



2015
**Employee Safety,
Health and
Environmental
Field Reference
Guide**

NYC
DDC Department of
Design and
Construction

Revised April 2015

**NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION
EMPLOYEE SAFETY, HEALTH, AND ENVIRONMENTAL
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Section 1 – Introduction and Basic Safety Precautions

DDC SAFETY AND HEALTH POLICY STATEMENT

DDC is comprised of nearly 1,200 professionals who are committed to providing New York City with the highest quality public works projects while protecting people, property, and the environment. DDC is New York City's primary capital construction manager.

While conducting its business, the Agency is also committed to providing all of its employees with a safe and healthy work environment. This field reference guide is an important part of the Agency's Environmental, Health, and Safety Program (EHS Program). It is a compilation of information on occupational safety and health topics intended to guide employees who perform all or some of their duties in the field.

Along with the right to a safe and healthy work environment comes the responsibility for each employee, regardless of their position within DDC, to perform their work tasks safely and adhere to all requirements of the Agency's EHS program and this field reference guide. No work task is too important that we cannot take the time to do it safely.

A safe and healthy work environment can only be achieved through a partnership of the DDC and its employees:

DDC will:

1. Develop policies and programs to ensure employees are provided with a safe and healthy work environment.
2. Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).
3. Follow the hierarchy of controls to minimize exposure to workplace hazards.
4. Issue Personal Protective Equipment (PPE) when engineering and administrative controls cannot eliminate or minimize workplace hazards to an acceptable level.
5. Train all employees in job related safety and health including the use, storage, maintenance, and replacement of PPE.

DDC employees will:

1. Read and understand the information in this field reference guide.
2. Adhere to all safety and health policies and procedures.
3. Will use, store, maintain PPE; and replace it once defective or past its useful life.
4. Will familiarize themselves with JHA associated with their work tasks.
5. Not perform tasks, operate equipment, or wear PPE for which they have not received training.

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INTRODUCTION

DDC provides a project management role for various client City Agencies in constructing of public buildings and infrastructure. DDC employees provide oversight, management, design, inspection, auditing, and technical support to contractors and consultants who actually provide the construction services. Fulfilling these roles, DDC employees may be involved in pre-construction, environmental and chemical hazard assessment and abatement, qualification of contractors, and construction including demolition, renovations of existing buildings and systems, and new installations.

This field reference guide contains summaries of various environmental, safety, and health topics that may be encountered at project locations. The summaries are designed to be "plain language" guides, providing a quick reference for immediate use. These summaries are not intended to replace mandatory training, programs, policies, procedures, or plans developed by the Agency; relevant OSHA, NFPA, ANSI rules and requirements or Federal, State, City Codes, rules, or regulations. For further information, refer to all applicable regulatory requirements. Furthermore, concerns regarding workplace safety and health should be discussed with immediate supervisor.

DDC employees may perform work tasks on multi-employer worksites. Alternatively, employees may perform work tasks in DDC exclusive settings (e.g. preconstruction assessment). In both settings, DDC is ultimately responsible for the protection of its employees.

DDC will assess the work environment of its workers to determine if hazards are or are likely to be present. The principal tool used by DDC to identify and mitigate workplace hazards is the Job Hazard Analysis (JHA). The JHA must be a written document, certified by a responsible person and be available for immediate use or produced upon request.

- Before entering any work environment, employees should familiarize themselves with the applicable JHA, recommended PPE, and all pertinent sections of this field reference guide.
- If for some reason a JHA is not available to you, **do not enter the jobsite. Contact your supervisor immediately.**
- If for some reason you do not have the proper PPE as per the JHA, **do not enter the jobsite. Contact your supervisor immediately.**

**IF ANY HAZARDOUS CONDITION IS DETECTED OR SUSPECTED
VACATE THE IMMEDIATE AREA AND CALL YOUR SUPERVISOR.**

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ADDITIONALLY IN CASE OF:

MOTOR VEHICLE ACCIDENT

911 if there are any injuries, then:

DDC Safety and Health Officer at 718-391-1671

Operational and Facilities Management Supervisor at 718-391-1852

RELEASE OF A HAZARDOUS MATERIAL TO THE SOIL, WATER, OR AIR

Environmental and Geotechnical Services

Director at 718-391-3134

POTENTIAL IDENTIFICATION OF ASBESTOS, LEAD, PCB'S

Environmental and Geotechnical Services

Director at 718-391-3134

UNMARKED OR UNLABELED OR LEAKING CONTAINERS

Environmental and Geotechnical Services

Director at 718-391-3134

CONSTRUCTION ACCIDENTS OR UNSAFE CONDITIONS

Quality Assurance and Construction Safety

Director at 718-391-1395 and

Program Unit Assistant Commissioner

ODOR: GAS, FUEL, CHEMICAL, OR ANY UNUSUAL OR UNFAMILIAR ODOR

911 then

Environmental and Geotechnical Services

Director at 718-391-3134

WEST NILE VIRUS AND RODENT INFESTATION

Environmental and Geotechnical Services

Director at 718-391-3134

MOLD, INDOOR AIR QUALITY (OUTSIDE OF DDC HEADQUARTERS)

Environmental and Geotechnical Services

Director at 718-391-3134

PERSONAL PROTECTIVE EQUIPMENT (PPE), INSECT REPELLANT, ETC.

DDC Safety and Health Officer at 718-391-1671

KEY SAFETY, HEALTH, AND ENVIRONMENTAL CONTACTS:

Site Safety, Engineering and Support, Associate Commissioner at 718-391-1391

Quality Assurance and Construction Safety, Director at 718-391-1395

Environmental & Geotechnical, Director at 718-391-3134

DDC Safety and Health Officer at 718-391-1671

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TIME, DISTANCE AND SHIELDING

There are four basic rules that should guide any activities involving hazardous conditions or operations on DDC field projects.

- **LIMIT YOUR TIME IN THE AREA OF HAZARDOUS CONDITIONS OR OPERATIONS. (If you do not need to be in the area - stay away!)**
- **OBSERVE HAZARDOUS CONDITIONS OR OPERATIONS FROM THE GREATEST DISTANCE POSSIBLE.**
- **PROTECT YOURSELF BY ENSURING THAT THE CONTRACTOR HAS IMPLEMENTED THE NECESSARY ENGINEERING AND ADMINISTRATIVE CONTROLS TO MAINTAIN SAFE OPERATIONS**

And, always use

- **BASIC PPE (HARD HAT, REFLECTIVE VEST OR CLOTHING, SAFETY SHOES, AND EYE PROTECTION).**

Building on these basic rules, DDC field employees should avoid the following work environments and conditions.

Health Hazards

Asbestos Containing Materials (ACM) - The following could contain ACM: damaged or compromised pipe/duct/boiler/conduit insulation, sprayed on fire proofing, plaster, paint, transite, roofing materials, coal tar wrap, waterproofing, caulking, glazing, and flooring tiles.

Lead - Peeling paint or falling plaster.

Unlabeled Containers - Containers containing unknown solids, liquids or gases.

Leaking Containers - Containers (labeled or unlabeled) with leaking solids, fluids or gases.

Mold - Water damaged or stained building materials.

Areas with Standing Water - Standing water of unknown sources may have mosquito larvae, chemical contamination, or raw sewage.

Areas with Bird Droppings or Dead Birds/Areas of Rodent Infestation

Odors - Natural gas, fuel, chemical or unfamiliar odors.

Safety Hazards

Fall Hazards - Unprotected edges, floor/wall openings, compromised structural integrity, damaged stairs, or suspended scaffolds.

Confined Spaces - Manholes, vaults, pipes, ventilation ducts, tanks, tunnels, etc.

Electrical Hazards - Hanging wires, exposed or damaged electrical systems or equipment, standing water and energized electrical equipment.

Inadequate Lighting

Workplace Violence Areas or Conditions of Imminent Danger - Any unsafe condition or practices in any place of employment which are such that a danger exists which could reasonably be expected to cause death or serious physical harm immediately.

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PROPER CLOTHING TO BE WORN AT ALL DDC JOB SITES

“COME DRESSED FOR THE OCCASION”

The clothes you choose to wear should reflect site conditions and activities. DDC work sites are not recreational areas nor are office areas.

DO WEAR LONG PANTS AND SHIRTS - PREFERABLY WITH LONG SLEEVES
DON'T WEAR SHORTS, TANK TOPS, etc.

DO WEAR PROPERLY FITTING CLOTHING
**DON'T WEAR LOOSE FITTING CLOTHING THAT COULD GET CAUGHT IN
POWERED CONSTRUCTION EQUIPMENT**

DO WEAR WATER-RESISTANT SAFETY SHOES WITH TOE PROTECTION
DON'T WEAR SNEAKERS, OPEN TOED SHOES, SANDALS, OR HIGH HEELS

DO CARRY EQUIPMENT AND SUPPLIES
**DON'T PLACE HAND TOOLS OR OTHER OBJECTS IN THE POCKETS OF YOUR
CLOTHING THAT COULD GET SNAGGED ON MOVING EQUIPMENT OR
CONTACT ENERGIZED SOURCES**

DO WEAR LAYERS DURING COLD TEMPERATURES
**DON'T WEAR BULKY JACKETS THAT COULD RESTRICT MOVEMENT OR
VISIBILITY**

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UNDERSTANDING AND USING THE GUIDES

The guides are divided into two general categories, safety (S) and health (H). Categories are further defined by a number. For example the first safety guide is S-01.

<i>Category:</i> ↓	<i>Topic:</i> The topic identifies the subject of the guide. It typically follows the titles used in the OSHA standards.
<i>Additional Information:</i> This section identifies the Codes and regulations that form the basis for the guide. It is typically a reference to the OSHA Construction Standards (29 CFR 1926) or NYC Local Laws. OSHA Standards can be found at www.osha.gov . Local Laws passed since 1990 can be found on the City Council website (http://legistar.council.nyc.gov/Legislation.aspx).	

PURPOSE:

Overall, the guides are provided to ensure a safe and healthy work environment and to educate the reader on the subject matter. Understanding the reason for specific requirements provides employees with information to conduct themselves in a safe and healthy manner.

SCOPE:

This section outlines the applicability, given potential hazard.

POTENTIAL FOR EXPOSURE:

This section outlines the potential for exposure to the topic. On most DDC construction sites engineering and administrative controls are provided by the contractors.

MAINTAINING YOUR SAFETY AND HEALTH:

Everyone is responsible for safety on a DDC project. DDC is responsible for its employees. DDC employees are responsible to follow DDC procedures and policies. Contractors are responsible for maintaining safety and health on a construction site.

DDC's Responsibilities:

This section summarizes DDC's responsibility to provide a safe and healthy work environment.

DDC Employees are required to work safely by:

This section summarizes DDC field employees' responsibility to provide a safe and healthy work environment.

Contractor's responsibilities:

This section summarizes the contractor's responsibility to provide a safe and healthy work environment.

Additional related information may be found in the following guide(s):

Sometimes various guides are interrelated. If information in other guides may be useful to your understanding of this guide, it will be listed in this section.

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Section 2 – Job Hazard Analysis Program

JOB HAZARD ANALYSIS (JHA) PROGRAM

DDC is committed to providing all of its employees a safe and healthy work environment. A job hazard analysis is a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment.¹

DDC is New York City's primary capital construction manager. While conducting its business, the Agency is also committed to providing all of its employees with a safe and healthy work environment. Typically a DDC employee is expected to provide project oversight on a site where multiple employers (e.g. general contractor, sub-contractors) are performing tasks. In these instances, the engineering controls and primary administrative controls are usually provided by others (contractors). OSHA recognizes four types of employers on a multi-employer worksite: a controlling employer, a creating employer, an exposing employer, and a correcting employer. By creating these categories, OSHA recognizes that employers can have a singular or multiple roles on a construction site. For example, employers can have employees exposed to a hazard (exposing employer) even if they did not create the hazard, or they are required to repair it (correcting employer). OSHA field inspectors use these categories to identify an employer's relationship to a hazardous condition and responsibility to rectify the problem. Identifying an "exposing employer" highlights that workers, in this case, on a construction site do not have to create a hazard to have potential exposure. An exposure to a hazard can occur by being present in the work environment or in close proximity to a hazard.

Hazard avoidance is the primary method of protecting DDC field employees. When hazard avoidance is not possible, preventing or minimizing hazards are typically accomplished by: engineering controls, administrative controls, and personal protective equipment (PPE). The focus of engineering controls is the work environment. The work task is conducted in an environment and with equipment designed to minimize or eliminate a hazard.

The focus of administrative controls is the workers and how they complete the work task. Administrative controls are policies and procedures to reduce or eliminate the workers exposure to a hazard.

When engineering and administrative controls are insufficient to eliminate or reduce a hazard to an acceptable level, additional DDC specific administrative controls will be implemented and / or PPE will be issued to supplement worker protection. Based on the experience of the DDC, basic PPE is mandatory on all construction projects.

DDC has four basic JHAs for field employees to reference. DDC employees should not engage in field activities not covered by an existing JHA. Instead they should consult with their supervisors. The four basic JHAs are:

¹ OSHA - JOB HAZARD ANALYSIS -U.S. Department of Labor Occupational Safety and Health Administration 3071, 2002 (Revised)

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JHA - 1, Public Buildings - All Units/Engineering Auditing - Conducting a Pre-construction Assessment

JHA – 2, Public Buildings - All Units - Managing a Public Building Project / Infrastructure - All Units - Managing an Infrastructure Project / Bureau of Quality Assurance and Construction Safety - Conducting a Site Inspection / Audit of a DDC Project

JHA – 3, Bureau of Environmental and Geotechnical Services (BEGS) - Conducting a Site Audit

JHA - 4, Site Engineering and Topographical Services (TOPO) - Surveying / Measure Depth of Underground Pipe

DDC employees should select the appropriate JHA to guide their actions and identify specific PPE requirements beyond the required basic PPE established by the Agency.

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Section 3 – Training Guidelines

FIELD EMPLOYEE TRAINING

All DDC field employees must complete the following training:

- Hazard Communication - Initial and Refresher every year.
- OSHA 10-hour Construction Safety Outreach Course - Must be renewed every five years.
- Field Employees Hazard Awareness Training.

Depending on job specific tasks, the following training may be required:

- Flagger Training
- MPT Training
- Confined Space Training
- 4-hour DOB Supported Scaffold User Course
- OSHA/NYC DOB Crane Training
- PPE Specific Training for PPE Exceeding Basic Requirements

Field employees should refer to the appropriate JHA(s) for additional training requirements.

Section 4 – Equipment and Operational Safety

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<i>Category:</i> Safety S-01	<i>Topic:</i> Basic Personal Protective Equipment (PPE)
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart E, Personal Protective and Life Saving Equipment 29 CFR 1926.28	

PURPOSE:

Whenever possible, hazards on DDC worksites are controlled by engineering and administrative controls. When hazards cannot be completely eliminated or reduced to safe levels, Personal Protective Equipment (PPE) will be required. The purpose of this guide is to ensure that DDC employees know when to wear PPE, what PPE is required, and when DDC employees use PPE they are aware of their responsibility to use it correctly, understand the limitations, and know how to maintain and store the PPE.

SCOPE:

OSHA requires that: “protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.”

If you are conducting DDC field work, the requirements for PPE are applicable.

POTENTIAL FOR EXPOSURE:

DDC relies on the contractor to institute engineering and administrative controls to either reduce the hazards on site or minimize the exposure to the hazards. When these two methods of control are not adequate to fully protect an individual, additional Personal Protective Equipment (PPE) is necessary.

PPE provides only barrier protection. When it is the wrong size, wrong type, used incorrectly, or defective the barrier can be compromised and an exposure will occur.

Training in all aspects of PPE is required to ensure that an exposure or injury does not occur.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC's Responsibilities:

- **Provide a Job Hazard Analysis (JHA) to identify proper PPE required to complete work tasks.**
- **Maintain an adequate amount of PPE in sufficient type, make, and size.**
- **Train DDC employees in all aspects of using PPE; selection, storage, use, inspection, maintenance, and replacement procedures.**
- **Mandate basic PPE to be used at all times.**

DDC Employees are required to work safely by:

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- **Knowing that they can be exposed to a hazard inherent on a jobsite or from work tasks performed by others.**
- **Knowing as project managers, avoidance is the best way to protect themselves from a hazard.**
- **Ensuring that basic PPE is used at all times including hard hat, reflective vest or clothing, eye protection and safety shoes.**
- **Ensuring that hearing protection and work gloves are available for immediate use.**
- **Understanding the limitations of basic PPE and being able to identify work conditions and tasks that require special PPE.**
- **Refraining from using PPE for which they have not been trained.**
- **Inspecting PPE regularly and replacing when defective.**

Contractor's responsibilities:

- **Conduct a Job Hazard Analysis (JHA) for all construction activities performed by their employees to determine the required PPE and maintain a copy of the JHA on the job-site.**
- **Institute the required Engineering Controls to eliminate or reduce the hazards on site.**
- **Institute the required Administrative Controls to eliminate or reduce the potential for exposure to a hazardous material or condition.**
- **Provide adequate signs identifying when specific PPE is required.**
- **Provide task specific PPE to employees as identified in the JHA.**
- **Ensure that employees use basic PPE at all times including hard hat, reflective vest, safety glasses, and safety shoes.**

Additional related information may be found in the following guides:

S-11 Fall Protection – Personal Fall Arrest System

H-05 Noise/ Hearing Protection

H-09 Respiratory Protection

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<i>Category:</i> Safety S-02	<i>Topic:</i> Compressed Air
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart I - Tools - Hand and Power 29 CFR 1926.302(b)	

PURPOSE:

The purpose of this guide is to educate DDC employees as to the hazards of working equipment that generates compressed air or tools that operate by compressed air.

