> </u> (if none, so state)

Table 4.2 demonstrates how the original six event types relate to the new primary event types. As is shown, the new system contains nineteen event types and provides more specific codes for the actual accident. Electrical Shock translates into five different electrocution event types (building power, faulty construction tool/wiring, faulty existing wiring, power lines, and other). Falls divide into Falls from Elevation and Falls from Ground Level. The Struck by event type now consists of Struck by Equipment, Falling Material, and Material, while Caught in/between contains Caught in/between Equipment and Material. A completely new cause code was created, Cave-ins, which contains incidents which used to fall under either Struck by or Caught in/between. The event type Other shows the most diversity since it now contains miscellaneous codes such as Asphyxiation, Drowning, Explosion/Fire, Natural Causes, and Other. The event type Struck Against is never used by OSHA and has been included in the codes Struck by and Caught in/between.

Table 4.2 Relationship Between Original Event Types and New Coding System

Original system	New system
Electrical Shock	Electrocution (building power) Electrocution (faulty const. tools/wiring) Electrocution (faulty existing wiring) Electrocution (power lines) Electrocution (other)
Falls	Falls from elevation Falls from ground level
Caught in/between	Caught in/between Equipment Caught in/between Material Cave-in (Excavation/Tunneling) Cave-in (Trench) (* Cave-ins may have also been coded as a Struck by Incident)
Struck by	Struck by Equipment Struck by Falling Material Struck by Material
Struck Against	Contained in above category
Other	Miscellaneous: Asphyxiation Drowning Explosion/Fire Natural Causes Other

4.3 FINDINGS USING THE NEW CODING SYSTEM- PRIMARY EVENT TYPES

With the use of the new coding system, the 1994-1995 data was analyzed by determining the primary causes of construction worker fatalities. The analysis was conducted independently for the 1994 data and the 1995 data. There were 691 fatalities and related injuries in 1994, and 391 in 1995.

Figure 4.1 depicts the results of using the new coding system on the data from 1994. Note that the causation factors have been consolidated into broader groupings for comparison with earlier data. The majority of the fatalities and related injuries were in the event type "Falls" (33%), followed by Electrocutions (18%), Struck by (18%), Miscellaneous (15%), Caught in/between (10%), and finally, Cave-ins (6%).

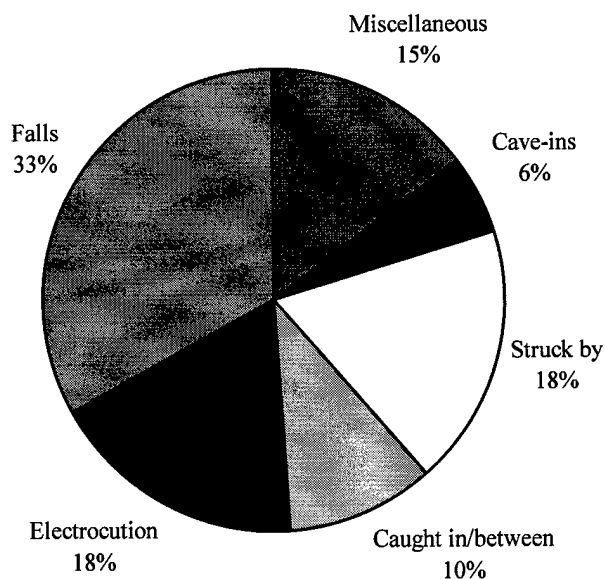


Figure 4.1 Construction Fatalities and Related Injuries, 1994

Figure 4.2 shows the results of using the revised coding system on the 1995 data. The percentages changed slightly, with Falls increasing to 35%, Electrocutions up to 23%, and Struck by incidents at 19%. Caught in/between remained constant at 10%, while Miscellaneous dropped to 9%, and Cave-ins fell to 4%.

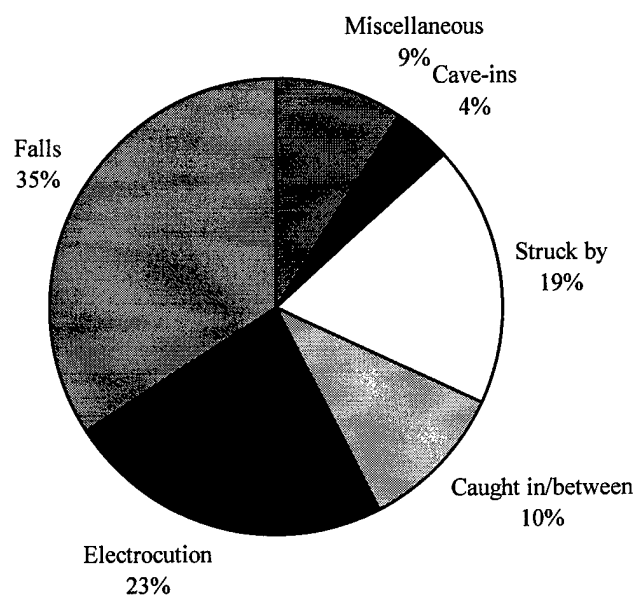


Figure 4.2 Construction Fatalities and Related Injuries, 1995

The total results for 1994-1995 in Figure 4.3 can be compared to the OSHA findings from 1985-1989 as shown in Figure 4.4. The percentage of accidents attributable to the event type "Falls" is slightly higher in this study when compared to the 1985-1989 analysis (34% vs 33%) as is "Electrocutions" (20% vs 17%). The event types Struck by, Caught in/between, and Other are lower (18% vs 20%, and 10% vs 20%, 1% vs 10%, respectively). These reductions can be assumed to be the result of using the new coding system. By expanding the primary event types from six to nineteen, the actual causation can be more accurately pinpointed. As a result, the new categories removed some of the accidents from the Struck by, Caught in/between, and Other categories and placed them in one of the Miscellaneous or Cave-in categories.

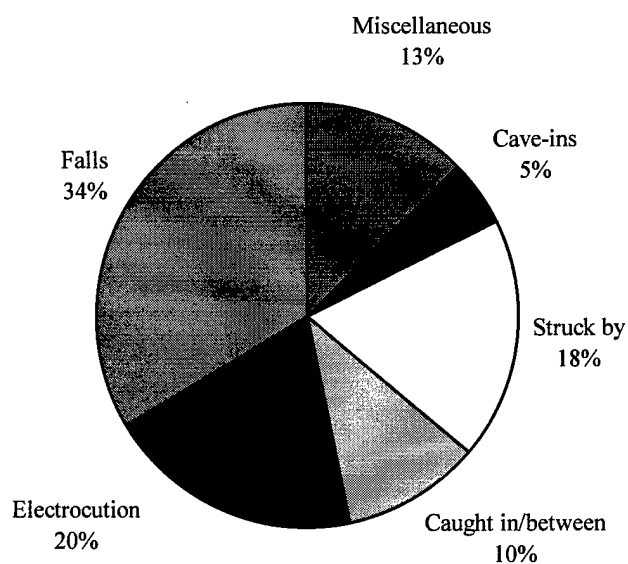


Figure 4.3 Total Construction Fatalities and Related Injuries, 1994-1995

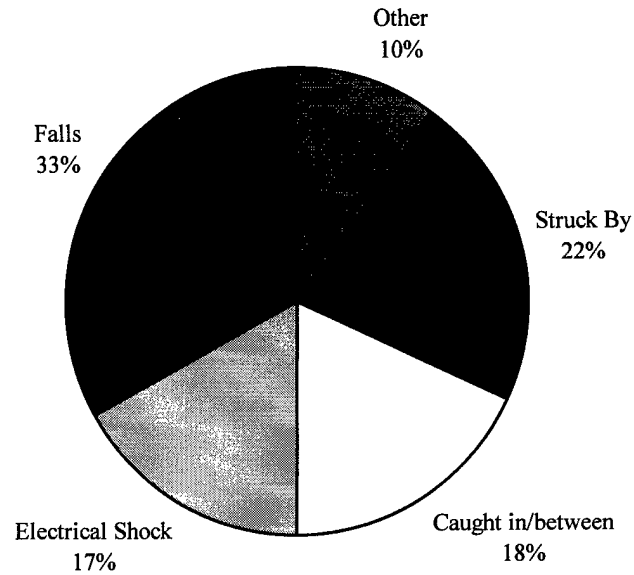


Figure 4.4 Construction Fatalities Investigated by OSHA 1985-1989 (From "Analysis of construction fatalities- the OSHA database 1985-1989", (U.S. Department 1990))

Each primary event type will be analyzed further in the following subsections.

4.3.2 ELECTROCUTIONS

In 1994, 18% of the fatalities were attributable to electrocutions. In 1995, this number increased to 23%. The total percentage for both 1994 and 1995 was 20%, which is slightly higher than the figures obtained from the 1985-1989 OSHA statistics. Figure 4.6 depicts the percentage of electrocutions attributable to each of the specific event types.

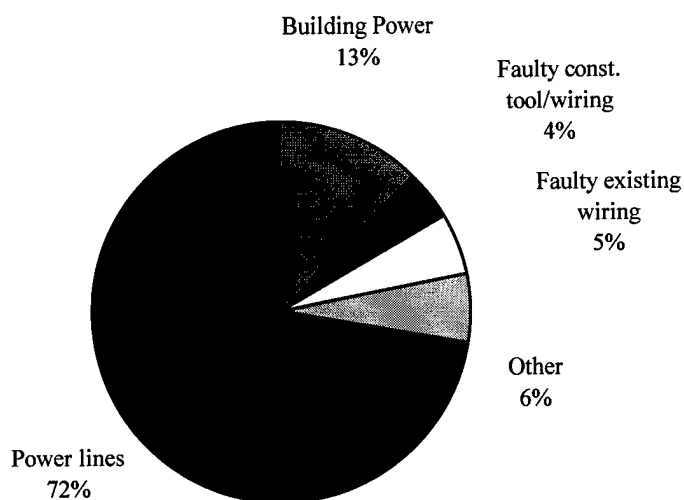


Figure 4.6 Electrocution Fatalities and Related Injuries, 1994-1995

Power line accidents accounted for the majority of the fatalities at 72%, followed by building power-related accidents at 13%. The category "Other" contained incidents which were obviously electrocutions but did not fall into any of the four specific areas, e.g. an electrician was working on an energized transformer and was electrocuted. This incident does not fall under power lines, building power, faulty existing wiring, or faulty construction tools/wiring, but is an electrocution. Therefore, it is classified as an

Electrocution-Other. Faulty existing wiring accounted for 5% and Faulty construction tools/wiring contained the remainder of the electrocutions at 4%.

4.3.3 STRUCK BY

Struck by was the third most prevalent event type. In 1994, 18% of the fatalities and related injuries were attributed to struck by accidents. This percentage increased slightly in 1995, to 19%. The total for both 1994 and 1995 was 18%. This figure is 3% lower than the statistics gathered by OSHA from 1985-1989. The new coding system is probably responsible for this change as the addition of the categories "cave-ins" and "explosion/fire" splits the data out into more specific categories. Figure 4.7 shows the results of the subcategories of the Struck by event type:

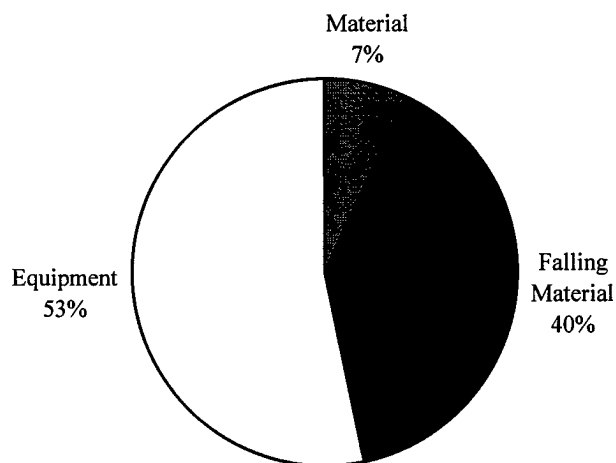


Figure 4.7 Struck by Fatalities and Related Injuries, 1994-1995

The majority (53%) of the accidents fall under the Struck by Equipment category, followed by Struck by Falling Material at 40%. Struck by Material contains the smallest percentage of incidents at 7%. A good example of Struck by Material is when a plug inserted into a pressurized pipe fails and strikes a worker. This subcategory of the Struck by event type is the one most subject to controversy. It is often difficult with some

abstracts to determine whether an accident was a Struck by Material or a Caught in/between Material.

4.3.4 CAUGHT IN/BETWEEN

The caught in/between event type contained 10% of the total fatalities and related injuries for 1994 and 1995. This was significantly lower than the data gathered from 1985-1989, and is most likely attributable to the new coding system which provides more specific codes to describe events which were previously categorized as Struck by, Caught in/between, and Other codes. Figure 4.8 shows the breakdown of this code.

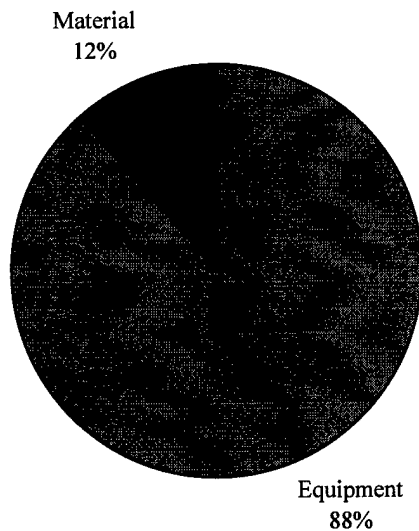


Figure 4.8 Caught in/between Fatalities and Related Injuries, 1994-1995

The vast majority of incidents fell into the Caught in/between Equipment category (88%) when compared to the Caught in/between Material subcategory (12%). As was previously mentioned, categorizing incidents into codes of Caught in/between Materials and Struck by Materials codes can be confusing. Instructions are provided in Appendix A for reference.

4.3.5 CAVE-INS

Cave-ins is a new code which is not currently used by OSHA, and therefore cannot be compared with previous data. However, 5% of all of the total fatalities and injuries for 1994-1995 can be attributed to this event type, which equates to nearly 50 fatalities each year. This fact alone is sufficient to justify the existence of the code. Figure 4.9 depicts the subcodes related to this event type.

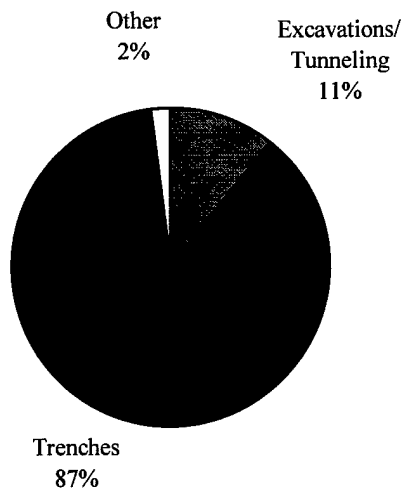


Figure 4.9 Cave-in Fatalities and Related Injuries, 1994-1995

As can be seen from the figure, most of the cave-in fatalities and injuries occurred in trenches (87%). In almost every instance, the trench was not properly supported by either sloped sides, trench boxes, or shoring. In some cases, a trench box was in place but the victim stepped out of the protected area and was caught by a cave-in.

4.3.6 MISCELLANEOUS

The code Miscellaneous is used to describe many of the event types which were previously contained under "Other" (Figures 4.10, 4.11, and 4.12).

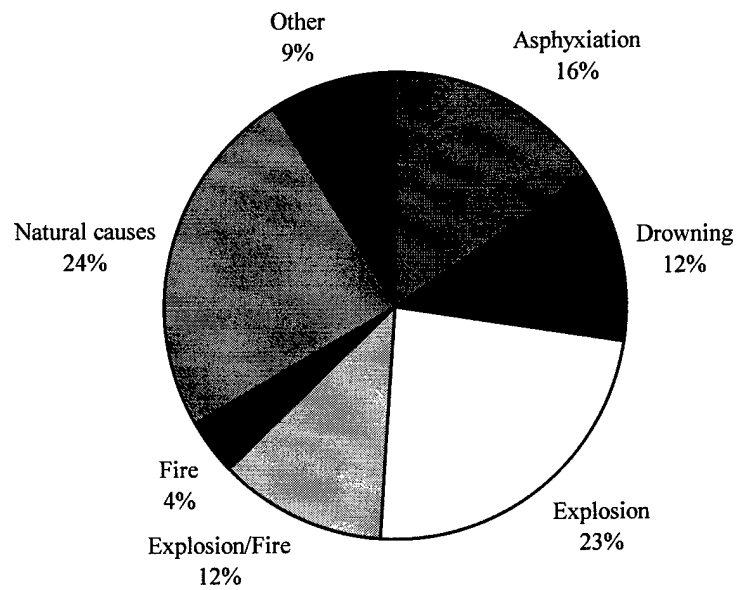


Figure 4.10 Miscellaneous Causes of Construction Fatalities and Related Injuries, 1994

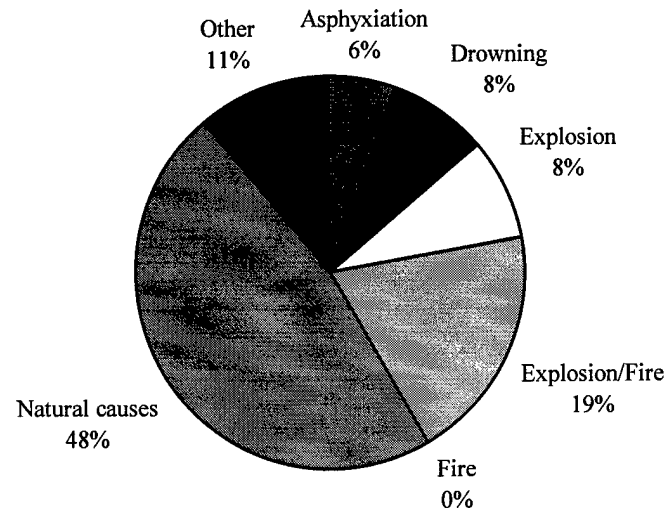


Figure 4.11 Miscellaneous Causes of Construction Fatalities and Related Injuries, 1995

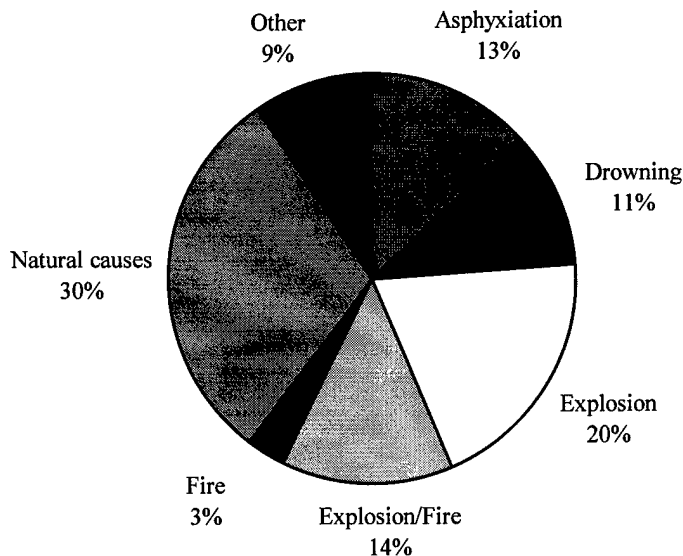


Figure 4.12 Total Miscellaneous Causes of Construction Fatalities and Related Injuries, 1994-1995

The Miscellaneous event types accounted for 13% of the total number of fatalities and related injuries for 1994 and 1995. When these numbers were broken down into their actual codes, the percentages occurring in each specific code were lower than the 5% attributed to Cave-ins. The most prevalent event type was Explosion/Fire which represented 37% of the miscellaneous causes and less than 5% ($37\% \times 13\%$) of all fatalities and related injuries. It is shown as three separate event types (Explosion, Fire, and Explosion/Fire) for ease of coding but should be considered as one event type. This is followed by Natural Causes at 30%, Asphyxiation at 13%, Drowning at 11%, and finally, Other at 9% of the miscellaneous cases. In the 1985-1989 data, "Other" accounted for 10% of the total number of fatalities. The new coding system reduced this figure to 1.2% ($9\% \times 13\%$) of the total number of accidents. The reduction of the

proportion of the fatalities categorized in the nondescriptive category of "Other" shows a significant improvement with the new coding system.

