# HEALTH & SAFETY MANUAL


SHAWMUT

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## Foreword

Shawmut Design and Construction is committed to the principle of "Actively Driving a Safe and Injury-free Environment" and the effort to establish that culture. In addition to helping us reach our goal, the Shawmut Design and Construction Environmental, Health & Safety Manual sets expectations for our employees as well as employees of subcontractors.

This written Safety Program is established in order to exercise all available means of eliminating or controlling hazards and risks associated with the construction industry. The primary objective of this program is to protect all employees and others from personal injury or harm. Important other objectives include protecting property from damage, maintaining conditions which assure the smooth and uninterrupted operation of the project, and reporting all accidents and incidents completely, accurately and promptly.

Our company is committed to providing our employees, subcontractors, visitors and the general public a place of employment that is free from recognized hazards that cause or are likely to cause serious injury or even death.

It is mandatory that every person employed by Shawmut Design and Construction be continually vigilant of this commitment to safety.

Our company operations are to be carried out in compliance with Shawmut Design and Construction Environmental, Safety and Health regulations promulgated by federal, state and local government agencies. We are morally bound to instruct our fellow workers to recognize and correct unsafe conditions.

Safety awareness combined with safe working conditions and safe work habits will allow us to fulfill our safety commitment.

Les Hiscoe
Chief Executive Officer

Reza Amirkhalili
Chief Operating Officer

Shaun Carvalho
Chief Safety Officer

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## MODULE 01 – General Program Information

## 1.0 Project Safety Zero Accident Mission Statement

1.1 Shawmut Design and Construction is committed to providing all employees and subcontractors with a safe working environment and to protect life, health and property. This document and the project safety plans on our projects outline the specific responsibility, accountability and safety practices, which will help accomplish our goal.

1.2 The safe work practices and regulations outlined in the manual and as appendices apply to Shawmut Design and Construction employees, employees of subcontractors, visitors and vendors and those other site personnel providing workplace directions. Employers of people on our sites own direct responsibility of your employee's safety. They are to provide all training, planning, communication and equipment necessary for their employees to remain safe on our sites. This EHS Manual is a minimum standard covering most aspects of construction; however, all contractors shall have their own safety program meeting or exceeding this one, providing ultimate prevention of incident.

1.3 The safety policy will be incorporated into subcontract requirements for their development of an injury and illness prevention program.

1.4 Shawmut Design and Construction and our subcontractors shall accomplish our "Zero Accident" goal by:

1.4.1 Providing a safe working environment

1.4.2 Managing and providing safe, well-maintained equipment to eliminate risk to property and employees.

1.4.3 Complying with the contract specifications, site specific safety requirements and Shawmut Design and Construction Health & Safety requirements and all federal, state and local regulatory standards

1.4.4 Never accepting any unsafe condition or unsafe act for any reason, and taking immediate corrective action when any safety violation is observed

1.4.5 Ensuring subcontractor compliance with the site-specific safety program, subcontractors safety program, site specific safety requirements and regulatory requirements through meetings and audits

1.4.6 Identifying job hazards and ensuring training of site personnel to correct and avoid injury caused by unsafe work processes or practices

1.4.7 Placing appropriate emphasis on hazard communication, hazard recognition, training, environmental responsibilities and supervisory and employee accountability

## 2.0 Procedures/General Information

2.1 Evaluation – Project Teams (Site Superintendent, Forepersons, Project Managers, Safety Managers) reviews the jobsite on a regular basis and document observations in a safety report.

2.2 Coordination – Employees are encouraged to comment on the safety plan and to provide information to their Foreperson/Superintendent and/or Safety Department on developing safe work practices.

2.3 Implementation – Shawmut Design and Construction, subcontractors, and affected employees establish the necessary measures to ensure a safe workplace.

2.4 Training – Safety training may be scheduled by the Safety Department and subcontractors, and employees are required to attend. Weekly site-specific toolbox talks will be submitted to SDC as another component of employee training. Subcontractors shall provide trained workers.

2.5 Each project may host a weekly site wide safety meeting. Subcontractors shall allocate the necessary time and resources to support this safety engagement meeting, roughly 15 minutes per week per person.

2.6 Daily Observations – Supervisors, Foreperson, or Superintendents complete a review of all work practices, and safety compliance programs are noted.

2.7 Daily Pre-task Planning - Competent People shall conduct a daily huddle with their crews to address the safety plan for the day. CPs shall review the daily activities, potential hazards, and controls that are available to remain safe. They shall ask for any feedback or concerns from their staff. They shall also discuss other site operations, informing their crews of anything else pertinent to the job and safety for that particular day. Information from the crews shall come back to the Shawmut Superintendent so we can collectively maintain a safe work site. CP shall use HammerTech safety software to upload this information and obtain signatures from the crew.

2.8 Enforcement – Both subcontractors and Shawmut Design and Construction employees are subject to Shawmut Design and Construction's Disciplinary Program for safety violations. Please reference the Disciplinary Program for clarification on violations and fines.

2.9 Work Hours – countless studies have been done to show that work production decreases drastically and injuries increase dramatically when someone works more than 12 hours; to that end Shawmut requests our subcontract employers properly staff the sites to maintain work hours for each employee below 12 hours per day and to prevent anyone to come off another job to work a second shift on our site. If and when more work is needed, we encourage and require more rest time following this long day and not to have consistent days exceeding 12 hours. We also encourage at least 1 rest day per week.

2.10 Buddy system – no worker should ever be working alone, especially in hazardous areas or when working at heights. To that end Shawmut requires our subcontract employers to always maintain a minimum of a 2-person crew when working in hazardous areas or when working at heights, in the same general area.

## 3.0 Administration and Organization

3.1 The purpose of the Shawmut Design and Construction Health and Safety Plan is to provide an outline of the policies, practices, procedures and controls Shawmut will use to assure a safe place to work for employees and subcontractors of Shawmut Design and Construction.

3.2 In addition, the responsibility and accountability of members of the Shawmut project supervisory team, subcontractors, and employees will be outlined. Execution of the safe work practices and Subcontractor compliance will be the responsibility of the management team.

3.3 The monitoring of subcontractor compliance resides with the Shawmut Design and Construction site management team. This administration also includes the imposing of contractual sanctions if safety non-compliance warrants such sanctions. Please reference the Disciplinary Program for clarification on violation fines.

3.4 The Health and Safety Plan may be available for review at a designated site location and is always available electronically at www.shawmut.com

3.5 Shawmut Design and Construction will take steps to assure that visitors and vendors are not placed in hazardous conditions. Shawmut visitors will be provided with the necessary personal protective equipment (PPE).

## 4.0 Responsibilities

4.1 Shawmut Design and Construction and Subcontractor Responsibilities

4.1.1.1 No document outlining safe conduct is complete without a clear delineation of supervisory and employee responsibilities and accountability. The safe work procedures will clearly outline both the responsibility and accountability for:

4.1.1.2 Project Manager – our PM is responsible for the following:

4.1.1.3 Discuss safety and risk with subcontractors at time of award.

4.1.1.4 Make sure subs have proper experience for scope of work.

4.1.1.5 Obtain hazmat report from owner or coordinate one by certified industrial hygienist prior to work commencing.

4.1.1.6 Establish safety standards with subs through communication and subcontractor safety kickoff meetings.

4.1.1.7 Obtain all safety documentation from subcontractors.

4.1.1.7.1 Assist super with jobsite safety compliance by conducting routine jobsite safety inspections

4.1.1.8 Project Superintendent

4.1.1.8.1 Set up site for success (PPE, signage, fencing, paperwork, etc.)

4.1.1.8.2 Conduct safety orientations for all new workers to the site

4.1.1.8.3 Conduct weekly safety meetings through weekly all hands as well as foreperson meetings.

4.1.1.8.4 Obtain copies of all trainings, certificates, and weekly trainings

4.1.1.8.5 Conduct daily safety audits and document in safety report

4.1.1.9 Safety Manager

4.1.1.9.1 Assist PM on communicating safety needs of subcontractors

4.1.1.9.2 Assist Super with site compliance of safety

4.1.1.9.3 Attend pertinent safety meetings on site for pre-planning

4.1.1.9.4 Conduct weekly safety visits and document via safety report

4.1.1.10 HammerTech

4.1.1.10.1 In order to ensure the efficiency in managing the information exchange in this project, Shawmut Design and Construction has decided to utilize the HammerTech web-based collaboration system for all parties involved in the project. The HammerTech System will therefore be the only recognized method of transmittal for formal safety documentation (e.g., insurance, compliance, correspondence, safety issue rectification, instructions, project welcome emails and submittals, etc.).

4.1.1.10.2 This Subcontractor shall ensure that each of its personnel and the personnel of any sub-tiers of subcontractors for which Subcontractor is responsible (collectively, Subcontractor Personnel), use the HammerTech System and comply with the requirements of this system and any related directions from Contractor.

4.1.1.10.3 Subcontractor has been or will be issued with a primary user/off-site administrator account and where required, their nominated representative on this project will also be issued with a user account, to access the secure self-service portal of the HammerTech System.

4.1.1.10.4 Prior to commencing work on the construction site, this Subcontractor must follow the instructions within the “Welcome Email” and ensure that either the required pre-commencement safety information is provided via the self-service portal or where it already exists, that it is up to date.

4.1.1.10.5 Once work is commenced on the construction site, Subcontractor must follow the following processes where required digitally:

4.1.1.10.5.1 Permit Management

4.1.1.10.5.2 Temporary Work Inspections (i.e. Scaffolding)

4.1.1.10.5.3 Booking and Logistical Requests

4.1.1.10.5.4 Daily Report Submission (daily) – including progress, worker hours and photos of progress or any issues

4.1.1.10.5.5 Any inspections safety or quality related as requested

4.1.1.10.5.6 Record near misses

4.1.1.10.6 All Subcontractor Personnel must use the HammerTech System to complete their registration prior to arriving on the Site and must provide all mandatory information required in the enrollment form, including:

4.1.1.10.6.1 Personnel Details (Name, Address, Mobile, Email)

4.1.1.10.6.2 Emergency Contact Details

4.1.1.11 Subcontractor Project Foreperson / Competent Person

4.1.1.11.1 Must have OSHA 30-hr training, at a minimum

4.1.1.11.2 Must be able to communicate in English and in all languages of your crew; or have a translator.

4.1.1.11.3 Oversee all operations for safety

4.1.1.11.4 Conduct weekly safety meetings and daily Pre-task Plans

4.1.1.11.5 Pre-plan all high-risk work through JSA

4.1.1.11.6 Communicate safety needs to project super

4.1.1.11.7 Attend Site Safety Kickoff meeting

4.1.1.11.8 Attend weekly safety meetings and coordination meetings

4.1.1.11.9 Complete all trade specific safety paperwork, review with crew and file with HammerTech safety software.

4.1.1.11.10 Complete daily inspections of equipment, as required.

4.1.1.12 Subcontractor Project Employees

4.1.1.12.1 Follow all safety rules and regulations

4.1.1.12.2 Communicate to foreperson/super any concerns about safety

4.1.1.12.3 Attend safety orientation, daily pre-task plan meetings, and weekly safety meetings. appropriately sign in to all events through HammerTech.

4.1.2 Furthermore, incorporating safety into the planning of work activities is the responsibility of field supervision. Each work operation shall be audited on a periodic basis by the Project Superintendent/ Competent Person and/ or Safety Manager to assure that best management practices are in place and used. Where deviations occur from standard practices, management is to take immediate corrective action.