SCOPE:

This guide applies to all instances when compressed air is used as a source of power on a construction site.

POTENTIAL FOR EXPOSURE:

Compressed air is used as a power source for pneumatic equipment. This guide is specific to supplying compressed air to pneumatic equipment.

In this application compressed air is considered a source of power and therefore its incorrect use can result in injury. Compressed air is used for painting, cleaning, chipping, hoisting, and pneumatic hammering. Hand tools for delivering fasteners are also supplied with compressed air.

The FDNY requires a permit for all stationary or fixed compressed air equipment. Excess pressure safety valves are required as part of the air delivery system. All connections in compressed air lines (hoses) must be secured together using wire ties, whip lines, or safety chains.

It is important that pneumatically driven equipment be operated, maintained, and stored per the manufacturer's specifications and requirements. All required safety devices must remain functional. For example, pneumatically driven nailers, staplers, and other similar equipment, which operate at a pressure greater than 100 psi at the tool, must have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the tool is in contact with the work surface. Failure of this safety device could pose a serious hazard. Despite this safety feature, it is possible for the fastener to pass through the substrate and strike a person on the other side of the work surface.

Air compressors powered by combustion engines can produce a silent killer, carbon monoxide. Carbon monoxide is odorless, colorless, and tasteless and therefore cannot be detected. If these engines are operated in enclosed spaces, lethal levels of carbon monoxide could accumulate.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC's Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**

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- **Bureau of Quality Assurance and Construction Safety requires contractors to have a complete JHA for all construction activities anticipated on a project.**
- **Bureau of Environmental and Geotechnical Services reviews contractor's site specific environmental plans for construction projects.**
- **Provide field hazard awareness training to all field employees.**

DDC Employees are required to work safely by:

- **Avoiding those areas where pneumatic tools are in use, especially those that eject fasteners.**
- **Being aware of the connections of pneumatic hoses to verify the presence of safety devices.**
- **Never allowing combustion engine driven compressors to be used in any enclosures – NO EXCEPTIONS!**
- **Never handling pneumatic tools – NO EXCEPTIONS!**

Contractor's responsibilities:

- **Store pneumatic tools properly when not in use; especially those tools that eject a fastener.**
- **Follow the manufacturer's specifications and requirements for pneumatic equipment.**
- **Obtain the required FDNY permit for stationary or fixed compressed air equipment.**
- **Install safety chains, safety clips or whip lines on all connections in pneumatic hoses.**
- **Ensure that all air receivers have a pressure gauge and pressure relief valve.**

Additional related information may be found in the following guide:

H-05 Noise/ Hearing Protection

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<i>Category:</i> Safety S-03	<i>Topic:</i> Compressed Gas Cylinders
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart J - Welding and Cutting 29 CFR 1926.350(a) 29 CFR 1926, Subpart F – Fire Protection and Prevention 29 CFR 1926.153 (LPG)	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are capable of recognizing and avoiding unsafe conditions involving compressed gas cylinders.

SCOPE:

Most often compressed gas cylinders are present on construction sites to support “Hot Work” activities. The two most common compressed gases on a construction site are acetylene and oxygen. This guide applies to all compressed gas cylinders.

LPG is the generic name for commercial propane. LPG is supplied in pressurized cylinders to keep it liquefied. While the cylinders are strong and not easily damaged, the valve can be vulnerable to impact. Leaks can occur from valves and pipe connections, most likely as a gas. The safety requirements for LPG are similar to compressed gases; therefore, it is included in this document.

POTENTIAL FOR EXPOSURE:

DDC employees are not authorized to handle compressed gas cylinders on DDC project sites.

Compressed gas cylinders pose two separate hazards on construction sites. The cylinders themselves can become damaged and the release of energy can propel the cylinder causing serious injury or death. There is enough energy to cause the cylinder to break through a block wall.

Besides the physical hazard associated with a damaged cylinder, the mishandling of a cylinder can cause a release of its contents and result in an exposure to the gas.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor’s site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have a complete JHA for all construction activities anticipated on a project.**
- **Bureau of Environmental and Geotechnical Services reviews contractor’s site specific environmental plans for construction projects.**
- **Provide field hazard awareness training to all field employees.**

DDC Employees are required to work safely by:

- **Evacuating themselves and others if a leaking cylinder is suspected.**

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- **Understanding that a released compressed gas or LPG can travel great distances.**

Contractor's responsibilities:

- **Provide adequate storage areas for all compressed gases out of the path of vehicular and construction equipment traffic.**
- **Secure cylinders (e.g., chain) to prevent from falling.**
- **Ensure that the protective cap covers the valve assembly when not in use.**
- **Separate stored oxygen and fuel gases by a minimum distance of twenty feet or separated by a five-foot high half hour fire rated wall.**
- **Transport and stores cylinders secured in an upright position with the protective cap in place.**
- **Lift cylinders properly in a substantial cradle or cage. Do not hoist cylinders by choking a sling around the cylinder body or neck.**
- **Obtain the required FDNY permit for the use and storage of flammable compressed gases.**

Additional related information may be found in the following guide:

S-29 Welding and Cutting (Hot Work)

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<i>Category:</i> Safety S-04	<i>Topic:</i> Cranes, Derricks, and Hoists
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart N - Cranes, Derricks, Hoists, Elevators and Conveyors, 29 CFR 1926.550 Cranes and Derricks and 29 CFR 1926.552, 1926.553, and 1926.554 Hoists	

PURPOSE:

The purpose of this guide is to provide DDC employees with adequate knowledge of the hazards associated with the use of cranes, derricks, and ancillary hoisting equipment. DDC employees are not authorized to and shall not operate this equipment. DDC employees should be familiar with hand signals used to direct the movement of the load.

SCOPE: This guide applies to the use of cranes, derricks, and hoisting equipment on DDC project sites.

POTENTIAL FOR EXPOSURE:

Hoists or hoisting describes all actions of a crane or derrick including lowering, lifting, booming in and out, and swinging. Cranes and derricks are two types of apparatus that are used to lift, lower, or move horizontally large and heavy loads.

The key points are that this is specialized equipment that is utilized to lift or lower heavy and large equipment and supplies to remote floors or areas. Besides the equipment that is part of the crane and derrick, there is also the equipment that is used to hold the load as it is hoisted. These activities must be coordinated and carefully carried out. Finally, severe consequences may occur if something goes wrong during use of this equipment.

It is essential that this equipment is operated by a trained and authorized operator. Additionally, this equipment must be operated within the specifications and limitations prescribed by the manufacturer.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have a complete JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**

DDC Employees are required to work safely by:

- **Being aware of "struck by" and "caught between" hazards associated with the rotating superstructure of the crane.**
- **Staying outside of the hazard areas created by the rotating crane and raised load.**
- **Staying vigilant of a moving crane.**
- **Remaining in full view of the operator or signal person.**

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- **Never operating a crane or derrick – NO EXCEPTIONS!**
- **Never resting or leaning against a crane - NO EXCEPTIONS!**

Contractor's responsibilities:

- **Comply with the manufacturer's specifications and limitations.**
- **Ensure that all operators are licensed / certified.**
- **Ensure that rated load capacities, operating speeds, etc are conspicuously posted on the equipment and are legible.**
- **Use ANSI hand signals.**
- **Employ a competent person to conduct a daily inspection prior to and during each use of the equipment.**
- **Develop and utilize a program to inspect hoisting equipment and to remove defective equipment from service.**
- **Ensure that equipment is a safe distance away from overhead power lines.**

Additional related information may be found in the following guides:

S-19 Overhead Power Lines

S-27 Slings

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<i>Category:</i> Safety S-05	<i>Topic:</i> Demolition
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart T - Demolition 2014 FDNY Fire Prevention Code - Chapter 14 - Fire Safety During Construction, Alteration, and Demolition	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are familiar with the initial site assessments and the plan to dismantle the structure. Furthermore, DDC employees must be constantly vigilant to changing conditions during the demolition process.

SCOPE:

This guide applies to all demolition operations in preparation for construction activities on DDC projects. It primarily focuses on the safe dismantling of structures.

POTENTIAL FOR EXPOSURE:

Demolition can be handled safely when properly planned, carried out with caution, and when debris is removed from the site efficiently and effectively. It is important to plan and control each component of the process in order to maintain a safe site. Besides protecting the construction site, there are additional requirements to protect the public and adjoining property.

An engineering and safety study should be conducted by the contractor prior to the start of demolition work. Each phase of the process must be carefully planned to prevent injuries or illnesses. The initial engineering study should assess the existing stability of the structure and the proper sequence to dismantle the building components. The initial safety study should identify existing hazards and develop strategies to protect employees during the dismantling of the building components.

Initial hazards that shall be addressed include the isolation of utilities and the removal of hazardous materials used to service the building (e.g., heating oil, etc.). Building components that contain hazardous materials such as asbestos, PCB's, mercury, lead, and other materials shall be removed before demolition begins.

Removal of debris from upper levels of a structure shall utilize a debris chute. Debris chutes must be noncombustible. Guard rails must be used to protect the opening to debris chutes on elevated floors. The discharge opening must also be protected to prevent debris discharge into public areas.

Improper disposal of demolition debris can result in harmful exposure to the community, the Agency, and the City. Debris removal equipment must be free from defects that could result in a release of the debris. Containers shall not be overfilled and must be covered before leaving the construction site. Any container left on the street or public thoroughfare overnight must be equipped with warning lights.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific**

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safety plans for construction projects.

- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Require the initial engineering and safety study has been completed.**

DDC Employees are required to work safely by:

- **Being familiar with the demolition engineering and safety study and plan.**
- **Being vigilant for fall hazards such as floor openings and open shafts.**
- **Being vigilant for hanging or damaged electrical equipment.**
- **Being familiar with the emergency evacuation plan.**
- **Being familiar with at least two means of egress from all areas.**

Contractor's responsibilities:

- **Complete an initial engineering and safety study.**
- **Identify and remove hazardous substances and building components prior to the demolition.**
- **Isolate and control utilities such as electric, gas, water, steam, and sewer.**
- **Remove glass prior to demolition and protect the openings.**
- **Install sidewalk sheds to protect the public.**
- **Provide a continuous barrier around the site perimeter.**
- **Use debris nets as required for buildings over 75 feet.**
- **Brace unsupported walls to prevent collapse.**
- **Remove construction debris to prevent overloading the remaining floors or structure.**
- **Use debris chutes to remove debris from elevated work areas.**
- **Develop a site specific emergency evacuation plan for demolition phase.**

Additional related information may be found in the following guides:

S-06 Electrical Safety
S-08, S-09, S-10, and S-11 Fall Protection
S-14 Housekeeping / Illumination/Sanitation
S-20 Permit Required Confined Space
S-24, S-25, and S-26 Scaffolds
S-29 Welding and Cutting (Hot Work)

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<i>Category:</i> Safety S-06	<i>Topic:</i> Electrical
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart K - Electrical	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are capable of recognizing and avoiding unsafe conditions involving temporary wiring and the use of electrically powered tools.

SCOPE:

This guide applies to all electrical distribution equipment, temporary wiring and associated equipment on DDC projects.

POTENTIAL FOR EXPOSURE:

DDC employees are not authorized to perform any work on electrical distribution systems on DDC project sites.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**

DDC Employees are required to work safely by:

- **Avoiding contact with energized power equipment and temporary branch wiring by observing all signs, barricades and barriers.**
- **Not using electrically powered construction tools and equipment.**
- **Exercising caution whenever entering an area where electrical distribution equipment is being worked on.**

Contractor's responsibilities:

- **Allow only qualified workers to work on electric distribution equipment and temporary wiring.**
- **Inspect all electrically powered tools prior to use and ensure proper maintenance in accordance with the manufacturer's requirements.**
- **Install temporary lighting circuits including the use of proper insulators for conductors and protective cages for light bulbs.**
- **Protect all circuits by connecting to Ground Fault Circuit Interrupters (GFCI). GFCI devices must be checked weekly and defective devices must be replaced immediately.**

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- **Ground the electrical system.**
- **Identify all circuits and label circuit breakers appropriately.**
- **Follow OSHA's Control of Hazardous Energy (Lock Out / Tag Out) procedures as required.**
- **Maintain all equipment and immediately remove from service any equipment that is defective.**

Additional related information may be found in the following guide:

S-13 Hazardous Energy & Lock Out / Tag Out

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<i>Category:</i> Safety S-07	<i>Topic:</i> Excavations and Trenching
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart P - Excavations	

PURPOSE:

The purpose of this guide is to ensure that when DDC employees are capable of recognizing unsafe conditions related to entering and working around excavations and trenches.

SCOPE:

This guide applies to all excavations and trenches. Excavation is a general term that applies to the movement of earth for construction purposes. OSHA identifies trenching as a specific type of excavation defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6m).

POTENTIAL FOR EXPOSURE:

DDC does not anticipate that its employees will have the need to access excavations or trenches during most normal field activities. However there are certain project management tasks that will require entry. Whenever possible all work should be done from ground level.

Hazards associated with excavations and trenches include cave-ins, engulfment, and water infiltration. Additionally, equipment and materials in and around the excavation can cause injuries to workers. There is also the potential to fall into the excavation, causing serious injury.

Contaminated soil can result in harmful exposure or occupational illness during excavation and trenching operations. Unexpected materials such as petroleum-based products may be present under the surface of the ground and result in unanticipated exposure.

Finally, the presence of underground and overhead utilities poses a hazard during excavation and trenching operations.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**

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DDC Employees are required to work safely by:

- **Entering and exiting excavations and trenches using a portable ladder or other means.**
- **Notifying all construction equipment operators prior to entry.**
- **Leaving immediately if detect any “petroleum-like” odor, “chemical-like” odor, or any other unusual odor.**
- **Ensuring that a competent person has inspected the trench or excavation especially after severe weather conditions.**
- **Remaining outside a trench or excavation if feel ill, in adverse weather conditions such as severe rainstorms, there is water in the bottom, or if heavy equipment is operating near the edges or doing work with the trench or excavation.**
- **Not standing on the edge of excavations or trenches.**

Contractor’s responsibilities:

- **Provide protection from cave-ins for all excavations and trenches greater than five feet deep.**
- **Provide ladders for egress every twenty-five feet for all excavations and trenches greater than four feet deep.**
- **Protect street excavations and trenches with Maintenance and Protection of Traffic (MPT) methods such as barricades, barrels, etc.**
- **Keep spoils away from the edges.**
- **Prevent heavy construction equipment from riding near the edges.**
- **Require and provide a competent person to inspect the excavations and trenches on a daily basis.**
- **Require a Professional Engineer to design an excavation greater than twenty feet in depth.**
- **Determine the presence and identify the locations of underground utilities prior to excavation**
- **Address the presence of overhead power lines either running parallel to excavation or trenching or crossing the path of the activity.**

Additional related information may be found in the following guides:

- S-15 Maintenance and Protection of Traffic
- S-21 Portable Ladders

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<i>Category:</i> Safety S-08	<i>Topic:</i> Fall Protection - Floor Openings / Walking Surfaces / Stairways
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart M - Fall Protection	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are capable of recognizing, identifying, and avoiding hazards relevant to working surfaces in construction sites.

SCOPE:

This guide applies to all floor openings, walking/working surfaces, and stairways on all DDC projects.

POTENTIAL FOR EXPOSURE:

In most standards and guides walking/working surfaces are restricted to those surfaces that are part of a structure. For the purposes of this guide the definition has been expanded to include all walking/working surfaces including the areas surrounding the construction activities as well as the various floor levels associated with the structure under construction.

With this expanded view in mind, hazards associated with the walking/working surfaces around a construction activity could include trenches for utilities, excavations for underground utility vaults, runways installed for the movement of heavy equipment, or uneven surfaces caused by a combination of inclement weather and erosion or the movement of heavy equipment.

Within the construction area, walking/working surfaces can present tripping hazards as well as fall hazards. Carelessly placed equipment, tools, or supplies are prime examples of tripping hazards. Additionally, insufficient housekeeping could also result in the accumulation of debris causing a tripping hazard directly or by obscuring unsafe conditions resulting in an employee injury.