4.4 FINDINGS USING THE NEW CODING SYSTEM- SECONDARY FACTORS

The 1994-1995 data was evaluated using the final version of the checklist shown in Table 4.1. The checklist has two sections, the first for the primary event type, and the second to describe the events surrounding the accident. The secondary factors include such information as whether lockout/tagout was in effect, if a confined space was a factor, if PPE, shoring, or fall protection was used, the age and sex of the victim, how many people were killed or injured, the time of the accident, the occupation or work type, the SIC code of the employer, types of materials and materials handling, type of project, permanent and temporary structures, type of vehicle, large equipment, and small equipment, and a comments section if additional information is needed. Table 4.3 provides a summary of the secondary findings gathered from the database for 1994-1995. Note that in many instances, the abstract from OSHA did not contain the information required and therefore, data from that accident was not included in the results.

Table 4.3 Secondary Factors

Factor	Comments
Lockout/Tagout	Used Properly: 3 cases (1.5% of lockout/tagout cases) Used Improperly: 3 cases (1.5% of lockout/tagout cases) Not Used: 193 cases (97% of lockout/tagout cases)
Confined Space	21 cases considered confined space
Fall Height	Average: Greater than 6 feet
Trench Depth	Average: 11.5 feet (42 incidents)
Age	Average: 33.4 years (954 incidents)
Sex	Male: 947 cases (99%)
Time	AM: 145 cases (50%) PM: 144 cases (50%)
Others Involved	325 cases (34%)
Subject caused	541 cases (57%)
Equipment Type	Project: 354 cases (37%) Private: 21 cases (2%) None: 579 cases (61%)
Material Handling	Lateral: 256 cases (27%) Altering: 93 cases (10%) Hoisting: 93 cases (10%) None: 512 cases (54%)
Type of Project	New construction: 250 cases (26%) Repair: 138 cases (14%) Demolition: 44 cases (5%) Renovation: 9 cases (.9%) Remodel: 2 cases (.2%) Unknown: 523 cases (55%)

4.4.1 LOCKOUT/TAGOUT

Lockout/Tagout refers to situations in which the equipment or electrical supply should have been secured prior to working on the system. The database contained 199 incidents which involved lockout/tagout situations. In 193 of these accidents, lockout/tagout was not used when it should have been. In three incidents, lockout/tagout was used improperly and resulted in fatalities. In three other accidents, the lockout/tagout procedure was used properly but the work still resulted in a fatality. For example, one electrician properly locked out the electrical system but was killed by built up inductive current.

4.4.2 CONFINED SPACE

Confined spaces are loosely defined as those spaces which have or could have deficient oxygen content, and also those spaces with limited ingress and egress. In this study, trenches and other areas with limited ingress and egress were not considered confined spaces. Oxygen content was the only consideration, and it was found that 21 cases met these requirements for a confined space. Of these, ten were classified as Asphyxiations, eight were Explosion/Fires, one was a Drowning, and two were considered Others. In four incidents, confined space was not considered a factor in an Asphyxiation.

4.4.3 FALL HEIGHT AND FALL PROTECTION

The majority of falls had an elevation change of more than six feet. Only two falls occurred at the same level as they originated (falls from ground level), and 17 falls were from one to six feet. In 17 cases of Falls from Elevation, the height of the fall was not specified.

The database revealed that fall protection equipment was worn quite often; however, it appears that it failed more regularly than other PPE (15 incidents) and improper use accounted for a high percentage of accidents (24 incidents, or nearly 7% of all falls from elevation). New regulations concerning fall safety went into effect in 1995 and this might account for the common use of the fall protection systems. Due to the high percentage of failures and improper usage, employers may want to focus their attention in this area to prevent future injuries and fatalities.

4.4.4 OTHER PPE

PPE consists of fall protection systems, hardhats, steel-toed boots, breathing apparatus for confined spaces, reflective clothing, electrical rubber gloves, and others. Fall protection was discussed in the preceding paragraph. In analyzing the data from 1994-1995, five cases of Asphyxiation were attributable to the lack of PPE. PPE failed and resulted in fatalities in only one instance of Asphyxiation and one instance of Electrocution.

4.4.5 TRENCH DEPTH AND SHORING

In previous research (Bren, 1996), it was found that trench length and depth were the critical factors for cave-ins. Width was not a major factor influencing cave-in occurrences. Data in this research effort was collected on trench depth but not on length. Length has been added to the final checklist in Table 4.1 for future use. In analyzing the data from 1994-1995, the average trench depth for 42 Cave-in event types was 11.5 feet. Only one of these cave-ins was using a proper shoring system which failed. Out of the remaining 41 cases, six were either using an improperly constructed shoring system or the subject had left the protected area of the trench and was caught in a Cave-in.

4.4.6 AGE AND SEX OF THE SUBJECT

The average age for the victims in the database was 33.4 years of age. Out of the 954 fatalities in the database, only seven were women. Of these seven female fatalities, five were flaggers who were struck by either a private vehicle or a project dumptruck. In the remaining two cases, one involved an equipment operator in a rollover accident (Caught in/between Equipment) and the other involved the wife of a contractor who was helping stage electrical switchgear in his absence and was Caught in/between Material.

4.4.7 TIME OF THE ACCIDENT

An analysis of the database showed that only 285 incidents contained the time of the accident in the abstract. Figure 4.13 shows the distribution of fatalities at various times throughout the day. The highest number of injuries and fatalities occurred between the hours of 11:00 AM and 12:00 PM.

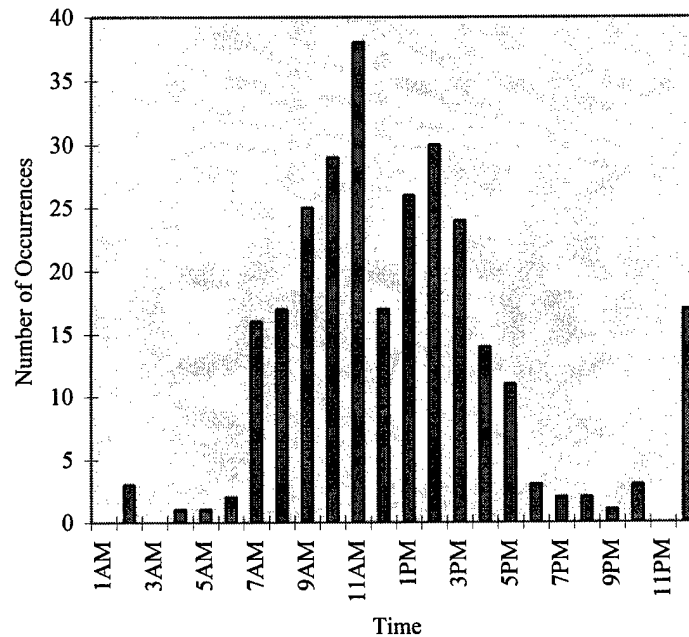


Figure 4.13 Time Distribution of Fatalities and Related Injuries

4.4.8 OTHERS INVOLVED

"Others involved" refers to those incidents where another person was involved in the events surrounding the fatality. Others were involved in 34% of the accidents included in the database.

4.4.9 CAUSED BY THE SUBJECT

In 57% of the fatalities in the database, the subject "caused" the accident. This factor was not intended to focus the blame for the accident on the individual but rather classify whether others caused the accident.

4.4.10 EQUIPMENT TYPE

An analysis of the equipment types shows that 94% of the accidents involving equipment were project related. The accidents which involved private vehicles were typically highway construction/repair projects.

4.4.11 MATERIAL HANDLING

Three types of material handling were entered into the database (lateral, hoisting, and altering). Lateral movement (58%) was responsible for the majority of the incidents involving material handling.

4.4.12 TYPE OF PROJECT

The type of project was known in 443 incidents. Of these, 56% were new construction projects. Repair projects followed with 31% of these cases.

4.4.13 ANALYSIS OF WORK TYPE AND EVENT TYPE

The database was sorted on work type and event type to determine which cause codes each trade was susceptible to in the construction industry. The major work types were carpenters, concrete workers, crane maintenance, welders/cutters, spotters (lifting operations), drywall installers, electricians, elevator repairers, equipment mechanics, equipment operators, flaggers, HVAC mechanics, masons, sheet metal workers, painters, plumber/pipefitters, roofers, and steel workers. It was often difficult and sometimes impossible to determine what the subject's occupation was at the time of death or injury and those cases were not included. Table 4.3 shows the breakdown of work type compared to event type.

Table 4.4 Analysis of Major Event Types for Large Occupation Types

Work Type	Event Type	(% of total)	Total # of Incidents
Carpenter	Fall from Elevation	(67.4)	46
	Struck by Falling Material	(17.4)	
Concrete worker	Struck by Equipment	(27.3)	11
	Struck by Falling Material	(18.2)	
	Fall from Elevation	(18.2)	
Crane Maintenance	Caught in/between Equipment	(100)	7
Welder/Cutter	Fall from Elevation	(32.1)	28
	Explosion/Fire	(25)	
	Natural Causes	(10.7)	
Spotter	Electrocution (power lines)	(48.6)	35
	Struck by Falling Material	(17.1)	
	Struck by Equipment	(11.4)	
Drywall Installer	Fall from Elevation	(76.9)	13
	Natural Causes	(15.4)	
Electrician	Electrocution	(63)	106
	Power lines	(40)	
	Building power	(13)	
	Other	(7)	
	Fall from Elevation	(26.4)	
Elevator Repairer	Fall from Elevation	(33)	12
	Struck by Falling Material	(33)	
Equipment Mechanic	Caught in/between Equipment	(82)	17
	Struck by Equipment	(11.7)	
Equipment Operator	Caught in/between Equipment	(50.5)	101
	Electrocution (power lines)	(9.9)	
	Struck by Equipment	(8.9)	

Table 4.4 Analysis of Major Event Types for Large Occupation Types (Continued)

Work Type	Event Type	(% of total)	Total # of Incidents
Flagger	Struck by Equipment	(100)	14
HVAC Mechanic	Electrocution (building power)	(33)	12
	Fall from Elevation	(33)	
Mason	Fall from Elevation	(76.5)	17
Sheet Metal Worker	Fall from Elevation	(58.3)	12
	Electrocution (power lines)	(16.7)	
Painter	Fall from Elevation	(50)	20
	Electrocution (power lines)	(25)	
Plumber/Pipefitter	Cave-in (trench)	(50)	52
	Electrocution (faulty exist wiring)	(9.6)	
	Fall from Elevation	(7.7)	
Roofer	Fall from Elevation	(82.4)	74
	Electrocution (power lines)	(10.8)	
Steel Worker	Fall from Elevation	(74.4)	39
	Struck by Falling Material	(12.8)	

An analysis of Table 4.3 shows that the event type Falls from Elevation was the predominant cause of fatalities and injuries for carpenters (67.4%), welders/cutters (32.1%), drywall installers (76.9%), elevator repairers (33%), HVAC mechanics (33%), masons (76.5%), sheet metal workers (58.3%), painters (50%), roofers (82.4%), and steel workers (74.4%). The occupational types of carpenter, drywall installer, mason, sheet metal worker, painter, and roofer should pay particularly close attention to these statistics since they account for at least half of all fatalities and injuries in their fields.

The second leading cause of injuries and fatalities was Electrocutions. This event type accounted for 48.6% of the incidents involving spotters, 63% of the cases involving electricians, and 33% of the HVAC mechanic incidents. Of those cases involving electricians, the majority (40%) were due to power line contacts.

The event type "Struck by" accounted for the third highest percentage of incidents. Struck by Equipment was the leading cause of fatalities and injuries amongst concrete workers (27.3%) and flaggers (100%). Struck by Falling Material was responsible for 33% of the fatalities and injuries in the elevator repair occupation.

Caught in/between Equipment was the leading cause of injury and death amongst equipment mechanics (82%), equipment operators (50.5%), and crane maintenance workers (100%).

The final event type was Cave-ins. This event type accounted for 50% of the incidents involving plumbers and pipefitters.

The information contained in this section allows safety professionals and managers to focus their safety efforts on the primary causes of fatalities for certain trades in the construction industry.

4.5 AUDIT OF THE NEW CODING SYSTEM

Sixty total cases were given to two test participants to determine whether the results of the new coding system could be duplicated by others. Ideally, there should be considerable consistency between the coding allocations being made by different individuals. The participants coded their cases and these results were compared to the data collected and coded for this study. Collectively, 92% of the codings were the same. The differing codings primarily represented ambiguity between the Struck by and Caught in/between cause codes, which was expected since it is often difficult to distinguish between the two categories. When the ambiguity was noted, the instructions for the checklist were further clarified. For example, a speed of 5 miles per hour or higher was a descriptor that was added to define a Struck by Equipment event type; however, a rollover accident (regardless of speed) was nearly always a Caught in/between Equipment event type. Additionally, the definition for "Fall from Ground Level" (falling into a hole, etc.) was expanded due to some confusion on the part of one of the test participants.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

This study focused on the development of a new coding system to classify the primary causes of fatalities and accidents in the construction industry. While OSHA uses a system with six event types; the revised coding system has nineteen primary event types, and twenty-three secondary factors which further define the events surrounding the accident.

5.2 CONCLUSIONS

The current OSHA coding system consists of six event types, Falls, Electrical Shock, Struck by, Struck Against, Caught in/between, and Other. This research developed a revised coding system consisting of 19 primary event types. The new coding system was tested against the OSHA data from 1994-1995, and then audited by two University of Washington graduate students. Based on this analysis, it can be concluded that the new system removes the ambiguity surrounding the actual cause of injury and death by expanding the causation event types. In addition, the secondary factors in the revised coding system clarify the events surrounding the accident and provide a level of detail that is missing from the current system. As a result, the data is more usable by construction and safety professionals and allows them to focus on the actual causes of injury and death on the job site.

5.3 RECOMMENDATIONS

The following recommendations are made:

- OSHA should implement the new coding system for classifying construction industry accidents involving fatalities and serious injuries. The information gathered under the new coding system should be distributed to the construction industry to assist in reducing fatality and injury rates.

- OSHA should provide training to all accident investigators who are responsible for data entry prior to implementing the new coding system. It is important that the event types be clearly understood, especially the Struck by and Caught in/between categories, and training will ensure consistency in data entry between the investigators.

- Further research should be conducted on the secondary factors of the new cause code checklist, especially the work type and SIC codes to identify risk groups. OSHA should sort the new database by work type or SIC and provide this information on a periodic basis to the construction industry. Awareness of the primary cause of death associated with each work type or SIC should provide the information by which managers and supervisors can reduce the number of serious injuries and fatalities in the construction industry. In addition, research could be conducted on equipment statistics such as whether the equipment was moving, being worked on, or hauling at the time of the accident, and whether the equipment was operating in the forward or reverse direction.

- Care should be taken in data entry to prevent typographical or informational errors in the new database. In order for the information to be used effectively, it must be entered accurately.

- All states should be required to submit their accident data to OSHA, and it should be in the form of the new checklist. The current database is incomplete since all states do not submit their accident data to OSHA.

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Bren, David, Construction Related Fatalities and Injuries Due to Power Line Contacts, Thesis, University of Washington, 1995.

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Hinze, Jimmie and Russell, Debra Bosma, Analysis of Fatalities Recorded by OSHA, Journal of Construction Engineering and Management, Vol. 121, No. 2, June 1995.

Gambatese, John A., Addressing Construction Worker Safety in Project Design, Doctor of Philosophy Dissertation, University of Washington, 1996.

National Safety Council, Accident Facts, 1995 Edition.

Thomson, Bernadine I., Investigation of Equipment Related Injuries and Fatalities in Construction, Thesis, University of Washington, 1996.

APPENDIX A

Instructions for Checklist

Block 1: ID number corresponding to case number.

Block 2: Fill in with one of the following event types to classify what **caused** the fatality/injury accident. In some instances, the cause of the accident might not be the actual cause of death; the cause may have triggered a chain of events which lead to the fatality.

Asphyxiation	Caught in/between Equipment
Caught in/between Materials	Cave-in (trench)
Cave-in (excavation)	Drowning
Electrocution (power lines)	Electrocution (faulty existing wiring)
Electrocution (building power)	Electrocution (other)
Explosion/Fire	Fall from Elevation
Fall from Ground Level	Natural Causes
Struck by Equipment	Struck by falling material
Struck by material	Other
Electrocution (Faulty construction tools/wiring)	

Description of event types:

Asphyxiation: Fatality/injury caused by some gas or toxic material that prevents normal breathing. Example: Welders entered confined space with low oxygen levels without any personal protective equipment (PPE). Breathing ceased due to lack of oxygen.

Caught in/between Equipment: Fatality/injury caused by slow moving or nonmoving equipment. Includes accidents involving moving equipment parts, or accidents involving slow moving equipment and a nonmoving object such as the ground. Example: Employee tried to climb up into a moving dozer by stepping on the tracks. Worker was pulled underneath the equipment.

Caught in/between Material: Fatality/injury caused by slow or nonmoving materials. Example: Employee was blocking a job trailer. One of the supports shifted and the trailer crushed the employee who was working underneath.

Cave-in (trench): Fatality/injury caused by a collapsing trench. A trench is a long, narrow excavation which should have sloped walls or be supported by shoring across the trench or a trench box if it exceeds 4' in depth. Example: Pipefitter was laying pipe in a ten foot deep trench without shoring or cave-in protection. Walls gave way and buried the pipefitter under five feet of soil.

Cave-in (excavation): Fatality/injury caused by a collapsing excavation. An excavation is generally wide and therefore cannot be supported across the excavation. Example: Employee was pile-driving in an excavation. The wall collapsed, pinning the worker against the pile-driver.

Drowning: Self-explanatory. Example: Equipment operator was reinforcing the berm around a lake; ground gave way and the dozer and operator sank to the bottom of the lake.

Electrocution (power lines): Fatality/injury caused by contact with either overhead or buried power lines. Also includes contact with electrical lines when working on substations and transformers. Example: Painter moved a ladder from one side of the house to the other; contacted overhead power line in the process.

Electrocution (building power): Fatality/injury caused by contact with the building power. Example: HVAC mechanic was installing duct work; drilled into floor joist to secure the ductwork and made contact with the building power.

Electrocution (faulty construction tool/wiring): Fatality/injury caused by contact with a tool with exposed wiring or faulty ground system. Example: Worker took a light into a crawl space of a house knowing that the light had a faulty cord. The cord fell into standing water and electrocuted the worker.

Electrocution (faulty existing wiring): Fatality/injury caused by contact with existing wiring which has some fault. Example: A worker was pulling ductwork in the attic and was electrocuted due to ungrounded wiring in the house.