4.1.3 Senior Project Management is to assure that all supervisory personnel recognize, understand and execute their responsibilities and are held accountable for their actions.

## 4.2 Subcontractor Responsibilities

4.2.1 The subcontractor's management is responsible for the safe execution of their work, the safety of their employees, clients, and the public who may be in or near their work zones and the safety of Shawmut Design and Construction employees working in their work zones.

4.2.2 Project Safety representatives

4.2.2.1 Subcontractors shall supply a dedicated safety representative when requested by Shawmut. This person shall be on site during all operations when the crew size meets or exceeds 40 people, including tiered subs.

4.2.2.2 Safety representative shall:

4.2.2.2.1 Must conduct daily safety inspections and communicate findings to the SDC Superintendent and/or Safety Manager

4.2.2.2.2 Must oversee all work practices of their crew daily and ensure full SDC and OSHA compliance

4.2.2.2.3 Their sole responsibility shall be safety

4.2.2.2.4 Must have a minimum of OSHA 3-hr training

## 5.0 Applicable Standards

5.1 Referenced standards may be available for anyone to review upon request to Shawmut Design and Construction Safety Department or Project Superintendent.

5.1.1 29 CFR 1926

5.1.2 29 CFR 1910 as applicable

5.1.3 Shawmut Design and Construction Environmental, Health & Safety Manual

5.1.4 Subcontractors Safety and Health Plan

5.1.5 Employee's Health and Safety Orientation

5.1.6 Local and State Specific Programs

5.1.7 Federal Agencies not previously listed

## 6.0 Safe Work Practices

6.1 The safe work process or safety guidelines that may include Project Hazard Analysis (PHA), Job Safety Analysis (JSA), safety meetings and safety manuals are to assist in hazard identification/correction/injury avoidance. Field Supervision and the Safety Manager will update these procedures from time to time for site supervisors, tradespeople, and site visitor use.

6.2 The guidelines will outline safe work practice procedures, some of which are referenced below. As work processes change, additional safe work practices will be added and communicated through weekly foreperson safety meetings, special safety meetings, handouts and/or one on one instruction with the site work force to keep them informed.

6.3 The safe work practice programs will be conveniently located for employees to review.

6.4 Safe work processes may include, but are not limited to the following:

6.4.1 New employee orientation

6.4.2 Supervisory training

6.4.3 Job site safety regulations

6.4.4 Personal Protective Equipment

6.4.5 Fall prevention/protection

6.4.6 Heavy equipment safety

6.4.7 Vehicular safety

6.4.8 Respiratory protection

6.4.9 Hazardous communication

## 7.0 Safety Commitment Policy

Employees or subcontractors of Shawmut Design and Construction can be subject to Disciplinary Action Policy. Subcontractors will be expected to implement their own internal disciplinary processes. Project participants should perform their duties in a courteous and professional manner and be respectful of property. Drugs, alcohol, tobacco use, firearms, horseplay, fighting, gambling, soliciting, or harassment shall not be tolerated, and may result in immediate removal from the project.

## 8.0 Training/Education/Orientation/Hazard Communication

8.1 Hazard communication is a program for informing employees through about hazardous or potentially hazardous materials in the workplace.

8.2 Safety data sheets (SDS) may be used to assist in training/education/hazard avoidance to protect employees from chemical hazards.

8.3 The requirement to train and inform applies to all employees of Shawmut Design and Construction and subcontractors alike. As appropriate, training may be done and documented by the Field Supervision, Subcontractor Management or Consultant, or the Safety Manager. Where necessary, personal protective equipment (PPE) will be provided if engineering controls are inadequate.

8.4 Anyone conducting safety training shall meet the following requirements:

8.4.1 Trained by the manufacturer or industry association as an “authorized instructor” capable to issue training and certificates. Examples include:

8.4.1.1 Scaffold builder and user authorized instructor

8.4.1.2 Aerial and Scissor lift authorized instructor

8.4.1.3 Qualified fall arrest installer

8.4.2 OSHA 500 Authorized Instructor

8.4.3 Board of Certified Safety Professionals “Certified Environmental, Safety and Health Trainer”

8.5 All Shawmut Design and Construction employees and subcontractors shall participate in a Safety Orientation upon arrival to site for the first time.

8.5.1 Orientations will be an introduction to Shawmut Health and Safety requirements as well as site specific items for each jobsite.

8.5.2 Orientations establish minimum criteria but in no way represent safety training. These are only an outline of expectations and an opportunity for anyone to ask questions and discuss expectations of the job.

8.5.3 Everyone entering our sites will be required to attend an orientation first.

8.5.4 They shall acknowledge the site safety rules and regulations by signing our sign-in sheets, along with date and company they work for.

## 9.0 Accident/Incident Investigation

It is the responsibility of all Shawmut Design and Construction management to create an atmosphere of trust so that the reporting and investigation of incidents and near miss incidents can be done with all employees cooperating.

It is the responsibility of all Shawmut project participants to report any unsafe conditions to Shawmut Management as soon as possible. In the event that Shawmut Management fails to mitigate these deficiencies in a specific time period, that individual is encouraged to utilize the Shawmut Design and Construction Safety Hotline

**1-877-342-SAFE**

Use of this reporting method affords the complainant an opportunity to report an unsafe work condition and remain anonymous for fear of reprisal. Any corrective action resulting from the investigation will be assigned from the Shawmut Design and Construction Safety Director to the responsible field supervisor or Subcontractor for follow up.

Initial injury and property damage Incidents shall be reported to Shawmut Design and Construction Superintendent verbally as soon as time permits. Any verbal notification shall be followed up with written reports. Corporate reporting shall follow corporate guidelines and within specified time frames. Employees are encouraged to call the Shawmut Design and Construction accident/incident reporting line when they are unable to document a report in a timely fashion.

**1-617-622-7500**

Near miss incidents are to be carefully investigated to determine root cause and assign corrective action. All injury incidents shall be documented per OSHA record-keeping requirements. Violations of the record-keeping requirements shall be grounds for disciplinary action.

## 10.0 Medical Services

10.1 Shawmut Design and Construction and its subcontractors shall provide transportation for their Employees for injuries that require minor medical services. Minor medical services may include:

10.1.1 First aid

10.1.2 Minor injuries

10.1.3 Serious injuries not requiring an ambulance

## 11.0 Emergency Notification and Evacuation Plan

11.1 The site Emergency Notification and Evacuation Plan will cover Shawmut Project management responsibilities for incident area control, managing crowds, emergency medical service response and managing corporate and client interests in:

11.1.1 Non-serious injuries

11.1.2 Serious injuries requiring ambulance transportation

11.1.3 Life threatening injuries

11.2 Fatal injuries and/or catastrophes
Shawmut Project management will:

11.2.1 Control event scene

11.2.2 Establish communication and command structure

11.2.3 Handle any work-site evacuation

11.2.4 Facilitate confined space rescue, if necessary

11.2.5 Manage the aftermath of a heavy equipment incident

11.3 Shawmut Design and Construction management will assure that all incident notification comply with guidelines found in the Risk Management Program.

## 12.0 Subcontractor Health and Safety Program

12.1 When requested by Shawmut, each subcontractor will prepare and submit for Shawmut Design and Construction review, a site-specific Health and Safety program that meet the requirements of the site, Shawmut Design and Construction and regulatory standards. This safety program will describe their commitment for meeting safety and health obligations at the site and will include a section outlining employee disciplinary process. This program must match the effort to achieve our goal of Zero Accidents.

12.2 In their site safety plan, each subcontractor shall outline their field supervision's responsibility and accountability for safety performance.

12.3 In addition, lower-tier subcontractors shall also meet the same obligations as our prime Subcontractor for site health and safety and shall have the same obligation to impose employee sanctions for employees failing to meet site safety requirements.

12.4 Each prime subcontractor has the responsibility to assure that their lower tier subcontractors comply with the site safety requirements. The lower tier Subcontractor's Safety program will describe their commitments for meeting that Zero Accident goal of Shawmut Design and Construction.

12.5 Each lower-tier subcontractor has the same Safety obligation as the prime subcontractor. Each prime subcontractor shall submit the name of their competent safety person prior to starting work.

12.6 When writing a site safety plan, the requirements shall meet or exceed Shawmut's Health and Safety Plan. Any deviation from Shawmut's requirements shall be only authorized by Shawmut Design and Construction Safety Director.

## 13.0 OSHA and other Regulatory Agency Site Inspections and Investigations

13.1 Shawmut Design and Construction recognizes the authority of regulatory agencies to conduct site visits for inspection or investigation purposes. To this end, Shawmut Design and Construction will cooperate with site visits and will make available members of the site management team to assist.

13.2 Documents, as requested, will be provided when notice is provided to Shawmut Design and Construction.

13.3 All subcontractors shall be expected to support the regulatory visit with the same degree of cooperation as Shawmut Design and Construction.

13.4 In no case shall Shawmut or their subcontractors be expected to compromise their legal rights relating to regulatory site inspections or investigations.

13.5 Shawmut Safety Department shall be informed immediately of any regulatory investigations or visits.

## 14.0 General Site Rules

General safe work rules may be found in the New Hire Orientation Manual, Site Specific Safety Manual, or through site safety meetings. In addition, site specific work rules will be developed and will be explained in the new employee orientation process, weekly safety meetings and/or special meetings that may be called as necessary.

Enforcement of the site work rules will be the responsibility of the Shawmut Project Management and Field Supervision.

## 15.0 Job Safety Analysis

15.1 Introduction

15.1.1 Construction is a dynamic, ever changing process. Construction can also be a very dangerous business. Many tasks are simple and routine, while others are out of the ordinary and can be not only challenging, but dangerous. To that end, Shawmut may require our subcontractors to write a Job Safety Analysis (JSA) when a difficult task is going to happen. This may be requested by the Superintendent, Safety Manager, Construction Manager or Project Manager.

15.2 Purpose

15.2.1 To eliminate job hazards on Shawmut Design and Construction projects through pre-planning of tasks designed to identify associated hazards and the subsequent development of control measures determined to control those hazards.

15.3 Scope

15.3.1 These guidelines apply to Shawmut Design and Construction, Subcontractors to Shawmut and lower-tier subcontractors not excluding other contractors whose work will be affected by Shawmut Operations on our projects.

15.3.2 The best procedure to utilize in reviewing project tasks for the determination of hazards associated with those tasks, and the subsequent development of countermeasures to control those hazards, is the JSA.

15.3.3 Often hazards have been overlooked in the Pre-Construction Safety Planning Conference and come to light after actual production has started. It is for these situations and changes in work procedures that JSAs are crucial to proper safety and hazard contract planning.

15.3.4 Some solutions to potential hazards may involve physical changes that eliminate or control the hazard or modified job procedures that help eliminate the hazard.

15.4 Application

15.4.1 Job Safety Analyses should be done prior to the beginning of a task, at a minimum 48 hours in advance. The JSA's only purpose is to document safety procedures on a particular task. The JSA should be conducted by the subcontractor competent and/ or qualified person, in conjunction with the Project Superintendent and Foreperson/Superintendent, reviewed by site staff signed and dated. The JSA should also be created when any new job or job modification is caused by the introduction of a new operation, work phase, or equipment.

15.4.2 JSA development allows the Safety Department and Supervisory Personnel to work closely together. They must identify and prioritize jobs according to potential hazards. This analysis should be developed through group discussions. Employees are the best source for identifying potential hazards and alternative procedures, and therefore should be used as a resource while developing the plan.