Examples of permanent fall hazards include the perimeter of upper floors, permanent openings in the working surfaces (e.g., elevator shafts, openings for utilities and building services, etc.) and temporary openings created to perform a specific construction activity.

Good construction practice should be followed by the contractor involving openings within working surfaces. Any opening in the floor created for the purpose of completing a construction task should be made just prior to the activity. It should be sealed as soon as possible thereafter.

Covers should be installed over openings in elevated working surfaces. They must be sufficiently strong, protected against displacement, and visibly marked with the word “hole” or “cover”.

Stairwells can be either a permanent part of the structure or installed for construction operations. All stairwells must be maintained clear of debris, free of hazardous projections and obstructions, and well illuminated.

All pan stairs in stairways used during a construction project, either being erected as part of the permanent structure or as a temporary point of access/egress, must be filled with its permanent filling (e.g., concrete) or temporarily with wood or other solid material to the top edge of each pan.

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MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a JHA.**
- **Train employees to recognize work environments or work tasks that present fall hazard.**

DDC Employees are required to work safely by:

- **Being vigilant for openings in floors, uneven walking surfaces, unfilled stair pans.**
- **Not standing on covers protecting floor openings.**
- **Never removing any floor covers or barrier protection installed by the contractor.**
- **Never leaning on barricades.**
- **Not standing or working where exposed to leading edges and unprotected sides and edges.**

Contractor's responsibilities:

- **Provide fall protection systems for vertical or horizontal openings exposing employees to a fall hazard of 6 feet or more.**
- **Maintain skid resistant working surfaces that are sufficiently strong to protect the workers and are attached properly to structural components.**
- **Remove all equipment in close proximity to floor openings, that may be a tripping hazard or could be dislodged and fall through the opening.**
- **Require hard hats as part of the PPE for the worksite.**
- **Maintain stairwells, keeping them clear of debris and well illuminated.**
- **Fill pan type stairs with a solid material to the top edge of the pan.**
- **Protect trenches and excavations with fall protection systems or isolate the areas with barricades, etc.**

Additional related information may be found in the following guides:

S-01 Basic Personal Protective Equipment

S-09 Fall Protection – Guardrail Systems

S-10 Fall Protection – Leading Edge

S-14 Housekeeping / Sanitation

<i>Category:</i>	<i>Topic:</i>
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Safety S-09	Fall Protection - Guardrail Systems
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart M - Fall Protection 29 CFR 1926, Subpart M – Appendix B	

PURPOSE:

DDC employees will usually not be directly involved in the installation of guardrail systems but will depend on their design, installation, and maintenance if exposed to a fall hazard protected by such systems.

SCOPE:

This guide applies to all guardrail systems used to provide a fall hazard protection on DDC construction projects.

POTENTIAL FOR EXPOSURE:

The OSHA Construction Standards (29 CFR 1926) discuss the use of guardrails as fall protection in a number of sections. Guardrails are used to protect openings in floors and walls, on scaffolds, and in demolition as it applies to protecting the opening to a chute.

The contractor is required to provide fall protection to unprotected sides and edges and leading edges, which are 6 feet or more above a lower level. A guardrail system is one method of providing the required protection. Top rails and midrails are provided to protect the employee from falling. Toeboards and netting are provided to prevent objects from falling and striking workers on a lower level.

The general requirements for a guardrail system are:

- Top rails are to be a height of 42 inches plus/minus 3 inches above walking/working level. Top rails must be able to withstand, without failing, a force of 200 pounds in a downward or outward direction.
- Midrails are to be installed midway between the top rail and the work surface. Midrails must be able to withstand, without failing, a force of 150 pounds in a downward or outward direction.
- Toeboards are to be installed to prevent objects from falling over the edge of elevated surfaces. They must extend 3.5 inches above the level of the elevated working surfaces with less than a ¼ inch gap between the lower edge and the working surface. Toeboards must withstand a force of at least 50 pounds applied in a downward or outward direction.
- Screening or netting is to be installed if equipment or materials are piled higher than the top of the toeboard. The screening must extend from the work surface or the top of the toeboard to the top rail or midrail.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have**

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completed a JHA for all construction activities anticipated on a project.

- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present fall hazard.**

DDC Employees are required to work safely by:

- **Conducting a visual inspection of the guardrail system to identify any damages or defects.**
- **Reporting any observed damage or defects to the guardrail system.**
- **Never leaning or climbing on the guardrail system.**
- **Making sure that a “competent” person has developed and evaluated all fall protection programs or plans.**
- **Maintaining equipment or supplies away from openings.**

Contractor’s responsibilities:

- **Use a qualified person to design guardrail systems.**
- **Employ a competent person to install and maintain fall protection.**
- **Maintain equipment and materials away from the edges of floor openings or elevated work surfaces.**
- **Maintain the guardrail system in areas used to hoist equipment or materials with a chain, gate, or removable guardrail during periods when hoisting is not occurring.**

Additional related information may be found in the following guides:

S-01 Basic Personal Protective Equipment

S-08 Fall Protection – Floor Openings / Walking Surfaces / Stairways

S-10 Fall Protection – Leading Edge

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<i>Category:</i> Safety S-10	<i>Topic:</i> Fall Protection - Leading Edge
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart M - Fall Protection	

PURPOSE:

DDC employees will usually not be directly involved in the installation of leading edge fall protection systems, but will count on their design, installation, and maintenance when exposed to a fall hazard protected by such systems.

SCOPE:

This guide applies to all fall protection of a leading edge on DDC construction projects.

POTENTIAL FOR EXPOSURE:

The leading edge of a project will change as the project progresses. The leading edge means a floor, roof, or formwork for a floor or other walking/working surface (such as a deck), which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an “unprotected side or edge” during periods when it is not actively and continuously under construction. In simpler terms it is the area of walking/working surface created where none previously existed. It is the forward progression in either height or width until the full dimensions of the building are created. When it is actively and continuously being constructed it is a leading edge but during other times it simply is an unprotected edge.

The contractor is required to provide fall protection to unprotected sides, edges and leading edges, which are six (6) feet or more above a lower level. Unprotected edges and leading edges can be protected by a guardrail system, safety net system, or personal fall arrest system. The exception for the leading edge is that a contractor can develop an alternate plan of protection in accordance with the standard if he can demonstrate that it is infeasible or creates a greater hazard to use the traditional systems listed above.

A qualified person must develop the alternate fall protection plan. Any updates to the plan must meet the approval of the qualified person and must be current. The plan must remain on the construction site and be implemented by a competent person. The plan shall include:

- Site specific requirements and the locations of all leading edges and precast concrete work areas.
- Document why traditional fall protection systems are infeasible or would create a greater hazard.
- Written documentation of other protective measures to be implemented.
- Classification of all areas where traditional fall protection systems cannot be used as controlled access zones.
- Identification of authorized personnel to work within the controlled access zones.
- Whenever no alternative plan is identified, a safety-monitoring plan must be implemented.

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Controlled Access Zones:

A control line or other means to restrict access should designate controlled access zones. Control lines for a leading edge must be a minimum of 6 feet from the leading edge and a maximum distance of twenty five (25) feet. When erecting precast concrete the minimum distance remains the same but the maximum distance can be increased to sixty (60) feet. Additional control line requirements are:

- The control line must run parallel to the leading edge and along its entire length.
- The control line must be secured on each end to a guardrail system or wall.
- Control lines must be made of rope, wire, tape or material of equivalent strength.
- At its lowest point, the control line cannot be lower than 39 inches from the level of the working/walking surface and cannot be higher than 45 inches.
- At every 6 foot interval, high visibility flags or markers must be placed.
- Each line must have a minimum breaking strength of 200 pounds.

Safety Monitoring System:

The contractor shall designate a competent person to monitor the activities of the other workers. The competent person shall:

- The safety monitor must be competent in recognizing fall hazards.
- The safety monitor must warn other employees when they are acting unsafely or are unaware of an imminent fall hazard.
- The safety monitor must be on the same level of the walking/working surface.
- The safety monitor has to be close enough to communicate verbally.
- The use of mechanical equipment should be prohibited in an area utilizing a safety monitoring system.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present fall hazard.**

DDC Employees are required to work safely by:

- **Making sure that a competent person has developed and evaluated all fall protection programs.**
- **Making sure that a qualified person has developed a fall protection plan for leading edge work if needed.**
- **Using a personal fall arrest system when guardrail systems are not provided; however**

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before using:

- **Obtain authorization from supervisor.**
- **Receive training in the use of a personal fall arrest system.**
- **Inspect the personal fall arrest system for obvious defects.**
- **Never entering a controlled access zone unless authorized and recognized by the contractor – No Exceptions!**
- **Never acting as the safety monitor in a safety monitor system – No Exceptions!**

Contractor's responsibilities:

- **Employ a competent person to provide fall protection.**
- **Employ a qualified person to develop a fall protection plan if one is needed.**
- **Protect all leading edge work with fall protection consisting of a guardrail system, safety net system, or personal fall arrest system.**
- **Designate controlled access zones when alternate protection is instituted in lieu of traditional fall protection systems.**
- **Implement a safety monitoring system if an alternative fall protection plan has not been implemented.**

Additional related information may be found in the following guide s:

S-01 Basic Personal Protective Equipment

S-08 Fall Protection – Floor Openings / Walking Surfaces / Stairways

S-09 Fall Protection – Guardrails Systems

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<i>Category:</i> Safety S-11	<i>Topic:</i> Fall Protection - Personal Fall Arrest System
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart M - Fall Protection 29 CFR 1926, Subpart M – Appendix C	

PURPOSE:

Despite the best efforts of the DDC to keep employees at ground level, there may arise, from time to time, the need to access elevated working levels and use personal fall arrest systems. This equipment is not issued or maintained by the Agency and therefore, DDC employees will be using contractor-supplied equipment.

SCOPE:

This guide applies to all instances where DDC employees must utilize a personal fall arrest system supplied by the contractor.

POTENTIAL FOR EXPOSURE:

A personal fall arrest (protection) system is used to arrest an employee in a fall from a working level. It consists of an anchor point, body harness, and connectors. It can also include a lanyard, decelerating devices, or lifelines.

In general:

- Anchor points must be able to withstand a force of a least 5,000 pounds per employee attached and must be independent of anchor points for equipment, platforms, etc.
- A fall arrest system must meet the requirements of ANSI Z359.1.
- Fall arrest equipment must be inspected prior to use.
- Fall arrest equipment subjected to an impact loading (a fall) must be immediately removed from service until inspected by a competent person and determined to be acceptable for reuse.
- Personal fall arrest systems shall not be attached to a guardrail system.
- Only one worker can be attached to a vertical lifeline.
- Horizontal lifelines can be used by a number of workers; however, the horizontal lifeline must be able to withstand an impact or “shock” load of 5000 pounds for each worker.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**

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- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present fall hazard.**

DDC Employees are required to work safely by:

- **Obtaining authorization from the supervisor prior to using a personal fall protection device.**
- **Making sure that a competent person has developed or evaluated all fall protection programs.**
- **Receiving training in personal fall arrest systems and hands-on training in the specific device.**
- **Inspecting the equipment before using it.**

Contractor's responsibilities:

- **Hire a competent person to develop a fall protection plan for the project.**
- **Hire a registered Professional Engineer or Master Rigger to design anchor points.**
- **Maintain all fall arrest equipment in a satisfactory manner and discard obviously damaged equipment.**

Additional related information may be found in the following guide(s):

S-01 Basic Personal Protective Equipment

S-08 Fall Protection – Floor Openings / Walking Surfaces / Stairways

S-09 Guardrail Systems

S-10 Fall Protection – Leading Edge

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<i>Category:</i> Safety S-12	<i>Topic:</i> Fire Prevention and Fire Protection
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart F - Fire Protection and Prevention NFPA 10, 13, 14, 25, 30, and 241 New York City 2014 Fire Prevention Code	

PURPOSE:

DDC employees should be aware of fire prevention and protection requirements. There are many construction activities that bring adequate fuel and ignition sources together on a daily basis.

SCOPE:

This guide applies to all DDC projects regardless of whether it is new construction or renovation project.

POTENTIAL FOR EXPOSURE:

Subpart F of the OSHA construction standards addresses fire prevention and fire protection. The subpart has five standards and one section of definitions, which are:

- 29 CFR 1926.150 Fire Protection
- 29 CFR 1926.151 Fire Prevention
- 29 CFR 1926.152 Flammable and Combustible Liquids
- 29 CFR 1926.153 Liquefied Petroleum Gas (LP – Gas)
- 29 CFR 1926.154 Temporary Heating Devices
- 29 CFR 1926.155 Definitions applicable to this subpart

This guide will only address fire protection, fire prevention and temporary heating devices.

FIRE PROTECTION

Fire Extinguishers

There are three classes of fires frequently encountered on construction sites. Class A fires involve ordinary combustibles such as paper, wood, trash, packaging material, etc. Class B fires involve flammable (e.g., gasoline) and combustible (e.g., diesel fuel) liquids. Class C fires are Class A or B fires that also include electrical equipment. Fire extinguishers are rated based on their effectiveness on specific classes of fire.

The rating system for portable fire extinguishers can be very confusing. It is based on the types of fire, i.e., A: B: C: D: or K. When testing began, labs used a 3' x 3' x 3' "crib" of loosely stacked wood. If a fire extinguisher and a trained operator could extinguish this crib of burning wood when fully engulfed, it received a 1A rating. Higher ratings can be understood as multiplies of the "cribbed" wood stack volume. A 5 to 6 pound dry chemical extinguisher is rated as 2 or 3A depending on its chemical mixture. All other things being equal, a 4A rated extinguisher should be able to extinguish twice as

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much fire as a 2A rated extinguisher.

OSHA specifically requires:

- A fire extinguisher rated not less than 2A shall be provided for every 3,000 square feet and within a 100 feet travel distance from any point.
- A fire extinguisher rated not less than 10B shall be provided within 50 feet of either 5 gallons or more of flammable and / or combustible liquids, or 5 pounds of flammable gas.
- One or more fire extinguishers rated not less than 2A, shall be provided on each floor of a multistory building, with at least one extinguisher adjacent to a stairway.

Fire Sprinkler Systems

Existing sprinkler systems must be maintained throughout construction or for as long as possible. For buildings, or parts of a building being demolished, the sprinkler system should be taken out of service just prior to demolition. For new construction requiring a sprinkler system, the sprinkler system must be installed and operational as soon as possible. Fire sprinkler control valves must be checked daily at the end of the work shift. This is done to verify the system is functional when the site is unoccupied overnight.

Standpipes

Existing standpipe systems must be maintained throughout construction or for as long as possible. For buildings, or parts of a building being demolished, the standpipe system should be taken out of service just prior to demolition. For new construction requiring a standpipe system, the standpipe system must be installed and operational as soon as possible.

Specifically:

- A fire department Fire Department Connection (FDC) must be outside of the structure at ground level. It must be conspicuously marked.
- There must be one hose outlet at each floor.
- Only a licensed master plumber or licensed master fire protection piping contractors can cut and cap standpipes or sprinklers during demolition. Contractors must notify the FDNY of out of service (impaired) sprinkler systems or standpipe systems.

Fire Alarm Systems

A system or program to report a fire emergency must be established at a construction site. It can be as simple as a telephone system or local siren; it is essential that the method of reporting a fire emergency be taught to all site personnel.

FIRE PREVENTION

Smoking on Construction Projects

The New York City Fire Department (FDNY) has banned smoking on all construction projects.

Electrical Wiring

Temporary and permanent wiring for lights, tools, and equipment must be properly installed and maintained. Temporary wiring circuits for power tools and equipment must be GFCI protected.

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Internal Combustion Engines

Internal combustion engines used to power heaters or air compressors require adequate ventilation. Accumulation of carbon monoxide can cause death! The engine and its exhaust piping must be separated from combustibles.

Temporary Heating Devices

Temporary heating devices involving combustion of fuels require adequate ventilation. Generation of carbon monoxide can be deadly! Heating devices also have clearances necessary to prevent accidental ignition of combustibles. Refer to the manufacturer's information for proper clearances. Heating devices must be used upright and level, unless otherwise specified by the manufacturer. The use of temporary heating devices and internal combustion engines in cold weather months can be made more hazardous if plastic sheeting is used to enclose a building, or part of a building to protect workers from the wind, cold, and snow.