Electrocution (other): Fatality/injury caused by electrocution but it does not fall into any of the other electrocution categories. Example: Employee was working on a malfunctioning waterheater without locking/tagging it out. Water leaked from a pipe and flooded the electric spaces, electrocuting the employee.

Explosion/Fire: Fatality/injury caused by an explosion or fire. Example: Welder cut into a tank which had not been adequately purged of confined gases. The tank exploded and started a fire.

Fall from elevation: Fatality/injury caused by a fall which involves an elevation change, usually a fall from any height above ground level. Example: Roofer misjudged the edge of the roof and fell from an elevation of twenty feet. Example: Plumber misjudged the edge of the trench and fell into the excavation.

Fall from Ground Level: Fatality/injury caused by a fall from the ground. Can also include falls that take place on some structure above the ground but the fall does not leave that elevation. Example: Plumber was working on third floor of building and tripped while walking and impaled himself on third-floor slab rebar.

Natural Causes: Fatality/injury caused by natural causes and over which the employer would generally be assumed to have no control. In some cases, the employer might have taken steps to prevent the fatality, e.g., heat stroke. In those cases where preventative measures might have been utilized, a note is made in the "Natural factor" column to indicate heat, wind, etc. In addition, a note is made in the last block to indicated what caused the death. Examples: heart attack, heat stroke, stroke, etc...

Struck by Equipment: Fatality/injury caused by equipment traveling at speeds in excess of 5 mph. Example: Flagger was struck by a semitruck while controlling traffic for a construction project.

Struck by Material: Fatality/injury caused by material moving laterally. Example: A pipe plug under pressure released from the pipe and struck the employee.

Struck by Falling Material: Fatality/injury caused by falling material. Example: Wind blew a newly-placed concrete wall over and onto a carpenter passing by.

Other: Fatality/injury which does not fall into any of the other categories. Example: Plumber died mysteriously under crawl space; no toxic materials were detected and oxygen levels were sufficient. Since cause of death is unknown, it is classified as "other".

Block 3: Lockout/Tagout employed: If applicable, fill this block in as "yes" if locked out and tagged out, "no" if not properly locked out/tagged out, and "NA" if not applicable.

Block 4: Confined Space: Fill this block in as "yes" if it was a confined space, "no" if the space was not confined, and "NA" if not applicable.

Block 5: Fall height: Fill this block in with one of the following: ground, 1-6', >6', or "NA" if not applicable.

Block 6: Trench depth and length. Fill in the actual trench depth and length. If not applicable, fill in "NA".

Block 7: Fall Protection/Shoring/PPE utilized: Fill in "yes", "no", or "NA" if not applicable.

Block 8: Others involved in the Accident: This is to indicate if any persons, other than the victim, were involved in the accident. Fill in "yes" or "no". The other persons could include crew members or others as long as they were directly involved with the accident.

Block 9: Caused by Subject: This is to indicate if the victim contributed in a major way to the cause of the accident. Fill in "yes" or "no". This question is not intended to focus blame on the individual but classify whether others caused the accident. An example of an accident caused by the victim is when a roofer misjudges the edge of the roof and falls. An example of an accident not caused by the victim is when a flagger is acting within the scope of his/her duties and is struck by a passing vehicle.

Block 10: Type of Large Equipment involved: This block should be filled in with the appropriate type of large equipment involved with the accident. Large equipment includes equipment which requires a driver. Examples: bulldozer, excavator, vehicle, dumptruck, scraper, crane, forklift etc..

Block 11: Vehicle or Equipment Type: Fill in "project" or "private" if large equipment or a vehicle was involved in the accident. Project equipment/vehicles include any equipment used on or for the project discussed in the abstract. A private vehicle/equipment includes equipment which was not involved in the project in the abstract.

Block 12: Type of Tools/Small Equipment involved: List any tool or small type of equipment involved in the accident. Small equipment does not normally involve a driver.

Block 13: Number of workers killed: This is self explanatory and should include the victim.

Block 14: Number of workers injured: This is self explanatory and should include all injured persons, but not those that are fatally injured.

Block 15: Natural Factors: Any natural event that affects the accident, e.g., lightning, wind, heat, etc.. If none are involved, state "none".

Block 16: Time of accident: The actual time should be listed in this block

Block 17: Sex of the worker. The sex of the victim(s) is listed.

Block 18: Age of the worker. The age of the victim(s) is listed.

Block 19: Type of Materials Involved: List the materials directly involved with the accident, or state "none". Examples are wood, concrete, steel, toxic materials, etc..

Block 20: Type of Materials Handling: If a material was listed in block 18, the type of handling should be listed in this block. The following codes should be used: hoisting (also includes lowering), lateral, or altering. If there was no materials handling, state "NA".

Block 21: Temporary Structures Involved: Temporary structures include ladders, scaffolds, temporary platforms, etc. List the type or state "none".

Block 22: Permanent Structure Involved: Permanent structures include buildings, houses, warehouses, highways/roadways, etc. The permanent structure should be the one the project is centered around.

Block 23: Type of Project: Types of projects include new construction, repair, remodel, and demolition.

Block 24: Work Type: This block should be filled in with the type of work the individual is doing at the time of the accident. For example, a pipefitter can be working on a vehicle which falls off its jacks and lands on him/her. The work type would then be equipment maintenance. The following are common types of work: equipment operator, equipment mechanic, spotter (crane/lifting operations), roofer, painter, electrician, plumber/pipefitter, metal worker, welder/cutter, communication worker, HVAC mechanic, sheetmetal installer, laborer, supervisor, elevator repairer, demolisher, concrete worker, mason, carpenter, asbestos worker, sider, flagger, drywall installer, or insulator. If it is unclear what the worker was doing at the time of the accident, state "unknown".

Block 25: Standard Industrial Classification (SIC) code: List the SIC code for the work classification. It is a four number code corresponding to the type of company employing the worker.

Block 26: Comments: Any comments that will clarify the situation surrounding the accident. Examples are overturning equipment, fall protection that fails, equipment with faulty backup alarms, etc.

General Rules:

If more than one report is made on a fatality or injury incident because of multiple victims, a notation should be made to cross-reference the reports to each other. This should be properly coded so that a subsequent data analysis would not count fatalities or injuries more than once.

Asphyxiation	na	yes	na	na	na	na	na	na	na	generator	1	0	none	unkno wn	M	46	carbon monoxide	none	none	building	unknown	electrical	1731
Caught in/between equipment	na	na	na	na	na	no	no	na	na	project	1	0	none	unkno wn	M	46	none	none	unknown	unknown	equipment operator	1771	
Caught in/between equipment	na	na	na	na	na	no	yes	na	na	project	1	0	none	unkno wn	M	21	none	none	unknown	unknown	equipment operator	1629	
Caught in/between equipment	na	na	na	na	na	no	yes	na	na	project	1	0	none	unkno wn	M	17	rebar/concre te	lateral	unknown	unknown	unknown- laborer?	1771	
Caught in/between equipment	na	na	na	na	na	no	no	na	na	project	1	0	none	1:50 PM	M	57	dirt	lateral	retention pond	repair	equipment operator	1629	
Caught in/between equipment	na	na	na	na	na	no	no	na	na	project	1	0	none	8:00 PM	M	57	steel beams	altering	unknown	new construction	crane operations	1629	
Caught in/between equipment	na	na	na	na	na	yes	no	na	na	project	1	0	none	unkno wn	M	40	barges	lateral	none	repair	unknown	1629	
Caught in/between equipment	na	na	na	na	na	yes	no	na	na	project	1	0	none	unkno wn	M	49	none	none	none	none	equipment mechanic	1629	
Caught in/between equipment	na	na	na	na	na	no	yes	na	na	project	1	0	none	unkno wn	M	67	none	none	road drainage ditch	repair	equipment operator	1629	
Caught in/between equipment	na	na	na	na	na	no	yes	na	na	project	1	0	none	unkno wn	M	50	none	none	logging road	unknown	equipment operator	1629	
Caught in/between equipment	na	na	na	na	na	yes	no	na	na	project	1	0	none	unkno wn	M	33	none	none	none	job trailer	plumber/pipe fitter locking door	1711	
Caught in/between equipment	na	na	na	na	na	yes	no	na	na	project	1	0	none	unkno wn	M	25	none	none	unknown	unknown	driller	1781	
Caught in/between equipment	na	na	na	na	na	no	yes	na	na	project	1	0	none	unkno wn	M	61	boiler tubes	hoisting	none	unknown	equipment operator	1711	
Caught in/between equipment	na	na	na	na	na	no	yes	na	na	project	1	0	none	11:25 AM	M	43	none	none	unknown	unknown	equipment operator	1771	

Caught in/between equipment	na	na	na	na	na	na	no	yes	dozer	project	none	1	0	none	unkno wn	M	24	none	none	none	unknown	unknown	equipment operator	1794
Caught in/between equipment	na	na	na	na	na	na	no	yes	endloader	project	none	1	0	none	unkno wn	M	36	none	none	none	unknown	unknown	equipment operator	1794
Caught in/between equipment	na	na	na	na	na	na	no	no	dozer, trailer	project	none	1	0	none	unkno wn	M	51	dozer	hoisting	none	unknown	unknown	equipment operator	1794
Caught in/between equipment	na	na	na	na	na	na	no	no	or, low bed trailer	project	none	1	0	none	7:25 AM	M	50	excavator	hoisting	none	unknown	unknown	equipment operations	1794
Caught in/between equipment	na	na	na	na	na	na	yes	no	lowboy trailer	project	none	1	0	none	10:10 AM	M	55	dolly	hoisting	none	unknown	unknown	truck driver	1791
Caught in/between equipment	na	na	na	na	na	na	yes	no	crane	project	pile hammer	1	0	none	unkno wn	M	52	none	none	none	unknown	unknown	equipment mechanic	1622
Caught in/between equipment	no	na	na	na	na	na	no	yes	excavator	project	none	1	0	none	9:15 AM	M	57	none	none	none	unknown	unknown	equipment mechanic/op	1629
Caught in/between equipment	na	na	na	na	na	na	no	no	dozer, flatbed trailer	project	none	1	0	none	unkno wn	M	43	none	none	none	unknown	unknown	equipment operator	1794
Caught in/between equipment	na	na	na	na	na	na	no	yes	crane	project	hammer	1	0	none	unkno wn	M	37	key pin (hinge for boom)	none	none	unknown	unknown	crane maintenance	1623
Caught in/between equipment	na	na	na	na	na	na	no	no	bulldozer	project	none	1	0	none	11:00 AM	M	56	none	trench	none	unknown	unknown	equipment operator	1623
Caught in/between equipment	na	na	na	na	na	na	yes	yes	crane boom	project	sledge hammer	1	0	none	1:30 PM	M	19	hinge pins	altering	none	unknown	unknown	crane maintenance	1629
Caught in/between equipment	na	na	na	na	na	na	no	yes	crane	project	hammer	1	0	none	unkno wn	M	28	none	none	none	unknown	unknown	unknown	1623
Caught in/between equipment	na	na	na	na	na	na	no	yes	bobcat	project	none	1	0	none	unkno wn	M	27	none	none	none	unknown	unknown	equipment mechanic	1629
Caught in/between equipment	na	na	na	na	na	na	no	yes	forklift	project	none	1	0	none	unkno wn	M	42	meat storage rack	lateral	unknown	unknown	equipment operator	1623	

Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	roller compact or	project	none	1	0	none	unkno wn	M	56	none	none	none	unknown	unknown	equipment operator	1611
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	compact or	project	none	1	0	none	unkno wn	M	56	none	none	highway	new construction	equipment operator	1611	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	yes	no	dozer	project	none	1	0	night	4:00 AM	M	31	mud	lateral	none	unknown	equipment operator	1611	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	compact or/traile	project	none	1	0	none	unkno wn	M	31	none	lateral	none	unknown	equipment operator	1611	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	loader	project	none	1	0	none	unkno wn	M	30	none	none	house	new construction	equipment operator	1521	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	dozer/tr	project	none	1	0	none	unkno wn	M	21	none	none	none	unknown	equipment operator	1611	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	crane	project	boom	1	0	none	unkno wn	M	42	none	none	none	unknown	crane operator	1611	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	yes	yes	base mount	project	none	1	1	none	3:00 PM	MM	30,44	piston	hoisting	unknown	unknown	lifting material	1796	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	dumptru	project	board	1	0	none	2:30 PM	M	42	concrete	lateral	none	unknown	Manual Matl Handling	1521	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	roller compact or	project	none	1	0	none	unkno wn	M	46	unknown	none	unknown	unknown	equipment operator	1611	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	skid steer loader	project	none	1	0	none	unkno wn	M	31	trash	lateral	none	unknown	equipment operator	1799	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	dozer/tr	project	none	1	0	none	unkno wn	M	27	none	none	none	unknown	equipment operator	1611	
Caught in/between equipment	na	na	na	na	na	na	na	na	na	no	yes	tractor	project	battery cables	1	0	none	unkno wn	M	40	none	none	none	unknown	equipment operator	1611	
Caught in/between equipment	no	na	na	na	na	na	na	na	na	yes	no	personnel hoist	project	none	1	0	none	unkno wn	M	52	oil	altering	none	unknown	equipment operator	1799	

Cave-in (excavation/tunneling)	na	8'	unkno	no	no	no	no	no	1	0	none	1:45 PM	M	35	earth	none	none	none	unknown	unknown	1622
Cave-in (excavation/tunneling)	na	35-40'	no	yes	no	no	no	no	2	0	none	3:50 PM	M,M	44,53	dirt	lateral	excavation pit	unknown	equipment operator	1794	
Cave-in (excavation/tunneling)	na	10'	no	no	no	no	no	no	1	0	none	unkno	wn	M	25	none	excavation/trench	unknown	unknown	1623	
Cave-in (excavation/tunneling)	na	unkno	no	no	no	no	no	no	1	0	none	unkno	wn	M	26	none	excavation	none	unknown	unknown	1622
Cave-in (other)	na	20'	no	no	no	no	no	no	1	0	none	3:24 PM	M	61	soil	altering	caisson holes	new construction	equipment operator	1794	
Cave-in (trench)	na	10'	no	yes	no	no	no	no	1	0	none	3:30 PM	M	44	earth	none	trench	sewer line	plumber/pipe fitter	1623	
Cave-in (trench)	na	11'	trench box; remov	no	yes	no	no	no	1	0	none	8:40 AM	M	41	none	none	trench	unknown	plumber/pipe fitter	1623	
Cave-in (trench)	na	8'	no	no	no	no	no	no	1	0	none	6:30 AM	M	53	none	none	trench	steam pipes demolition	welder/cutter	1711	
Cave-in (trench)	na	10'	yes-impro	yes	no	no	no	no	1	0	none	unkno	wn	M	52	earth	none	sewer sanitary system	new construction	pipelayer	1623
Cave-in (trench)	na	8'	no	yes	no	no	no	no	1	0	none	1:29 PM	M	28	dirt	lateral	trench	foundation: new construction	concrete	1771	
Cave-in (trench)	na	yes 6'	no	no	no	no	no	no	1	0	none	unkno	wn	M	25	unknown	none	unknown	plumber/pipe fitter	1794	
Cave-in (trench)	na	9 feet	no	no	no	no	no	no	1	0	none	unkno	wn	M	29	earth	none	unknown	plumber/pipe fitter	1623	
Cave-in (trench)	na	unkno	no	no	no	no	no	no	1	0	none	unkno	wn	M	25	sewer pipe	lateral	sewer line	utility construction	1629	
Cave-in (trench)	na	7'	no	no	no	no	no	no	1	0	none	unkno	wn	M	32	ryc pipe	lateral	drain tile line	plumber/pipe fitter	1711	

Cave-in (trench)	na	10'	no	no	no	no	no	no	no	no	no	1	0	none	5:30 PM	M	26	none	none	lateral	pipe system	unknown	plumber/pipe fitter	1711
Cave-in (trench)	na	13 feet	no	no	no	no	no	no	no	no	no	1	0	none	11:30 AM	M	35	none	none	lateral	sanitary sewer system	new construction	plumber/pipe fitter	1711
Cave-in (trench)	na	12'	no	yes	no	no	no	no	no	no	no	1	1	none	unkno wn	M	52.21	clay pipe	lateral	unknown	unknown	pipelayer	1711	
Cave-in (trench)	na	8-12'	no	yes	no	no	backhoe project	no	no	no	no	1	0	none	unkno wn	M	34	none	none	lateral	septic system	new construction	grade checker	1711
Cave-in (trench)	na	9.5'	no	yes	no	no	backhoe project	surveyor rod	no	no	no	1	0	none	unkno wn	M	43	none	none	lateral	storm water drain line	new construction	laborer	1794
Cave-in (trench)	na	11'	no	no	no	no	no	no	no	no	no	1	0	none	unkno wn	M	38	earth	none	lateral	storm sewer system	unknown	plumber/pipe fitter	1542
Cave-in (trench)	na	10-11'	no	no	no	no	no	no	no	no	no	1	0	none	unkno wn	M	29	earth	lateral	sewer line	repair	unknown	unknown	1711
Cave-in (trench)	na	14'	no	yes	no	no	no	no	no	no	no	2	0	none	11:30 PM	M	35.25	pipe, earth	lateral	pipe system	unknown	plumber/pipe fitters	1623	
Cave-in (trench)	na	8 feet	no	yes	no	no	backhoe project	no	no	no	no	1	0	none	unkno wn	M	32	dirt	lateral	sewer system	new construction	plumber/pipe fitter	1711	
Cave-in (trench)	na	5.5'	no	no	no	no	no	no	no	no	no	1	0	none	unkno wn	M	49	pipe	lateral	unknown	unknown	pipelayer equipment operator/laborer	1711	
Cave-in (trench)	na	14'	yes	partial	yes	no	backhoe project	no	no	no	no	1	0	none	3:30 PM	M	26	pipe	lateral	sewer system	new construction	operator	1623	
Cave-in (trench)	na	12'	no	yes	no	no	excavator	project	no	no	no	2	0	none	unkno wn	M	54.7	pipe	none	house	repair	plumber/pipe fitter	1531	
Cave-in (trench)	na	7'	no	no	no	no	no	no	no	no	no	1	0	none	unkno wn	M	28	earth	none	unknown	unknown	unknown	1623	
Cave-in (trench)	na	10-12'	no	no	no	no	no	no	no	no	no	1	0	none	11:00 AM	M	49	pipe	altering	unknown	unknown	plumber/pipe fitter	1623	