15.4.3 Utilize the JSA Worksheet (see appendices).

15.4.4 All tasks that can cause serious injury or fatality shall have a JSA in place before the work begins. These tasks include, but are not limited to:

15.4.4.1 Scaffold erection

15.4.4.2 Hoist installation

15.4.4.3 Elevator construction

15.4.4.4 Steel erection

15.4.4.5 Confined space work

15.4.4.6 Demolition

15.4.4.7 Masonry

15.4.4.8 Glazing

15.4.4.9 Roofing

15.4.4.10 Excavations >5' deep

15.4.4.11 Cranes

15.4.4.12 Rigging

15.5 Process

15.5.1 The JSA consists of a basic four-step process:

15.5.1.1 Select the job or task.

15.5.1.2 Break task into its individual components or activities; observe or conceptualize and document each step of the job.

15.5.1.3 Identify the potential hazards.

15.5.1.4 Develop a procedure to eliminate the hazard.

15.5.2 Some solutions to potential hazards may involve physical changes to eliminate or control the hazard, or modified job procedures to help eliminate or minimize the hazard.

15.5.3 All JSAs should be reviewed by Project Superintendents, Forepersons and site staff before implementation.

# Appendix A

## Safety Commitment Policy for Subcontractors

**Safety Disciplinary Action Policy**

Subcontractors of Shawmut Design and Construction will be subject to Disciplinary action for unacceptable safety performance. It is expected that all subcontractors and their employees, will be responsible for following and enforcing Shawmut's "zero accident/zero tolerance" policy, which includes Shawmut's Safety and Health regulations and program elements. Subcontractors are expected to implement their own internal disciplinary processes but remain subject to this policy as required by the contract document.

**Enforcement and Penalties**

If necessary, Shawmut Design and Construction will enact the following to ensure an efficient and consistent policy/protocol for all subcontractors:

**For Subcontractors:**

1. **First Offense:** Written warning (Notice of Non-compliance), possible fine and removal of offending individual from site, depending on severity. Proof of adequate training for individual may also be required.

2. **Second Offense**: Written warning (Notice of Non-compliance) and/or formal letter will be sent to the subcontractor. Shawmut will issue a **$500 to $1,000** fine to the offending company depending on severity. The offending individual may also be removed from site based on the severity of incident. Proof of adequate retraining will be required before offending individuals are allowed back to work.

3. **Third Offense:** Up to a **$5,000** fine will be issued to the offending company and, depending on severity of the issue, a mandatory meeting will be scheduled between Shawmut Design and Construction and the subcontractor to decide if the removal of the individual and offending company from the project is necessary.

    - **Safety Resolution Conference:** Subcontractors have the right to request a **safety resolution conference** with the SDC Project Team and SDC Safety Team to determine the best action moving forward, including using fines for safety training and/ or purchase of new equipment.

    - **See Attached Guideline for Safety Enforcement and penalty structure-** Severe, willful or intentional unsafe acts will result in immediate termination and discharge and/or a significant fine up **$20,000**. Terms of discharge will be determined by the Safety Manager and Managing Director of Field Operations.

**Administration of this Policy**

Any Shawmut staff member has the right to voice concern and have the Project Superintendent issue a warning when an incident of non-compliance occurs (Notice of Non-Compliance). **Shawmut has a confidential Safety Hotline 1-877-342-SAFE (1-877-342-7233) for anyone to call to report an incident of non-compliance.** Every claim will be investigated immediately and with the strictest level of confidentiality. Once a Notice of Non-Compliance is issued by the Project Superintendent, the Project Manager will be responsible to administer the written warning or fine and ensure the subcontractor's office has been notified or the fine has been collected. Fines will be handled as negative change orders to the contract so as to ensure that the fine is formally acknowledged. Any form of animosity or retribution around this policy will not be tolerated.

This policy may be superseded or supplemented by an Owner or Client policy that may be more stringent.

- **Safety Enforcement and Penalty Guideline:** To assist in our efforts of maintaining a safe and injury-free environment, the following is offered as guidance in determining violations, warnings, fines and terminations imposed upon subcontractors and in accordance with the Subcontract Agreement. **Shawmut Design and Construction reserves the right to issue fines for observed unsafe acts or conditions not included in the following chart of violations:**

## Violation Severity Chart

**(To be used as a guide only when issuing violation notices)**

| ***Low Level*** | ***Disciplinary Schedule*** |
|---|---|
| • PPE violation<br>• Paperwork violation<br>• Ladder damage or aluminum ladder in use<br>• Small floor openings left uncovered<br>• Machinery in use without proper instruction guide<br>• Lack of injury/ incident reporting<br>• Lack of GFCI protection<br>• Temp power not maintained<br>• Lack of signage of live electric closets and panels<br>• Poor air quality control<br>• Lack of training<br>• Poor storage of compressed gas cylinders<br>• No hot work permit / fire watch/ fire extinguisher | First Offence:<br>• Written Warning – notice of non-compliance<br>Second Offence:<br>• Issue non-compliance letter and fine - $500 to $1,000<br>• Proof of adequate retraining before allowed to go back to work<br>Third Offence:<br>• Issue non-compliance letter and fine-$5,000<br>• Possible removal of individual from site |
| ***Mid-Level*** | ***Disciplinary Schedule*** |
| • Repeat PPE violation<br>• Repeat paperwork violation<br>• Ladder misuse<br>• Fall protection >6' used wrong<br>• Lack of training for fall protection<br>• Poor scaffold set up/ use/ access<br>• Poor compliance with SDC Health and Safety rules<br>• Use of damaged cords and / or tools<br>• Rigging equipment not properly tagged<br>• Crane, heavy equipment, or boom lift in use without proper protection of swing radius, including signage<br>• Heavy equipment in use without backup alarm<br>• Lack of proof of training and/or license | First Offence:<br>• Issue non-compliance letter and possible fine<br>• Proof of adequate retraining or problem is fixed before allowed to go back to work<br>Second Offence:<br>• Issue non-compliance letter, $500 to $1,000 fine and possible removal of individual from site<br>• Proof of adequate retraining before allowed to go back to work<br>• Meeting with SDC and their organization<br>Third Offence:<br>• Is meeting with SDC and their organization<br>• Sue non-compliance letter, and a $5,000 fine<br>• Meeting with SDC and their organization |
| ***High Level*** | ***Disciplinary Schedule*** |
| • Fall protection >6' not in use<br>• Working on energized electricity >50 volts<br>• Leaving or creating exposed areas which are Immediately Dangerous to Life and Health for yourself and/ or others | First Offence:<br>• Issue non-compliance letter and fine of $1,000<br>• Potential removal of individual from site<br>• Proof of adequate retraining before allowed to go back to work<br>• Meeting with SDC and their organization<br>Second Offence:<br>• Removal of individual from site<br>• Possible removal of subcontractor firm from site<br>• Meeting with SDC and their organization<br>• Written action plan moving forward safely will be required<br>• Increased fines<br>Third Offence:<br>• Possible removal of subcontractor firm from site<br>• Meeting with SDC and their organization<br>• Written action plan moving forward safely will be required<br>• Increased fines |

# DAILY PRE-TASK PLAN

| | |
|---|---|
| Project Name: | Date: |
| Subcontractor Name: | |
| Competent Person (print): | |
| Competent Person (signature): | |

| EVALUATING YOUR WORK AREAS (Circle Yes or No) | | | | | |
|---|---|---|---|---|---|
| Have you walked your area? | Yes | No | Do you have the PPE needed for this task? | Yes | No |
| Are you working around live systems? | Yes | No | Are the required materials and tools provided? | Yes | No |
| Does this task require special training? | Yes | No | Have all tools/equipment been inspected before use? | Yes | No |
| Is a SDS review necessary for this task (e.g. new chemical or new task)? | Yes | No | Does this task involve a confined space? | Yes | No |
| Is air monitoring required? | Yes | No | Are you working at heights >6'? Do you have proper equipment? Do you have a rescue plan and training? | Yes | No |
| Are work permits required for this task (hot works, cranes, electrical, etc.)? | Yes | No | Is there a safety issue that has not been addressed? | Yes | No |
| Are you familiar with evacuation routes? | Yes | No | All equipment, including ladders, scaffolds, tools, PPE inspected? | Yes | No |
| Has emergency equipment such as fire extinguishers, eyewash stations, safety showers and phones been located? | | | | Yes | No |
| If the work area is congested, has the work plan been coordinated with other crafts? | | | | Yes | No |

| POTENTIAL HAZARD CHECKLIST (PLACE A CHECKMARK IF APPLICABLE) | | | | | | | | Personal Protective Equipment |
|---|---|---|---|---|---|---|---|---|
| ☐ | Pinch Points | ☐ | Inadequate Access | ☐ | Hazardous Chemicals | ☐ | Falls from Elevations | **List PPE Required:** |
| ☐ | Thermal Burns | ☐ | High Noise Levels | ☐ | Heat Exhaustion/ Stress | ☐ | Confined Spaces | |
| ☐ | Particles in Eyes | ☐ | Falling Objects | ☐ | Sharp Objects or Tools | ☐ | Sprinkler Shutdown | |
| ☐ | Elevated Work | ☐ | Manual Lifting | ☐ | Demolition | ☐ | Inhalation Hazard | |
| ☐ | Poor Housekeeping | ☐ | Chemical Spill | ☐ | Excavations | ☐ | Critical Lift | |
| ☐ | Electrical Shock | ☐ | Infection Control | ☐ | Lockout/Tagout | ☐ | Other: | |
| ☐ | Chemical Burns | ☐ | Scaffolding | ☐ | Ladders | ☐ | | |
| ☐ | Fire/Explosion | ☐ | Mobile Equipment | ☐ | Rigging | ☐ | | |

**POTENTIAL HAZARD DESCRIPTION & PREVENTION**

| Description of Work Performed | Hazards Associated with each Step | Required Actions to Eliminate or Control the Hazard |
|---|---|---|
| | | |
| | | |
| | | |
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**WORK CREW SIGN-OFF: (SIGNATURE)**

| Name (print) | Signature | OSHA 10-hr Y/N |
|---|---|---|
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# Job Safety Analysis

**Project:** _____ **Analysis By:** _____ **Work Activity:** _____

**Subcontractor:** _____ **Date:** _____ **Competent Person:** _____

**MANDATORY PERSONAL PROTECTIVE EQUIPMENT:** Hard hat, work boots, safety glasses, gloves

**GENERAL NOTES:**

## Potential Hazards

**Check all hazards listed below that apply to this operation.**

| | Yes | No | | Yes | No | | Yes | No |
|---|---|---|---|---|---|---|---|---|
| Aerial lifts required | ☐ | ☐ | Excavation, trenching, and shoring required | ☐ | ☐ | Leading edge work required | ☐ | ☐ |
| Asbestos hazard | ☐ | ☐ | Energy source hazard (electrical, steam, etc.) | ☐ | ☐ | Lead work required | ☐ | ☐ |
| Blasting required | ☐ | ☐ | Fall hazard | ☐ | ☐ | Scaffolding required | ☐ | ☐ |
| Concrete and masonry construction required | ☐ | ☐ | Heavy equipment used | ☐ | ☐ | Steel erection and assembly required | ☐ | ☐ |
| Confined space entry (attach permit) | ☐ | ☐ | High voltage work >600V | ☐ | ☐ | Other: | ☐ | ☐ |
| Cranes, hoisting and rigging required (attach crane checklist) | ☐ | ☐ | Hot Work required (Permit) | ☐ | ☐ | Other: | ☐ | ☐ |
| Demolition required | ☐ | ☐ | Impalement hazards | ☐ | ☐ | Other: | ☐ | ☐ |

**Job Safety Analysis:**

| Step | Work Task | Hazard | Controls |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

**JSA FIELD REVIEW RECORD – JSA CONTROL #:**

| Last Name | First Name | Signature | Date Reviewed |
|---|---|---|---|
| | | | |
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**Notice of Non-Compliance**

***Instructions***: *This form is to be used to document instances where Subcontractors are found to be in non-compliance with the established Codes and Standards that apply the scope of Work being performed. In all instances, Subcontractors will be immediately notified upon completion of this Form.*

| | | | |
|---|---|---|---|
| **Notified by:** | | **Title:** | |
| **Job Name:** | | **Job #** | |
| **Company:** | | **Date:** | |
| **Subcontractor Representative:** | | | |

**Description of Non-compliance:**

| |
|---|
| |

**Work activity ceased?** (Circle one) YES NO

**Standard/Code Reference:**

| |
|---|
| |

| | |
|---|---|
| **Date corrections must be made:** | |

**Comments:**

| |
|---|
| |

cc: Project Manager
Project Superintendent
Safety Director
Risk Management

# Subcontractor Kickoff Meeting

| Project Information | | | |
|---|---|---|---|
| **Project Name** | | **Date** | |
| **Project Number** | | **Sector** | |
| **City, State** | | **Approximate Size (SF)** | |
| **Substantial Completion** | | **Final Completion** | |

## Project Description

Removal and upgrade of BSE interior office space: New finishes, glass office fronts, new millwork. Rip and replace of HVAC system, lighting electrical floor box installation, additional plumbing connections for new bathroom/shower as well as additional pantry equipment. Removal/Relocation of sprinkler heads as well as fire alarm devices.