NOTE: Some of the activities listed in this guide require an FDNY Certificate of Fitness. The contractor must have the appropriate workers with this "license" and it must be current.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews Contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all work tasks anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a fire hazard.**

DDC Employees are required to work safely by:

- **Knowing two ways out from every area of a construction project.**
- **Understanding how a fire extinguisher works and when and when not to use them.**
- **Knowing how to report a fire on a project site.**
- **Being vigilant to blocked exits, improperly stored combustibles, flammable and combustible liquids, compressed fuel, gases and oxygen.**

Contractor responsibilities:

- **Develop a fire protection program appropriate for the work site. The program must cover all phases of the project from demolition through completion.**
- **Maintain fire-fighting equipment in conspicuous locations, unobstructed, and immediately available for use.**
- **Store and handle flammable and combustible liquids in a safe manner.**

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- **Store compressed gas fuels separate from oxygen cylinders.**
- **Store combustible building supplies properly, with adequate access for fire fighting operations.**
- **Provide fire extinguishers as required.**
- **Install or restore adequate means of egress, sprinkler systems, standpipes, and fire alarms as soon as possible.**
- **Maintain a 12 foot wide emergency access lane for FDNY vehicles.**
- **Provide an area for FDNY Tower Ladder and Aerial Ladder operations in front of all occupied structures within the project limits.**
- **Maintain access to all fire hydrants during construction.**
- **Provide a sign or pole to identify hydrants blocked from view.**
- **Bridge all trenches at 100 feet intervals. The bridges must be 4 foot wide and capable of supporting 1,200 pounds.**
- **Obtain written approval from the FDNY prior to closing streets or service roads to emergency traffic.**
- **Notify the FDNY 24 hours in advance of any work that would render a hydrant out of service.**
- **Open fires are prohibited on all construction sites – NO EXCEPTIONS!**
- **Ban the use of heating systems involving the combustion of fuels inside of enclosed areas – NO EXCEPTIONS!**

Additional related information may be found in the following guides:

S-03 Compressed Gas Cylinders

S-06 Electrical

S-29 Welding and Cutting (Hot Work)

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<i>Category:</i> Safety S-13	<i>Topic:</i> Hazardous Energy & Lock Out / Tag Out
<i>Additional Information:</i> 29 CFR 1926, Subpart K - Electrical 29 CFR 1926.417 29 CFR 1910.147 [This reference is for information only, the requirements contained within only applies to general industry and not construction.]	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are capable of recognizing and avoiding unsafe conditions involving the control of hazardous energy.

SCOPE:

This guide applies to projects where there are existing systems and services that need to be modified as a result of the scope of the project.

POTENTIAL FOR EXPOSURE:

DDC employees are not authorized to participate in lockout/tagout procedures on DDC project sites.

The OSHA construction standard (29 CFR 1926.417) regarding lockout / tagout is limited to ensuring that energized circuits are de-energized, tagged, and locked as required. Although the general industry standard (29 CFR 1910.147) does not apply to construction, it provides information that may be useful in controlling workplace hazards. Additionally, demolition and renovation activities to existing buildings or systems may require the contractor to participate in this activity.

According to OSHA, the standard covers “the servicing and maintenance of machines and equipment in which the unexpected energization or the start up of the machine or equipment, or release of stored energy could cause injury to employees”. Although most often thought of in terms of electrical energy, there are other hazardous energy sources that are covered by this standard.

The standard does not apply to cord or plug connected electrical devices to which the exposure to the hazards can be controlled by simply unplugging the equipment from the energy source.

Lockout and tagout are accomplished in accordance with an OSHA recognized program, administered by the contractor. DDC employees should be able to read the specific program and understand how each piece of covered equipment is addressed to protect from the release of hazardous energy.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all work tasks anticipated on a project.**

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- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving energized equipment**

DDC Employees are required to work safely by:

- **Being familiar with the program, procedures, and equipment provided by the contractor on DDC project to control hazardous energy.**
- **Never removing a lockout or tagout device – NO EXCEPTIONS!**

Contractor's responsibilities:

- **Develop and implement a lockout/tagout program for existing systems and services, which the contractor enforces on the project site.**
- **Provide necessary employee training to all affected employees.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Safety S-14	<i>Topic:</i> Housekeeping /Illumination/ Sanitation
<i>Additional Information:</i> 29 CFR 1926, Subpart C - General Safety and Health Provisions 29 CFR 1926.25 Housekeeping 29 CFR 1926.26 Illumination 29 CFR 1926.27 Sanitation	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize the need to maintain a construction site clear of trash and debris. Housekeeping is everyone’s responsibility.

SCOPE:

This guide applies to all DDC construction sites.

POTENTIAL FOR EXPOSURE:

Some of the most avoidable accidents are directly related to housekeeping or more properly stated the lack of housekeeping. Improperly stored materials, debris left on the working surfaces, or tools left unattended can lead to an accident and are all correctable with proper site management.

HOUSEKEEPING

Debris and other waste construction material must be removed at regular intervals. This is to eliminate the accumulation of debris in work areas, passageways, and stairs. Construction material must also be disposed of properly in accordance with federal, state, and city laws governing solid waste and hazardous waste.

ILLUMINATION

All construction work areas must be illuminated with a minimum of 5 foot candles.

SANITATION

An adequate supply of potable water must be available on construction sites. Containers used for drinking water must be maintained tightly closed. Only disposable cups must be used.

An adequate number of toilets must be provided based on the number of employees working at the site.

There should be a designated area for the consumption of food. All food waste, wrappers, cans, etc. shall be disposed of in proper containers and removed from the site on a frequent basis.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have**

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completed a JHA for all construction activities anticipated on a project.

- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving housekeeping, illumination and sanitation.**

DDC Employees are required to work safely by:

- **Being responsible for them and cleaning up after themselves.**

Contractor's responsibilities:

- **Schedule the removal of debris and trash on a frequent basis.**
- **Provide an adequate number of toilet facilities based on the site population.**
- **Arrange a dedicated area for workers to eat and provides trash cans with tight fitting covers.**
- **Provide hand washing facilities.**
- **Maintain adequate illumination throughout all work areas and in stairwells.**
- **Provide an adequate source of potable water.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Safety S-15	<i>Topic:</i> Maintenance and Protection of Traffic (MPT)
<i>Additional Information:</i> 29 CFR 1926, Subpart G – Signs, Signals, and Barricades 23 CFR Part 655, Subpart F – Manual on Uniform Traffic Control Devices (MUTCD)	

PURPOSE:

The purpose of this guide is to protect all DDC employees who must work in and adjacent to vehicular and pedestrian traffic zones. This guide is also intended to heighten awareness of a workplace hazard that may be just outside the perimeter of the project.

SCOPE:

This guide applies to projects on which the contractor is required to develop and implement an MPT plan.

This guide does NOT provide adequate information for work tasks which require the set-up of short duration MPT, related to subsurface drilling projects and surveying. A separate and more detailed plan may be required for these activities.

POTENTIAL FOR EXPOSURE:

Each year there are several hundred deaths in construction work zone incidents involving vehicular and pedestrian traffic. Statistically, 85% of the fatalities are motorists and occupants; 15% are workers on foot such, as flaggers, supervisors, and engineers; and 5.3% are workers in or on equipment.

Three causes listed for these fatalities are: motorists driving too fast for conditions, impaired drivers, and workers on foot entering live lanes of traffic. In order to conduct work in normally high traffic areas in reduced traffic conditions, much of this work is now done at night. Unfortunately night work has its own set of workplace hazards.

There are only a few DDC employees who must develop and implement an MPT plan including the use of cones, barrels, barricades, etc. to support their work activities. The work environment of the remaining DDC employees are protected by a properly planned and executed Maintenance and Protection of Traffic (MPT) administered by a contractor.

MPT was not originally developed to protect workers who must work in close proximity to vehicular traffic. MPT was designed to effectively control the reconfiguration of pedestrian and vehicular traffic when construction work interferes with the normal traffic pattern. Requirements governing MPT can be found in the most current edition of the Manual of Uniform Traffic Control Devices, FHWA.

Recently, OSHA recognized that these same requirements could improve worker's safety for those who must work in areas adjacent to vehicular traffic. In fact, OSHA in 29 CFR 1926, Subpart G, Signs, Signals and Barricades, identifies Part VI of the Manual of Uniform Traffic Control Devices, FHWA.

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MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires a site specific MPT plan when needed.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conduct random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working in and around vehicular and pedestrian traffic.**

DDC Employees are required to work safely by:

- **BEING ALERT!**
- **Being familiar with the documented site specific MPT plan for separating the work zone from the public, especially vehicular traffic.**
- **Recognizing that there are hazards on both sides of the separating devices (e.g., cones, barrels, and barricades).**
- **Always wearing a reflective vest or similar high visibility garment.**
- **Never entering a traffic lane before checking for oncoming vehicles.**

Contractor's responsibilities:

- **Develop and implement an MPT plan when required.**
- **Maintain the proper separation between the work zone and the public.**
- **Protect roadway openings at the end of the work with construction steel plates. Steel plates must be skid-resistant, secured in place, and the area around the plates graded to provide a smooth transition from the roadway and the plate.**
- **Remove pins used to secure construction plates. Pins left in the road after a project can present a tripping hazard.**

Additional related information may be found in the following guides:

S-01 Basic Personal Protective Equipment

S-07 Excavations and Trenching

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<i>Category:</i> Safety S-16	<i>Topic:</i> Man Lifts / Aerial Lifts
<i>Additional Information:</i> 29 CFR 1926, Subpart L – Scaffolds	

PURPOSE:

The purpose of this guide is to provide DDC employees with adequate knowledge of the hazards associated with the use of man lifts and aerial lifts. DDC employees shall not operate this equipment. On a case by case basis it may be necessary for a DDC employee to be lifted in this equipment by a contractor's employee. Before accessing this equipment, the DDC employee must contact and receive authorization from their supervisor.

SCOPE:

This guide applies to the use of man lifts, aerial lifts and similar equipment on DDC project sites.

POTENTIAL FOR EXPOSURE:

Technically man lifts and aerial lifts are types of scaffolds. They meet the OSHA definition of a scaffold as; “any temporary elevated platform (supported or suspended) and it’s supporting structure (including points of anchorage), used for supporting employees or materials or both.”

Man lifts and aerial lifts provide a moveable work platform for workers to conduct their work. In most cases this equipment is leased and delivered to the site for the duration of a specific set of activities. Since there are many vendors and manufacturers all lifts are not operated the same, OSHA requirements require operators to be trained on the specific lift they are using.

Two types of lifts are scissor lifts and articulating boom lifts. Scissor lifts raise the platform in a vertical direction only. An articulating lift can move the platform in both a vertical and horizontal direction.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving man lifts and aerial lifts.**

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DDC Employees are required to work safely by:

- **Contacting their supervisor for a case by case authorization to access this equipment.**
- **Verifying the operator has been trained on the specific unit being used.**
- **NEVER operating a man lift or aerial lift – NO EXCEPTIONS!**

Contractor's responsibilities:

- **Allow only trained operators to operate this equipment.**
- **Barricade around lifts to prevent workers from accessing the area beneath the elevated platform.**

Additional related information may be found in the following guides:

S-23 Powered Material Handling Equipment

S-26 Scaffolds - Suspended

S-27 Slings

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<i>Category:</i> Safety S-17	<i>Topic:</i> Marine Operations vs. Working Near Water
<i>Additional Information:</i> 29 CFR 1926, Subpart O – Motor Vehicles, Mechanized Equipment, and Marine Operations 29 CFR 1926.605 29 CFR 1926, Subpart E – Personal Protective and Life Saving Equipment 29 CFR 1926.106	

PURPOSE:

Working near water presents a hazard that is usually not encountered during most DDC projects. When it is encountered, all DDC employees must take the time to familiarize themselves with these requirements.

SCOPE:

This guide applies whenever and wherever a drowning hazard is present on DDC projects.

POTENTIAL FOR EXPOSURE:

MARINE OPERATIONS

Marine operations requirements specifically address working near and on barges, ships and the dock associated with these vessels as they apply to construction. The requirements of this section are very specific and they all act to prevent accidental falls into the water and drowning.

Both OSHA and the US Coast Guard (USCG) have jurisdiction over work areas involving navigable waterways or adjacent bulkhead. The USCG, however, is the ultimate authority and could immediately terminate work operations on the waterway and adjacent bulkhead.

WORKING NEAR WATER

Alternatively, OSHA 29 CFR 1926.106 addresses accidental drowning in water anywhere in construction. This standard is coupled with fall protection requirements which are the primary protection from accidental drowning.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires a site specific MPT plan when needed.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**

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- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working around water or the edge of the water.**

DDC Employees are required to work safely by:

- **Contacting their supervisor before beginning this work.**
- **Requesting and wearing the appropriate life jacket or buoyant work vest, when working over or near water, where the danger of drowning exists.**
- **Being vigilant about obstacles and trip hazards along the edge of water hazards.**
- **Enforcing housekeeping measures throughout the work site.**

Contractor's responsibilities:

- **Install fall protection in areas where the work site abuts water hazards.**
- **Provide and have immediately available ring buoys with at least 90 feet of line every 200 feet.**
- **Remove accumulated water from the work site whenever possible.**
- **Provide and have immediately available a lifesaving skiff.**

Additional related information may be found in the following guide:

S-09 Fall Protection - Guardrail Systems

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<i>Category:</i> Safety S-18	<i>Topic:</i> Motor Vehicle Safety
<i>Additional Information:</i> Local Law 77	

PURPOSE:

Often times the travel to and from, and between sites is not considered a job activity, but it is. The purpose of this guide is to increase awareness of the safety issues related to accessing project sites by a motor vehicle or by mass transportation.

SCOPE:

This guide applies to all aspects of motor vehicle activities while working as a DDC employee.

POTENTIAL FOR EXPOSURE:

DDC projects are conducted throughout the five boroughs. Transportation from DDC headquarters at 30-30 Thomson Avenue, Long Island City, NY to a project site can occur in a NYC vehicle assigned to the DDC, subway, and/or bus. Traveling to and from sites is a part of assigned job activities and requires as much diligence to the task at hand as any other work related activity.

NYC VEHICLES

Driving a NYC motor vehicle to a project job site is a privilege, not a right. DDC employees must have a valid driver’s license to operate a motor vehicle. DDC employees are responsible for the care and use of the vehicle when under your control. Don’t assume that others have checked the vehicle and its systems before or after the use. DDC employees should courteous to fellow employees by filling the fuel tank and removing trash and belongings at the end of a shift.

Prior to each use of a motor vehicle, the assigned operator should perform a safety check of the vehicle for obvious defects or damage. This inspection should include: brakes, lights, turn signals, windshield wipers, tires, horn, seat belts, and other related operational and safety systems. The assigned operator should get familiar with the vehicle controls before leaving the parking space.

Defective or damaged vehicles shall be removed from service. Pay attention to warning lights. Although the vehicle may seem to be operating properly, a “check engine” light could indicate a serious problem with the vehicle. Other warning lights such as engine temperature, brakes, oil pressure, etc. shall not be ignored either.

SUBWAY

According to the MTA, most subway accidents occur when riders are in a rush. Slips, trips, and falls on platforms and stairways are common. When waiting for a train be aware of your surroundings. During rush hours, platforms and subway cars can be extremely crowded. While standing on the platform stay behind the yellow warning strip.

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Inside the subway car employees should hold on at all times if standing. Do not lean against the doors. When accessing or leaving a car, especially a crowded car, keep clear of closing doors.

The MTA suggests that if person suddenly feel ill that person should remain in the station and not board a subway car.

BUS

While waiting for the bus, stand at the designated bus stop, back away from the curb. Do not run to catch a bus. Accessing and leaving the bus can be particularly dangerous especially during inclement weather. Bus steps and sidewalks can become slippery. **BE CAREFUL.**

Signal the bus operator at least two blocks before your stop. Be aware of pedestrian, bicycle, and car traffic when entering or exiting the bus. Never cross in front of the bus.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Verify that employees who drive NYC vehicles are licensed.**
- **Maintain vehicles in accordance with applicable laws, regulations, and the manufacture's environment.**

DDC Employees are required to work safely by:

- **Inspecting, familiarizing themselves with, and operating a well maintained vehicle.**
- **Immediately reporting to their Supervisor the loss or suspension of driving privileges from the authorizing motor vehicle agency.**
- **Accounting for potentially unsafe travel conditions due to inclement weather, road surfaces, congested pedestrian areas, construction activities, etc.**
- **Carefully accessing and leaving cars, train stations, and buses.**
- **Never operating a motor vehicle while under the influence of or impaired due to alcohol or drugs – THIS INCLUDES PRESCRIBED MEDICATION – NO EXCEPTIONS!**
- **Never accessing the subway tracks (Tracks contain 600 volts of electricity) – NO EXCEPTIONS!**
- **Never texting while driving. NO EXCEPTIONS!**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Safety S-19	<i>Topic:</i> Overhead Power Lines
<i>Additional Information:</i> 29 CFR 1926, Subpart L - Scaffolds 29 CFR 1926.451 29 CFR 1926, Subpart N - Cranes 29 CFR 1926.550	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize areas within a construction site that are near overhead electrical power distribution lines and know the operations occurring in those areas and the potential for equipment or workers to come in close proximity to the power lines as a result of their activities.