Cave-in (trench)	na	na	10-12'	no	yes	no	trackhoe	project	none	1	1	none	9:30 AM	M,M 36,26	soil	altering	sewer trench	sewer system	unknown	unknown	1711
Cave-in (trench)	na	na	7'	no	no	no	backhoe	project	none	1	0	none	unkno wn	M 40	none	none	trench	sewer system	repair	laborer	1623
Cave-in (trench)	na	na	5.5'	no	no	no	none	none	none	1	0	none	unkno wn	M 23	sewer pipe	lateral	trench	sewer system	unknown	plumber/pipe fitter	1623
Cave-in (trench)	na	na	8-12'	no	no	no	none	none	none	1	0	none	10:00 AM	M 40	pipe	lateral	trench	sewer system	new construction	plumber/pipe fitter	1623
Cave-in (trench)	na	na	8-12'	no	no	no	none	none	none	1	0	none	unkno wn	M 56	pipe	lateral	trench	residential house	new construction	plumber/pipe fitter	1623
Cave-in (trench)	na	na	12'	unkno wn	yes	yes	none	none	none	1	1	none	unkno wn	M,M 29,30	earth	none	trench	none	unknown	unknown	1623
Cave-in (trench)	na	na	10'	no	no	no	none	none	none	1	0	none	4:00 PM	M 37	none	none	trench	pipe system	new construction	plumber/pipe fitter	1521
Cave-in (trench)	na	na	10'	no	no	no	trackhoe	project	none	1	0	none	AM	M 30	none	none	trench	water/sewer line	new construction	equipment operator	1794
Cave-in (trench)	na	na	17'	no	no	no	none	none	none	1	0	none	unkno wn	M 35	earth	none	trench	unknown	unknown	unknown	1623
Cave-in (trench)	na	na	13'	unkno wn	no	yes	none	none	none	1	0	none	11:45 AM	M 44	pipe	lateral	trench	sewer system	unknown	plumber/pipe fitter	1711
Cave-in (trench)	na	na	unkno wn	no	no	no	dozer	project	none	1	0	none	unkno wn	M 29	dirt	lateral	trench	farm pond	repair	equipment operator	1794
Cave-in (trench)	na	na	14'	no	no	no	none	none	none	1	0	none	unkno wn	M 36	none	none	trench	drainage system	new construction	plumber/pipe fitter	1623
Cave-in (trench)	na	na	10'	no	yes	no	none	none	none	2	1	none	7:00 PM	M,M 19,20	pipe	lateral	trench	sewer system	new construction	plumber/pipe fitter	1623
Cave-in (trench)	na	na	12'	no	no	no	none	none	none	1	0	none	unkno wn	M 45	unknown	none	trench	unknown	unknown	plumber/pipe fitter	1794

Drowning	no	yes	na	na	na	no	no	turbines	project	air line	1	0	none	unkno	wn	M	27	none	none	none	hydroelectric dam	unknown	diver	1799
Drowning	na	yes	na	no	yes	yes	no	rubber bladders	none	none	1	0	none	7:00 AM	M	48	none	none	bracing	sewer drain system	new construction	laborers	1794	
Drowning	na	na	na	na	no	yes	no	dozer	project	none	1	0	none	4:55 PM	M	32	rock	lateral	ice	jetty	new construction	equipment operator	1611	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	none	1	0	none	unkno	wn	M	45	none	none	transformer	unknown	electrical	1731	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	none	1	0	none	unkno	wn	M	20	light fixture	lateral	building	unknown	electrical	1731	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	drill	1	0	none	unkno	wn	M	33	sheet metal	altering	house	new construction	hvac mechanic	1711	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	drill/router attachment	1	0	none	unkno	wn	M	30	wood	altering	house	new construction	hvac mechanic	1711	
Electrocution (building power)	yes-impro	per	na	na	no	yes	no	none	none	wood 2X4	1	0	none	unkno	wn	M	25	breakers	altering	building	repair	electrical	1731	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	wire cutters	1	0	none	unkno	wn	M	23	none	none	house	repair	electrical	1731	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	wire stripper	1	0	none	unkno	wn	M	35	ballast/light fixture	altering	hospital	repair	electrical	1731	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	none	1	0	none	unkno	wn	M	20	none	none	building	unknown	electrician	1711	
Electrocution (building power)	no	na	na	no	no	yes	no	8 ton jack	project	metal bar and plate, level	1	1	none	unkno	wn	M,M	25,32	none	none	house	repair	leveling crew	1799	
Electrocution (building power)	no	na	na	no	yes	yes	no	none	none	drill	2	0	none	4:20 PM	M,M	29,45	aluminum straps, wood joist	altering	house	house	new construction	hvac mechanics	1711	
Electrocution (building power)	no	na	na	no	no	yes	no	none	none	none	1	0	none	2:00 PM	M	18	fence post	lateral	building	new construction	fence installer	1799		

Electrocution (faulty const tool/wiring)	na	na	na	na	no	no	no	none	unknown	1	0	water and humidifier	unkno wn	M	32	none	none	none	building	unknown	carpenter	1742
Electrocution (faulty const tool/wiring)	no	na	na	no	no	yes	none	none	floor sanding machine	1	0	ly	unkno wn	M	22	wood	altering	none	building	unknown	sanding floor	1752
Electrocution (faulty const tool/wiring)	na	na	na	no	no	yes	none	none	drop light cord	1	0	none	12:00 PM	M	18	none	none	none	house	new construction	hvac mechanic	1711
Electrocution (faulty const tool/wiring)	no	na	na	no	no	yes	none	none	portable light	1	0	none	unkno wn	M	40	none	none	none	house	unknown	plumber/pipe fitter	1711
Electrocution (faulty const tool/wiring)	no	na	na	no	no	no	none	none	electrical snake	1	0	none	unkno wn	M	27	none	none	none	drain line	repair	plumber/pipe fitter	1711
Electrocution (faulty const tool/wiring)	no	na	na	no	no	yes	none	none	pump	1	0	none	unkno wn	M	22	none	none	none	pool	repair	draining swimming pool	1521
Electrocution (faulty const tool/wiring)	na	na	na	no	no	yes	none	none	welder	1	0	water	4:15 PM	M	29	none	none	none	laundry tub	repair	welder	1799
Electrocution (faulty const tool/wiring)	no	na	na	no	yes	no	scissor lift	project nibbler	1	0	none	2:00 PM	M	23	none	none	none	none	building	unknown	electrician	1542
Electrocution (faulty const tool/wiring)	na	na	na	no	no	yes	none	none	electrical handrail	1	0	none	10:00 AM	M	19	screws	altering	ladder	building	unknown	steel worker	1799
Electrocution (faulty existing wiring)	no	na	na	no	no	no	none	none	none	1	0	none	8:30 AM	M	30	none	none	none	building	unknown	plumber/pipe fitter	1711
Electrocution (faulty existing wiring)	na	na	na	no	no	no	none	none	ventilation fan	1	0	none	unkno wn	M	36	pipe	lateral	none	house	new construction	plumber/pipe fitter	1711
Electrocution (faulty existing wiring)	na	na	na	no	no	no	none	none	none	1	0	none	unkno wn	M	40	none	none	none	house	new construction	unknown	1711
Electrocution (faulty existing wiring)	no	na	na	no	no	yes	none	none	none	1	0	none	unkno wn	M	37	conduit	none	formwork	vault	unknown	pres-checking work	1771
Electrocution (faulty existing wiring)	no	na	na	no	no	yes	none	none	none	1	0	none	unkno wn	M	32	sheetrock	lateral	scaffold	building	new construction	carpenter	1751

Electrocution (faulty existing wiring)	na	na	na	na	no	no	no	no	1	0	none	unkno: wn	M	31	none	none	house	addition	carpenter	1542
Electrocution (faulty existing wiring)	no	na	na	na	no	yes	none	pipe wrench	1	0	none	unkno: wn	M	17	water line	altering	building	repair	plumber/pipe fitter	1799
Electrocution (faulty existing wiring)	no	yes	na	na	no	yes	none	none	1	0	none	unkno: wn	M	29	none	none	building	repair	plumber/pipe fitter	1711
Electrocution (faulty existing wiring)	no	na	na	na	no	yes	none	fan	1	0	none	unkno: wn	M	31	none	none	unknown	unknown	electrical	1731
Electrocution (faulty existing wiring)	no	na	na	na	no	yes	none	none	1	0	none	unkno: wn	M	20	none	none	bank	unknown	electrical	1731
Electrocution (faulty existing wiring)	no	na	na	na	no	no	none	water heater	1	0	none	unkno: wn	M	17	pipe	lateral	house	new construction	plumber/pipe fitter	1711
Electrocution (other)	yes-impro	per	na	na	yes	no	none	ohmmeter	1	0	none	unkno: wn	M	39	none	none	switchgear	unknown	electrical	1731
Electrocution (other)	no	na	na	na	no	yes	none	electrical water heater	1	0	none	unkno: wn	M	64	none	none	unknown	repair	electrical	1731
Electrocution (other)	no	na	na	na	yes	yes	none	electrical test equipment	1	0	none	unkno: wn	M	30	none	none	substation	repair	electrical	1731
Electrocution (other)	no	na	na	na	no	yes	none	none	1	0	none	unkno: wn	M	30	lightbulbs	altering	marquee sign	repair	electrical	1731
Electrocution (other)	no	na	na	na	no	yes	none	none	1	0	none	9:00 AM	M	32	metal conduit	lateral	transformer	new construction	electrical	1731
Electrocution (other)	no	na	na	na	yes	unknown	unknow	unknown	1	2	none	unkno: wn	M	57	unknown	unknow	generating station	unknown	electrical	1731
Electrocution (other)	na	na	na	na	no	yes	none	arc welder	1	0	none	1:30 PM	M	51	none	none	metal duct	unknown	welder/cutter	1711
Electrocution (other)	no	na	na	na	no	unknown	none	none	1	0	none	unkno: wn	M	55	pipe	none	house	new construction	plumber/pipe fitter	1711

Electrocution (other)	no	na	na	na	no	no	yes	no	none	1	0	none	unkno wn	M	25	none	none	none	runway lighting system	unknown	electrical	1731
Electrocution (other)	no	na	na	na	no	no	yes	none	voltage meter	1	0	none	1:20 PM	M	29	none	none	none	4160 volt breaker	main/repair	electrical	1731
Electrocution (other)	no	na	na	na	no	no	unknown	none	none	1	0	none	unkno wn	M	32	none	none	none	unknown	unknown	electrician	1623
Electrocution (power lines)	no	na	na	na	no	no	yes	none	none	1	0	none	10:04 AM	M	36	none	none	none	utility pole	unknown	electrical	1731
Electrocution (power lines)	no	na	na	yes- impro	no	no	yes	none	none	1	0	none	unkno wn	M	29	none	none	none	high voltage system	unknown	electrician	1623
Electrocution (power lines)	no	na	na	no	no	no	yes	none	none	1	0	none	unkno wn	M	24	none	altering	none	high voltage system	unknown	electrician	1623
Electrocution (power lines)	no	na	na	na	no	no	yes	ping hydraulic boom	project	1	0	none	unkno wn	M	29	none	none	none	building	new construction	electrical	1731
Electrocution (power lines)	no	na	na	na	no	no	yes	excavat or	project	1	0	none	unkno wn	M	35	none	lateral	none	building	unknown	electrical	1731
Electrocution (power lines)	no	na	na	na	yes	yes	no	none	none	1	2	none	1:00 PM	M	37??	aluminum gutter pipe	hoisting	scaffold, ladder	house high voltage system	unknown	gutter installation	1761
Electrocution (power lines)	no	na	na	na	yes	yes	no	none	none	1	0	none	9:00 AM	M	32	power line	hoisting	none	repair	repair	electrician	1623
Electrocution (power lines)	no	na	na	na	no	yes	no	none	none	1	0	wind	unkno wn	M	23	none	none	unknown	house	repair	roofer/sheet metal worker	1521
Electrocution (power lines)	no	na	na	unkno	no	yes	no	none	none	1	0	none	unkno wn	M	46	transformer	lateral	none	telephone system	repair	electrician	1623

Electrocution (power lines)	no	na	na	no	yes	no	crane	project	outriggers and sling chain	1	0	none	unkno wn	M	43	none	none	none	unknown	unknown	guiding equipment taking ladder down-roofing company electrical	1799
Electrocution (power lines)	no	na	na	no	yes	yes	boom truck	project	none	1	1	none	unkno wn	M,M,M	24,27	ladder	hoisting ladder	building	unknown	unknown	company electrical	1761
Electrocution (power lines)	no	na	na	na	yes	yes	boom truck	project	none	2	0	none	unkno wn	M	28,24	poles	hoisting	none	new construction	utility construction	1731	
Electrocution (power lines)	no	na	na	na	no	yes	none	none	none	1	0	none	3-45 PM	M	24	none	none	unknown	unknown	unknown	electrocuted and then fell	1741
Electrocution (power lines)	no	na	na	na	no	yes	none	none	none	1	0	none	unkno wn	M	41	none	none	power poles	new construction	electrical	1731	
Electrocution (power lines)	no	na	na	na	yes	no	drill rig	project	shovel	1	0	none	unkno wn	M	50	none	none	none	unknown	unknown	drillers	1799
Electrocution (power lines)	no	na	na	na	no	yes	none	none	crescent wrench	1	0	none	unkno wn	M	28	none	none	unknown	unknown	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	yes	none	none	none	1	0	wet ground	unkno wn	M	49	none	none	phone system	repair	telephone ktr	1731	
Electrocution (power lines)	no	na	na	na	no	yes	bucket truck	project	none	1	0	none	unkno wn	M	38	power lines	altering	power pole	repair	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	yes	none	none	none	1	0	none	11-15 AM	M	43	metal	lateral scaffold	building	unknown	placing siding	1751	
Electrocution (power lines)	no	na	na	na	no	yes	boom, hydraulic	project	none	1	0	none	unkno wn	M	36	high voltage cables	altering	unknown	unknown	electrical	1731	
Electrocution (power lines)	no	na	na	na	no	no	boom, hydraulic	project	none	1	0	none	2:00 PM	M	27	none	none	power poles	repair	electrical	1731	
Electrocution (power lines)	no	na	na	na	yes	no	forklift	project	none	1	1	none	unkno wn	M,M	30,28	tower scaffold	lateral	none	unknown	steadying load for forklift	1741	
Electrocution (power lines)	no	na	na	na	no	yes	truck	project	8' steel rod	1	0	none	unkno wn	M	27	power line pole	hoisting	power line system	unknown	electrical-utility KTR	1731	

Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	no	none	1	0	none	unkno wn	M	26	none	none	none	house	new construction	electrical	1731
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	no	none	1	0	none	unkno wn	M	34	none	none	power lines	repair	electrical	1731	
Electrocution (power lines)	no	na	na	na	no	yes	no	yes	no	backhoe project	none	1	0	none	2:00 PM	M	30	sign	lateral	unknown	unknown	guiding equipment	1799	
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	scissor lift project	awl	1	0	none	unkno wn	M	39	wiring	lateral	department store	new construction	electrical	1731	
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	ditch witch project	none	1	0	none	7:10 AM	M	24	earth	lateral	unknown	unknown	equipment operator	1623	
Electrocution (power lines)	no	na	na	na	no	yes	yes	no	yes	none	none	1	1	none	unkno wn	M	55 33	ladder	hoisting ladder	house	unknown	glazier	1571	
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	bucket truck project	none	1	0	none	unkno wn	M	34	conductor	none	power system	new construction	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	boom bucket project	jumper cables	1	0	none	unkno wn	M	31	none	none	power system	repair	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	yes	yes	no	yes	none	none	1	1	none	unkno wn	M	56	ladder	hoisting ladder	unknown	roofers	1761		
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	none	none	1	0	none	unkno wn	M	47	guy wires	lateral	high voltage system	unknown	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	bucket truck project	none	1	0	none	8:00 AM	M	27	stringer wire	altering	utility pole system	repair	electrician	1623	
Electrocution (power lines)	na	na	na	na	yes	no	no	yes	no	crane project	tag line	1	0	none	unkno wn	M	26	concrete utility vault	hoisting	unknown	unknown	spotter	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	no	yes	aerial lift project	none	1	0	none	unkno wn	M	29	none	none	unknown	unknown	unknown	1623	
Electrocution (power lines)	no	na	na	na	no	yes	no	yes	no	bucket truck project	none	1	0	none	unkno wn	M	57	electrical lines	lateral	power system	repair	electrician	1731	

Electrocution (power lines)	yes	na	na	no	yes	yes	manlift	project	none	1	0	none	unkno wn	M	38	ground line	none	none	high voltage system	unknown	electrician	1623
Electrocution (power lines)	no	na	na	no	no	yes	none	none	power washer	1	0	none	unkno wn	M	31	none	scaffold	unknown	unknown	powerwasher	1721	
Electrocution (power lines)	no	na	na	na	yes	no	crane	project	digger auger	1	0	none	unkno wn	M	28	none	none	none	none	unknown	spotter	1623
Electrocution (power lines)	no	na	na	no	no	yes	none	none	none	1	0	none	unkno wn	M	52	aluminum siding/fascia	lateral	none	garage utility	new construction	roofer	1521
Electrocution (power lines)	no	na	na	no	yes	no	none	none	saw	1	0	none	unkno wn	M	27	power pole	altering	none	system	demolition	unknown	1623
Electrocution (power lines)	no	na	na	no	no	yes	none	none	none	1	0	none	unkno wn	M	35	none	none	high voltage system	unknown	electrician	1623	
Electrocution (power lines)	no	na	na	na	yes	no	crane	project	none	1	0	none	9-10 AM	M	20	steel pipe	hoisting	none	none	unknown	laborer	1629
Electrocution (power lines)	no	na	na	no	yes	yes	manlift	project	none	1	0	none	unkno wn	M	44	power line	altering	none	high voltage system	repair	electrician	1623
Electrocution (power lines)	no	na	na	na	no	yes	none	none	blasting cap and lead wires	1	0	none	unkno wn	M	30	none	none	none	none	demolition	blaster	1629
Electrocution (power lines)	no	na	na	no	yes	no	none	none	none	1	0	none	unkno wn	M	32	power lines	altering	none	high voltage system	unknown	electrician	1623
Electrocution (power lines)	no	na	na	no	yes	no	backhoe	project	none	1	0	none	unkno wn	M	38	pipe	hoisting	trench	water main	new construction	spotter	1623
Electrocution (power lines)	no	na	na	no	yes	yes	aerial lift	project	none	1	0	none	unkno wn	M	31	switch	none	none	power pole	repair	electrician	1623
Electrocution (power lines)	no	na	na	no	yes	no	backhoe	project	none	1	1	none	unkno wn	M	35?	pipe	hoisting	none	none	unknown	spotter	1623
Electrocution (power lines)	no	na	na	na	yes	no	crane	project	none	1	0	none	unkno wn	M	25	communication tower	hoisting	none	none	unknown	spotter	1623

Electrocution (power lines)	no	na	na	na	yes	yes	yes	no	none	1	0	none	10:00 AM	M	38	rubber blanket	none	none	high voltage system repair	electrician	1623
Electrocution (power lines)	no	na	na	na	no	no	yes	none	none	1	0	none	unkno wn	M	29	wires	altering	power poles repair	utility construct	1731	
Electrocution (power lines)	no	na	na	na	yes	yes	yes	none	pvc saw	1	0	none	unkno wn	M	37	pvc pipe containing circuit	altering	excavation/trench repair	laborer	1623	
Electrocution (power lines)	no	na	na	na	no	yes	yes	none	bolt cutters	1	1	none	unkno wn	M	35	wire	altering	building construction	masons	1741	
Electrocution (power lines)	no	na	na	na	yes	no	yes	crane	project crane hook	1	0	none	unkno wn	M	26	none	hoisting	new construction	spotter	1521	
Electrocution (power lines)	no	na	na	na	no	no	no	bucket truck	project	1	0	none	12:00 PM	M	21	none	none	unknown	unknown	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	none	none	1	0	none	1:00 PM	M	28	power lines	altering	repair	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	none	none	1	0	none	unkno wn	M	44	utility pole	lateral	unknown	utility construction	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	none	climbing belt	1	0	none	unkno wn	M	40	power line	hoisting	repair	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	dump truck	project fire extinguisher	1	0	none	unkno wn	M	24	earth	lateral	new construction	equipment operator	1623	
Electrocution (power lines)	no	na	na	na	yes	yes	yes	bucket truck	project	1	0	none	unkno wn	M	32	none	none	Transformer repair	electrician	1623	
Electrocution (power lines)	no	na	na	na	no	no	yes	none	handline	1	0	none	9:30 AM	M	20	none	none	transmission tower	unknown	1623	
Electrocution (power lines)	no	na	na	na	yes	yes	yes	truck with boom	none	1	2	none	unkno wn	M	30,37	scaffold	lateral	unknown	unknown-moving scaffold	1742	
Electrocution (power lines)	no	na	na	na	yes	no	yes	none	project kelly bar	1	0	none	10:30 AM	M	22	none	none	utility system	electrician	1623	