## Meeting Agenda

1. **Safety Commitment Statement:** Review the safety commitment for Shawmut and our Subcontractors
2. **Shawmut Team Roles & Responsibilities:** Introduction to the Shawmut Team Members & staff responsibilities
3. **Safety Documentation:** Review safety documentation needed for preconstruction and during construction
4. **Jobsite Safety Requirements**: Review site safety requirements, SDC procedures and emergency action plan
5. **Shawmut Expectations for Typical Work:** Review on Shawmut expectations regarding typical jobsite tasks.
6. **Job Schedule**: High level review of project milestones and deadlines.

## Commitment Statement

Shawmut Design and Construction is committed to "Actively Driving a Safe and Injury-free Environment" and the effort to establish that culture. In addition to helping us reach our goal, Shawmut sets high expectations for our subcontractors.

It is mandatory that every subcontractor and their employees be continually vigilant of this commitment to safety. That includes training, communication, well planned, executed work to ensure all parties drive an injury, incident free culture

## Shawmut Team Roles & Responsibilities

| Title | Name | Responsibility |
|---|---|---|
| Safety Manager | | Click or tap here to enter text. |
| Construction Manager | | Click or tap here to enter text. |
| Superintendent | | Click or tap here to enter text. |
| Project Executive | | Click or tap here to enter text. |
| Project Manager | | Click or tap here to enter text. |
| Assistant Project Manager | | Click or tap here to enter text. |
| Financial Project Administrator | | Click or tap here to enter text. |

## Safety Documentation

To help us create the safest work environment possible, prior to beginning work, we request a copy of the following information to be submitted to the superintendent in a 3-ring binder. Furthermore, we require specific documentation to be submitted during construction, as plans change, and work develops.

### Preconstruction

1. Company Safety Manual
2. Emergency Contact List
3. Identify Competent Person, Backup Competent person & Management Safety Designee
4. Safety Data Sheets (SDS).
5. Site Specific Safety Plan (PHA): Reviewed at orientation.
6. Job Safety Analysis (JSA) for high-hazard tasks: Reviewed at orientation
7. Training Certificates: some trades require additional training, such as the below:
   A. Demolition – ACM/ Lead Awareness and Electrical Awareness Safety
   B. Scaffold builder – erector/ dismantler training
   C. Rigging operations – qualified rigger and potentially signalperson / operator
   D. Steel erection – subpart R
   E. Fall protection training
   F. Additional requirements must be achieved due to local laws and regulations (i.e., NYC DOB LL196)

***Please review trade specific foreman's checklist**

### Construction

1. Jobsite Orientation for every worker that comes on-site **(before work starts)**
2. Daily equipment inspections
3. Fall protection inspections
4. Weekly toolbox talks
5. As Plans change, new established JSA **(task specific)**
6. Additional Paperwork, logs, plans, checklists, and stamped drawings, as required such as:
   A. Crane Lift plans (For all crane work 48hrs)
   B. Steel erection checklists
   C. Stamped designed drawings (Scaffolds, shoring, Cranes)
   D. Fire watch
   E. Weekly GFCI Inspection Logs

## Jobsite Safety Requirements

1. Shawmut will plan, initiate, and lead you in the best possible sequence of construction and maintain a safe, neat, clean, and orderly site.
2. Shawmut is safety conscious. If any subs are endangering themselves or others, they will be asked to correct it or leave. No exceptions. Refer to our safety commitment policy in Appendix A to your Rider G (contract).
3. Our site safety requirements are for the protection of all workers on site, as well as the general public around the project. These rules apply to all subcontractors and this information must be communicated to all second-tier subcontractors.
4. Hard hats and safety glasses are required by all people on site, workers as well as visitors, throughout job until it is turned over to owner.
5. Proper safety clothing required (boots, shirts, etc.)
6. Subcontractors must furnish own safety equipment as required by OSHA (goggles, ear protection, ground faults).
7. Worker decorum – all workers must always present themselves in a professional manner, showing respect to our site and the community around our project. Access to occupied areas is restricted and must be approved by site superintendent.
8. Emergency action plan and muster point.
9. Hazardous conditions – if you create a hazard, you are responsible to control it; including dust control, noise, chemicals, welding flash and fumes/ vapors/ smells, etc.
   a. You must coordinate this work with the site superintendent and your work may require off hours work, dust suppression (water), and/ or negative air machines, smoke eaters, containment, etc.

10. Fire protection – hot work permits required for all hot work, including fire watch supplied by subcontractors
11. No Smoking on site
12. Store compressed gas cylinders properly – coordinate locations with site superintendent – never inside a gang box
13. No drugs/alcohol or intoxicated people allowed. Asked to leave immediately.
14. No radios or headphones (other than hearing protection) allowed.

## Shawmut Expectations for Typical Work

1. **Are You working at heights? (EX Above 6')**
   - Have you been trained (do you have record of this training?)
   - Do you have the proper equipment & has it been inspected?
   - Always utilize 100% fall protection tie-off at heights equal to and exceeding 6-ft
   - Personal fall arrest equipment must be tagged and designed for use as PFAS only
2. **Is there any potential for electrical Hazard? EX: Temp electrical work, de-energized, panel access, general use.**
   - No live electrical work including voltage testing
   - All house power must use GFCI protection
   - Are your cords in good condition, inspected, and free from damage?
   - Is Lock out tag out needed in your work area?
3. **Is there any demolition work? (EX: Select demolition, demolition utilities, etc.)**
   - Has a HAZMAT report been reviewed?
   - Is make safe completed in your area of work?
   - Proof of respiratory training if used.
   - Do you have a dust control plan?
   - Do you have an impairment plan for select demolition?
4. **Access & Housekeeping: (EX: Ladders, ramps, cords, debris, etc.)**
   - Do you have clear access and egress?
   - Proper material & debris management.
   - Trip, slip, and fall hazards eliminated.
5. **Tools & Equipment / PPE (EX: Grinders, masonry saw, chop saw, skill saw, impact gun, etc.)**
   - All tools in good working condition
   - Guards in place
   - Correctly labeled equipment
   - Safety glasses, hard hats 100% of the time
   - Face shields, gloves used when needed

## Job Schedule

1. Critical Milestone Dates:
   A.
   B.
   C.
   D.
2. A short interval plan will be distributed each week and reviewed at each weekly foreman's meeting. This schedule will always be posted at the Shawmut site office.

3. Shawmut will continue to solicit your input to keep the project running on schedule. Shawmut will hold regularly scheduled weekly foreman's meetings with trades on *(Day/Time)*. Attendance will be mandatory for subcontractors with any work or deliveries within the short interval plan.
4. Discuss Closeout Requirements & Obligations.
   A. Close out kick off at 80% of contract completion
   B. Punchlist
   C. As-builts
   D. Maintenance manuals
   E. Client Trainings

| Subcontractor Safety Kickoff Sign-In Sheet | | |
|---|---|---|
| **Print Name** | **Signature** | **Company** |
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# Subcontractor Safety Authorization & Competent Person Designation

**Subcontractor:** _____

**Project:** _____

**Brief Description of Work:** _____

**Designated Competent Person:** _____

**Title of Competent Person:** _____

**Cell No. of Competent Person:** _____

**Email of Competent Person:** _____

**Alternative Competent Person:** _____

**Cell No. of Alt. Comp. Person:** _____

**Date:** _____

The above Subcontractor was contracted to perform work for the above referenced Project.

As defined by OSHA provision 29 CFR 1926, we have designated the above-named person as our Competent Person for this Project and an Alternative Competent Person if the Competent Person is not available. We understand that the expectation is that one or both Competent Person(s) will be onsite while work is being performed by our company, and that these people hold a minimum of OSHA 30-hr safety training. Additionally, this person can communicate in English and also has the ability to communicate to every member of their team on site, either directly or through an interpreter.

This person(s) understands OSHA standards as applied to the construction industry and any other safety requirements of the crew as set forth in the Shawmut Safety Manual. Said person has full authority to take immediate and corrective action, if necessary, to ensure the safety of our employees at this site.

By signing below, I confirm that I am an authorized agent for the company stated above and ultimately accountable for the safety of our employees. In addition, I am the contact for all compliance issues, including training, disciplinary action, and overall safety compliance.

**Print:** _____

**Signature:** _____

**Title:** _____

# MODULE 02 – General Site Safety Rules

## 1.0 Scope

This procedure identifies those general site safety rules that are applicable to all areas of the Shawmut Design and Construction projects and Shawmut Design and Construction employees, subcontractors and visitors working on Shawmut Design and Construction projects.

Specific safety rules will be developed and attached to this procedure when workplace conditions merit.

## 2.0 Responsibilities

2.1 **Each person** who directs the activities of employees shall monitor the work activities. The safe work practices shall be incorporated into the planning and execution of work. Safe work practices shall be supplemented by Job Safety Analysis (JSAs) when the Site Superintendent, Safety Manager and/or owner require this to be done.

2.2 **Supervisors** are responsible for identifying and correcting unsafe acts and conditions within their area of responsibility and administering disciplinary action to employees who fail to follow the prescribed procedures.

2.3 **Each employee** performing work must know and understand the safety and health requirements that apply to the work they perform. Employees who receive assignments that are not understood have an obligation to request additional information and further clarification before they commence their work activities.

2.4 **Incident Reporting** - Occurrences that result in property damage greater than $500 or “near miss” events where serious or fatal injury could have occurred, shall be promptly reported to supervision and the Safety Manger.

2.5 **Vehicle Operation** - Motor vehicles will be operated by **licensed** and **authorized** drivers. All posted speed limits and other traffic signs will be strictly observed. Where weather or other conditions dictate, additional precautions must be taken.

2.6 **Seat Belts** - Seat belts are to be provided and worn in automobiles, trucks, and equipment at all times.

2.7 **“Horse play”**, fighting, gambling, possession of firearms or weapons possession, or use of alcohol or unauthorized drugs shall result in disciplinary action according to Shawmut’s Disciplinary Action Policy.