SCOPE:

In general, DDC employees lack the knowledge of experience to identify line voltage or whether a line is properly insulated or not; therefore, they should consider all overhead power lines to be over 50 kV, uninsulated, and DANGEROUS.

POTENTIAL FOR EXPOSURE:

Overhead power lines present a hazard just by their presence on a construction site. Even though workers may be aware of their presence, their attention is focused, appropriately so, on the current task before them. **WORKING NEAR LIVE OVERHEAD POWER LINES IS DANGEROUS!**

Requirements for working near overhead electrical lines are located primarily in two areas of the construction standards.

SCAFFOLDS

In Subpart L – Scaffolds, there are specific clearances listed with relation to overhead power lines.

“1926.451 (f)(6) The clearance between scaffolds and power lines shall be as follows: Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or conductive material handled on them might come closer to exposed and energized power lines than as follows:

INSULATED LINES

VOLTAGE	MINIMUM DISTANCE	ALTERNATIVES
< 300 volts	3 feet (0.9 m)	
300 volts to 50 kV	10 feet (3.1 m)	
>50 kV	10 feet (3.1 m) plus 0.4 inches (1 cm) for each 1 kV over 50 kV	2 times the length of the line insulator, but never less than 10 feet (3.1 m)

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UNINSULATED LINES

VOLTAGE	MINIMUM DISTANCE	ALTERNATIVES
< 50 kV	10 feet (3.1 m)	
>50 kV	10 feet (3.1 m) plus 0.4 inches (1 cm) for each 1 kV over 50 kV	2 times the length of the line insulator, but never less than 10 feet (3.1 m)

NOTE:

As an alternative if work must occur closer than the distances specified above, it can be initiated **ONLY AFTER** the utility company, or electrical system operator, has been notified of the need to work closer and the utility company, or electrical system operator, has de-energized the lines, relocated the lines, or installed protective coverings to prevent accidental contact with the lines. “

CRANES

In Subpart N – Cranes, Derricks, Hoists, Elevators, and Conveyors 1926.550 (a) (15) the following requirements are identified.

Except where electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines, equipment or machines shall be operated proximate to power lines only in accordance with the following.

- (i) For lines rated 50 kV, or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet;
- (ii) For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inches for each 1 kV over 50 kV or twice the length of the line insulator, but never less than 20 feet;
- (iii) In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV; 10 feet for voltages over 50 kV, up to and including 345 kV; and 16 feet for voltages up to and including 750 kV.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**

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- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working in areas with overhead power lines.**

DDC Employees are required to work safely by:

- **Assuming all overhead power lines to be uninsulated unless identified as insulated by the utility company or electrical system operator.**
- **Remaining vigilant when working around cranes or other tall construction equipment operating near overhead power lines.**
- **Never working in direct contact with or near equipment within the clearances listed above – NO EXCEPTIONS!**

Contractor's responsibilities

- **Document the location of all overhead power lines within the perimeter of the construction site.**
- **Provide an electrical ground directly to the upper rotating structure supporting the boom.**
- **Provide a person to observe clearance of the equipment and give timely warnings for all operations where it is difficult for the operator to maintain the desired clearance by visual means.**
- **Assume all power lines to be energized unless receiving direct information to the contrary from the power distribution authority.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Safety S-20	<i>Topic:</i> Permit Required Confined Space
<i>Additional Information:</i> 29 CFR 1910.146 29 CFR 1926.21(B)(6)(i) & (ii)	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize areas within a construction site that meet the definition of a confined space and permit required confined space. When DDC employees encounter such areas they make reasonable and conscientious decisions to assess their need to enter such areas. DDC employees also need their supervisor's authorization to work in confined spaces.

If DDC employees must enter a confined or enclosed space, they must be trained and made aware of the nature of the hazard involved, the necessary precautions to be taken, and the need and use of emergency equipment.

SCOPE:

This guide applies to any area or space meeting the OSHA definition of a confined space or permit required confined space which includes any space having a limited means of egress, which is subject to the accumulation of toxic or flammable atmospheres or oxygen deficient environments.

Confined spaces include, but are not limited to, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open top spaces more than four feet in depth such as pits, tubs, vaults, or vessels.

This guide also applies to trenches that may contain environmental conditions (e.g., soil contaminants, hydrogen sulfide) or physical hazards rendering the trench a permit required confined space. Conditions can change from hour to hour or day to day.

POTENTIAL FOR EXPOSURE:

OSHA defines a confined space as:

- A space that is large enough and so configured that an employee can bodily enter and perform assigned work; and
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, etc); and
- Is not designed for continuous human occupancy.

OSHA defines a permit required confined space as a confined space with one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains material that has the potential for engulfing the entrant;
- Has an internal configuration such that an entrant can be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or

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- Contains any other recognized serious safety or health hazard.

These criteria are used to define a subtle distinction.

In construction, the lines are even further blurred. Areas that may have been once designed for continuous human occupancy may have been sufficiently altered enough by demolition activities and are now confined spaces and conceivably, permit required confined spaces.

It is important to note that OSHA defines entry into a permit required confined space as "... an action by which a person passes through an opening." Entry includes any ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space. In simple terms this means you can't just stick your head in to look around or reach in to do some work from outside the space without a permit.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires a site specific permit required confined space plan when needed.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working in permit required confined spaces.**

DDC Employees are required to work safely by:

- **Determining that there is no other means of accomplishing the task except by entering the confined space and obtaining their supervisor's approval for entry.**
- **Insuring that a confined space permit has been issued prior to the entry.**
- **Leaving the confined space if a hazardous atmosphere is detected at any time during the entry.**
- **Wearing a fully body harness with a retrieval line attached to the center of the back as long as it does not increase the overall risk of the entry.**
- **Never entering a permit required confined space:**
 - **Without being escorted by a contractor's employee who carries a continuous air monitoring device.**
 - **If you feel ill.**
 - **If an entry permit has not been authorized.**
 - **If atmospheric testing has not been conducted in the space prior to entry.**
 - **If an entry attendant is not present at the entry point to the space.**

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- **If there are no means in place to initiate a rescue.**
- **If energy and supply service (e.g., steam, electrical, etc.) sources have not been eliminated or isolated.**

Contractor's responsibilities:

- **Conduct a site assessment to identify all permit-required confined spaces.**
- **Identify permit required confined spaces with appropriate signs.**
- **Prepare and implement a site specific written confined space entry program.**
- **Test the atmosphere and completes all sections of an entry permit prior to entry.**
- **Have an entry attendant stationed at the opening to the permit required confined space at all times that entrants are inside.**
- **Have rescue equipment and personnel available to rescue entrants.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Safety S-21	<i>Topic:</i> Portable Ladders
<i>Additional Information:</i> 29 CFR 1926.1053	

PURPOSE:

The purpose of this guide is to ensure that when DDC employees must use a portable ladder, they are capable of recognizing and avoiding unsafe conditions.

SCOPE:

This guide applies to all portable ladders, including extension ladders and stepladders (otherwise known as “A”- Frame ladders).

POTENTIAL FOR EXPOSURE:

DDC does not anticipate that its employees will have the need to access portable ladders during most normal field activities. It is expected that if an area or elevated work level can be accessed by either a portable ladder or permanent structural components, such as stairs, the employee will not use the ladder.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working on ladders.**

DDC Employees are required to work safely by:

- **Making sure hands, shoes, and ladders are dry and free from slippery materials.**
- **Using a second person to hold the bottom of the ladder.**
- **Keeping a three point grip on the ladder at all times.**
- **Avoiding distractions.**
- **Avoiding leaning backwards or too far to either side.**
- **Never standing on the top two steps of a stepladder or the top three rungs of an extension ladder.**

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- **Never using any ladder:**
 - **If employees feel ill.**
 - **Outside in adverse weather conditions such as high winds or snow and ice.**
 - **Installed for purposes for which they were not designed.**
 - **Around overhead power lines.**
 - **Placed in front of a door that when opened will strike the ladder.**
 - **If the area around the top or bottom of the ladder is cluttered with debris.**
 - **If placed on a scaffold or elevated platform for added height.**
 - **If positioned on an uneven or unstable surface.**
- **Never using a stepladder:**
 - **Unless the legs are fully extended and the spreader locked.**
 - **As a straight ladder.**
- **Never using an extension ladder:**
 - **If it is not adequately secured at the top**
 - **If it does not extend 36 inches above the accessed area.**
 - **In any location where it can be displaced by workplace activity (top or bottom)**

Contractor's responsibilities:

- **Install and maintains all portable ladders as designed and in a safe manner.**
- **Provide a competent person to inspect the ladders on a regular basis.**
- **Remove any defective ladders from service.**
- **Maintain ladders free of oil, grease, and other slipping hazards.**
- **Maintain the loading of the ladder below the maximum intended load and not beyond the manufacturer's rated capacity.**

Additional related information may be found in the following guide:

S-24 Scaffolds - Mobile

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<i>Category:</i> Safety S-22	<i>Topic:</i> Powder Actuated Tools
<i>Additional Information:</i> 29 CFR 1926, Subpart I - Tools - Hand and Power 29 CFR 1926.302(e)	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are capable of recognizing and avoiding unsafe conditions involving powder actuated tools.

SCOPE:

Powder actuated tools are used on construction sites to fasten building components. This guide applies to all powder actuated tools on DDC projects. It includes the proper handling, transporting, storage, and use of both the tools and the loads.

POTENTIAL FOR EXPOSURE:

DDC employees are not authorized to use powder-actuated tools on DDC project sites.

The safety of DDC employees is based on the proper use of this equipment by contractors and subcontractors.

Fasteners should not be driven by powder-actuated tools into easily penetrable substrates or brittle materials (e.g., cast iron, surface hardened steel, rock, glass block, etc.).

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving powder actuated tools.**

DDC Employees are required to work safely by:

- **Using DDC required basic PPE that includes eye and hearing protection.**
- **Not handling powder actuated tools or their loads – NO EXCEPTIONS!**
- **Understanding where and when powder actuated tools are used on DDC project sites and avoid working in the same area whenever possible.**

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- **Never standing behind building components being fastened by powder actuated tools.**
- **Reporting any misuse of powder actuated tools to the contractor especially if loaded or empty powder actuated tools are pointed toward workers.**

Contractor's responsibilities:

- **Mandate that all powder actuated tools are used in accordance with the manufacturer's specifications; and with all guards, shields, or attachments in place.**
- **Verify that powder actuated tools and their loads are approved by the NYC Materials and Equipment Acceptance Division.**
- **Require that operators be trained by the manufacturer's representative.**
- **Require that operators have the appropriate FDNY Certificate of Fitness.**
- **Test and inspects powder actuated tools daily.**
- **Never leave loaded powder actuated tools unattended.**
- **Allow powder-actuated tools to be only loaded just prior to use.**

Additional related information may be found in the following guide:

H-05 Noise/Hearing Protection

Appendix 3 - Noise Levels in Construction

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<i>Category:</i> Safety S-23	<i>Topic:</i> Powered Material Handling Equipment
<i>Additional Information:</i> 29 CFR 1926, Subpart O - Motor Vehicles, Mechanized Equipment, and Marine Operations 29 CFR 1926.601 29 CFR 1926.602; 29 CFR 1910.178 [This reference is for information only, the requirements contained within only applies to general industry and not construction.]	

PURPOSE:

DDC does not expect that any employee would be the operator of such equipment. Operating this equipment requires special skills, training, and most often licensing in order to operate them. Instead, DDC employees should be able to maneuver around a construction site safely where this equipment is being used.

SCOPE:

Since this type of equipment is almost always present on a construction site, this guide applies to all DDC projects.

POTENTIAL FOR EXPOSURE:

Loaders, tractors, bulldozers, graders, and similar equipment can all be characterized as earthmoving equipment or powered handling equipment.

Powered material handling equipment includes fork lifts, truck mounted fork lifts, and similar equipment.

For the operators of this equipment, the two main hazards associated with this equipment are failure to wear seatbelts and turning over the vehicle. All of these vehicles have a higher center of gravity than an ordinary passenger vehicle and less stable.

The two main areas of concern for site workers are that operators have low visibility of the area immediately around the equipment, and their attention is directed to their activity. When approaching an area where these vehicles are operating it is easy to forget these two concepts and put yourself at risk.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**

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- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving powered material moving equipment.**

DDC Employees are required to work safely by:

- **Being vigilant to the operation of this equipment on a construction site.**
- **Not accepting rides on areas of the vehicle not intended for passengers or where the occupancy load of the vehicle has been exceeded.**
- **Remembering that the operator's attention is limited and his attention is on the task that he is performing and not on you.**
- **NEVER operating powered material handling equipment - NO EXCEPTIONS!**

Contractor's responsibilities:

- **Develop a site plan where there is sufficient space for roadways, material storage areas, and adequate separation between construction activities involving these vehicles.**
- **Operate all powered material handling equipment in accordance with the manufacturer's specifications.**
- **Require all operators to wear seatbelts.**
- **Enforce the requirements to maintain a proper distance from overhead power lines.**
- **Provide back-up alarms for all vehicles.**
- **Provide flaggers as required.**
- **Prevent field modifications to equipment without the authorization and approval of the manufacturer.**

Additional related information may be found in the following guide:

S-18 Motor Vehicle Safety

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<i>Category:</i> Safety S-24	<i>Topic:</i> Scaffolds - Mobile
<i>Additional Information:</i> 29 CFR 1926, Subpart L - Scaffolds	

PURPOSE:

The purpose of this guide is to ensure that when DDC employees must use a mobile scaffold, they are capable of recognizing and avoiding unsafe conditions.

SCOPE:

Although there are powered type mobile scaffolds, this guide is specific to unpowered mobile scaffolds.

POTENTIAL FOR EXPOSURE: OSHA defines a scaffold as: “any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials or both.” This definition encompasses a wide variety of structures used in construction. Besides its general requirements, OSHA has specific requirements for twenty-five different types of scaffolds.

Scaffolds also present a unique challenge to implementing safety controls on a construction site. Often the contractor that installs the scaffold is not the only contractor that uses it. Additionally, a contractor who installs a scaffold on a long term construction project may complete its work and leave the project, abandoning the scaffold in place. The required daily inspections by a competent person may be overlooked if no one assumes responsibility for maintaining the scaffold. Ongoing necessary scaffold maintenance is often overlooked as well.

A mobile scaffold (according to OSHA) is a powered or unpowered, portable, caster or wheel-mounted supported scaffold.

There are specific provisions established by OSHA for occupying the elevated platform while the scaffold is repositioned to a new location. They include:

- The surface on which the scaffold is being moved must be within 3 degrees of level, and free of pits, holes, and obstruction; (Note: This section should specifically call out construction debris as well.)
- The height to base width ratio of the scaffold during movement is two to one or less;
- Outrigger frames, when used, are installed on both sides of the scaffold;
- When powered systems are used, the propelling force is applied directly to the wheels, and does not produce a speed in excess of 1 foot per second (0.3 mps); and
- No employee is on any part of the scaffold, which extends outward beyond the wheels, casters, or other supports.

The mobile scaffold is the type most often used on interior work. For some types of work such as

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interior partition wall preparation, the platform may only be one or two feet off of the floor. In other applications, the elevated platform can be over ten feet high. Fall protection requirements only take effect when the elevated platform is more than ten feet above the lower level.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working around or on mobile scaffolds.**

DDC Employees are required to work safely by:

- **Ensuring all caster and wheels are locked before getting on the equipment.**
- **Ensuring that fall protection systems are in place if the elevated platform is higher than ten feet from the lower level.**
- **Never riding on the elevated platform of a mobile scaffold when it is being moved – NO EXCEPTIONS!**

Contractor's responsibilities:

- **Select scaffolds that are appropriate for the area and the construction activity.**
- **Provide fall protection (e.g., guardrails) when the elevated platform is positioned at a height above ten feet.**
- **Implement a housekeeping program to prevent accidental overturning of the scaffold as it is being moved from one area to another.**
- **Inspect and maintain all components of a mobile scaffold.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Safety S-25	<i>Topic:</i> Scaffolds - Supported
<i>Additional Information:</i> 29 CFR 1926, Subpart L - Scaffolds New York City Department of Buildings Local Law 52	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize the ongoing need for inspections and maintenance of scaffolds to keep them in a safe condition. This guide also identifies those components necessary to provide a sturdy and safe elevated work platform that is supported from below.

SCOPE:

This guide applies to all supported scaffolds on DDC project sites.

POTENTIAL FOR EXPOSURE:

OSHA defines a scaffold as: “any temporary elevated platform (supported or suspended) and supporting structure (including points of anchorage), used for supporting employees or materials & equipment, or both.” This definition encompasses a wide variety of structures used in construction. Besides its general requirements, OSHA has specific requirements for twenty-five different types of scaffolds.