Electrocution (power lines)	no	na	na	na	no	no	yes	no	no	no	1	0	night	2:00 AM	M	35	tree	hoisting	none	residential house	repair	electrician	1623
Electrocution (power lines)	no	na	na	na	no	yes	no	no	no	excavator/tracker	1	0	unkno	wn	M	34	ductile pipe	lateral	none	unknown high voltage system	unknown	spotter	1623
Electrocution (power lines)	no	na	na	yes-partial	no	yes	no	no	no	hi line spring stick	1	0	unkno	wn	M	33	none	none	none	power pole	unknown	electrician	1623
Electrocution (power lines)	no	na	na	na	no	no	no	no	no	galls, positioning belt	1	0	10:30 AM	M	M	30	none	none	none	power pole	unknown	communications worker	1623
Electrocution (power lines)	no	na	na	na	no	yes	yes	no	no	bucket truck	1	0	9:15 AM	M	M	38	bolt, guy wire	lateral	none	power system	unknown	electrician	1623
Electrocution (power lines)	no	na	na	na	no	no	yes	no	no	aerial lift	1	0	unkno	wn	M	37	none	none	none	telephone pole	repair	telephone repairer	1799
Electrocution (power lines)	no	na	na	na	no	yes	no	no	no	crane	1	0	unkno	wn	M	30	pole	hoisting	none	none	unknown	spotter	1623
Electrocution (power lines)	no	na	na	na	no	no	yes	no	no	none	1	0	late AM	M	M	30	wiring	lateral	none	building	unknown	electrical	1731
Electrocution (power lines)	no	na	na	na	no	yes	yes	no	no	ladder hoist	1	1	unkno	wn	M,M	40,20	ladder	hoisting	ladder	unknown	unknown	unknown-roofer?	1761
Electrocution (power lines)	no	na	na	na	no	no	yes	no	no	none	1	0	unkno	wn	M	30	metal brace	lateral	none	building	new construction	roofer	1542
Electrocution (power lines)	no	na	na	na	no	no	yes	no	no	dumptruck	1	0	unkno	wn	M	23	dirt	lateral	none	unknown	unknown	equipment operator	1611
Electrocution (power lines)	no	na	na	na	no	yes	yes	no	no	concrete pump truck	1	0	unkno	wn	M	26	none	none	none	unknown	unknown	equipment operator	1771
Electrocution (power lines)	no	na	na	na	no	yes	no	no	no	remote control box	1	0	unkno	wn	M	23	mobile scaffold	lateral	none	building	unknown	unknown but likely a steel worker	1791
Electrocution (power lines)	yes	na	na	unkno	no	no	no	no	no	none	1	0	unkno	wn	M	45	protective tags	lateral	none	substation	repair	electrician	1629

Electrocution (power lines)	no	na	na	na	na	no	yes	no	none	1	0	none	unkno wn	M	20	ladder	lateral	none	building	unknown	painter	1721
Electrocution (power lines)	no	na	na	na	na	yes	yes	none	none	1	0	none	unkno wn	M	22	ladder	lateral	none	house	unknown	unknown-painting ktr	1721
Electrocution (power lines)	no	na	na	na	na	no	yes	none	none	1	0	none	unkno wn	M	23	ladder	lateral	none	unknown	unknown	painter	1721
Electrocution (power lines)	no	na	na	na	na	yes	no	crane	project	1	0	none	unkno wn	M	45	wire cable	lateral	none	none	unknown	unknown	1761
Electrocution (power lines)	no	na	na	na	na	yes	yes	none	none	1	1	none	6:35 PM	M	20,23	ladder	lateral	none	building	unknown	painter	1721
Electrocution (power lines)	na	na	na	na	na	no	yes	none	none	1	0	none	unkno wn	M	31	ladder	lateral	none	unknown	unknown	unknown	1721
Electrocution (power lines)	no	na	na	na	na	no	yes	rock driller	project	1	1	none	1:15 PM	M,M	46,33	none	none	none	none	unknown	equipment mechanics	1611
Electrocution (power lines)	no	na	na	na	na	yes	no	crane	project	1	0	none	3:30 PM	M	52	pipe	hoisting	none	none	unknown	spotter	1542
Electrocution (power lines)	no	na	na	na	na	yes	yes	crane	project	1	0	none	unkno wn	M	32	traffic controls	lateral	none	highway	new construction	signalman	1611
Electrocution (power lines)	na	na	na	na	na	yes	no	crane	project	1	0	none	unkno wn	M	50	beams	hoisting	none	unknown	construction	spotter	1611
Electrocution (power lines)	no	na	na	na	na	yes	yes	unknow n	project	1	3	water	unkno wn	M	31,2	steel well pipe	hoisting	none	well	unknown	drillers	1799
Electrocution (power lines)	no	na	na	na	na	yes	no	excavat or	project	1	0	none	unkno wn	M	24	none	none	trench	none	new construction	laborer	1771
Electrocution (power lines)	no	na	na	na	na	yes	yes	none	none	2	0	none	unkno wn	M,F	25,20	flag pole	hoisting	none	post office	new construction	flag pole installers	1799
Electrocution (power lines)	no	na	na	na	na	no	yes	drill rig	project	1	0	none	unkno wn	M	31	none	none	none	unknown	unknown	equipment operator-driller	1799

Electrocution (power lines)	no	na	na	na	no	yes	yes	crane	project	none	2	0	none	10:00 AM	M,M:19,27	metal roof	hoisting	none	unknown	unknown	equip operator, unknown	1761
Electrocution (power lines)	no	na	na	na	no	yes	no	drilling	project	none	1	0	none	unkno wn	M	24	none	none	unknown	unknown	driller	1781
Electrocution (power lines)	no	na	na	na	no	no	no	none	none	none	1	0	none	4:15 PM	M	22	none	none	irrigation line	repair	plumber/pipe fitter	1629
Electrocution (power lines)	no	na	na	na	no	yes	no	drilling	project	none	1	0	none	4:00 PM	M	20	earth	altering	storm drainage system	new construction	driller	1781
Electrocution (power lines)	no	na	na	na	no	no	yes	conveyor boom	project	screwdriver	1	0	none	unkno wn	M	39	none	none	unknown	unknown	unknown	1761
Electrocution (power lines)	no	na	na	na	no	no	yes	overhead crane	project	none	1	0	none	unkno wn	M	26	none	none	unknown	unknown	painter	1791
Electrocution (power lines)	no	na	na	na	no	yes	yes	crane	project	none	1	1	none	unkno wn	M,M:16,15	none	none	none	junkyard	unknown	spotter, equipment operator	1629
Electrocution (power lines)	no	na	na	na	no	yes	no	crane	project	slings	1	2	none	unkno wn	M,M:29,35	spread bar	lateral	none	modular home	new construction	guiding crane and spreader bar	1799
Electrocution (power lines)	no	na	na	na	no	yes	yes	none	none	none	2	0	none	unkno wn	M,M:47,29	scaffold	lateral	scaffold	building	steel workers moving scaffold	1791	
Electrocution (power lines)	no	na	na	na	no	yes	no	boom crane	project	none	1	0	none	2:30 PM	M	42	power poles	hoisting	none	repair	electrical level	1731
Electrocution (power lines)	no	na	na	na	no	no	yes	none	none	none	1	0	none	unkno wn	M	33	wire rope	lateral	none	none	detection system	1799
Electrocution (power lines)	no	na	na	na	no	no	yes	none	none	none	1	0	none	unkno wn	M	37	metal	lateral	none	unknown	metal worker	1761
Electrocution (power lines)	no	na	na	na	no	no	yes	boom truck	project	none	1	0	none	unkno wn	M	41	siding	lateral	scaffold	house	roofer	1761
Electrocution (power lines)	no	na	na	na	no	yes	no	crane	project	none	1	0	none	unkno wn	M	39	box beam	lateral	none	unknown	load guider	1791

Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	crane	project	none	1	1	none	unkno wn	M	22,29	rail		lateral	work platform	unknown	unknown	electrical KTR	1731
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	drill rig	project	none	1	0	none	unkno wn	M	31	none		none	unknown	unknown	equipment operator	1799	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	dozer	project	none	1	0	none	unkno wn	M	55	none		none	demolition pump	houses	equipment operator	1795	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	crane	project	none	1	0	none	unkno wn	M	33	wood		hoisting	none	unknown	spotter	1541	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	yes	none	none	none	1	1	none	1:00 PM	M,M	23,22	ladder		lateral	building	unknown	unknown (roofers?)	1761	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	aerial crane	project	none	1	0	none	5:30 PM	M	53	none		none	none	equipment operator	1761		
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	crane	project	none	2	0	none	unkno wn	M,M	39,36	scaffold		hoisting	none	unknown	spotter	1542	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	none	none	none	1	0	none	1:20P	M	35	none		none	unknown	electrical	1731		
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	none	none	none	1	0	none	unkno wn	M	25	asbestos containment system		altering	building	demolition	asbestos worker	1795	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	none	none	none	1	0	none	unkno wn	M	37	paint		altering	unknown	painters	1721		
Electrocution (power lines)	yes-impro	na	na	na	na	na	no	yes	no	none	none	unknown	1	0	none	unkno wn	M	40	wire		altering	power system	repair	electrician	1799	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	yes	none	none	none	2	0	none	12:39 PM	M,M	40,22	ladder		lateral	building	unknown	roofers	1761	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	none	none	none	1	0	none	5:15 PM	M	39	gutter		hoisting	building	unknown	sheet metal worker	1761	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	no	aerial lift	project	none	1	0	none	3:30 PM	M	39	none		none	unknown	working as equip	1793		

Electrocution (power lines)	no	na	na	na	na	na	no	no	yes	none	none	none	none	none	3:30P ground	M	29	none	none	none	advertisin g sign	repair	electrical	1731
Electrocution (power lines)	no	na	na	na	na	na	no	no	yes	rock drill	project	none	1	0	unkno wn	M	39	none	none	none	none	equipment operator	1542	
Electrocution (power lines)	no	na	na	na	na	na	no	no	yes	none	none	none	1	00	10:00 AM	M	26	fascia	lateral	none	house construction	roofer	1761	
Electrocution (power lines)	no	na	na	na	na	na	no	yes	yes	none	none	none	1	1	5:40 PM	MAM	25,32	ladder	lateral	ladder	warehouse repair	roofer	1761	
Explosion	na	yes	na	na	na	na	no	no	no	none	none	none	1	0	unkno wn	M	35	grout	lateral	rubber plug	sewer line repair	unknown	1771	
Explosion	na	no	na	na	na	na	no	yes	yes	tank truck	project	hose	1	0	unkno wn	M	65	gas propane	none	none	unknown	equipment operator	1795	
Explosion	no	yes	na	na	na	na	yes	yes	yes	none	none	hotwork type equipment	1	6	unkno wn	MAM	0,41, 42,43	unknow n	unknow n	tank	unknown	welders/cutte rs	1711	
Explosion	na	no	na	na	na	na	yes	yes	yes	none	none	metal grinder	1	1	unkno wn	MAM	38,33	sodium azide	none	none	building remodel	sheetmetal duct installer	1711	
Explosion	na	unkno wn	na	na	na	na	yes	yes	yes	none	none	torch	1	1	unkno wn	MAM	33,?	unknow n-chemicals of some sort	none	none	demolition	cutters	1795	
Explosion	no	no	na	na	na	na	no	no	yes	dozer	project	none	1	0	unkno wn	M	61	river rock	lateral	none	natural gas line repair	equipment operator	1629	
Explosion	na	no	na	na	na	na	no	yes	yes	asphalt tanker	project	propane torch	1	0	unkno wn	M	37	asphalt	none	none	unknown roofers?	1761		
Explosion	no	no	na	na	na	na	yes	yes	yes	none	none	metal band saw pipe wrench	3	0	unkno wn	MAM	20,41 31	gasoline	none	unknown	unknown	welders/cutte rs	1799	
Explosion	na	no	na	na	na	na	no	yes	yes	dozer	project	none	1	0	unkno wn	M	41	gas	none	gas line	equipment operator	1794		
Explosion	no	yes	na	na	na	na	no	yes	yes	none	none	gasoline powered target saw	1	0	11:56 AM	M	24	gasoline	none	none	unknown	cutting into tank-cutter	1799	

Explosion	unkno wn	na	na	na	yes	no	none	none	none	1	4	none	unkno wn	M,M:34,25 M:31,5	circuit breaker	altering	none	undergrou nd vault	unknown	electricians	1799
Explosion	no	yes	na	na	no	yes	none	none	none	1	0	poor visibili ty	unkno wn	M:35	methane or hydrogen	none	none	sunken ship	demo	welder/cutter /diver	1629
Explosion	na	no	na	na	no	yes	none	none	none	1	0	none	unkno wn	M:27	propane	none	none	townhouse	unknown	drywall installer	1742
Explosion/Fire	yes	na	na	na	no	no	none	none	none	1	0	3:40 PM	M:27	copper wire	lateral	none	none	3 phase breaker for bldg	unknown	electrical	1731
Explosion/Fire	no	yes	na	na	yes	no	none	none	none	4	0	10:15 AM	M,M:45,30 M:36,2 M:9	ammonia	none	none	ammonia scrubber	repair	plumber/pipe fitters	1541	
Explosion/Fire	na	yes	na	na	yes	yes	none	none	none	1	1	unkno wn	M,M:42,41	pipe	altering	excavation	sewage pumping plant	repair	plumber/pipe fitter	1623	
Explosion/Fire	na	no	na	na	yes	no	none	none	none	1	0	unkno wn	M:55	methane gas	none	none	house	unknown	unknown	1711	
Explosion/Fire	na	yes	na	na	no	yes	none	none	none	1	0	unkno wn	M:33	propane vapors	none	none	confined space	unknown	welder/cutter	1629	
Explosion/Fire	na	method improp er	na	na	yes	yes	none	none	none	2	0	10A M	M:60,7	No.6 Fuel Oil	none	none	2000 gal storage tank	unknown	electrical kr- welders	1731	
Explosion/Fire	na	yes	na	na	yes	yes	none	none	none	1	1	12:00 PM	M,M:23,21 M:32,34	chemical vapors	none	none	2000 gal tank	repair	welders/cutte rs	1623	
Explosion/Fire	na	no	na	na	yes	no	none	none	none	1	3	unkno wn	M:34	paint, paint thinner	none	none	house	unknown	painters	1721	
Explosion/fire	no	no	na	na	yes	yes	Dozer, Scraper	project	ripper	2	0	unkno wn	M,M:58,46	earth	lateral	none	natural gas line	unknown	equipment operators	1611	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	7:30 AM	M:35	tarps	lateral	none	building	new construction	unknown	1751	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	unkno wn	M:65	none	none	none	scaffold	new construction	supervisor	1542	

Fall from elevation	na	na	>6'	no	impro	no	unknown	none	none	1	0	none	9:49 AM	M	24	none	none	none	house	unknown	roofer	1521
Fall from elevation	na	na	>6'	no	use	yes	yes	none	none	1	0	none	unkno	wn	47	none	none	none	house	new construction	roofer	1521
Fall from elevation	no	no	>6'	no		no	yes	none	none	1	0	none	unkno	wn	42	none	none	ladder, temp platform	unknown	new construction	electrical	1731
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	unkno	wn	51	none	none	scaffold	building	unknown	roofer	1521
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	unkno	wn	57	conduit	altering	ladder	building	unknown	electrical	1731
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	12:00 PM	M	54	wood	lateral	planks	building	new construction	carpenter	1542
Fall from elevation	na	na	unk no	no		no	yes	none	none	1	0	none	unkno	wn	42	wood	none	ramp	unknown	unknown	unknown	1541
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	9:45 AM	M	46	roofing material	lateral	none	building	demolition	demolisher	1541
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	unkno	wn	29	none	none	none	power pole	unknown	electrician	1623
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	unkno	wn	52	none	none	ladder/scaff old	unknown	unknown	unknown	1542
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	9:30 AM	M	58	none	none	none	building	new construction	roofer	1541
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	unkno	wn	33	none	none	ladder	unknown	unknown	unknown	1542
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	unkno	wn	60	none	none	none	house	unknown	roof work	1521
Fall from elevation	na	na	>6'	no		no	yes	none	none	1	0	none	4:30 PM	M	30	roof material	lateral	none	building	new construction	steel worker	1542

Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	38	none	none	none	building	unknown	unknown	1542
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	none	unkno wn	M	46	none	none	ladder	house	new construction	painter	1521
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	53	none	none	plank	hospital	renovation	carpenter	1542
Fall from elevation	na	na	>6'	no	yes	no	crane	project	none	2	0	none	8:00P M	M	39,37	none	none	personnel platform	Kingdome	repair	sandblasting/ painting	1721
Fall from elevation	na	na	>6'	no	no	no	digger derrick truck	project	none	1	0	none	unkno wn	M	37	none	none	none	telephone system	unknown	installation- equip	1731
Fall from elevation	na	na	>6'	no	no	no	snop link?	project	none	1	0	none	unkno wn	M	39	staircase	hoisting	none	building	repair	spotter	1542
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	none	unkno wn	M	226	none	none	platform	building	unknown	carpenter	1542
Fall from elevation	na	na	>6'	no	yes	yes	scissor lift	project	none	0	1	none	unkno wn	M	7	vent pipe	lateral	none	unknown	unknown	tipped over from hole in floor	1731
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	8:00A M	M	46	gutters	lateral	ladder	house	repair	roofers	1721
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	41	electric cable	lateral	none	building	unknown	electrical	1731
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	8:15 AM	M	53	mailbox	lateral	none	garage	new construction	roofer	1521
Fall from elevation	na	na	>6'	no	yes	unkno wn	none	none	none	3	0	unkno wn	7:00P M	M	21,28 18	none	none	none	tower	unknown	unknown	1731
Fall from elevation	na	na	>6'	no	yes	yes	elevatin g work platform	project	none	2	0	none	unkno wn	M,M	37,36	none	none	none	building	unknown	electricians	1522
Fall from elevation	na	na	1-6'	no	yes	no	pickup truck	license	id	1	0	none	unkno wn	M	24	none	none	none	none	unknown	electrical ktr	1731