## 3.0 Personal Protective Equipment

3.1 All employers are responsible to provide all personal protective equipment for their employees.

3.2 Only equipment meeting regulatory guidelines or other applicable regulations shall be used.

3.3 Equipment that has been altered in any way shall not be worn on Shawmut Design and Construction projects.

3.4 The wearing of head protection on Shawmut Design and Construction projects is mandatory. Hard hats shall meet the specifications of ANSI 89.1-1969, as required by OSHA.

3.5 Bump caps and metallic hard hats or caps are prohibited on Shawmut Design and Construction projects.

3.6 Welders are required to wear head protection (hard hats) during welding operations.

3.7 **Hard hats** are required at all times while inside Shawmut Design and Construction projects boundaries with the following exceptions:

3.7.1 Vehicle and equipment operators inside enclosed cabs.

3.7.2 Administration building (office work).

3.7.3 Lunch and break periods providing no **overhead hazards are present**, work is not in progress in immediate break area, site-offices, and forepersons shacks.

3.8 Hard hats shall not be altered in any way and must be worn per manufacturers recommendations.

3.9 Nothing shall be worn under the hard hat unless approved by the manufacturer.

3.10 All personnel on the site shall wear approved protective eyewear with side-shields at all times.

3.11 **Protective eyewear** shall meet the minimum requirements of ANSI Standard Z 87.1, latest edition, and is to be worn at all times.

3.12 In cases where employees perform work in restricted areas of the project, chemical goggles, face shield, and other protective equipment may be required.

3.13 During grinding operations and when flying objects are present, full-face shields shall be worn in addition to required protective eyewear.

3.14 Welders will wear eye protection while welding.

3.15 **Respiratory protection** - devices of the approved type shall be made available by all contractors for all their employees. They shall be worn by all employees when exposed to hazardous concentrations of toxic or noxious dust, fumes, mists or gases.

3.16 The use of respiratory equipment shall be used in accordance with the Health and Safety Plan.

3.17 Respiratory equipment shall be provided in accordance with the anticipated atmospheric conditions where the work will be performed.

3.18 Approved **hearing protection** shall be made available and such protection shall be worn by all employees exposed to noise levels above 90 dba (OSHA 1926.52), and were posted within the perimeter.

3.19 The Superintendent, Foreperson, and/ or Safety Manager are responsible for establishing areas where hearing protection will be required.

Employees as identified below shall use hearing protection:

3.19.1 Designated areas.

3.19.2 Operating or near chipping hammers.

3.19.3 Operating or near power saws cutting metal, concrete, or other hard materials

3.19.4 Grinding in a confined space.

3.20 All personnel on the site are required to wear sturdy **leather work boots**. These boots must be worn at all times by personnel on the site.

## 4.0 Worker Decorum/ Freedom from Harassment/ and Dress Requirements

4.1 Shawmut's operations are based upon a fundamental commitment to treating people with dignity and respect. Shawmut expects our employees, subcontractors, vendors, partners, and any other parties (Partners) with whom we work to maintain a safe working environment, which includes an environment free from harassment and discrimination. Harassment and discrimination include comments, slurs, gestures, unwelcome behavior or language with regard to race, color, sex, sexual orientation, gender identity/expression, age, religion, national origin, marital status, veteran status, pregnancy, physical or mental disability, genetic information, creed or citizenship. All of Shawmut's Partners have the right to be free from racial, ethnic, or similar slurs and unwelcome behavior. Any person or Partner reported to be in violation of the Freedom from Harassment and Discrimination Policy will be subject to immediate removal from the current, and all future, projects with Shawmut. Violation of this policy is considered High and subject to the safety violations found in the Safety Disciplinary Action Policy.

4.2 Project participants must wear suitable clothing (non-descript) while on Shawmut Design and Construction projects.

4.3 Project participants have to be aware that the nature and sensitive needs of our clients and that wearing provocative, offensive or suggestive clothing is not conducive to Shawmut Design and Construction best practices.

4.4 No racist, gang, offensive language may be shown on stickers, tee shirts, or other clothing / equipment.

4.5 Site personnel are required to wear clothing appropriate for the work being performed.

4.6 Personnel shall wear ankle length pants.

4.7 Full-length shirts with sleeves or tee shirts with sleeves are required. Sleeveless shirts, sleeves rolled up onto the ball of the shoulder and other similar apparel practices are prohibited.

4.8 Persons working near moving machinery must wear clothing that cannot be caught by moving machinery.

4.9 Clothing soaked with grease, paint, thinners, solvents or similar materials shall not be worn.

## 5.0 Fall Protection

5.1 The use of fall protection equipment shall be in compliance with OSHA Standards 29CFR-1926.500.

5.2 Persons who are performing work in unguarded areas and exposed to a potential fall of six (6') or more shall utilize fall protection equipment.

5.3 In situations where a fall could result in impalement, fall protection equipment shall be utilized regardless of the potential falling distance.

5.4 Impaling objects such as rebar shall have the ends capped with an article such as a block of 2"x4" piece of wood, rebar cap, or other item which adequately covers the impaling end of the object.

5.5 Personal fall prevention equipment must be inspected daily prior to use by the user.

5.6 Body harness assemblies, connectors, and other personal equipment shall be inspected monthly by a competent person.

5.7 Each person on a walking or working surface shall be protected from falling more than 6' by a Personal fall arrest system, cover or guard rail.

5.7.1 Fall prevention is the first choice, followed only by PPE.

5.7.2 Administrative controls, controlled access areas, safety monitoring systems are prohibited.

5.7.3 Shawmut Design and Construction believes that every fall can be prevented by proper planning, and we will not allow anyone to be exposed to falls >6' without protection in place.

5.8 Access to work platforms, such as ladders, shall be provided for personnel who must perform work in elevated areas.

5.9 Persons not utilizing fall protection equipment will be identified and the appropriate supervisor or subcontractor notified. Disciplinary action, up to and including termination or removal from the site will be administered according to Shawmut's Disciplinary Action Policy.

## 6.0 Maintenance of Personal Protective Equipment

Personal protective equipment, which has been altered in any manner so as to reduce its effectiveness, shall be repossessed, repaired, or destroyed.

## 7.0 Visitors

7.1 All visitors will be required and issued as necessary a hard hat and safety glasses prior to entering any construction work area. In addition, proper footwear must be worn by all visitors whom access any SDC site.

7.2 Persons escorting or allowing a visitor into the work areas are responsible to see that the visitor is wearing the proper personal protective equipment and receive a visitor safety orientation.

## 8.0 Barricades and Fencing

8.1 Supervisors are responsible for having barricades erected and maintained where required for employee protection and establishing boundaries around equipment or materials to protect them from potential damage.

8.2 Barricades must be kept at least two feet (2') from the edge of open trenches or floor openings.

8.3 Barricade tape shall be used for its intended purpose according to approved methods. Upon completion of the work being performed, the supervisor that originally installed the barricade must remove the barricade.

8.4 Unauthorized persons who enter red barricaded areas are subject to disciplinary action.

8.5 Yellow barricade tape shall be used in areas where caution is required; red barricade tape shall be used in areas where imminent danger is present.

8.6 Areas where asbestos abatement or other remediation work is in progress shall be barricaded and entry shall be restricted to authorized personnel by the employer responsible for performing the work.

8.7 Barricade tape shall be used to protect workers from potential falling objects.

8.8 Hard barricades shall be installed with overhead protection in the event workers, public, or visitors must access an area directly below construction activities.

8.9 **Fences:**

8.9.1 Shall be driven into the ground where possible after underground utilities have been identified.

8.9.1.1 Sandbags are not adequate for protection. Other options may include:

8.9.1.1.1 Securing to building structures

8.9.1.1.2 Secure to jersey barriers or YODUK's

8.9.1.1.3 YODUK's shall be at least half filled with water

8.9.2 Scrim shall only be installed on fences that have the posts driven into the ground or another adequate tip over protection is installed.

8.9.3 Gates shall never have scrim installed.

8.9.4 Gates shall have wheels in place and be of rolling fence where possible for larger openings.

## 9.0 Signs and Tags

9.1 Signs and tags will be in conformance with OSHA standards for use, color, posting, wording and size.

9.2 The project Superintendent is responsible for the general posting of signs on the site relative to warnings, precautions, notices, and other information.

9.3 Subcontractors are responsible for posting or displaying signs relative to their scope of work. For example: Signs required at a compressed gas cylinder storage area, laser use and powder actuated tool use.

## 10.0 Scaffolds and Platforms

10.1 All scaffolding shall be erected under the supervision of a competent person and in conformance with applicable and federal OSHA standards.

10.2 All scaffolding shall have toe boards, mid-rails, top rails, and have access provided.

10.3 A competent person shall supervise the erecting of all scaffolding.

10.4 A competent person shall inspect scaffolding daily prior to use, apply an initial tag indicating whether it is ready to be used or a red tag indicating it is not safe to use.

10.5 Scaffolding shall be removed under the direction of a competent person when work has been completed.

10.6 Fall protection shall be used on a scaffold greater than 6'.

10.7 Controlled access zones are not permitted.

10.8 Guardrails should be used on all Baker/Perry scaffolds (base of width < 30") at 4' or more.

10.9 Scaffolds shall be inspected by a qualified person monthly from the original installer.

**11.0 Cell Phones/ Radios and Electronic Equipment**

11.1. Cell phones are distracting and take away from production; therefore, they are to be used only during break times in safe areas, by Foreperson conducting business in safe areas, or during emergencies. At no point should someone use a phone while working or walking through a site.

11.2. AM/FM radios, walk-mans, portable CD players, mp3 players, iPods and music producing devices are prohibited on Shawmut Design and Construction projects

11.3. No earbuds or headphones are allowed at any time on site.

**12.0 Floor, Roof, Wall and Platform Openings**

12.1 Proper precautions must be taken to ensure that floor; roof, wall and platform openings are guarded or covered and marked to warn all personnel of the potential hazard.

12.2 Each employee / worker on a walking or working surface shall be protected from falling objects or tripping in, or stepping into or through holes by labeled covers.

12.3 This includes the installation of temporary handrails, mid-rails, toe boards, screenings, planking, walkways and providing safe access ways from established guarded or protected areas to unprotected or unguarded areas.

**13.0 Hazardous Material**

Hazardous materials shall be handled and disposed of as outlined by the site hazardous materials handling plan, which will be submitted as an addendum to the site safety and health plan.

**14.0 Confined Space Procedures**

14.1 Entry into any confined space must be after an atmospheric test has been performed and the results communicated to those entering the site.

14.2 Entry will require a device for extraction as necessary and full body harnesses if determined to be a permit required confined space.

14.3 Work processes will dictate the use of continuous monitoring or ventilation.

14.4 A standby attendant will be required for each entry. Their sole duty will be to assist those in the confined space.

14.5 The attendant may not perform any other task such retrieving tools or other construction aids.

14.6 Confined spaces can be defined as any space where the access or egress is limited, where oxygen deficiency may occur, or any other similar exposure in a confined work area.

14.7 Confined spaces include but are not limited to tanks, vessels, hopper, bins, tank cars, steam boilers, conveyor tunnels, coal bunkers, sumps, ducts, scrubbers, manholes, sewers, excavations of 4‘ deep or more, etc.

14.8 Entry into any confined spaces shall only be undertaken after completion of a JSA and approval by Shawmut Design and Construction.

14.9 All workers, entrants, and attendants, shall be properly trained prior to work commencing.

## 15.0 Lock-Out Procedures

15.1 The lock-out/tag-out process is designed to prevent the accidental or planned operation of equipment and energy sources, such as electrical circuits, pumps, valves, pipelines, equipment.