Scaffolds are difficult to maintain, especially over a long-term project. It is not unusual for a scaffold to remain onsite and in use well after the installing contractor has finished working and left the site.

The required daily inspections by a competent person may be overlooked if no one assumes responsibility for maintaining the scaffold. Ongoing necessary scaffold maintenance is often overlooked as well.

Like a house or any other structure, a scaffold is only as good as its foundation. Proper use of mudsills and base plates are essential to a safe scaffold that is supported from the ground up.

A fabricated frame scaffold, or tubular welded frame scaffold is a scaffold consisting of platform(s) supported or fabricated end frames with integral posts, horizontal bearers, and intermediate members (OSHA definition). A tube and coupler scaffold consists of tubes that serve as uprights, braces, guardrails, and runners, connected with coupling devices.

The City of New York now requires training for all workers who need to access a scaffold prior to working on elevated work surfaces.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific**

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safety plans for construction projects.

- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Require that DDC employees take the DOB required training for supported scaffolds users.**

DDC Employees are required to work safely by:

- **Receiving training required by Local Law 52 before accessing a supported scaffold.**
- **Being aware of activities on upper levels of a scaffold.**
- **Wearing basic PPE while working on or around scaffolds.**
- **Examining the scaffold from the ground before accessing any elevated work platform.**
- **Never accessing a supported scaffold with missing mudsills and base plates, uneven footings, missing planks, or any other obvious defects.**
- **Only using a stairway or ladder. Never climbing the side of a scaffold.**
- **Knowing when scaffolds need to be secured to the structure.**

Contractor's responsibilities:

- **Use only parts and/or components from one system or manufacturer. (NOTE: Scaffold systems are often designed by an engineer and are approved as a unit. Therefore, mixing manufacturers' components voids the engineering approval.)**
- **Have a competent person inspect the scaffold daily.**
- **Prevent the overloading of scaffolds above their maximum intended load.**
- **Provide a stable foundation by properly using mudsills and base plates.**
- **Prevent the accumulation of debris and equipment on the scaffold.**
- **Plank (fully and properly) all working levels.**
- **Provide toe boards, guardrails, and safety netting as required.**
- **Prohibit the use of ladders on scaffolds to increase the working height.**
- **Verify that all users of supported scaffolds are trained as required by Local Law 52.**

Additional related information may be found in the following guides:

- S-01 Basic Personal Protective Equipment
- S-09 Fall Protection - Guardrail Systems
- S-19 Overhead Power Lines

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<i>Category:</i> Safety S-26	<i>Topic:</i> Scaffolds - Suspended
<i>Additional Information:</i> 29 CFR 1926, Subpart L - Scaffolds	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize the ongoing need for inspections and maintenance of scaffolds to keep them in a safe condition. This guide also identifies those components necessary to provide a sturdy and safe elevated work platform that is suspended from above.

SCOPE:

This guide applies to all suspended scaffolds on DDC project sites.

POTENTIAL FOR EXPOSURE:

OSHA defines a scaffold as: “any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials or both.” This definition encompasses a wide variety of structures used in construction. Besides its general requirements, OSHA has specific requirements for twenty-five different types of scaffolds.

Scaffolds are difficult to maintain especially over a long-term project. It is not unusual for a scaffold to remain onsite and in use well after the installing contractor has finished working and left the site.

The required daily inspections by a competent person may be overlooked if no one assumes responsibility for maintaining the scaffold. Ongoing necessary scaffold maintenance is often overlooked as well.

OSHA defines a suspended scaffold as one or more supported platforms supported by ropes or other non-rigid means from an overhead structure.

The City of New York requires that a suspended scaffold be designed, installed, and maintained by a person with a NYC Master Rigger’s License.

The City of New York requires training for all workers who need to access a scaffold prior to working on elevated work surfaces.

DDC Employees are strictly prohibited from entering upon or working from suspended scaffolds.

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MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working near suspended scaffolds.**

DDC Employees are required to work safely by:

- **Never entering upon or working from a suspended scaffold.**

Contractor's responsibilities:

- **Attach the inboard end of the riggers directly to the roof deck or floor by bolts or other direct connections or stabilized by counterweights.**
- **Ensure that outrigger beams are made of structural metal or a material of equivalent strength and is secured to prevent movement.**
- **Have a competent person inspect the scaffold daily.**
- **Prevent the overloading of scaffolds above their maximum intended load**

Additional related information may be found in the following guides:

S-09 Fall Protection - Guardrail Systems

S-11 Fall Protection - Personal Fall Arrest System

S-19 Overhead Power Lines

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<i>Category:</i> Safety S-27	<i>Topic:</i> Slings
<i>Additional Information:</i> 29 CFR 1926, Subpart H - Material Handling, Storage, Use, and Disposal 29 CFR 1926.251	

PURPOSE:

DDC employees should have no direct involvement in the use of slings. It is the responsibility of the NYC DOB Master Rigger and the contractor to use this equipment properly. However, anyone working on construction sites where lifts are conducted should have an understanding of the operation and related safety hazards.

SCOPE:

This guide applies to all slings and wire rope used to connect a load to material handling equipment.

POTENTIAL FOR EXPOSURE:

Slings are pieces of equipment used to connect the load to material handling equipment. Metal fabric slings consist of a series of interconnecting rods and “fabric” - metal mesh.

Today not all slings are metal mesh. Besides metal mesh, other types of slings include:

- Wire (constructed of wire rope eyed at either end)
- Nylon or Kevlar (constructed of synthetic fabrics eyed at either end)
- Chain (constructed of chains attached to a master link with sling hooks at each end)

Slings are appropriately chosen based on the load, the lifting environment, and sling configuration.

All lifts or “picks” are to be performed under the direction or supervision of a NYC Department of Buildings (NYC DOB) licensed Master Rigger.

Slings that are improperly stored, used, or maintained are a significant hazard on construction sites. In general the following rules apply:

- Defective slings are to be discarded.
- Slings should not be tied together.
- Slings should not be shortened by knots or bolts.
- Shock loading is prohibited.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conducts random site quality and safety**

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inspections.

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working under or near materials lifted or suspended by slings.**

DDC Employees are required to work safely by:

- **Avoiding areas where slings are in use.**
- **Keeping their hands and feet clear of slings when they are being tightened around the load.**
- **Notifying (immediately) the contractor of obviously defective slings.**

Contractor's responsibilities:

- **Employ a NYC DOB "licensed" Master Rigger to supervise all "picks" or lifts.**
- **Establish an inspection program, which includes an inspection prior to every use and periodic inspections of the equipment.**
- **Store the slings properly to prevent damage or degradation of the equipment.**
- **Train employees in the inspection, selection, care, use and storage of slings.**

Additional related information may be found in the following guide:

S-04 Cranes, Derricks, and Hoists

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<i>Category:</i> Safety S-28	<i>Topic:</i> Steel Erection
<i>Additional Information:</i> 29 CFR 1926, Subpart R - Steel Erection	

PURPOSE:

This guide is provided for informational purposes only. There is virtually no reason why DDC employees should enter into an area of active steel erection. All observations of these activities should be made from a safe distance and at ground level.

SCOPE:

In general, DDC employees are not required to possess the knowledge or experience to enter into areas where steel is being erected.

POTENTIAL FOR EXPOSURE:

Steel erection may be encountered in the construction of various structures. OSHA identifies numerous structures where steel erection may be necessary, including: single and multi-story buildings, system engineered metal buildings, transfer and storage structures, auditoriums, stair towers, overpasses, viaducts, and artistic and monumental structures.

Some of the activities included in steel erection are: hoisting, laying out of materials, welding/burning, grinding, bolting, and installing metal decking. Some of these activities are covered under specific guides included in this manual.

Steel erection requires the controlling contractor to develop a precise plan to accomplish this work safely. The plan will include a site that provides adequate access roads and areas for the storage of materials and equipment.

Contractors are required to provide fall protection to any worker exposed to an unprotected edge or side greater than 15 feet above a lower level. Fall protection systems can include guardrail systems, safety net systems, and personal fall protection equipment.

Additionally, a cable must be installed at the final interior and exterior perimeter of the floors as soon as the decking is installed.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires a site specific steel erection plan when needed.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have**

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completed a JHA for all construction activities anticipated on a project.

- **Bureau of Quality Assurance and Construction conducts random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working near steel erection.**

DDC Employees are required to work safely by:

- **Remaining vigilant to the activities around.**
- **Avoiding travel and hoisting areas specified in the steel erection plan.**
- **Never entering:**
 - **Areas directly under steel erection operation – NO EXCEPTIONS!**
 - **Areas defined as Controlled Decking Zones (CDZ) – NO EXCEPTIONS!**

Contractor's responsibilities:

- **Prepare a site-specific steel erection plan.**
- **Prepare a plan for overhead lifting operations.**
- **Employ a competent person to develop all plans and oversee the work.**
- **Require a pre-shift inspection of all hoisting equipment.**
- **Require that all materials and equipment stored on upper levels are secured from displacement.**
- **Provide required training in the area of fall protection.**
- **Prohibit other trades from working underneath areas where steel is being erected.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Safety S-29	<i>Topic:</i> Welding and Cutting (Hot Work)
<i>Additional Information:</i> 29 CFR 1926, Subpart J - Welding and Cutting NFPA 51B New York City 2014 Fire Prevention Code, Chapter 26	

PURPOSE:

The purpose of this guide is to ensure that when DDC employees must enter an area where welding , cutting, or burning are occurring, they are capable of recognizing and avoiding unsafe conditions.

SCOPE:

This guide applies to all welding (gas and electric arc), cutting, or burning.

POTENTIAL FOR EXPOSURE:

DDC employees are not authorized to perform welding, cutting or burning operations as part of their job responsibilities. Whenever possible, they should avoid entering into areas where these activities are occurring.

Welding, cutting, or burning may result in an exposure to ultraviolet light that can cause skin and eye burns. Additionally, fumes from these operations contain metals such as beryllium and cadmium.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Bureau of Quality Assurance and Construction Safety reviews contractor's site specific safety plans for construction projects.**
- **Bureau of Quality Assurance and Construction Safety requires a site specific hot work permit program.**
- **Bureau of Quality Assurance and Construction Safety requires contractors to have completed a JHA for all construction activities anticipated on a project.**
- **Bureau of Quality Assurance and Construction conduct random site quality and safety inspections.**
- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Provide a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a hazard involving working near hot work.**

DDC Employees are required to work safely by:

- **Ensuring that a trained and competent person has issued a permit authorizing the activity.**
- **Reviewing the special requirements identified on the permit.**

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- **Notifying any welders or fire watches when entering into the area.**
- **Leaving immediately when any irritating fumes are detected.**
- **Never entering an area where welding, cutting, or burning is occurring:**
 - **If a permit has not been issued, unless it is an area designed for this type operation.**
 - **Without eye protection.**
 - **If inhalation of fumes can't be avoided, leave the area immediately.**

Contractor's responsibilities:

- **Develop a written program requiring a permit for activities outside of dedicated areas for welding, cutting, or burning activities.**
- **Ensure that all gas torch operators and anyone assigned as a fire watch has the required FDNY Certificate of Fitness.**
- **Issue a permit for no more than 24 hours of continuous operations. Any break in activities other than breaks and lunch should require the issuance of a new permit.**
- **Remove flammables and combustibles within a 35 foot radius of the welding, cutting, or burning.**
- **Require a 20 ABC dry chemical extinguisher in the area of operations.**
- **Maintain all equipment and immediately remove from service any equipment that is defective.**
- **Use and store compressed gas cylinders properly, especially separating stored fuel gas (e.g., acetylene) cylinders from oxygen (or other oxidizers) cylinders by at least 20 feet or on separate sides of a 5 foot high, ½ hour fire rated wall. Cylinder caps must be in place and cylinders secured (e.g., chained) when not in use.**

Additional related information may be found in the following guide:

S-03 Compressed Gas Cylinders

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<i>Category:</i> Health H-01	<i>Topic:</i> Hazard Communication RIGHT-TO-KNOW
<i>Additional Information:</i> OSHA Standard 29 CFR 1910.1200 United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are protected from hazardous substances on construction sites specifically those substances brought on site by contractors and subcontractors.

SCOPE:

This guide applies to all hazardous substances as defined by OSHA.

POTENTIAL FOR EXPOSURE:

DDC employees receive training in Hazard Communication for all hazardous substances under the control of the DDC. Unfortunately, this may not include all hazardous substances brought onto a construction site.

Monitoring all of the hazardous substances that enter a site is difficult at best.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC's Responsibilities:

- **Develop and implements a written Hazard Communication to ensure employees are provided with a safe and healthy work environment.**
- **Maintain a chemical inventory of hazardous substances, if any, brought to a construction site by DDC.**
- **Maintain Safety Data Sheets (SDSs) of all hazardous substances if any, brought to a construction site by DDC.**
- **Require all hazardous substances be kept in their original container.**
- **Require all containers to be labeled in accordance with the OSHA requirements.**
- **Provide initial and annual refresher training on the Hazard Communication Standard.**

DDC Employees are required to work safely by:

- **Avoiding unlabeled containers.**
- **Observing and following hazard communication signs.**
- **Reporting any spilled hazardous substances immediately to the contractor.**
- **Knowing where the chemical inventory and SDSs are located.**
- **Never enter an area where hazardous chemicals have been released – NO Exceptions!**
- **NEVER TASTE, SMELL, OR TOUCH AN UNKNOWN CHEMICAL IN AN ATTEMPT TO IDENTIFY IT.**

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Contractor's responsibilities:

- **Maintain a chemical inventory of hazardous substances on site.**
- **Maintain SDSs for all hazardous chemicals on the site.**
- **Require all containers to be labeled in accordance with the OSHA standard.**
- **Post hazard warning signs as required.**
- **Store hazardous substances in a neat orderly fashion and provides for spill protection and clean-up kits.**
- **Transmit information to other employers on site including:**
 - **The location of accessible SDS information about the chemicals that they store or use.**
 - **Specific precautions during normal workplace operating conditions and foreseeable emergencies.**
 - **Labeling system used to classify hazards.**

Additional related information may be found in the following guides:

H-02 Airborne Contaminants - General
H-06 Lead
H-07 Mercury
H-08 Polychlorinated Biphenyls (PCB's)

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<i>Category:</i> Health H-02	<i>Topic:</i> Airborne Contaminants - General
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart Z - Toxic and Hazardous Substances	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize that there are numerous chemical air contaminants that can potentially be released during construction.

SCOPE:

This guide applies to all construction sites where activities could disturb building materials and release hazardous airborne contaminants.

POTENTIAL FOR EXPOSURE:

29 CFR 1926, Subpart Z – Toxic and Hazardous Substances has to do with potential airborne contaminants resulting from construction. The two principal materials addressed are asbestos and cadmium. Asbestos is addressed in its own section of this guide: H-03.

Additionally, Subpart Z lists over 400 hundred chemical compounds and their exposure limits. Exposure limits are usually averaged over an 8 hour workday. Exposures over the permissible exposure limit (PEL) require that the worker be protected by engineering controls and administrative controls. If these do not sufficiently reduce the exposure level, then Personal Protective Equipment (PPE) will be issued. Primarily this will be in the form of respiratory protection.

It's DDC policy not to have employees work in areas that contain substances listed in Subpart Z.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas with airborne hazards.**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to airborne contaminants.**

DDC Employees are required to work safely by:

- **Being familiar with building materials that may contain and release a hazardous chemical.**
- **Being familiar with the scope of the project and how it might impact materials that may contain and release airborne contaminants.**
- **Being familiar with JHA's associated with their work tasks.**

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Contractor's responsibilities:

- **Institute a program to identify and monitor the release of hazardous chemicals.**
- **Hire licensed workers or subcontractors to remove, monitor, and handle these materials.**
- **Properly segregate areas involving asbestos from other areas of the worksite.**
- **Collect, contain, and dispose of all related material in accordance with all applicable environmental standards.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Health H-03	<i>Topic:</i> Asbestos
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart Z -Toxic and Hazardous Substances. 29 CFR 1926.1101	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize building materials that may contain asbestos.

This guide is not for DDC employees trained and licensed to work in the field of asbestos abatement. Those employees are covered by much more stringent federal, state, and City requirements than are offered in this guide.

SCOPE:

This guide applies to all construction sites where activities could disturb building materials installed prior to 1980. These activities include demolition of structures, removal or encapsulation of materials known to contain asbestos, construction, repairs, or renovations of portions of structures that contain asbestos.

POTENTIAL FOR EXPOSURE: The term asbestos may be used to refer to many different groups of fibrous minerals which are naturally occurring in metamorphic rock. In the formation of its lattice structure, crystals usually have three cleavage planes. In the case of asbestos, two of the planes are weaker than the third. This results in them breaking along a linear plane, and causing a fiber-like form. An asbestos fiber is a minimum of 5 microns in length and has a length to width ratio of 3 to 1 (minimum).