Fall from elevation	na	na	>6'	no	yes	yes	none	none	1	0	none	unkno wn	M	34	metal scaffold board	lateral	walkway	apartment building	new construction	laborer	1522
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	1:15 PM	M	49	none	none	ladder	telephone line system	unknown	phone installers/rep air	1731
Fall from elevation	na	na	>6'	no	yes	yes	none	none	1	0	none	10:15 AM	M	61	light fixture	lateral	ladder	building	repair	electrical ktr	1731
Fall from elevation	na	na	>6'	no	no	yes	bucket truck	project	1	0	none	9:18 AM	M	52	pole	hoisting	none	power pole electric	demolition	electrical	1731
Fall from elevation	na	na	>6'	yes	no	yes	none	none	1	0	none	7:51 AM	M	48	none	none	none	power pole	unknown	electrical	1731
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	7:30 AM	M	45	none	none	none	building	new construction	electrical	1731
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	12:00 PM	M	27	none	none	none	communic ations tower	new construction	unknown- freeclimbing structure	1731
Fall from elevation	na	na	>6'	no	no	no	aerial lift	project	1	0	none	2:09P M	M	40	none	none	none	unknown	unknown	electrical	1731
Fall from elevation	na	na	>6'	no	no	no	none	none	1	0	none	unkno wn	M	51	wood	none	work platform	building	unknown	elevator repair	1522
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	55	wood	none	none	garage	new construction	carpenter	1522
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	64	none	none	work platform	building	rehab	mason	1522
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	42	none	none	none	building	new construction	roofer-sheet metal worker	1541
Fall from elevation	na	na	>6'	no	no	yes	mobile crane	project	1	0	none	1:00 PM	M	36	concrete	altering	none	building	demolition	roofer	1541
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	29	none	none	ladder	house	unknown	Unknown	1521

Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	roof material	none	none	building	new construction	roofer	1541
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	none	none	building	unknown	elevator installation/repair	1541	
Fall from elevation	na	na	>6'	usc	no	yes	none	none	none	none	none	none	none	none	none	none	none	electrical pole	unknown	unknown	electrical	1731	
Fall from elevation	na	na	>6'	no	no	no	none	none	none	none	none	none	none	none	none	none	none	none	power pole	repair	cable tv Ktr	1731	
Fall from elevation	na	no	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	none	none	house	new construction	roofer	1531	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	none	none	fuel oil tank	renovation	electrical	1731	
Fall from elevation	na	na	>6'	no	yes	yes	none	none	none	none	none	none	none	none	none	none	metal	lateral	building	new construction	roofers/metal workers	1541	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	wood	lateral	building	new construction	carpenter	1541	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	roofing material	lateral	manufacturing plant	new construction	metal workers	1541	
Fall from elevation	na	na	unk no	no	no	yes	none	none	none	none	none	none	none	none	none	none	side awning	lateral	house	demolition	awning removal	1522	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	metal duct	none	unknown	unknown	metal worker	1541	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	exterior sheeting	lateral	house	new construction	fall protect	1521	
Fall from elevation	na	na	>6'	no	yes	yes	none	none	none	none	none	none	none	none	none	none	wood	hoisting	house	new construction	carpenters	1521	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	none	none	none	none	none	none	none	unknown	lateral	building	unknown	electrical Ktr	1731	

Fall from elevation	na	na	>6'	no	yes	failed	no	no	none	none	spacer buggy	1	0	none	10:00 AM	M	36	none	none	none	high voltage system	repair	electrician	1623
Fall from elevation	na	na	>6'	no	yes	no	no	no	none	none	none	1	0	none	unkno wn	M	31	none	none	none	none	unknown	supervisor	1542
Fall from elevation	na	na	unk no	no	no	no	no	yes	none	none	none	1	0	none	1:30 PM	M	53	wood	lateral	lateral	unknown	unknown	unknown	1721
Fall from elevation	na	na	>6'	no	no	no	yes	no	none	none	none	1	0	none	9:20A	M	58	none	none	none	unknown	unknown	unknown	1731
Fall from elevation	na	na	>6'	no	no	no	no	no	none	none	none	1	0	rain	2:00 PM	M	41	paint and tools	hoisting	hoisting	building	unknown	painter/glazier	1721
Fall from elevation	na	na	>6'	no	yes	no	no	no	manlift	project	none	1	1	none	11:15 AM	M	38,39	none	none	none	building	unknown	painter	1721
Fall from elevation	na	na	>6'	no	no	no	yes	no	none	none	paint brush	1	0	none	unkno wn	M	57	none	none	none	building	unknown	painter	1721
Fall from elevation	na	na	>6'	no	no	no	yes	no	none	none	none	1	0	none	5:45 PM	M	25	air net/tarp	lateral	lateral	building	unknown	unknown	1721
Fall from elevation	na	na	>6'	na	yes	na	yes	yes	none	none	none	1	1	none	9:00 AM	M,M	38,18	gin pole	hoisting	hoisting	radio tower	communications workers	1623	
Fall from elevation	na	na	>6'	unk no	use	unkno wn	no	no	unkno wn	unkno wn	unkno wn	1	0	none	unkno wn	M	26	tarp shroud	hoisting	hoisting	water tower	unknown	unknown	1721
Fall from elevation	na	na	unk no	no	no	no	yes	no	none	none	none	1	0	none	unkno wn	M	51	none	none	none	building	unknown	unknown	1711
Fall from elevation	na	na	>6'	no	no	no	yes	no	none	none	none	1	0	none	unkno wn	M	44	none	none	none	powerplant	unknown	hvac worker	1711
Fall from elevation	na	na	>6'	unk no	use	unkno wn	no	yes	none	none	none	1	0	none	unkno wn	M	36	plywood	lateral	lateral	bridge	new construction	carpenter	1622
Fall from elevation	na	na	>6'	no	no	no	yes	no	none	none	none	1	0	none	11:30 AM	M	45	roof material	lateral	lateral	building	rehab	carpenter	1542

Fall from elevation	na	na	>6'	no	no	no	no	no	no	1	0	none	unkno wn	M	33	none	none	utility pole system	unknown	electrician	1623
Fall from elevation	na	na	>6'	yes	no	no	no	no	no	1	0	none	9:00 AM	M	22	none	hoisting	communication tower	new construction	unknown	1623
Fall from elevation	na	na	>6'	no	no	no	no	no	no	1	0	none	unkno wn	M	49	none	lateral	bridge	new construction	carpenter	1622
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	1	0	none	unkno wn	M	31	none	none	building	repair	working on roof parapet wall	1741
Fall from elevation	na	na	1-6 feet	no	yes	no	yes	no	no	1	0	none	unkno wn	M	41	none	lateral	condomini um complex	unknown	hauling operations	1711
Fall from elevation	na	na	>6'	no	yes	yes	no	no	no	1	0	none	unkno wn	M	61	none	lateral	none	unknown	securing load	1711
Fall from elevation	na	na	>6'	no	no	no	no	no	no	1	0	none	unkno wn	M	33	none	none	bridge deck	unknown	unknown	1611
Fall from elevation	na	na	unk no	no	yes	no	no	no	no	1	1	none	9:00 AM	M?	54?	none	none	theater	unknown	unknown	1711
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	1	0	none	7:48 AM	M	22	wood	lateral	building	new construction	carpenter	1542
Fall from elevation	na	na	>6'	yes	no	yes	no	no	no	1	0	none	9:30 AM	M	48	none	none	building	repair	plumber/pipe fitter	1711
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	1	0	none	unkno wn	M	54	wood	none	building	new construction	carpenter	1542
Fall from elevation	na	na	9'	no	no	yes	no	no	no	1	0	none	unkno wn	M	60	none	ladder	house	repair	hvac mechanic	1711
Fall from elevation	na	na	unk no	yes	no	no	no	no	no	1	0	wind	unkno wn	M	27	wood	none	unknown	new construction	carpenter?	1611
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	1	0	none	2:50 PM	M	22	none	unknown	warehouse	repair	roof work	1542

Fall from elevation	na	1-6'	no	yes	none	none	none	1	0	none	unkno wn	M	26	none	none	step ladder	unknown	welding fire watch	1542
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	unkno wn	M	25	corner plate	lateral	floating scaffold	steel bridge	new construction	ironworker	1622
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	8:37 AM	M	55	none	none	none	building	new construction	carpenter	1542
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	2:50 PM	M	51	wood	lateral	roof opening	building	unknown	metal worker	1542
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	10:30 AM	M	59	electrical clamp	lateral	ladder	building	new construction	electrical	1731
Fall from elevation	na	>6'	no	yes	yes- impro	none	1	0	none	unkno wn	M	32	none	none	none	building	rehab	unknown	1542
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	unkno wn	M	17	none	none	none	building	new construction	roofer	1542
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	unkno wn	M	60	forms	none	scaffold	crypt	new construction	carpenter	1542
Fall from elevation	na	>6'	no	yes	none	none	1	0	ice	unkno wn	M	28	none	none	ladder and platform	power generation tower	new construction	structural metal worker	1542
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	unkno wn	M	24	none	none	none	communic ation tower	unknown	communi cations worker	1623
Fall from elevation	na	>6'	no	yes	none	sander	1	0	none	unkno wn	M	19	drywall	altering	none	house	new construction	drywall installer	1521
Fall from elevation	na	>6'	no	yes	none	none	1	0	none	unkno wn	M	55	ac duct	none	scaffold	unknown	unknown	unknown	1542
Fall from elevation	na	>6'	no	yes	platform aerial	platform	1	0	none	11:30 AM	M	54	none	none	ladder	unknown	unknown	electrical ktr	1731
Fall from elevation	na	>6'	no	yes	aerial lift	project	1	1	none	8:00 AM	M,M	48:41	none	none	none	auditoriu m	new construction	drywall	1542

Fail from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	41	roof trusses	lateral	none	house	new construction	roofer	1521
Fail from elevation	na	na	na	na	no	yes	none	none	paint brush	1	0	none	unkno wn	M	53	paint	lateral	none	wharf	repair	painter	1721
Fail from elevation	na	na	>6'	yes	no	no	none	none	none	1	0	none	2:30 PM	M	51	none	none	none	building	unknown	laborer	1542
Fail from elevation	na	na	>6'	use	yes	yes	none	none	none	1	0	none	AM	M	54	none	none	scaffold	building	unknown	painters	1721
Fail from elevation	na	na	>6'	no	no	yes	none	none	trowel	1	0	none	AM	M	63	grout	none	scaffold	none	new construction	mason	1542
Fail from elevation	na	na	1-6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	63	insulation	lateral	step ladder	building	unknown	insulator	1542
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	42	none	none	scaffold	building	unknown	laborer	1629
Fail from elevation	na	na	unk no	no	no	yes	none	none	none	1	0	none	unkno wn	M	31	snow	lateral	ladder	house	repair	roof work- snow removal	1521
Fail from elevation	na	na	>6'	use	no	yes	none	none	none	1	0	none	8:20P M	M	25	none	none	none	bridge	unknown	sandblaster	1721
Fail from elevation	na	na	>6'	no	no	yes	none	none	spray paint equipment	1	0	none	unkno wn	M	43	none	none	none	warehouse:	new construction	painters	1721
Fail from elevation	na	na	>6'	failed	no	no	none	none	none	1	0	none	unkno wn	M	41	none	none	gin pole (hoisting apparatus)	communications tower	new construction	communications worker	1623
Fail from elevation	na	na	>6'	used	no	yes	aerial lift	bucket	project	1	0	none	11:00 AM	M	32	rope	hoisting	none	unknown	unknown	laborer beams	1623
Fail from elevation	na	na	>6'	use	yes	yes	none	none	none	1	0	none	unkno wn	M	47	beams	lateral	none	paper mill	unknown	(coating KTR)	1721
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	10:00 AM	M	28	none	none	ladder	house	new construction	carpenter	1521

Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	35	none	none	none	building (skylight)	unknown	roofer?	1761
Fall from elevation	na	na	>6'	no	yes	no	none	none	1	1	none	unkno wn	M,M:48.7	none	none	none	scaffold	house	unknown	(putting in window trim)	1761
Fall from elevation	na	na	>6'	no	no	no	none	none	1	0	frost	unkno wn	M	34	window dormer	altering	none	building	new construction	carpenter	1751
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	23	insulation	lateral	none	building	unknown	roofer	1761
Fall from elevation	na	na	>6'	no	yes	yes	hoisting equipm ent	project	1	0	none	unkno wn	M	40	metal roof decking material	hoisting	steel trusses	building	new construction	steel worker	1791
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	55	skylight	lateral	none	building	renovation	steel worker	1791
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	26	none	none	none	house	repair	gutter cleaning	1761
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	19	none	none	none	building skylight	unknown	unknown (roofer?)	1761
Fall from elevation	na	na	>6'	no	yes	yes	none	none	1	0	none	unkno wn	M	40	skylight covers	lateral	none	building	unknown	roofer	1761
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	25	metal sheeting	lateral	none	building	unknown	steel worker	1791
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	53	none	none	none	building	unknown	roofer	1761
Fall from elevation	na	na	>6'	no	no	yes	none	none	1	0	none	unkno wn	M	39	none	none	none	building	repair	roofer	1761
Fall from elevation	na	na	unk no	no	no	yes	none	none	1	0	none	unkno wn	M	76	none	none	ladder	building	unknown	counter for company	1761
Fall from elevation	na	na	>6'	no	yes	no	none	power hoist	1	0	none	unkno wn	M	21	equipment	hoisting	none	building	unknown	unknown- roofer?	1761

Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	no	no	1	0	none	unkno wn	M	45	corrugated roof deck	lateral	none	rain barrier over	building	unknown	steel worker roofer	1761
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	no	1	0	none	5:00 PM	M	52	none	none	none	openings in building	building	new construction	roofer	1761	
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	no	1	0	none	unkno wn	M	21	none	none	none	none	building	unknown	roofer	1761	
Fall from elevation	na	na	>6'	no	no	yes	no	no	leverage board	no	no	1	0	none	9:45 AM	M	24	wood	altering	none	none	building	new construction	carpenter	1751	
Fall from elevation	na	na	>6'	no	no	no	concrete pump truck	project	no	no	no	1	0	none	unkno wn	M	47	concrete metal roofing materials	altering	scaffold	none	shaft/build ing	new construction	concrete	1771	
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	no	1	0	none	2:30 PM	M	23	none	lateral	none	none	building	new construction	roofer	1542	
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	no	1	0	none	1:43 PM	M	56	none	none	none	stepladder	building	unknown	carpenter	1771	
Fall from elevation	na	na	>6'	no	yes	yes	no	no	no	no	no	1	0	none	unkno wn	M	35	steel grating	lateral	none	none	unknown	unknown	unknown(site el worker?)	1791	
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	no	1	0	none	1:30 PM	M	35	wood	lateral	none	none	building	new construction	carpenter	1751	
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	34	none	none	none	ladder	house	new construction	unknown- carpenter?	1751	
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	no	1	1	none	unkno wn	M	36,21	none	none	none	scaffold	barn	new construction	carpenters installing a roof	1751	
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	no	1	0	none	unkno wn	M	21	wood	altering	none	none	house	new construction	carpenter	1751	
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	34	insulation and metal decking	lateral	none	none	building	new construction	steel worker	1791	
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	no	1	0	none	3:30 PM	M	18	wood	altering	none	none	house	new construction	carpenter	1751	

Fall from elevation	na	na	>6'	no	yes	yes	compressor, generator for pneumatic	1	0	none	unkno wn	M	39	plywood, person, equipment	hoisting	none	building	new construction	unknown-carpenter?	1751
Fall from elevation	na	na	>6'	no	no	yes	none	1	0	none	unkno wn	M	35	none	none	house	new construction	carpenter	1751	
Fall from elevation	na	na	>6'	no	yes	no	forklift project	1	0	none	10:30 AM	M	22	bar joists	hoisting	none	building	new construction	steel worker	1791
Fall from elevation	na	na	>6'	no	no	no	none	1	0	none	unkno wn	M	36	shingles	hoisting	toeboard	house	repair	roofer	1761
Fall from elevation	na	na	>6'	no	yes	no	none	1	0	none	unkno wn	M	28	steel roof decking	none	department store	new construction	steel worker	1791	
Fall from elevation	na	na	>6'	no	no	yes	none	1	0	none	3:30 PM	M	46	felt paper nailers and hurricane clips	lateral	none	building	new construction	carpenter installing a roof	1751
Fall from elevation	na	na	>6'	no	no	yes	none	1	0	none	unkno wn	M	37	lateral	ladder	house	unknown	carpenter	1751	
Fall from elevation	na	na	>6'	no	no	yes	none	1	0	none	unkno wn	M	28	cornice	lateral	house	unknown	carpenter	1751	
Fall from elevation	na	na	>6'	no	no	yes	none	1	0	none	unkno wn	M	34	scaffold	hoisting	scaffold	silos	unknown	unknown	1791
Fall from elevation	na	na	>6'	no	no	yes	none	1	0	none	unkno wn	M	24	none	none	steel structure	unknown	steel worker	1791	
Fall from elevation	na	na	1-6'	no	no	yes	power saw	1	0	none	unkno wn	M	23	wood	altering	ladder	unknown	carpenter	1751	
Fall from elevation	na	na	>6'	no	yes	yes	hoisting equipment	2	0	none	unkno wn	MM/37,53	2	steel decking	hoisting	none	building	new construction	steel workers	1791
Fall from elevation	na	na	>6'	no	no	yes	none	1	0	none	unkno wn	M	19	wood	altering	unknown	building	new construction	carpenter	1751
Fall from elevation	na	na	>6'	no	no	yes	semitrailer	1	0	none	unkno wn	M	44	tape	altering	none	truck terminal	new construction	putting tape on steel to adhere	1791

na	na	na	>6'	no	no	yes	none	none	none	1	0	none	11:50 AM	M	40	wood	altering	none	house	new construction	carpenter	1751
na	na	na	>6'	no	yes	no	lull	project	none	1	1	none	unkno: wn	M,M	48,25	people	hoisting	none	building	unknown	unknown	1751
na	na	na	>6'	no	yes	yes	none	none	none	1	0	none	unkno: wn	M	47	none	none	floor opening	building	new construction	carpenter	1771
na	na	na	>6'	no	yes	yes	impro per	none	none	1	0	none	3:57 PM	M	26	bolts	altering	none	building	new construction	steel worker	1791
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	5:15 PM	M	31	metal decking	lateral	none	building	new construction	steel worker (roofing)	1791
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno: wn	M	34	skylights	lateral	none	building	unknown	roofer	1761
na	na	na	unk no	no	no	yes	tower boom	project	some instrument to drive out pins	1	0	none	unkno: wn	M	50	none	none	none	unknown	unknown	equipment operator	1791
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	9:00 AM	M	39	none	none	ladder	house	repair	roofers	1761
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno: wn	M	44	none	none	none	building	unknown	roofer	1761
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	3:00 PM	M	57	none	none	temporary grated platform	warehouse	new construction	welder	1791
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno: wn	M	30	roof tiles	lateral	none	building	unknown	roofer	1761
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno: wn	M	53	bridge forms	lateral	none	bridge	new construction	construction worker?	1791
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	3:00 PM	M	26	truss	none	none	building	new construction	connecting trusses- steel worker?	1791
na	na	na	>6'	no	no	yes	none	none	none	1	0	none	10:00 AM	M	23	metal decking	lateral	roof opening	building	new construction	structural metal worker	1791

na	na	>6	no	no	yes	no	none	none	none	none	none	none	unkno: wn M 22	roofing material	lateral	none	building skylight	repair	roofing	1761
na	na	>6	no	no	yes	none	none	none	none	none	none	unkno: wn M 33	none	none	none	none	building	new construction	unknown	1771
na	na	>6	no	no	yes	none	none	none	none	none	none	unkno: wn M 60	none	none	none	ventilation opening	building	new construction	roofer	1761
na	na	>6	no	yes	yes	none	none	none	none	none	none	11:00 AM M 23	wood forms	hoisting (lowering)	scaffold	silos	new construction	construction trade?	1771	
na	na	>6	no	no	no	none	none	none	none	none	none	11:20 AM M 32	wood	altering	skylight cover	building	repair	roofer	1761	
na	na	>6	no	no	yes	none	none	none	none	none	none	unkno: wn M 21	wood	altering	none	building	new construction	forms-carpenter or concrete	1771	
na	na	1-6	no	no	no	none	none	none	none	none	none	10:25 AM M 58	none	none	ladder	house	repair	roofer	1761	
na	na	>6	yes-impro	no	yes	none	none	none	none	none	none	unkno: wn M 44	none	none	concrete formwork	building	new construction	hand packer/packer (?)	1771	
na	na	>6	no	no	yes	none	none	none	none	none	none	unkno: wn M 46	none	none	none	building	new construction	unknown-carpenter?	1771	
na	na	>6	no	no	yes	none	none	none	none	none	none	unkno: wn M 34	rain gutters	altering	ladders	building	new construction	sheet metal worker	1761	
na	na	1-6	no	yes	no	pickup truck	project	none	none	none	none	7:30 AM M 21	concrete forms	lateral	none	highway	unknown	concrete finisher	1771	
na	na	>6	no	no	yes	reach boom truck	none	none	none	none	none	2:30 PM M 31	none	none	none	building	unknown	roofer	1761	
na	na	>6	no	no	yes	project	none	none	none	none	none	unkno: wn M 33	none	none	none	sign	repair	electrical	1731	
na	na	>6	no	no	yes	none	none	none	none	none	none	10:15 AM M 39	none	none	skylight cover	building	unknown	concrete cutting company	1771	