15.2 The lock-out/tag-out also includes any other mechanical, electrical or hydraulic system, or potential source of energy that could be energized while work is being performed prior to the system being complete and released for operation.

15.3 Detailed lock-out/tag-out process will be developed and included as part of this plan.

## 16.0 Housekeeping

16.1 Housekeeping is a very fundamental and necessary activity on Shawmut Design and Construction projects and is the responsibility of every person, to include air quality.

16.2 Work areas, passageways, stairways, and all other areas shall be kept free of debris, equipment, and materials.

16.3 Trash containers shall be placed strategically on the site and used for disposal of scrap materials and other construction generated debris.

16.4 Subcontractors own real time debris management, meaning no debris can accumulate on the floors and shall be placed in the central location, as decided uniquely on each project site (can include the dumpster in some locations) immediately.

16.5 All material shall be placed off the ground at all times; either on racks or other moveable storage containers such as pallets with pallet jacks. No material shall be stored in paths of travel and all material delivered to the site shall be coordinated with the project superintendent ahead of time.

16.1.1 This includes hanging extension cords >8’ off the ground for all longer-term operations (>greater than 10 minutes).

16.6 Solvents, empty paint cans, oils, greases, and any other such material or containers used for chemicals, shall be disposed of in accordance with Shawmut Design and Construction procedures and regulatory requirements.

16.7 Storage areas shall be kept clean, and materials neatly stacked or placed.

16.8 Construction materials shall be stored or placed in an orderly manner.

16.9 Cords, wires, electrical cables, and other such temporary systems shall be kept off the walking surface in an elevated position where they pose no potential danger to personnel or damage by construction activities or equipment.

16.10 Lunch or eating areas shall be kept clean and free of all food scraps, wrappers, cups, and other disposable items.

16.11 Clean restrooms/ porta potty's shall be made available at all times during construction.

16.12 Hand washing facilities will be available at all times during construction.

16.13 Subcontractors are fully responsible to maintain safe work environments at all times. This includes controlling any hazards they may bring into or create within the workplace, such as chemicals or dust created from a task. It is the responsibility of each subcontractor to maintain and control these hazards, such as additional air cleaners, water, working off hours with trained staff and/ or demarking the work zone and only allowing trained staff to enter.

## 17.0 Hand, Air and Electric Tools

**The following procedures apply to the use of all tools on the site:**

17.1 Employees are required to report damaged and defective tools to their supervisor.

17.2 Tools are not to be altered in any way and shall be operated in accordance within the manufacturer's specification.

17.3 Tools such as saws and grinders shall have guards in place during their operation.

17.4 Persons who operate vertical chisel impact hammers and other similar tools shall wear protective footwear.

17.5 Damaged or defective tools are to be taken out of service and removed from site until appropriate repairs have been made. All tools taken out of service shall be labeled "Do Not Use" or "Out of Service". Label shall bear the date, the name of the person taking it out of service and the defect. All such tools shall be removed from the site by the end of the shift.

17.6 Tools shall not be abused and shall be kept in good operating condition.

17.7 Tools shall be inspected prior to each use for defects such as cracked handles, damaged cutting edges, split or cracked parts, and broken adjusting components.

17.8 Tools shall be used only for their intended purpose.

17.9 All electric-powered tools shall be double insulated or grounded according to the National Electrical Codes (NEC).

17.10 The use of non-sparking tools may be required when working with flammable materials.

17.11 The pressure of compressed air used for cleaning purposes must be reduced to 30psi or less.

17.12 Compressed air shall not be used for cleaning or blowing dust from any part of the body or clothing.

17.13 Air line hoses for tools and other equipment shall be secured together to preclude uncontrolled whipping in the event hose couplings become separated while under pressure.

17.14 Excess flow valves to prevent “whipping” in the event of hose separation or failure shall protect air-supplying hoses.

17.15 Ground fault circuit interruption devices shall protect outlets used for 120-volt tools. Any portable GFCI devices shall be used at the source of the power.

17.16 Portable grinders shall be provided with hood type guards with side enclosures that cover the spindle and at least 50% of the wheel.

17.17 All wheels shall be inspected regularly for signs of fracture, wheel MSDS’ should be located in the site safety station.

17.18 Bench grinders shall be equipped with deflector shields and side cover guards.

17.19 Tool rests shall have a maximum clearance of (1/8”) between the wheel and grinding stone.

17.20 Air supply lines shall be protected from damage, inspected regularly, and maintained in good condition.

17.21 Gasoline powered tools shall not be used in unventilated areas.

17.22 Gasoline shall be dispensed only in Underwriters Laboratories and other approved safety cans. These cans shall be properly labeled with their contents and stored in accordance with the local fire department permit requirements.

## 18.0 Powder-Actuated Tools

18.1 The use of powder-actuated tools is permitted only when the base material is adequate for the fastener.

18.2 Only persons who have furnished evidence of having been trained shall be allowed to operate powder-actuated tools.

18.3 Tools shall not be loaded until just prior to use. Loaded tools shall not be left unattended.

18.4 Eye and hearing protection shall be used when operating this type of tool. This includes a full-face shield. Evidence of training shall be in the possession of the tool operator at all times.

18.5 When not in use, powder-actuated tools shall be kept stored in a secured area. Cartridges shall be kept separated from all other material and stored in a controlled area.

18.6 All expended and unused material will be returned to the tool storage area immediately after use.

18.7 Powder-actuated tools shall be used in accordance with and meet all requirements of applicable regulatory standards.

18.8 Appropriate signage shall be posted in the work area. “Powder Actuated Tool in Use”

## 19.0 Welding and Burning

19.1 Welding, cutting or burning require a hot work permit

19.2 All cutting, welding or burning operations to be done within confined spaces requires an evaluation by the Safety Manager. The hot work permit process shall be instituted.

19.3 As a minimum, a 20lb. ABC fire extinguisher shall be ready for instant use in any location where welding is being performed.

19.4 Screens, shields, smoke eaters or other safeguards shall be provided for the protection of personnel, equipment and materials exposed to sparks, slag, falling objects, or the direct rays of the arc, and molten slag or sparks.

19.5 All welders shall wear approved eye and head protection. Persons assisting the welder shall also wear similar protective glasses and protective equipment.

19.6 Electric welding equipment, including cable, shall meet the requirements of the National Electric Code. Welding practices shall comply with all applicable regulations.

19.7 Electric welding cable leads shall be hung in an elevated position wherever possible to avoid tipping, and to protect them from damage by moving equipment or materials.

19.8 Welding machines must be grounded.

19.9 Welding leads or cords that cross a pathway or roadway shall be protected from damage by elevating, underground burial or otherwise protected with wood, conduit, or other similar methods.

19.10 Welding lead with broken insulation will be taken out of service or repaired by a qualified person. No repairs are allowed within 10’ of the cable ends.

19.11 Ground lead can be repaired with electrical tape, which meets the industry standard such as 3m Teflex tape.

19.12 Compressed gas cylinders shall be used and stored in an upright position.

19.13 All compressed gas cylinders shall be secured in place during use and storage.

19.14 Cylinders shall be returned to the main storage area when they are empty.

19.15 Cylinders shall always be transported in the upright position. Cylinders shall not be hauled in equipment beds or truck beds on their side.

19.16 Cylinders lifted from one elevation to another shall be lifted only in racks or containers designed for that purpose.

19.17 Slings shall not be used to hoist cylinders.

19.18 The valves of compressed gas cylinders shall be completely closed when not in use.

19.19 Compressed gas cylinders shall not be transported with gauges attached in other than a portable welding cart.

19.20 The gauges shall be removed from cylinders and protective caps in place during their transportation.

19.21 Flash back arrestors shall be in use at all times during use.

19.22 Individuals welding or burning on our sites are responsible to maintain proper indoor air quality at all times.

## 20.0 Stairways and Ladders

20.1 Safe access shall be provided throughout the site at all times, always maintaining at least one means of egress, unless >25 people will be at different elevations.

17.1.1 At least one access point shall be stairs at least 30" wide – if this is a scaffold stair tower, we need a system tower with tread width of at least 30" to achieve this for rescue purposes.

18.1.1 Ladders shall only be used for limited means of egress for short durations.

20.2 Stairways shall be installed by code and maintained by erector.

20.3 All ladders used on the site shall conform to applicable standards and regulations.

20.4 Ladders shall be inspected prior to each use, and a competent person will conduct a quarterly inspection.

20.5 Manufactured ladders on the site shall comply with the regulations of ANSI-A14.1-1968, Safety Code for Portable Wood Ladders, or ANSI-A14.2-1972, as required by OSHA.

20.6 Ladders with broken or missing rungs, broken or split side rails, or otherwise damaged, shall be tagged "Do Not Use" or "Out of Service, shall not be used and shall be removed from the site.

20.7 All portable ladders shall be equipped with non-skid safety feet and shall be placed on a stable base. The access areas at the top and bottom of ladders in use shall be kept clear of obstructions.

20.8 The side rails shall extend 36" above the landing. When this is not practical, grab rails shall be installed.

20.9 All ladders in use shall be tied, blocked, or otherwise secured to prevent an accidental displacement.

20.10 Site made ladders shall be fabricated in compliance with the regulations in OSHA 1926.450(b) and ANSI guidelines.

20.11 The general rules applying to the use of manufactured ladders also apply to the use of job made ladders.

20.12 Use of ladders constructed of wood or other absorbing material is prohibited in an exclusion area.

20.13 Name of company shall identify ladders.

20.14 Ladders shall be inspected prior to each use and quarterly thereafter.

20.15 Tripod ladders (ladders with three legs) are prohibited on Shawmut Design and Construction projects. All folding ladders shall have four supporting rails or legs.

20.16 Aluminum ladders are prohibited on Shawmut Design and Construction projects.

20.17 Ladders shall be a minimum of Type 1A

## 21.0 Health and Hygiene

Washing facilities are designed for employees who are using or handling materials, chemicals, or other substances that could create a health hazard due to ingestion or dermal exposure. Shawmut will make available hand washing facilities on all sites. Portable restrooms will be available to everyone on site, cleaned and serviced as required. Separate bathrooms will be available for men and women, where the women's room will be under lock and only women will have a key or the combo code.

## 22.0 Fire Prevention and Protection

Work activities shall be conducted in such a manner as to preclude the potential of a fire hazard or fire, in accordance with the general site safety rules and the permit conditions outlined by the local fire department.

22.1 Fire prevention and protection efforts must include, but are not limited to, the following areas of concern.

22.1.1 Instructions to employees of safe working practices in relation to fire prevention and protection.

22.1.2 Safe use and storage of flammable liquids and gases.

22.1.3 Work areas kept clean and free of combustible waste and scrap materials.

22.1.4 Maintenance of fire extinguishers.

22.1.5 Any work that may cause sparks, arcs or flame shall require the completion of a Shawmut Design and Construction Hot work permit. Approval shall be required from the superintendent and or the local AHJ.