Asbestos has been used throughout history as a fire-retardant cloth. It was used in burial shrouds in ancient times. It has also been used to make perpetual wicks for lamps. According to legend, Charlemagne had a tablecloth made of asbestos which he cleaned by throwing it into a fire.

Many uses were found for asbestos because of its flame retardant and insulating qualities, tensile strength, and flexibility. Prior to 1980, asbestos was used in some of the building materials.

Chrysotile from the Serpentine group has been used in:

- Sheetrock tape
- Vinyl floor tiles and adhesives
- Plaster and stucco
- Roofing materials, including tars and shingles
- Transite
- Acoustical ceilings
- Fireproofing
- Putties, caulks, and gaskets

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Amosite and crocidolite from the Amphibole group has been used in:

Low density insulation board and ceiling tiles

Asbestos cement sheets and pipes

Casings for water, electrical, and telecommunication service

Thermal insulation

A number of respiratory diseases, including some forms of cancer, can be attributed to asbestos exposure and may be work-related.

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas with asbestos hazards and abating the hazard prior to the start of construction work.**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to asbestos.**

DDC Employees are required to work safely by:

- **Being familiar with building materials that may contain and release asbestos.**
- **Being familiar with the scope of the project and how it might impact materials that may contain and release asbestos.**
- **Being familiar with JHA's associated with their work tasks.**
- **Staying outside of the containment area - NO EXCEPTIONS!**

Contractor's responsibilities:

- **Institute a program to identify asbestos or presumed asbestos containing materials.**
- **Hire licensed workers or subcontractors to remove asbestos containing materials.**
- **Properly segregate areas involving asbestos from other areas of the worksite.**
- **Collect, contain, and dispose of all asbestos related material in accordance with all applicable environmental standards.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Health H-04	<i>Topic:</i> Bloodborne Pathogens
<i>Additional Information:</i> OSHA Standard 29 CFR 1910.1030	

PURPOSE:

The purpose of this guide is to ensure that DDC employees are aware of the current procedures to follow, in the unlikely event that they are exposed to a bloodborne pathogen.

SCOPE:

This guide applies to the two most common potential exposures: performing first aid or cleaning up after an accident.

The location of the project may also increase the potential for the presence of bloodborne pathogens, particularly, facilities for the following City Agencies and Departments: Health and Hospitals, Corrections, Department of Health, Office of the Chief Medical Examiner, NYPD, and FDNY.

POTENTIAL FOR EXPOSURE:

OSHA defines an occupational exposure to bloodborne pathogens as “a reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials (OPIM) that may result from the performance of an employee’s duties.” DDC expects any facility that may present a bloodborne pathogen hazard to be decontaminated prior to the start of a project. However, there is still a potential for exposure during pre-construction assessments and inspections, travel to and from the worksite, and during emergency conditions.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas with bloodborne pathogens and abating the hazard prior to the start of construction work.**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to bloodborne pathogens.**

DDC Employees are required to work safely by:

- **Being familiar with the hazard warning sign for bloodborne pathogens.**
- **Understanding potentials for exposure to a bloodborne pathogen:**
 - **Transfer of pathogens in blood or OPIM in a liquid medium (e.g. being splashed in the face). Bloodborne pathogens are not transferred through the air, except in minute droplets of blood or OPIM.**
 - **Parenteral means “piercing” or through the skin or mucous membrane such as a**

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- needle stick. A human bite is also considered a parenteral exposure.**
- **Being familiar with simple prevention in the workplace:**
 - **Do not eat, drink, or smoke except in designated areas.**
 - **Wash hands often (Soap and water; waterless antimicrobial cleaner)**
 - **Be aware of potential hazards in work environment.**
- **Knowing what to do in case of exposure.**
 - **Wash or flush the area immediately.**
 - **Seek medical attention immediately.**
 - **Report the incident to the DDC Safety and Health Officer.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Health H-05	<i>Topic:</i> Noise / Hearing Protection
<i>Additional Information:</i> OSHA Standard 29 CFR 1926.52 and 29 CFR 1926.101	

PURPOSE:

The purpose of this guide is to ensure that when DDC employees recognize a high noise level activity that they wear adequate hearing protection, limit the time they spend near the activity, and observe the activity from the greatest distance practical.

SCOPE:

This guide applies to areas or activities with high noise exposure. Warning signs should be properly posted and hearing protection shall be required.

NOTE: If you must raise your voice to be heard by a person standing next to you then the surrounding noise levels are usually above 90 dBA.

POTENTIAL FOR EXPOSURE:

Certain construction activities produce loud noises. Activities such as pile driving, concrete sawing, and jack-hammering, or the use of equipment such as compressors and generators can produce noise levels in excess of 85 decibels. Refer to Appendix 3 - Noise Levels in Construction for more information.

The current OSHA Standard allows for the following exposure to noise:

1926.52 OCCUPATIONAL NOISE EXPOSURE
Table D-2 PERMISSIBLE NOISE EXPOSURES

Duration per day, hours	Sound Level dBA slow response
8	90
6	92
4	95
3	97
2	100
1.50	102
1	105
0.50	110
0.25 or less	115

The most common excuse for not wearing hearing protection equipment is that it inhibits communication or it is uncomfortable, however, failing to use hearing protection may result in hearing loss. A hearing loss may cause failure to hear warning signals or alarms, approaching construction equipment, verbal warnings or commands.

Like other forms of PPE, hearing protection is just a barrier between the hazard and employee. A

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Noise Reduction Rating (NRR) describes ability of hearing protection to reduce noise levels reaching the ear. Using the NIOSH NRR Calculation, employees can determine the effectiveness of a specific noise reduction PPE.

NIOSH NRR CALCULATION

Earmuffs – subtract 25% of the manufacturer’s NRR rating.

Formable Earplugs – subtract 50% of the manufacturer’s NRR rating.

All other earplugs – subtract 70% of the manufacturer’s NRR rating.

Formula:

Noise Level = dBA – (de-rated NRR from above – 7)

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas excessive noise levels exists.**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to excess noise and how and when to use hearing protection.**

DDC Employees are required to work safely by:

- **Being familiar with the hazard warning signs requiring hearing protection.**
- **Utilizing hearing protection where required.**
- **Recognizing construction activities that may result in hearing loss.**
- **Watching construction activities from a practical distance.**

Contractor’s responsibilities:

- **Conduct a job hazard assessment (JHA) of construction activities to determine if hearing protection is required.**
- **Institute the required engineering controls to reduce the hazards on site.**
- **Institute the required administrative controls to reduce the potential for exposure to a hazardous material or condition.**
- **Provide adequate signs identifying when specific hearing protection is required.**

Additional related information may be found in the following guides:

- S-01 Basic Personal Protective Equipment
- Appendix 3 - Noise Exposure

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<i>Category:</i> Health H-06	<i>Topic:</i> Lead
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart D - Occupational Health and Environmental Controls, 29 CFR 1926.62 Lead	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize the presence of lead in certain building materials and products, and understand that construction activities can release lead. DDC employees should also understand the ways that lead can enter the body. This guide should also establish a respect for containment areas established for activities involving lead.

SCOPE:

This guide applies to all construction sites where lead may be present, with an emphasis on demolition of older buildings.

POTENTIAL FOR EXPOSURE:

Lead is a heavy metal and a basic chemical element. Lead was used because of its strength, malleability, and antifungal properties, and its ability to prevent corrosion. Lead was used commonly in paints as a drying aid.

Exposure to lead can occur during many construction operations. The most prevalent source of lead for DDC employees involves the handling of lead-containing debris, especially old painted surfaces.

Lead can be ingested or inhaled. Once in human blood, it is circulated throughout the body and is stored in organs and tissues. Lead can also be immediately excreted. Levels will continue to increase if more lead is brought into the body than is excreted.

Lead has both an exposure limit and an action level. An action level is an exposure regardless of respiratory protection. The permissible exposure limit (PEL) for lead is 50 micrograms of lead per cubic meter of air, averaged over an 8-hour workday. The action level for lead is 30 micrograms of lead per cubic meter of air, averaged over an 8-hour workday.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas where lead is actively being remediated.**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to lead.**

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DDC Employees are required to work safely by:

- **Recognizing materials that may contain lead.**
- **Recognizing construction activities that may result in an exposure to lead.**
- **Being familiar with the scope of the project and how it might impact materials that may contain and release lead. Activities such as welding, cutting, and blasting are some that may release lead.**
- **Being familiar with JHA's associated with their work tasks.**
- **Knowing how lead enters the body and symptoms of exposure.**
- **Not eating or drinking on DDC projects involving lead except in designated areas.**
- **Not smoking on DDC projects - NO EXCEPTIONS!**
- **Staying outside of the lead containment area - NO EXCEPTIONS!**
- **Preventing secondary exposure by not bringing lead home.**

Contractor's responsibilities:

- **Be familiar with the OSHA standard for lead exposure in construction.**
- **Conduct an exposure assessment for all areas where lead is suspected.**
- **Institute a written compliance program for activities involving lead building materials or surfaces.**
 - **Including a description of all activities where lead will be emitted.**
 - **Including a description of specific means to achieve compliance.**
 - **Contains air monitoring data.**
- **Establish proper engineering and administrative controls for activities that might release lead.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Health H-07	<i>Topic:</i> Mercury
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart D - Occupational Health and Environmental Controls, 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts, and Mists	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize the presence of mercury in certain older buildings and products, and understand that construction activities can release mercury. DDC employees should understand that mercury exposure is rare but also dangerous in very low levels.

SCOPE:

This guide applies to all construction sites where mercury may be present.

POTENTIAL FOR EXPOSURE:

Mercury is a metal that can be found in several forms. At ambient temperatures, mercury is a shiny, silver-white liquid. If heated, it forms a colorless, odorless gas. Mercury can combine with inorganic compounds to form mercury salts. When combined with carbon, it forms organic mercury such as methyl mercury.

Although rare, exposure to mercury can occur during construction operations. The most prevalent source of mercury for DDC employees involves construction sites where mercury was previously used in a manufacturing process. Mercury can also be found in old laboratory or medical facilities. In this setting, mercury is usually found under floor tiles due to the numerous broken thermometers or sphygmomanometers over years. Mercury can also be found in thermostats and fluorescent light bulbs. Demolition of this equipment can disperse mercury.

Mercury can also be found in seafood. Frequent eaters of fish can develop significant levels of mercury in the body. There are also other non work-related sources of mercury poisoning.

The effects of mercury are mostly experienced in the nervous system. Effects on brain functions can cause irritability, shyness, tremors, and memory problems. Mercury can permanently damage the brain and kidneys, or affect a developing fetus.

The concern with mercury is that it is harmful in very small quantities.

- The Environmental Protection Agency (EPA) has a 2 parts per billion (ppb) limit of mercury in drinking water.
- The Food and Drug Administration (FDA) has set a maximum of 1 part per million (ppm) of the organic form of mercury, methyl mercury in seafood.
- OSHA has set a limit in air of 0.1 mg/m³ of organic mercury in air; and a 0.05- mg/m³ limit for metallic mercury vapor.

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MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas where mercury has been identified.**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to mercury.**

DDC Employees are required to work safely by:

- **Recognizing materials that may contain mercury.**
- **Recognizing activities that may result in an exposure to mercury.**
- **Being familiar with the scope of the project and how it might impact materials that may contain and release mercury.**
- **Being familiar with JHA's associated with their work tasks.**
- **Not eating or drinking on DDC projects involving mercury except in designated areas.**
- **Not smoking on DDC projects - NO EXCEPTIONS!**

Contractor's responsibilities:

- **Be familiar with the OSHA exposure limits for mercury.**
- **Identify potential source of mercury.**
- **Establish proper engineering and administrative controls for activities that might release mercury.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Health H-08	<i>Topic:</i> Polychlorinated Biphenyls (PCBs)
<i>Additional Information:</i> OSHA Standard 29 CFR 1926, Subpart D - Occupational Health and Environmental Controls, 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts, and Mists	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize the presence of PCBs in certain older buildings, products and equipment, and understand that construction activities can release PCBs and result in an occupational exposure.

SCOPE:

This guide applies to all construction sites where PCBs may be present.

POTENTIAL FOR EXPOSURE:

PCB stands for Polychlorinated Biphenyls. This is a group of organic chemicals, which can be mildly aromatic solids or oily liquids. They were used in hydraulic fluids, electrical transformers, plasticizers, adhesives, fire retardants, de-dusting agents, lubricants, and in heat transfer systems. More than 1.5 billion pounds of PCBs were manufactured in the United States prior to 1979, when their use was largely banned.

PCBs persist in water and soil. They attach to soil or evaporate and most often leach into ground water.

PCBs are hazardous to the liver, spleen, and pancreas. Short-term exposure can cause acne-like eruptions, pigmentation of the skin, hearing and vision problems, and spasms. Long term exposure produces symptoms similar to acute poisoning, irritation of the nose, throat, and gastrointestinal track, and changes in liver function.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas where PCBs have been identified.**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to PCBs.**

DDC Employees are required to work safely by:

- **Recognizing materials that may contain PCBs**
- **Recognizing activities that may result in an exposure to PCBs.**
- **Being familiar with the scope of the project and how it might impact materials that may contain and release PCBs.**
- **Being familiar with JHA's associated with both their and the contractor's work tasks.**

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- **Washing exposed skin regularly.**
- **Not eating or drinking on DDC projects involving PCBs except in designated areas.**
- **Not smoking on DDC projects - NO EXCEPTIONS!**

Contractor's responsibilities:

- **Be familiar with the issues concerning PCBs.**
- **Identify potential sources of PCBs**
- **Establish proper engineering and administrative controls for activities that might release PCBs.**

Additional related information may be found in the following guides:

NONE

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<i>Category:</i> Health H-09	<i>Topic:</i> Respiratory Protection
<i>Additional Information:</i> OSHA Standard 29 CFR 1926. Subpart E, Personal Protective and Life Saving Equipment 29 CFR 1926.28	

PURPOSE:

The purpose of this guide is to ensure that when DDC employees encounter an unanticipated respiratory hazard, they are aware of the procedure to follow.

SCOPE:

This guide applies to employees who are not required to use respiratory protection as identified in the written respiratory program. It is expected that chemical, radiological, and biological hazards are removed or properly segregated (e.g., lead, asbestos, etc.) from the general construction environment.

If DDC employees voluntarily choose to use respiratory protection, they must inform their supervisor and be identified in and comply fully with the DDC Respiratory Protection Program.

This guide does not address the voluntary use of filtering face pieces (dusk masks).

POTENTIAL FOR EXPOSURE:

DDC expects that in any facility with a respiratory hazard in sufficient concentration such as to require respiratory protection, the hazard will be eliminated PRIOR to the start of construction activities. During mitigation, the hazardous area will be segregated from the general construction area by proper containment specific to the hazard.

In some cases, specific DDC employees may have to enter into containment areas. These employees are predominantly from the Safety and Site Support Division specific to asbestos and lead hazards. Additionally, DDC has identified those essential employees to be capable to respond to an Agency or City emergency. These employees are identified in the written respiratory protection program and must adhere to specific requirements identified in that program.

Transient air contamination can be encountered as a result of disturbance or unanticipated conditions, either internal or external to the project site.

Whenever possible, airborne contaminants such as dusts, fumes, mists, vapors, and gases will be eliminated or reduced below permissible exposure limits by engineering controls. When this is not possible, respirators shall be used by those employees identified in the respiratory prevention program. Some employees may choose to use a respirator to eliminate exposure to air contaminants that are below recognized exposure limits, or as an additional level of comfort or protection. The voluntary use of a respirator is not discouraged as long as the use of the respirator does not become a hazard itself. DDC cautions that respirators are specific to a particular hazard and have limitations. Respirator use does not empower employees to enter areas without regard for their safety.

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MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop and administrate a written Respiratory Protection Program to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Prevent employees from accessing or working in areas that require respirators.**
- **Provide respiratory protection in those instances where employees require access to respiratory hazard areas**
- **Train employees in the proper use, storage, maintenance, and inspection of respirators.**
- **Issue a respirator only to those employees identified in the written Respiratory Protection Program.**

DDC Employees are required to work safely by:

- **Immediately leaving an area where a respiratory hazard is suspected or encountered.**
- **Being familiar with the site evacuation plan including escape routes and safe meeting places (NOTE: Always remember to stay upwind from an air contaminant whenever possible.)**
- **Never entering an area where unknown hazardous chemicals have been released – NO EXCEPTIONS!**
- **Never wearing an air-purifying respirator in an oxygen deficient environment.**
- **Never entering a trench or excavation where a hazardous material is or is suspected of being present.**

Contractor's responsibilities:

- **Identify and post signs for respiratory hazards (e.g., lead containment area, asbestos containment area, and welding fumes from welding on certain metals).**
- **Establish proper containment for recognized respiratory hazards.**
- **Establish an emergency notification and evacuation plan for the project site.**
- **Handle and store chemical hazards properly and protects them from accidental damage from vehicles and other construction equipment.**
- **Maintain dust control on project sites.**

Additional related information may be found in the following guide:

S-01 Basic Personal Protective Equipment

**NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION
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<i>Category:</i> Health H-10	<i>Topic:</i> Silica
<i>Additional Information:</i> OSHA's Notice of Proposed Rulemaking (NPRM) for Occupational Exposure to Respirable Crystalline Silica [Published September 12, 2013]	

PURPOSE:

Silica, or silicon dioxide, is commonly referred to as quartz. It is the basic component of sand and rock. The purpose of this guide is to ensure that DDC employees recognize the presence of silica in certain building materials and products; and understands that construction activities can release silica. DDC employees should also understand the ways that silica can enter the body.