Fail from elevation	na	na	>6'	no	yes	no	none	none	none	activated driver and electric	1	0	none	8:00 AM	M	44	none	none	suspension scaffold	silos	unknown	waterproofing the bin	1771
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	9:40 AM	M	28	roof shingles	hoisting ladder	building	unknown	roofing	1761	
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	11:00 AM	M	25	steel	lateral	none	store	new construction	steel worker	1791
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	unkno wn	M	41	insulation	altering	none	building	repair	roofer	1761
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	unkno wn	M	23	shingles	lateral	trash chute	building	repair	roofer	1761
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	unkno wn	M	23	none	none	opening covers	warehouse	unknown	roofer	1761
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	unkno wn	M	29	roofing material	lateral	none	building	unknown	roofer	1761
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	drill	1	0	none	10:22 AM	M	41	none	none	scaffold	monorail system for dam	new construction	steel worker	1791
Fail from elevation	na	na	>6'	no	no	unknown	none	none	none	none	1	0	none	9:20 AM	M	22	none	none	none	warehouse	new construction	roofer	1761
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	unkno wn	M	40	temporary cross braces	lateral	cross braces	clock tower	unknown	unknown	1791
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	unkno wn	M	56	sidling	lateral	none	house	unknown	sider	1761
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	unkno wn	M	25	welding leads	lateral	none	building	new construction	steel worker-welder	1791
Fail from elevation	na	na	>6'	no	no	yes	none	none	none	none	1	0	none	2:30 PM	M	48	metal decking	altering	none	building	repair	roofing/sheet metal work	1761
Fail from elevation	na	na	>6'	no	yes	no	none	none	none	none	0	4	wind	3:20 PM	M	9	steel columns	none	steel structure	new construction	steel workers	1791	

Fall from elevation	na	na	>6'	no	yes	none	none	motorized conveyor	1	0	wet surfaces	7:00 AM	M	34	roof shingles	hoisting	none	building	new construction	roofing sheet metal	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	45	sheet metal decking	lateral	none	building	new construction	worker-roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	38	welding lead	none	none	building	new construction	steel worker	1791
Fall from elevation	na	na	>6'	no	no	none	none	none	1	0	snow	10:45 AM	M	33	snow	lateral	none	building roof	repair	roof-snow removal	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	5:00 PM	M	62	plastic	lateral	skylight opening	building	new construction	roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	36	concrete	lateral	none	building	repair	roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	42	none	none	light openings	building	repair	sheet metal worker-roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	19	roof shingles	lateral	none	building	unknown	roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	33	a/c vents	lateral	ladder	building	unknown	unknown-sheet metal?	1761
Fall from elevation	na	na	>6'	no	yes	none	none	shovel	1	0	none	unkno wn	M	53	gravel	lateral	skylight cover	building	unknown	roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	26	metal roof sheets	lateral	none	warehouse	new construction	roofing-sheet metal worker	1761
Fall from elevation	na	na	>6'	yes-failed	no	none	none	none	1	0	none	unkno wn	M	56	roof	lateral	protection system	building	unknown	roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	47	roof shingles	lateral	none	house	unknown	roofer	1761
Fall from elevation	na	na	>6'	no	yes	none	none	none	1	0	none	unkno wn	M	39	roofing felt	lateral	none	house	unknown	roofer	1761

Fall from elevation	na	na	na	>6'	yes	no	none	circular	1	0	none	unkno	wn	M	33	none	none	suspension scaffold	building	unknown	unknown	1791
Fall from elevation	na	na	na	>6'	no	yes	none	abrasive saw	1	0	none	2:35 PM	M	29	brick	lateral	none	parking garage	repair	mason	unknown	1741
Fall from elevation	na	na	na	>6'	no	no	none	none	1	0	none	unkno	wn	M	55	none	none	work platform	unknown	unknown	unknown	1742
Fall from elevation	na	na	na	>6'	no	yes	none	none	1	0	none	1:45 PM	M	37	none	none	none	building concrete	new construction	hvac mechanic	unknown	1711
Fall from elevation	na	na	na	unk	no	no	crane	project	0	1	none	unkno	wn	M	57	concrete	lateral	retaining wall	repair	equipment operator	unknown	1629
Fall from elevation	na	na	na	1-6'	yes	no	flatbed truck	project	0	1	none	unkno	wn	M	48	hay	lateral	road	unknown	equipment operator	unknown	1623
Fall from elevation	na	na	na	>6'	no	yes	none	none	1	0	none	unkno	wn	M	42	maastic	lateral	building	new construction	steel worker	unknown	1799
Fall from elevation	na	na	na	yes-impro	yes	no	truck	project	1	1	none	unkno	wn	M,M	36,?	people	hoisting	none	building	unknown	unknown	1799
Fall from elevation	na	na	na	>6'	no	yes	none	none	1	0	none	6:00 PM	M	33	none	none	none	building	unknown	truck driver	unknown	1799
Fall from elevation	na	na	na	>6'	no	yes	none	none	1	0	none	9:00 AM	M	26	none	none	none	scaffold	new construction	mason	unknown	1741
Fall from elevation	na	na	na	>6'	no	yes	none	none	1	0	none	unkno	wn	M	30	wood	lateral	building	unknown	building work platform	unknown	1741
Fall from elevation	na	na	na	>6'	no	yes	none	none	1	0	none	unkno	wn	M	28	none	none	scaffold	unknown	scaffold erector	unknown	1799
Fall from elevation	na	na	na	>6'	no	no	aerial lift	project	1	0	none	unkno	wn	M	38	banners	lateral	civic center	unknown	hanging banners from ceiling	unknown	1799
Fall from elevation	na	na	na	>6'	no	yes	forklift	project	1	1	none	unkno	wn	M,M	40,45	none	none	personnel basket	unknown	unknown	unknown	1542

Fall from elevation	na	na	>6'	no	yes	no	forklift	project	camera	0	1	none	unkn	own	M	unkn	own	M	none	none	none	none	mountain	unknown	photographer	none
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	11:00	AM	M	38	none	none	ladder	none	building	unknown	unknown	chimney	1741	
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	none	unkno	wn	M	38	none	none	scaffold	none	unknown	unknown	drywall-	checking site	1742	
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno	wn	M	27	none	none	none	none	communications	unknown	unknown	unknown	1799	
Fall from elevation	na	na	1-6'	no	no	yes	none	none	none	1	0	none	unkno	wn	M	45	metal studs	lateral	scaffold	building	building	new	new	drywall-	1742	
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	none	unkno	wn	M	35	end caps	lateral	scaffold	building	building	new	drywall	1742		
Fall from elevation	na	na	unk	no	yes	no	none	none	none	3	0	none	unkno	M,M	32,44	none	none	none	platform	elevated	unknown	unknown	unknown-	1742		
Fall from elevation	na	na	>6'	no	no	no	none	none	hammer	1	0	none	unkno	wn	M	21	drywall	lateral	scaffold	house	house	new	drywall	1742		
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	none	unkno	wn	M	65	"mud"	lateral	scaffold	house	house	unknown	plasterer	1742		
Fall from elevation	na	na	unk	no	yes	yes	none	none	none	1	0	none	7:45	AM	M	26	insulation/ro	lateral	none	power	plant	unknown	insulation	1742		
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	snow	2:30	PM	M	39	block and	hoisting	none	house	house	new	mason	1741		
Fall from elevation	na	na	>6'	yes-	no	no	none	none	none	1	0	none	unkno	wn	M	23	metal straps	lateral	scaffold	tank	unknown	unknown	insulators	1742		
Fall from elevation	na	na	>6'	no	no	no	none	none	crowbar,	1	0	none	unkno	wn	M	46	concrete	lateral	none	building	building	unknown	unknown	1542		
Fall from elevation	na	na	unk	no	yes	no	none	none	nylon slings	1	0	none	unkno	wn	M	27	wood	altering	formwork	unknown	unknown	new	carpenter	1741		

Fall from elevation	na	na	>6'	no	yes	no	none	none	none	1	0	none	unkno wn	M	38	soffits	none	work platform	garage	new construction	carpenter	1751
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	22	control wire	altering	none	air plenum	unknown	electrical	1731
Fall from elevation	na	na	1-6'	no	no	yes	none	none	none	1	0	none	2:00 PM	M	48	light bulbs	hoisting	stepladder	electric building	repair	electrical	1731
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	none	unkno wn	M	26	wood	lateral	adders	building exterior light	unknown	siding installers	1761
Fall from elevation	na	na	>6'	yes- failed	yes	no	crane	project	none	1	0	none	unkno wn	M	61	work platform	hoisting	form	building	new construction	spotter	1622
Fall from elevation	na	na	>6'	yes	no	yes	none	none	none	1	0	none	unkno wn	M	31	mortar	lateral	scaffold	building	new construction	mason	1741
Fall from elevation	na	na	>6'	no	no	no	none	none	none	1	0	none	unkno wn	M	48	none	none	suspension scaffold	building	repair	parapet repair on roof	1741
Fall from elevation	na	na	>6'	impro per use	yes	no	none	none	none	1	2	none	unkno wn	M	26,??	none	none	suspension scaffold	building	renovation	building restoration	1741
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	1:00 PM	M	29	scaffold frame	hoisting	scaffold	unknown	unknown	scaffold dismantling	1741
Fall from elevation	na	na	>6'	no	no	yes	none	none	screw gun	1	0	none	11:30 AM	M	29	none	none	roof opening	building	unknown	unknown	1743
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	52	copper tubing	lateral	none	building	new construction	plumber mason- unloading block	1711
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	52	concrete block	lateral	scaffold	building	new construction	block	1741
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	57	concrete block	lateral	scaffold	building	unknown	mason	1741
Fall from elevation	na	na	>6'	no	no	yes	none	none	none	1	0	none	unkno wn	M	45	none	none	none	building	unknown	unknown	1741

Fall from elevation	na	na	>6'	no	yes	yes	no	no	no	no	1	1	none	8:00 AM	M,M,48,41	sheetrock	lateral	none	movie theater	new construction	drywall	1742
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	1	0	none	6:30 AM	M,44	brick	lateral	scaffold	building	unknown	mason	1741
Fall from elevation	na	na	>6'	yes	no	no	no	no	no	no	1	0	none	unkno wn	M,53	none	none	boatswain chair	chimney	unknown	open air parts	1741
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	1	0	none	unkno wn	M,25	none	none	none	pre-engineered building	new construction	unknown	1541
Fall from elevation	na	na	1-6'	no	no	yes	no	no	no	no	1	0	none	10:00 AM	M,21	wood	lateral	scaffold	house	new construction	mason	1741
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	1	0	none	1:30 PM	M,21	none	none	none	building	repair	electrician	1731
Fall from elevation	na	na	1-6'	no	no	yes	no	no	no	no	1	0	none	unkno wn	M,28	none	none	step ladder	building	unknown	electrician helper lost balance	1741
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	1	0	none	unkno wn	M,28	mortar	lateral	scaffold	building	unknown	mason	1741
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	1	0	none	unkno wn	M,35	insulated paneling	lateral	none	building	unknown	roofer	1741
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	1	none	unkno wn	M,M,42,40	paint	altering	attached to dock canopy	unknown	unknown	painting	1741
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	1	0	none	unkno wn	M,44	none	none	none	building	unknown	supervisor	1795
Fall from elevation	na	na	1-6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M,62	load person	lateral	none	none	unknown	carpenter	1751
Fall from elevation	na	na	>6'	no	no	yes	no	no	no	no	1	0	none	11:00 AM	M,63	roofing caulk	altering	ladder	building	repair	roof repairs	1741
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M,41	none	none	ladder	fiberglass storage tank	unknown	plumber/pipe fitter	1711

Fall from elevation	na	na	unk no wn	no	no	yes	none	none	none	1	0	none	unkno wn	M	59	none	sections of hoisting flowering	none	scaffold	unknown	unknown	unknown	1742
Fall from elevation	na	na	>6 no	no	yes	none	none	none	none	1	0	none	unkno wn	M	17	none	silos wood, extension cord	ladder	silos	demolition	farm worker	1795	
Fall from elevation	na	na	>6 no	no	yes	none	none	saw	none	1	0	none	unkno wn	M	37	none	altering	roof openings	store	new construction	carpenter	1711	
Fall from elevation	na	na	>6 no	no	yes	scissor lift	project	none	none	1	0	none	unkno wn	M	52	none	none	hole in ground	none	unknown	unknown	1711	
Fall from elevation	na	na	1-6 feet no	no	yes	compact or	project	none	none	1	0	none	unkno wn	M	45	none	dirt	lateral	undergrou nd pipe	unknown	equipment operator	1711	
Fall from elevation	na	na	1-6 no	no	yes	none	none	none	none	1	0	none	unkno wn	M	59	none	window	altering	building	repair	window work window	1793	
Fall from elevation	na	na	>6 no	no	yes	none	none	none	none	1	0	none	unkno wn	M	40	none	window ceasing decking	altering	building	unknown	ceasing installer	1793	
Fall from elevation	na	na	>6 no	yes	no	forklift	project	none	none	1	1	none	unkno wn	M,M	36,30	none	bolts, people	hoisting	building	new construction	steel worker	1791	
Fall from elevation	na	na	>6 no	no	yes	none	none	welder	none	1	0	none	2.00 PM	M	30	none	none	ladder	building	new construction	welder/cutter	1711	
Fall from elevation	na	na	>6 no	no	yes	none	none	none	none	1	0	none	unkno wn	M	27	none	roof tie down devices	roof opening	building	new construction	unknown- steel company	1791	
Fall from elevation	na	na	>6 unk	no	yes	none	none	none	none	1	0	none	unkno wn	M	53	none	none	none	building	repair	hvac mechanic	1711	
Fall from elevation	na	na	no wn	no	yes	none	none	none	none	1	0	none	unkno wn	M	66	none	none	ladder	building	new construction	unknown	1711	
Fall from elevation	na	na	>6 no	yes	yes	none	none	none	none	1	0	none	unkno wn	M	35	none	metal roof panel	roof openings	building	unknown	steel worker	1791	
Fall from elevation	na	na	>6 no	no	yes	none	none	none	none	1	0	none	11:25 AM	M	23	none	debris	lateral	steam boiler	demolition	laborer	1795	

Fall from elevation	na	na	>6'	yes	no	no	no	no	no	no	1	1	none	unkno wn	M	26,43	none	none	scaffold	water tank	unknown	unknown	1721
Fall from elevation	na	na	>6'	unkno wn	no	no	no	no	no	no	1	0	none	unkno wn	M	59	none	none	platform	unknown	unknown	unknown	1721
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	34	insulation and tape	lateral	none	building	unknown	insulator/steel worker?	1791
Fall from elevation	na	na	>6'	yes	no	no	no	no	no	no	1	0	none	unkno wn	M	51	steel sheet	lateral	none	refinery	unknown	steel worker	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	9:15 AM	M	38	I-beams	none	none	building	new construction	structural metal worker	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	28	none	none	none	building	unknown	steel worker	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	1:50 PM	M	33	welding lead	lateral	roof openings	warehouse	new construction	welder	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	20	none	none	scaffold	building	new construction	welder	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	37	steel brace	altering	none	building	unknown	steel worker	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	61	none	none	ladder,scalf old	building	new construction	mason	1741
Fall from elevation	na	na	>6'	no	yes	yes	yes	yes	yes	yes	1	0	none	unkno wn	M	20	sheet rock	none	none	building	new construction	sheet rock worker	1742
Fall from elevation	na	na	>6'	no	no	no	no	no	no	no	1	0	none	unkno wn	M	30	chicken wire	lateral	scaffold	building	new construction	unknown- installing steel?	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	46	metal floor decking	lateral	none	building	new construction	steel worker	1791
Fall from elevation	na	na	>6'	no	yes	no	no	no	no	no	1	0	none	unkno wn	M	45	roof top	altering	none	grain bin	demolition	cutter	1795

Fall from elevation	na	na	na	yes-guardrails	no	yes	none	none	none	1	0	none	unkno wn	M	31	tape/drywall	altering	none	building	unknown	drywall	1742
Fall from elevation	na	na	>6'	no	yes	none	none	cart	none	1	0	none	unkno wn	M	49	none	none	floor opening	building	unknown	unknown	1742
Fall from elevation	na	na	>6'	no	yes	none	none	paint brush/scraper	none	1	0	none	unkno wn	M	60	none	none	scaffold	building	repair	painter	1799
Fall from elevation	na	na	>6'	no	yes	none	none	none	none	1	0	none	12:30 PM	M	36	metal l-bar	lateral	scaffold	supermarket	new construction	drywall?	1742
Fall from elevation	na	na	>6'	no	yes	none	none	none	none	1	0	none	unkno wn	M	29	drywall	altering	none	building	unknown	drywall	1742
Fall from elevation	na	na	>6'	no	yes	yes	aerial lift	project	bucket	1	0	none	unkno wn	M	36	light pole	hoisting	none	unknown	demolition	electrician	1799
Fall from elevation	na	na	>6'	no	yes	no	forklift	project	none	1	1	none	11:30 AM	M/M	52,32	none	none	working platform	building	unknown	masonry bricks-masonry	1743
Fall from elevation	na	na	>6'	unkno wn	no	yes	none	none	hammer	1	0	none	unkno wn	M	40	wood	lateral	ladder	building	unknown	carpenter?	1751
Fall from elevation	na	na	>6'	yes-improper	no	yes	none	none	none	1	0	none	unkno wn	M	21	none	none	none	microwave tower	demolition	demolisher	1799
Fall from elevation	na	na	>6'	no	yes	none	none	none	none	1	0	none	unkno wn	M	33	none	none	none	communications tower	new construction	inspector	1796
Fall from elevation	na	na	unkno wn	no	yes	yes	elevator	project	none	1	0	none	unkno wn	M	51	oil	lateral	none	building	repair	elevator repairer	1796
Fall from elevation	na	na	>6'	no	no	no	none	welder	none	1	0	none	4:55 PM	M	48	welding lead	lateral	none	powerplant	repair	boilermaker	1711
Fall from elevation	na	na	>6'	no	yes	none	none	none	none	1	0	none	unkno wn	M	31	roof materials	hoisting	opening	warehouse	demolition	roof demolition	1795
Fall from elevation	na	na	>6'	no	yes	no	none	none	none	1	0	none	unkno wn	M	34	electrical panel	lateral	trash chute	building	demolition	demolisher/boiler	1795