# MODULE 03 – Fall Protection and Prevention

## 1.0 Introduction

1.1 Shawmut Design and Construction has a Fall Protection Plan in place to eliminate risk and to delineate user responsibility. This program highlights the minimum requirements set forth by Shawmut Design and Construction. Shawmut is not the competent authority for fall protection on-site; therefore, when a subcontractor must utilize fall protection, they must do so according to this manual and the OSHA standards. Fall protection is mentioned frequently throughout this book, especially in scaffolds, trench/excavation, aerial lifts, ladders/stepladders, steel, etc. Shawmut has a strict 6' fall protection rule with an exception for ladders and Baker/Perry scaffolding. Provided you are working properly on a ladder, fall protection is not required. Mobile scaffolds with a base width less than 30" require guardrails or fall protection over 4'.

| **Note:** | **Shawmut Fall Protection Policy is Six feet (6')** |
|---|---|

## 2.0 Purpose

2.1 To provide and establish minimum specific guidelines for employees and subcontractors of Shawmut Design and Construction that perform any work at the elevation of six (6') or more above a lower surface. Shawmut has a strict 6' fall protection rule with an exception for ladders and Baker/Perry scaffolding. Presuming you are working properly on a ladder, fall protection is not required. Mobile scaffolds with a base width less than 30" require guardrails or fall protection over 4'.

## 3.0 Definitions

3.1 **Anchorage** – a rigid point of attachment for lifelines and lanyards capable of supporting 5000 pounds per attached person.

3.2 **Body Harness** – straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

3.3 **Deceleration Device** – a specially made lanyard used to dissipate the effects of a fall.

3.4 **Deceleration Distance** – the distance to where the deceleration device has engaged to where the device has stopped the fall.

3.5 **Free Fall** – the distance someone has fallen before a device is engaged to limit the fall.

3.6 **Guardrail System** – a barrier system erected to prevent people from falling to lower levels.

3.7 **Hole** – a gap or void 2" or more in its least dimension, in a floor, roof or other walking/working surface

3.8 **Infeasible –** impossible to perform the construction work using a conventional fall protection system or technologically impossible to use any one of these systems to provide fall protection

3.9 **Lanyard** – a flexible line of rope, wire rope or strap which generally has a connector at the ends for connecting the body harness to an anchorage, and/or deceleration device

3.10 **Leading Edge** – the edge of a floor, roof or formwork for a floor or other walking/working surface which changes its location as additional floor, roof, decking or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction

3.11 **Lifeline** – a flexible line which connects the personal fall arrest system to the anchorage

3.12 **Opening –** a gap or void in a wall 30" or more high and 18" or more wide

3.13 **Personal Fall Arrest System –** a system used to arrest a fall from a working level. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline or suitable combinations of these.

3.14 **Positioning System –** a body belt or harness rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, to work with both hands free.

3.15 **Self-retracting Lanyard** – a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

3.16 **Snap-hook** – a connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object.

3.16.1 Must be self-closing and double action.

## 4.0 Requirements

4.1 For all work where there are unprotected sides and edges, wall openings and floor holes greater than 6' from the lower working level, fall protection will be in place.

4.2 Fall protection allowed is only fall prevention or fall arrest. No controlled access zones or safety monitors will be allowed for work within 6' from the leading edge.

**Note: There are no exceptions to this rule**

4.3 Two main types of Fall Protection:

4.3.1 Fall Prevention (preferred)

4.3.2 Fall Arrest

4.4 Fall Prevention

4.4.1 Eliminates potential Fall Hazards

4.4.2 Usually consists of Guardrails and Hole covers

4.4.2.1 Guardrails

4.4.2.1.1 Top rail is 42" high +/- 3"

4.4.2.1.1.1 Must be capable of withstanding a 200lb downward and outward fall.

4.4.2.1.2 Mid rail is 21" high.

4.4.2.1.2.1 A mid rail is not required if there is no more than a 19" gap between uprights, such as metal framed walls

4.4.2.1.3 Toe board is no more than 1/4" gap from floor.

4.4.2.1.3.1 At least 3½" high

4.4.2.1.4 Uprights must be positioned at no more than 8' apart.

4.4.2.1.5 Very common, easily recognized and very recognized purpose.

4.4.2.1.6 China shackles shall not be used for cable guardrails.

4.4.2.2 Hole Covers

4.4.2.2.1 All holes >2" must be covered immediately.

4.4.2.2.2 Cover must support 2x its maximum intended load.

4.4.2.2.3 Must be secured from displacement.

4.4.2.2.4 Marked "HOLE" or "COVER"

4.5 Fall Arrest

4.5.1 Consist of Personal Fall Arrest Systems

4.5.2 Personal Fall Arrest System (PFAS)

4.5.2.1 5-point body harness

4.5.2.2 Anchor point that will hold 5000lbs. per each employee attached.

4.5.2.3 Connectors are double action, locking type.

4.5.2.4 Lanyards with shock absorbers are utilized.

4.5.2.5 Training is done prior to issuing fall arrest equipment.

4.5.2.6 Fall distances are evaluated by competent person to ensure the proper equipment has been selected.

4.5.2.7 China equipment shall not be used as part of a personal fall arrest system.

4.5.2.8 All PFAS' shall be designed by a qualified person.

4.5.3 Self-retracting lanyards shall be used at all times, unless the competent person determines a better protection method. In this case, they shall submit a fall protection work plan to Shawmut for review.

4.5.4 Fall arrest equipment shall provide the maximum level of protection for all users. This is determined by the competent person on site and is supported with a fall protection work plan. Items to consider are:

4.5.4.1 Free fall distance

4.5.4.2 Anchor point location

4.5.4.3 Leading edges

4.5.4.4 Additional hazards

4.5.5 Safety Net Systems

4.5.5.1 Two types:

4.5.5.1.1 Debris – for tools and equipment

4.5.5.1.2 Personal – for arrest system for workers

4.5.5.1.2.1 This system is only a second line of defense to be used in conjunction with either guardrail or harness.

4.5.5.2 Consist of three main components:

4.5.5.2.1 Mesh

4.5.5.2.2 Support cables

4.5.5.2.3 Mounting brackets

4.6 Unconventional Fall Protection:

4.6.1 Warning Lines:

4.6.1.1 This is a barrier on a roof to warn workers approaching an edge.

4.6.1.2 Will not stop a fall, only for visual purposes.

4.6.1.3 Used only on low slope roofs.

4.6.1.4 Consists of ropes, wires or chains, and stanchions erected around all sides of the roof.

4.6.1.5 Line is between 34” and 39” from roof surface.

4.6.1.6 Must be used with other fall protection on roofs >50’ wide.

4.6.1.7 No worker is allowed between edge of line and roof edge unless other fall protection is in place.

4.6.1.8 For roof work only, lines are to be set back 6' from edge.

4.6.1.9 If mechanical equipment is being used, lines are to be set back 10' from the roofs edge perpendicular to the path of equipment.

**NOTE: For all other trades, lines are set back 15'**

4.6.2 **Safety Monitor:**

4.6.2.1 **This type of fall protection is not allowed on Shawmut Design and Construction projects.**

## 5.0 Responsibility

5.1 All employees including Shawmut Design and Construction Employees and all subcontractor employees performing work are responsible for vigorously supporting this program and for aggressive implementation and enforcement to ensure 100% compliance by all personnel.

5.2 **The Project Manager** shall provide the leadership necessary to ensure all employees on site know and understand the requirement to wear and use fall protection equipment.

5.3 **The Superintendent** is responsible to ensure that members of their crews know when fall protection is needed and enforce the policy of the 6' rule.

5.4 **The Safety Manager** shall provide training to employees required to wear and use fall protection as necessary or help to ensure workers are adequately trained. The Safety Manager shall also assist the field supervisors in the training of employees in fall protection/prevention.

5.5 **Subcontractors** own their own fall arrest equipment and the associated training. Shawmut management will help to oversee the use and enforcement of this policy, but subcontractors are responsible for their implementation and training.

| FALL PROTECTION WORK PLAN | | | | |
|---|---|---|---|---|
| **Job Location**: | | | | |
| **Describe Job Task**: | | | | |
| 1. | Identify all potential fall hazards in the work area: | | | |
| | ☐ Open-sided walking/working surfaces (roofs, open-sided floors) | ☐ Floor openings | ☐ Hazardous process equipment | |
| | ☐ Open-sided ramps and runways | ☐ Skylights | ☐ Swing fall | |
| | ☐ Elevated work platforms | ☐ Wall openings | ☐ Fall clearance | |
| | ☐ Ladders | ☐ Trenches | ☐ Other: | |
| | Describe the hazard(s): | | | |
| 2. | Method of fall protection to be used: | | | |
| | ☐ Fall restraint | ☐ Guardrails | ☐ Warning line | ☐ Covers (for holes & openings) |
| | ☐ Fall arrest | ☐ Horizontal lifelines | ☐ Other: | ☐ Other: |
| | Describe: | | | |
| 3. | Describe procedures for assembly, maintenance, inspection, and disassembly of the fall protection system to be used: | | | |
| 4. | Describe procedures for handling, storage, and securing of tools and materials: | | | |
| 5. | Describe methods of overhead protection for employees & those who may be in, or pass through, the area below the work site (i.e., barricading, toe boards, debris netting, warning signs): | | | |
| 6. | Describe methods for promptly rescuing employees in an event of a fall and removal of injured employees: | | | |

| FALL PROTECTION WORK PLAN | | | |
|---|---|---|---|
| 7. | Identify method used to determine the adequacy of attachment/anchorage points: | | |
| | ☐ Manufacturer's data | ☐ Qualified person assessment | ☐ Existing engineering/design documents |
| | ☐ Evaluation by qualified engineer | ☐ Other (describe): | |

8. List employees who will be performing work under this plan and the date they received fall protection training.

| **Name** | **Training Date** |
|---|---|
| | |
| | |
| | |
| | |
| | |

Name/title of person provided training:

| Approvals | | |
|---|---|---|
| Fall Protection Plan Completed By: | | |
| Approved By: | | |
| SDC Superintendent/Safety Manager's Name | Signature | Date |

# MODULE 04 – Scaffolds, Aerial and Scissor Lift Safety Program

## 1.0 Introduction

1.1 Working at heights poses many hazards and the use of proper equipment and personnel can substantially reduce those hazards. Scaffolding is defined as a temporary elevated work platform. Used properly, this can be a very safe way of working at heights.

## 2.0 Purpose

2.1 To identify the essential minimum scaffold requirements necessary for safe erection, removal and use on Shawmut Design and Construction projects.

## 3.0 Scope

3.1 This program is an overview of OSHA standards and is intended as a minimum set of guidelines. All erected scaffolds shall comply with the federal OSHA standards, as well as local and state rules.

3.2 Scaffold erection, moving or dismantling must be done under the supervision of a competent person. A competent person is any person who, by reason of experience, is able to perform the work correctly and has the authority to halt unsafe work.

## 4.0 Responsibilities

4.1 The Project Manager:

4.1.1 Has the responsibility to hire a competent scaffold erection company that will adhere to the strictest standards in the workplace.

4.2 The Superintendent:

4.2.1 Is responsible to oversee the planning involved with safe scaffold erection and to ensure the scaffold erection company has the appropriate competent person on site.

4.2.2 Is responsible for periodic monitoring of work practice to determine compliance.

4.3 The Safety Manager:

4.3.1 Is responsible for periodic monitoring of work practice to determine compliance.

4.4 The Competent Person:

4.4.1 Is responsible to ensure that the scaffold is built per requirements and is dismantled in accordance with 29 CFR 1226 Subpart L Scaffold standards.

4.4.2 They shall inspect the scaffold daily, before each use.

4.4.3 Scaffold tags shall be used to identify areas that have been inspected.

4.4.4 Mutli-trade scaffolding

4.4.4.1 Shall be inspected by each trades' competent person.

4.4.5 Proof of training shall be provided to Shawmut Superintendent prior to the use of scaffolding. Shawmut will accept the following as proof of training:

4.4.5.1 Scaffold erector/ dismantler training card, and/or

4.4.5.2 OSHA 30-hr training, and/or

4.4.5.3 OSHA 10-hr training with additional scaffold training conducted by scaffold company and/or a person meeting requirements of an authorized instructor.