SCOPE:

This guide applies to all construction sites where silica may be present with an emphasis on demolition and renovation of existing buildings or structures, including concrete roadbeds and curbs.

POTENTIAL FOR EXPOSURE:

Many safety and health organizations are beginning to emphasize the need to protect workers from silica released during construction. To address this hazard, OSHA, in September 2013, published in the Federal Register its "Notice of Proposed Rulemaking (NPRM) for Occupational Exposure to Respirable Crystalline". This is not a standard yet, but OSHA estimates that the proposed rule will save nearly 700 lives and prevent 1,600 new cases of silicosis per year, once the full effects of the rule are realized.

The key to protection is an understanding of the construction activities that place workers at risk. Activities include crushing concrete, hammering or chiseling of rock or concrete block, abrasive blasting with or without sand, saw cutting concrete, and demolition of concrete and masonry buildings or structures.

Silica can be inhaled as small particles that are deposited in the lungs. The body reacts to the foreign objects in the lung, forming scar tissue around the contaminant. As a result, workers are at risk for silicosis, lung cancer, or chronic obstructive pulmonary disease (COPD).

In general, DDC field employees do not use respiratory protection; hazard avoidance is the primary protection against exposure to silica.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to silica as a respirable dust.**

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- **Prevent employees from accessing or working in areas where small particles of silica could be generated as a result of a construction work activity.**

DDC Employees are required to work safely by:

- **Recognizing materials that may contain silica.**
- **Recognizing activities that may result in an exposure to silica.**
- **Understanding that construction activities such as abrasive blasting, concrete chipping and sawing, and many other tasks can release silica if silica is part of the building materials and/or surface coatings.**
- **Being familiar with JHA's associated with their work tasks.**
- **Observing work tasks that could release silica from a safe distance.**
- **Not eating or drinking on DDC projects involving silica except in designated areas.**
- **Not smoking on DDC projects - NO EXCEPTIONS!**
- **Changing clothes at the end of the workday if around work activities that can release silica.**

Contractor's responsibilities:

- **Be familiar with the silica problem and is proactive in protecting the workers.**
- **Conduct an exposure assessment for all areas where silica is suspected.**
- **Institute a written compliance program for activities involving silica.**
- **Establish proper engineering and administrative controls for activities that might release silica.**

Additional related information may be found in the following guide:

H-09 Respiratory Protection

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FIELD REFERENCE GUIDE**

<i>Category:</i> Health H-11	<i>Topic:</i> Heat Stress
<i>Additional Information:</i> The New York City Department of Health and Mental Hygiene provides information regarding extreme heat via the website www.nyc.gov .	

PURPOSE:

The purpose of this guide is to inform DDC employees of the severe effects of both heat and sunlight. This guide is to familiarize employees with the signs and symptoms of heat related illnesses, and the steps that they can take to reduce the potential for illnesses.

SCOPE:

This guide applies to all construction, especially during the summer months.

POTENTIAL FOR EXPOSURE:

Strenuous activities at high temperatures and increased humidity can cause heat related illnesses. Exposure to heat does not only occur outside in the sun. Exposure to heat can occur in confined spaces, attics, basements, and tunnels. Additionally, age, weight, degree of physical fitness and other factors will strongly influence a person’s sensitivity to heat. Because of all variables, it is difficult to predict who will be affected and when. Training is the key to preventing workplace exposures to excessive heat resulting in heat related illnesses.

Heat related illnesses include heat cramps, heat stroke, and heat exhaustion.

Heat stroke is a medical emergency that requires immediate action. Heat stroke occurs when the body fails to regulate body temperature and the body temperature rises to significantly high levels. Signs and symptoms include confusion, irrational behavior, loss of consciousness, and convulsions. There is usually an absence of sweating. If it is suspected that a worker has heat stroke, professional medical attention should be summoned immediately. While waiting, place the worker in a shady area, remove excessive outer clothing, and wet the skin. Try to have the worker drink fluids if he / she is conscious.

Heat exhaustion is characterized by headache, nausea, weakness, thirst and giddiness. Workers with heat exhaustion should be removed to a shady area and given fluids.

Heat cramps are usually caused by strenuous physical labor in a hot environment, leading to an electrolyte imbalance. Too much or too little salts can cause cramps. Fluid replenishment is essential for treating heat cramps.

Closely related to the subject of heat stress is exposure to harmful rays of the sun. Sunlight contains ultraviolet (UV) radiation that can cause wrinkles, cataracts and skin cancer. The amount of damage is related to the strength of the light, length of exposure, and skin protection.

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MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to the sun and heat conditions that could result in a heat related illness.**

DDC Employees are required to work safely by:

- **Covering up – wearing tightly woven fabrics.**
- **Using sunscreen.**
- **Wearing safety glasses with a tinted lens.**
- **Limiting exposure. The sun’s rays are the strongest between 10:00 AM and 4:00 PM.**
- **Drinking small amounts of water frequently.**
- **Eating smaller meals before work activity.**
- **Avoiding caffeine or large amounts of sugar.**
- **Checking with your doctor regarding medications, and their impact on your risk levels associated with exposure to the sun and heat.**

Additional related information may be found in the following guide:

NONE

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<i>Category:</i> Health H-12	<i>Topic:</i> West Nile Virus
<i>Additional Information:</i> OSHA Standard 29 CFR 1926.51 The New York City Department of Health and Mental Hygiene provides information regarding West Nile Virus on the website www.nyc.gov .	

PURPOSE:

The purpose of this guide is to ensure that DDC employees recognize that they have a stake in and responsibility to control WNV and are required to take individual steps to protect themselves.

SCOPE:

This guide applies to all construction sites where WNV maybe present, with an emphasis on construction sites where standing water is present for long periods of time.

POTENTIAL FOR EXPOSURE:

OSHA requires, in its sanitation standard, that facilities should be maintained in a manner to prevent the “entrance and harborage” of rodents, insects, and other vermin. The standards require a continuing and effective extermination program to be maintained if the presence of these unwelcome visitors is detected.

In 1999, West Nile Virus (WNV) first appeared in New York City. This was also the first reported case in North America. Now, WNV can be found throughout the continental United States.

People infected with WNV can experience mild flu-like symptoms up to and including severe neurological diseases, such as encephalitis or meningitis. The elderly are the most susceptible population to WNV. However, some infected with WNV may display no symptoms.

WNV is mostly transferred to humans from the bite of an infected mosquito. Symptoms will usually appear between three and fifteen days after being bitten by an infected mosquito. Not all mosquitoes carry WNV.

Mosquitoes breed in standing water and can become infected after biting an infected bird. The two most essential steps to dealing with this problem are to report areas of standing water and dead birds to the New York City Department of Health and Mental Hygiene.

MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a potential for exposure to WNV.**

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DDC Employees are required to work safely by:

- **Wearing long sleeve shirts and long pants in areas where mosquitoes are present.**
- **Avoiding areas where mosquitoes are present.**
- **Using an insect repellent containing DEET available from the DDC Safety and Health Officer for field personnel.**
- **Reporting any dead birds especially crows or blue jays.**
- **Reporting any standing water.**

Contractor's responsibilities:

- **Maintain the site free of areas of standing water or eliminates areas of standing water.**
- **Report any dead birds especially crows or blue jays.**
- **Report any standing water.**
- **Institute a written, continuing and effective extermination program if mosquitoes are present.**

Additional related information may be found in the following guide:

S-14 Housekeeping/Illumination/Sanitation

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FIELD REFERENCE GUIDE**

<i>Category:</i> Health H-13	<i>Topic:</i> Rodents and Vermin
<i>Additional Information:</i> OSHA Standard 29 CFR 1926.25 and 1926.51 The New York City Department of Health and Mental Hygiene provides information regarding Rodents and Vermin on the website www.nyc.gov .	

PURPOSE:

Although DDC does not own property, it “assumes ownership” when renovating or constructing facilities for the City of New York. The purpose of this guide is to ensure that DDC employees recognize that they have a stake in and responsibility to control the rat problem, not only for their own well-being but for all New York City.

SCOPE:

This guide applies to all construction sites where rats may be present with an emphasis on demolition and renovation of existing buildings or structures, and excavations for new buildings.

POTENTIAL FOR EXPOSURE:

Rats are as much a part of New York City as Coney Island, Yankee Stadium, Citi Field, Central Park, and the South Street Seaport. But the control of rats is not just the right thing to do, it is the law. The NYC Department of Health and Mental Hygiene, in a statement to building and property owners, states that “any portion of property either public or private space that is ‘conductive to feeding and habitation of rats’ is a violation of the law”.

Rats are not picky eaters. They can eat all of the food that we eat. They can chew through plastic, soft metal, as well as, concrete block and brick.

In addition to squeezing through extremely small spaces, rats can jump and climb. Rats will nest in dark and warm spaces.

In the pamphlet, “Rat Control Guidelines for Property Owners and Superintendents”, the NYC Department of Health and Mental Hygiene outlines a simple plan of attack. It is:

- KNOW THE RATS
- FIND THEM
- STARVE THEM
- EVICT THEM
- EXTERMINATE THEM

OSHA requires, in their sanitation standard, that facilities should be maintained in a manner to prevent the “entrance and harborage” of rodents, insects, and other vermin. The standards require a continuing and effective extermination program to be maintained if the presence of these unwelcome visitors is detected.

In addition to seeing rats, their presence can be indicated by burrows, droppings, nests, food, and gnaw marks.

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MAINTAINING YOUR SAFETY AND HEALTH:

DDC Responsibilities:

- **Develop policies and programs to ensure employees are provided with a safe and healthy work environment.**
- **Conduct a hazard assessment of work tasks by the use of a Job Hazard Analysis (JHA).**
- **Train employees to recognize work environments or work tasks that present a potential for making construction sites desirable to rats and other vermin.**

DDC Employees are required to work safely by:

- **Not eating or drinking at construction sites, except in designated areas and making sure that food waste, wrappers, or containers are properly disposed.**
- **Being aware of the signs indicating the presence of rats in work environment.**
- **Reporting any rat sightings or signs of a rat problem to the contractor.**
- **Being familiar with the extermination and rodent management program, if one exists.**

Contractor's responsibilities:

- **Be familiar with the rat problem and proactive in protecting the workers, the City, and its human occupants.**
- **Maintain structures and facilities in a manner to prevent "entrance and harborage".**
- **Separate food waste, wrappers, and containers from construction debris and store in tightly covered containers until disposal.**
- **Institute a written, continuing and effective extermination program, if rats and rodents are seen, or signs of their presence are detected.**

Additional related information may be found in the following guide:

S-14 Housekeeping /Illumination/ Sanitation

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APPENDIX 1 - GLOSSARY OF TERMS

Abatement – The action by an employer to comply with a cited standard or regulation or to eliminate a recognized hazard identified by OSHA during an inspection.

Action Level – A concentration of material calculated as an 8-hour time weighted average.

Asbestos – A generic name given to a fibrous variety of six naturally occurring minerals. The term “asbestos” is not a mineralogical definition but a commercial name given to a group of minerals that possess high tensile strength, flexibility, resistance to chemical and thermal degradation, and electrical resistance.

Asbestos Containing Material (ACM) – A material containing a minimum of one percent asbestos.

Barricade – An obstruction to deter the passage of persons or vehicles.

Cave-In (related to excavations) – The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

Certificate of Fitness – A “certificate” issued by the FDNY to indicate competence in performing a regulated task related to fire safety.

Competent Person - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and has authorization to take prompt corrective measures to eliminate them.

Confined Space – A space that:

- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry; and
- (3) Is not designed for continuous employee occupancy.

Cranes – A machine for lifting or lowering a load and moving it horizontally with the hoisting mechanism which is an integral part of the crane. Cranes can be fixed or mobile.

Decibel (dB) – A unit of measurement of sound. It is a dimensionless unit used to measure the ratio between two quantities.

Derricks – An apparatus consisting of a mast or equivalent member held at the head by guys or braces, with or without a boom, for use with a hoisting mechanism and operating ropes.

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Excavation – A cut, cavity, trench, or depression in the surface of soil formed by earth removal.

Fiber (related to asbestos) – A particulate form of asbestos 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

FDNY – New York City Fire Department

Hoists (or Hoisting) – Any crane and derrick functions such as lowering, lifting, swinging, booming in and out or up and down, or suspending a personnel platform.

Homogeneous Area (related to asbestos) – An area of surfacing material or thermal system insulation that is uniform in color and texture.

Immediately Dangerous to Life or Health (IDLH) – Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Leading Edge – The unprotected side or edge of a floor, roof, or formwork that changes location as construction continues.

Lockout - The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensures that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device – A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

OSHA – Occupational Safety and Health Administration

Permissible Exposure Limit (PEL) – The permissible limit allowed for an exposure to an inhalation or dermal hazard. This exposure limit can either be an 8-hour time weighted average (8-hr TWA) or a Short Term Exposure Limit (STEL).

Permit Required Confined Space – A confined space that has one or more of the following characteristics:

- (1) Contains or has a potential to contain a hazardous atmosphere;
- (2) Contains a material that has the potential for engulfing an entrant;
- (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- (4) Contains any other recognized serious safety or health hazard.

Personal Fall Arrest System – A system used to arrest a worker's fall. It consists of an anchorage,

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connectors, body harness, and may include a lanyard, deceleration device, lifeline, or combination of these.

Qualified Person – A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

Scaffold – Any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials or both.

Sheeting – A shoring system that retains the earth in position and is in turn are supported by other members of the shoring system.

Shoring – A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Signals – Moving signs, provided by workers, such as flaggers, or by devices, such as flashing lights, to warn of existing or immediate hazards.

Signs – Warnings of hazards, either temporarily or permanently placed.

Sloping (related to excavations) – A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation. The angle of incline required to prevent a cave-in varies based on such factors as soil type, environmental conditions of exposure, and application of surcharge loads.

Tag out – The placement of a tag out device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag out device is removed.

Tag out Device – A prominent warning device, such as a tag and means of attachment, which can be securely fastened to an energy-isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag out device is removed.

Trench – A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of trench (measured at the bottom) is not greater than 15 feet (4.6m).

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APPENDIX 2 - CONSTRUCTION HAZARD SIGNS

DANGER



Use: Danger signs are used to identify where an immediate hazard exists.

Description: Danger signs shall have red as the predominant color for the upper panel; black outline on the borders; and a white lower panel for additional sign wording.

CAUTION



Use: Caution signs are used to warn against potential hazards or to caution against unsafe practices.

Description: Caution signs shall have yellow as the predominant color; black upper panel and borders; and the lower yellow panel for additional sign wording. Additional wording shall be in black block letters.

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EXIT
TRAFFIC



Use: Exit signs are used to identify a designated means of egress.

Description: Exit signs shall be lettered in block red letters, not less than six-inches high, on a white background; or lettered in block white letters, not less than six-inches high, on a red background.

SAFETY INSTRUCTION



Use: Safety instruction signs are used to provide safety information or to identify safety equipment.

Description: Safety instruction signs shall be white with a green upper panel with white letters to convey the principle message. Any additional wording on sign shall be black on the white background.

TRAFFIC

Use: Traffic signs are used to indicate instructions and points of hazard in construction areas.

Description: Signs are typically white background with black lettering and yellow highlighting.

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APPENDIX 3 - NOISE EXPOSURE / CONSTRUCTION EQUIPMENT

DECIBEL - dB(A)		EQUIPMENT
Double protection recommended above 105 dB(A)	112	Pile driver
	110	Air gouging
	108	Impact Wrench
	107	Bulldozer - no muffler
	102-104	Air grinder
	102	Crane - uninsulated cab
	101-103	Bulldozer - no cab
	97	Chipping concrete
	96	Circular saw and hammering
	96	Jack hammer
	96	Quick-cut saw
	95	Masonry saw
	94	Compactor - no cab
	90	Crane - insulated cab
Hearing protection recommended above 85 dB(A)	87	Loader/backhoe - insulated cab
	86	Grinder
	85-90	Welding Machine
	85	Bulldozer - insulated cab
	60-70	Speaking Voice