Fall from elevation	na	na	>6'	no	yes	no	no	no	personnel lift	none	none	0	1	none	10:40 AM	M	31	debris	lateral	none	building	demolition	laborer	1795
Fall from elevation	na	na	>6'	no	no	no	no	project	project	none	none	1	0	none	unkno wn	M	47	none	none	none	building	unknown	sheetmetal duct installer	1711
Fall from elevation	no	na	>6'	yes	failed	no	no	project	dallas hoist machine	project	none	1	0	none	unkno wn	M	31	elevator	hoisting	car-sling	building	repair	elevator repairer	1796
Fall from elevation	na	na	>6'	no	no	no	no	none	none	none	none	1	0	none	unkno wn	M	31	roofing material	altering	none	building	demolition	asbestos worker	1795
Fall from elevation	na	na	1-6'	no	no	yes	no	none	power washer	none	none	1	0	none	10:00 PM	M	33	none	none	scaffold	building	unknown	washing ceiling	1799
Fall from elevation	na	na	>6'	no	no	unknown	no	none	torch	none	none	1	0	none	unkno wn	M	36	rebar/roof trusses	altering	none	building	demolition	cutter	1795
Fall from elevation	na	na	>6'	no	no	no	no	project	project	project	torch	1	0	none	unkno wn	M	58	stairway	altering/hoisting	none	building	demolition	cutter	1795
Fall from elevation	na	na	>6'	no	no	yes	no	none	torch	none	none	1	0	none	unkno wn	M	37	rebar and concrete	altering	none	building	demolition	cutter	1795
Fall from elevation	na	na	>6'	use	improper	no	yes	none	none	none	none	1	0	none	10:00 AM	M	37	steel	lateral	roof opening	Building	new construction	structural metal workers	1629
Fall from elevation	na	na	>6'	use	improper	no	yes	none	none	none	none	1	0	none	unkno wn	M	27	none	none	scaffold	Clarifier Tank	unknown	plumber	1629
Fall from elevation	na	na	>6'	no	no	yes	no	none	torch	none	none	1	0	none	unkno wn	M	36	metal	altering	none	building	unknown	cutter	1795
Fall from ground level	na	na	na	na	no	yes	no	none	wheelbarrow	none	none	1	0	none	unkno wn	M	51	concrete	lateral	none	building	new construction	concrete finisher	1771
Fall from ground level	na	na	na	na	yes	no	no	none	none	none	none	0	1	wind	3:20 PM	M	26	steel columns	none	none	steel structure	new construction	steel workers	1791
Fire	na	yes	na	no	yes	yes	yes	none	pneumatic chipping hammer	none	none	2	0	none	11:10 AM	M	32,37	gas/vapors	none	none	sewage effluent channel	repair	plumber/pipe fitter	1629

Natural Causes	na	na	>6	na	na	no	no	no	no	no	no	1	0	0	none	unkno wn	M	37	none	none	none	none	building	unknown	roofer	1542
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	none	unkno wn	M	49	unknown	none	none	landscape	unknown	unknown- trimming brush	1742	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	none	unkno wn	M	48	none	none	none	fence	repair	laborer	1542	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	none	2:45 PM	M	51	none	none	none	none	unknown	unknown	unknown	1629
Natural causes	na	na	na	na	na	yes	no	no	no	no	no	1	0	0	none	unkno wn	M	51	none	unknow n	none	none	unknown	owner	1542	
Natural causes	na	na	10	na	no	yes	no	no	no	no	no	1	0	0	none	7:00 PM	M	52	none	none	trench	sewer system	new construction	equipment operator	1623	
Natural causes	na	na	>6	na	no	no	no	no	no	no	no	1	0	0	none	11:00 AM	M	41	bolts	lateral	stepladder	steel structure	new construction	unknown- steel worker?	1791	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	none	12:00 PM	M	58	none	none	none	none	unknown	unknown	1623	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	none	unkno wn	M	38	none	none	none	none	unknown	unknown	1629	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	none	11:15 AM	M	63	none	none	scaffold	building	new construction	mason	1741	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	heat	3:00 PM	M	54	none	none	none	tank	repair	laborer	1629	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	heat	12:30 PM	M	39	none	none	none	unknown	new construction	mason	1741	
Natural causes	na	na	na	na	na	no	no	no	no	no	no	1	0	0	none	2:30 PM	M	62	none	none	none	house	new construction	electrical	1731	
Natural causes	na	yes	na	na	na	no	no	no	no	no	no	1	0	0	none	unkno wn	M	32	none	none	none	culvert	repair	welder/cutter	1629	

Natural causes	na	na	na	na	na	na	no	no	no	no	1	0	none	5:20 PM	M	35	none	none	none	house	repair	roofer	1761
Natural causes	na	na	na	na	na	na	no	no	no	no	1	0	none	unkno wn	M	35	drywall	lateral	none	unknown guardrails and culvert	new construction	drywall	1751
Other	na	na	na	na	na	na	no	no	no	no	1	0	none	unkno wn	M	53	none	none	none	reactor	unknown	equipment operator	1794
Other	no	yes	na	na	na	na	no	yes	no	no	1	0	none	unkno wn	M	40	nitrogen	none	none	reactor	repair	unknown	1799
Other	na	na	na	na	na	na	no	yes	no	no	1	0	none	unkno wn	M	21	wood	altering	none	building	unknown	roofer	1761
Other	na	na	na	na	na	na	no	no	no	no	1	0	none	11:00 AM	M	29	water	lateral	none	highway	new construction	truck driver	1794
Other	na	na	na	na	na	na	no	yes	no	no	1	0	none	unkno wn	M	30	none	none	none	none	unknown	equipment operator	1794
Other	na	yes	na	na	na	na	no	unkno wn	no	no	1	0	none	unkno wn	M	34	unknown	none	none	building	repair	plumber/pipe fitter	1711
Other	na	na	na	na	na	na	no	yes	no	no	1	0	none	unkno wn	M	42	sand	lateral	debris pile of trees	golf course	new construction	equipment operator	1611
Struck by equipment	na	na	na	na	na	na	yes	no	no	no	1	0	none	unkno wn	M	36	none	none	none	parking garage	demolition	demolisher	1542
Struck by equipment	na	na	na	na	na	na	yes	no	no	no	1	0	none	unkno wn	M	32	traffic controls	lateral	none	highway	new construction	traffic controller	1611
Struck by equipment	na	na	na	na	na	na	yes	no	no	no	1	0	none	unkno wn	M	18	none	none	excavation	unknown	unknown	compacting soil	1794
Struck by equipment	na	na	na	na	na	na	yes	yes	no	no	1	0	none	unkno wn	M	60	debris	lateral	none	unknown	unknown	laborer	1794
Struck by equipment	na	na	na	na	na	na	yes	no	no	no	1	0	none	unkno wn	F	23	traffic controls	lateral	none	highway	unknown	traffic controller	1611

Struck by equipment	na	na	na	na	na	na	na	na	na	no	yes	no	scraper	project	none	1	0	none	AM	M	22	windrow	lateral	none	housing complex	new construction	grade checker	1629	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	aerial lift	platform project	none	1	0	none	unkno wn	M	17	none	none	none	building aircraft	new construction	operating aerial lift	1721	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	automated work	platform project	none	1	0	none	unkno wn	M	38	none	none	none	maintenace stand	unknown	platform when failed	1791	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	dump truck	project	none	1	0	none	unkno wn	M	35	asphalt	lateral	none	highway	repair	construction trade	1611	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	dump truck	project	none	1	0	none	unkno wn	F	50	none	none	none	roadway	new construction	flagger	1622	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	crane	project	bucket	1	0	none	unkno wn	M	55	none	none	none	bridge	demolition	demolisher	1622	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	dump truck	project	none	1	0	none	5:00 AM	F	36	none	none	none	roadway	unknown	flagger	1622	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	yes	yes	truck	different contractor	none	1	0	none	11:05 PM	M	20	none	none	none	limited access highway	erection/high way repair	delivery person	1791	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	dump truck	project	none	1	0	none	unkno wn	M	54	none	none	none	none	unknown	unknown	unknown	1622
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	truck	unknown	none	1	0	none	unkno wn	M	53	none	none	concrete barriers	roadway	unknown	unknown	unknown	1622
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	no	no	vehicle	private	none	1	0	none	unkno wn	M	50	none	none	none	highway	repair	highway construction	1629	
Struck by equipment	no	na	na	na	na	na	na	na	na	no	yes	yes	head oilfield pump	painting equipment	none	1	0	none	unkno wn	M	46	none	none	none	oilfield production facility	unknown	painter	1721	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	yes	yes	truck	project	none	1	1	none	unkno wn	M	22:28	none	none	none	road	unknown	concrete finisher and mason	1771	
Struck by equipment	na	na	na	na	na	na	na	na	na	yes	yes	yes	dump truck	project	none	1	0	none	2:10 PM	M	40	soil cement	lateral	none	bridge	unknown	equipment operators	1629	

Struck by equipment	na	na	>6	no	yes	no	truck, bucket truck	private; project	none	1	0	none	4:35 PM	M	41	light bulbs	altering	none	roadway traffic signals	repair	electrical-traffic	1731
Struck by equipment	na	na	na	na	yes	no	vehicle	private	none	1	0	none	unkno wn	M	48	traffic controls	none	none	roadway	unknown	laborer	1622
Struck by equipment	na	na	na	na	yes	no	material hoist	project	none	1	0	none	unkno wn	M	42	none	none	none	unknown	unknown	unknown	1771
Struck by equipment	na	na	na	na	yes	no	crane	project	personnel carrier	1	0	none	unkno wn	M	49	pole	hoisting	none	none	unknown	(SIC 1731- electrical)	1731
Struck by equipment	na	na	na	na	yes	no	vehicle	private	none	1	0	none	unkno wn	F	52	none	none	none	roadway	unknown	flagger	1611
Struck by equipment	na	na	na	na	yes	no	dumptruck	project	none	1	0	none	unkno wn	M	24	none	none	none	roadway	unknown	construction laborer	1611
Struck by equipment	na	na	na	na	yes	no	grader	project	grade level marker	1	0	none	unkno wn	M	50	earth	lateral	none	none	unknown	surveyor	1611
Struck by equipment	na	na	na	na	yes	no	vehicle	private	none	1	0	none	8:30 AM	M	41	wood	none	none	road sign	new construction	unknown	1611
Struck by equipment	na	na	na	na	yes	no	crane	project	none	1	0	none	10:45 AM	M	24	gravel	hoisting	none	interstate	unknown	laborer	1771
Struck by equipment	na	na	na	na	yes	no	backhoe	project	none	1	0	none	unkno wn	M	39	rock	hoisting	none	none	unknown	unloading/loading rocks into bucket	1741
Struck by equipment	na	na	na	na	yes	no	company vehicle	private; project	none	1	0	none	unkno wn	M	27	none	none	none	highway	unknown	electrician by trade	1731
Struck by equipment	na	na	na	na	yes	no	dumptruck	project	none	1	0	none	9:35 AM	M	40	asphalt	lateral	none	roadway	repair	asphalt worker	1611
Struck by equipment	na	na	na	na	yes	no	dumptruck	project	none	1	0	none	2:20 AM	M	50	none	none	none	roadway	repair	laborer	1622
Struck by equipment	na	na	na	na	no	yes	wood chipper	project	hood to chipper	1	0	none	4:30 PM	M	34	none	none	none	none	unknown	equipment operator	1795

Struck by equipment	na	na	na	na	na	yes	no		dumprtr ck	project	none	1	0	none	1-25 PM	M	58	unknown	lateral	none	unknown	unknown	equipment operator	1629
Struck by equipment	na	na	na	na	na	yes	no		dump truck	project	none	1	0	none	10:00 PM	F	51	unknown	lateral	none	unknown	new construction spotter	1629	
Struck by equipment	na	na	na	na	na	yes	no		truck	private	none	1	0	none	unkno	M	19	traffic cone	lateral	traffic control zone	repair	electrical	1731	
Struck by equipment	na	na	na	na	na	yes	no		scissor lift	project	none	1	0	none	unkno	M	28	conduit	lateral	none	unknown	electrical	1731	
Struck by equipment	na	na	na	na	na	yes	no		gradali, dozer	project	none	1	0	none	12:30 PM	M	20	debris	lateral	none	unknown	equipment operator	1629	
Struck by equipment	na	na	na	na	na	yes	no		vehicle	public	none	1	0	none	unkno	M	52	sealer for pavement	lateral	none	new construction	electrical?	1731	
Struck by equipment	na	na	na	na	na	yes	no		crane	project	boom	1	0	none	unkno	M	27	pipe	hoisting	excavation	unknown	glazier	1542	
Struck by equipment	na	na	na	na	na	yes	no		backhoe	project	none	1	0	none	11:15 AM	M	19	none	none	trench	unknown	mason	1711	
Struck by equipment	na	na	unkno wn	na	na	yes	no		pickup truck	private	none	1	0	none	unkno	M	52	none	none	none	highway	unknown	flagger driller/equip ment	1611
Struck by falling Material	na	na	na	na	na	yes	no		drilling machine	project	none	1	0	none	unkno	M	60	tree	none	none	none	new construction operator	1799	
Struck by falling Material	na	na	na	na	na	no	yes		none	none	none	1	0	none	unkno	M	33	ammonia nitrate, rock	none	protective magazine	new construction	explosive blaster	1611	
Struck by falling Material	na	na	na	na	na	yes	no		none	none	none	0	2	ice	unkno	wn	MM/25,34	none	none	power generation tower	new construction	structural metal workers	1542	
Struck by falling Material	na	na	na	na	na	no	no		none	none	none	1	0	none	unkno	M	45	steel rebar	none	scaffold	unknown	scaffolding up to 18 floor carpenter working on formwork	1741	
Struck by falling Material	na	na	na	na	na	yes	no		snorkel boom	project	none	1	0	none	7:30 AM	M	28	concrete	hoisting	formwork	block wall	new construction formwork	1741	

Struck by falling Material	na	na	na	na	na	na	na	na	no	no	no	no	1	0	none	unkno wn	M	52	concrete	hoisting	none	unknown	new construction	precast concrete beam	1741
Struck by falling Material	na	na	na	na	na	na	na	na	no	yes	log truck	project hammer	1	0	none	PM	M	33	logs	hoisting	none	none	unknown	Mail handling	1521
Struck by falling Material	na	na	na	na	na	na	na	na	yes	yes	none	none	1	0	none	unkno wn	M	28	wood beam	hoisting	none	none	unknown	laborer	1521
Struck by falling Material	na	na	na	na	na	na	na	na	no	yes	none	acetylene/oxygen cutting torch	1	0	none	7:00 AM	M	39	metal drums	altering	none	none	unknown	welder/cutter	1611
Struck by falling Material	na	na	na	na	na	na	na	na	yes	yes	none	none	1	0	none	unkno wn	M	79	roof beam	none	none	mobile home	demolition crew	1799	
Struck by falling Material	na	na	na	na	na	na	na	na	yes	no	none	none	1	0	none	unkno wn	M	35	wood	altering	formwork	unknown	carpenter	1741	
Struck by falling Material	na	na	na	na	na	na	na	na	yes	no	none	shovel	1	0	none	unkno wn	M	35	stone	none	excavation	stone wall	demolition	carpenter	1799
Struck by falling Material	na	na	na	na	na	na	na	na	no	yes	semicircular	project s	1	0	none	unkno wn	M	53	concrete	none	none	unknown	unknown equipment operator?	1791	
Struck by falling Material	na	na	na	na	na	na	na	na	no	no	none	none	1	0	none	unkno wn	M	54	perlins	none	building	new construction	steel worker	1791	
Struck by falling Material	na	na	na	na	na	na	na	na	no	no	unknow	emulsion sprayer	1	0	none	12:45 PM	M	50	dual tire and axle	none	traffic controls	roadway repair	emulsion sprayer operator	1611	
Struck by falling Material	na	na	na	na	na	na	na	na	no	yes	backhoe	project	1	0	none	unkno wn	M	59	trees	lateral	none	none	equipment operator	1623	
Struck by falling Material	na	na	na	na	na	na	na	na	yes	yes	none	none	1	0	none	unkno wn	M	34	power pole sections	hoisting	none	demolition	electrician	1623	
Struck by falling Material	na	na	na	na	na	na	na	na	no	no	unkno wn	none	1	0	none	11:00 AM	M	39	scaffold rod	none	scaffold system	unknown	unknown	1799	
Struck by falling Material	na	na	na	na	na	na	na	na	no	yes	none	none	1	0	none	unkno wn	M	47	steel	none	guard house	demolition	demolisher	1542	

Struck by falling Material	na	na	na	na	na	na	na	na	no	no	no	no	no	no	1	0	none	unkno: wn	M	45	wreckage	none	none	water pumping station	demolition	unknown-demolisher	1795
Struck by falling Material	na	na	no	unk	no	no	no	no	no	no	no	no	no	no	1	0	none	2:40 PM	M	25	as unit	hoisting	none	building	unknown	spotter	1711
Struck by falling Material	na	na	na	na	na	na	na	no	yes	no	no	no	no	no	1	0	none	unkno: wn	M	46	steel pipe	altering	none	unknown	demolition	cutter	1795
Struck by falling Material	na	na	na	na	na	na	na	yes	no	no	no	no	no	no	1	0	none	unkno: wn	M	34	concrete beam	hoisting	none	building	new construction	carpenter	1542
Struck by falling Material	na	na	na	na	na	na	na	yes	no	no	no	no	no	no	1	1	wind	unkno: wn	M	M.M.22.?	wooden beams	none	railroad trestle	demolition	demolisher	1795	
Struck by falling Material	na	na	na	na	na	na	na	no	no	no	no	no	no	no	1	0	wind	unkno: wn	M	29	concrete	none	building	new construction	carpenter	1541	
Struck by falling Material	na	na	na	na	na	na	na	unkn	own	no	no	no	no	no	1	0	none	unkno: wn	M	42	steel beam	unknow	unknown	unknown	cleanup	1795	
Struck by falling Material	na	na	na	na	na	na	na	no	no	no	no	no	no	no	1	0	none	unkno: wn	M	69	tie beam	none	building	demolition	unknown	1795	
Struck by falling Material	na	na	na	na	na	na	na	yes	no	no	no	no	no	no	1	0	none	unkno: wn	M	39	shelter	none	block walls	new construction	unknown	1795	
Struck by falling Material	na	na	na	na	na	na	na	yes	no	no	no	no	no	no	1	0	none	unkno: wn	M	30	steel column	hoisting	house	new construction	carpenter	1541	
Struck by falling Material	na	na	na	na	na	na	na	no	yes	no	no	no	no	no	1	0	none	2:20 PM	M	45	tree	altering	unknown	unknown	cutting trees	1794	
Struck by falling Material	na	na	na	na	na	na	na	no	no	no	no	no	no	no	1	0	none	unkno: wn	M	29	debris	none	building	demolition	demolisher/aborer	1795	
Struck by falling Material	na	na	na	na	na	na	na	yes	no	no	no	no	no	no	1	0	none	2:00 PM	M	56	trees	altering	none	none	unknown	directing equipment operations	1629
Struck by falling Material	na	na	na	na	na	na	na	yes	no	no	no	no	no	no	1	0	none	unkno: wn	M	50	wood	none	formwork	new construction	unknown	1542	