4.4.5.4 Mast climbing work platforms – shall require site and unit specific training conducted by manufacturer, or authorized representative.

4.5 Scaffold Users:

4.5.1 Shall be trained in scaffold use, access, platform construction, fall protection, electricity, and other hazards associated with working on scaffolding.

4.5.2 Proof of training shall be provided to Shawmut Superintendent prior to the use of scaffolding. Shawmut will accept the following as proof of training:

4.5.2.1 OSHA 30-hr training, and/or

4.5.2.2 OSHA 10-hr training PLUS site specific scaffold training conducted by the scaffold competent person.

4.5.2.3 This training must be documented on site

4.5.2.4 Scaffold user training conducted by a qualified person, as defined by OSHA.

4.6 Scaffold Builders:

4.6.1 Shall be trained in safe scaffold erection.

4.6.2 Proof of training shall be provided to Shawmut Superintendent prior to the erection, alteration, adjustment, movement of plank/ other members, or dismantling of any scaffold part. Shawmut accepts the following as proof of training:

4.6.2.1 Scaffold erector / dismantler card

## 5.0 Definitions

5.1 **Scaffolds** – temporary elevated work platforms

5.2 **Welded-Frame Scaffolds** - made of basic prefabricated end frames, cross bracing and frame connecting devices to hold the parts firmly in place

5.3 **Tube-And-Coupler Scaffolds** - made of various lengths of tubing clamped together by special patented couplers to support working platforms of various shapes

5.4 **Mobile Scaffold** - assembly supported by casters and move manually

5.5 **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 who has the authority to take prompt corrective measures to eliminate them.

5.6 **Qualified Person** – one who is, 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.

5.7 **Aerial Lifts** include Various Man lifts, Scissor Lifts & Boom lifts

## 6.0 Requirements

6.1 Scaffold Platform Criteria

6.1.1 Platforms shall be fully planked with no more than a 1" gap between planks.

6.1.2 Work platforms shall be at least 18" wide or be provided with proper fall protection.

6.1.3 The front face of the platform shall be no more than 14" off the face of the work.

6.1.4 The maximum distance from the face for *outrigger scaffolds* shall be 3".

6.1.5 The maximum distance from the face of work for *plastering* and *lathing* operations may be 18".

6.1.6 Each end of a platform shall rest on its separate bearer.

6.1.7 Each end of a platform shall extend over its support at least 6" unless cleated in place or otherwise restricted by hooks or equivalent.

6.1.7.1 Platforms 10' in length or less

6.1.7.1.1 Extend no more than 12" over its support

6.1.7.2 Platforms over 10' in length

6.1.7.2.1 Shall extend no more than 18" over its support

6.1.8 Wood platforms shall not be covered with opaque finishes or anything else that may cover cracks or other hazards.

6.1.9 Scaffold components must match and be of the same manufacturer, unless the competent person can prove they work without force and they are structurally sound.

6.1.10 When a top level of scaffold is used to create a "roof", #9 wire shall be used to secure planks down to scaffold frame.

6.2 Criteria for Supported Scaffolds

6.2.1 Scaffolds with a height to base width ratio of more than 4:1 shall be restrained from tipping by guying, tying, bracing or equivalent means

6.2.1.1 Guys, ties, and bracing shall be installed at locations where horizontal members support both inner and outer legs.

6.2.1.2 Guys, ties and bracing shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically:

6.2.1.2.1 Every 20’ for scaffolds 3’ wide or less at the base;

6.2.1.2.2 Every 26’ for scaffolds greater than 3’ at the base

6.2.1.3 Tie scaffold into the structure every 30‘ horizontally.

6.2.1.4 Never remove ties until scaffold is properly secured by other means through the use of a competent person.

6.2.1.5 Scaffold ties must be solid material - #9 wire will not be used to secure a scaffold.

6.2.1.6 Footings shall be sound, level and rigid and capable of supporting the loaded scaffold without settling or displacement.

6.2.1.7 Unstable objects shall not be used to support scaffolds or platform units.

6.2.2 Criteria for Suspended Scaffolds

6.2.2.1 All scaffold components shall rest on a support system that can support 4 times its maximum load.

6.2.2.2 Tiebacks shall be used in addition to counterweights.

6.2.2.3 Scaffold shall be erected by a competent person trained in the erection and dismantling of suspended scaffolds.

6.2.2.4 Scaffold shall be erected per the manufacturer’s recommendations.

6.2.2.5 Safe access shall be provided to the scaffold.

6.2.2.6 Scaffold shall have guardrails on all open sides.

6.2.2.7 Persons using the scaffold shall wear personal fall arrest equipment at all times in addition to the guardrails.

6.2.2.7.1 PFAS shall be tied to an anchor point overhead which is independent of any scaffold member or tie back.

6.2.2.7.2 PFAS shall meet the requirements of Subpart M.

6.2.2.8 Only items specifically designed to be used as part of this system (counterweights, clamps, ropes, wire) shall be used.

6.2.2.9 All workers assigned to use the suspended scaffold shall be trained and under the direction of a competent person at all times.

6.3 Scaffold Access

6.3.1 Safe scaffold access shall be provided to scaffolds when the platforms are 24” or more above or below a point of access.

6.3.2 Access may include:

6.3.2.1 Stairway type ladders

6.3.2.2 Ramps

6.3.2.3 Walkways

6.3.2.4 Integral prefabricated scaffold access

6.3.2.5 Direct access from another scaffold or building structure

6.3.2.6 Personnel hoist

6.3.2.7 Portable ladder

6.3.2.8 Hook on or attachable ladder

6.3.3 Portable, hook on or attachable ladders shall be positioned so as not to tip the scaffold over.

6.3.4 Rest platforms shall be in place every 35' when portable, hook on and attachable ladders are used.

6.3.5 Scaffold erectors and dismantlers shall use safe access where required.

6.3.6 Ladders or safe access shall be provided as soon as scaffold erection has progressed to a point that permits safe installation.

6.3.7 Scaffold ladders shall be parallel, evenly spaced and not more than 16 ¾" apart from rung to rung. Rungs are to be at least 11 ½" wide.

6.3.7.1 If ladders are used for access, they shall be installed so as not to tip the scaffold over and need to be straight ladders. No self-supporting A frame step ladders shall be used for access.

6.3.8 Elevated work platforms that are accessed only by scaffolding, buildings accessed only by scaffolding, shall have the following criteria:

6.3.8.1 Stairs pans at least 30" wide

6.4 Use

6.4.1 Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

6.4.2 Shore to or Lean-to scaffolds are prohibited.

6.4.3 Scaffolds and members shall be inspected by a competent person before each use

6.4.3.1 Damaged components shall be immediately repaired or removed from service.

6.4.4 The clearance between scaffolds and power lines shall be considered prior to erecting or dismantling scaffolding.

6.4.5 Scaffolds shall not be erected, used, dismantled or altered such that they or any conductive material handled on them might come in contact or closer to exposed and energized power lines.

6.4.6 Ladders shall not be used to increase the working height of a scaffold, except on large area scaffolds that meet OSHA requirements.

6.5 Fall Protection

6.5.1 Each employee or subcontractor on a scaffold more than 6' above a lower level shall be protected from falling to that level.

6.5.2 Employees or subcontractors working on a mobile scaffold with a base width less than 30" (Baker/Perry) shall use fall protection/guardrails over 4'.

6.5.3 Fall protection shall meet the requirements of Subpart M – Fall Protection

6.5.4 All open sides of scaffolds shall be fully guard railed.

6.5.5 If guardrails are not used, users shall use a Personal Fall Arrest System

6.5.6 Scaffold Erectors and Dismantlers shall wear PFAS at all times.

6.5.6.1 They shall be protected from falling to lower levels where feasible.

6.5.6.2 It is up to the competent person to determine if it is feasible and does not create a greater hazard to be tied off.

6.5.6.3 If PFAS is not going to be used, a written safety plan shall be developed and submitted by the Competent Person. This plan shall identify why PFAS cannot be used, and additional safety measures to be used for worker protection.

6.5.6.4 This plan shall be in writing if fall protection is determined not to be worn.

6.5.6.4.1 Plan must be submitted to SDC Safety Manager for review and approval through the scaffold tie-off feasibility form

6.6 Falling Object Protection

6.6.1 All entrances to buildings shall be protected with a canopy system where overhead work on scaffolds is on-going.

6.6.2 Overhead protection may be required in areas on a construction site or for pedestrian safety.

6.6.2.1 In this case, there will be a site-specific plan to determine what will be utilized.

6.7 Additional Requirements

6.7.1 Scaffolds shall be cleaned off upon completion of work by the craft using the scaffold.

6.7.2 Any scaffold accessories such as braces, trusses, legs or ladders that are damaged shall be immediately repaired or replaced.

6.7.3 A rolling scaffold height cannot exceed four (4) times the minimum base dimension. The wheels shall be locked when employees are on the scaffold. Employees shall not ride on rolling scaffolds.

6.7.4 Scaffolds and their components shall be capable of supporting without failure at least four (4) times the maximum intended load.

6.7.5 All scaffolds shall be built complete where possible, including a standard 42" high handrail and a mid-rail (21" from work platform) both rigidly secured, with complete decking and toe boards.

6.7.6 Toe boards shall be securely fastened. There shall be no more than 1/4" space between the toe board and scaffold deck. Toe boards shall be built from a minimum of 1" x 4" lumber. Scaffolds must be built as complete as possible.

6.7.6.1 **Note:** No one is allowed to use any scaffolds that are not built to OSHA standards. Employees on scaffolds not having a standard handrail/guardrail shall wear fall protection.

6.7.7 Set scaffold legs on baseplates placed on foundations or mud-sills that are adequate for supporting the maximum intended loads.

6.7.8 All casters used with scaffolding shall have rubber treads and positive locks to hold the scaffold in position. Casters shall be locked when the scaffold is being erected or used.

6.7.9 A rolling scaffold should not be allowed on dirt, mud, grass or gravel.

6.7.10 Properly brace scaffolds with cross braces and/or diagonal braces to laterally secure vertical members. The length of cross braces should automatically square and align vertical members, so the erected scaffolds are always plumb, square, and rigid. Laterally brace manually propelled mobile scaffolds with a horizontal diagonal brace in addition to a cross brace.

6.7.11 When providing access to a working platform where a ladder is attached, gates shall be installed whenever possible.

6.7.12 A qualified person shall determine if a structure can support four (4) times the intended load imposed on its surface when erecting scaffolding on it.

6.7.12.1 Such as roofs or other buildings

6.7.13 Do not move a scaffold while occupied by employees.

6.7.14 Remove or secure tools or materials so they cannot fall or roll off when the scaffold is moved.

6.7.15 Any snow or ice shall be removed before using the scaffold.

## 7.0 Load Capacity

7.1 Scaffolds and their components must be capable of supporting without failure, at least four (4) times the maximum intended load. Materials should be evenly distributed on platforms and not concentrated in one area.

7.2 Caster ratings are the limiting factor in calculating the maximum allowable load for scaffolds. Because caster ratings vary, check the manufacturer's specifications for the rating of casters in use.

7.3 All scaffolds shall be rated to hold the minimum requirements of 25 pounds/square foot.

7.4 Scaffold load ratings shall be calculated by a qualified person/licensed professional when:

7.4.1 Exceeding the height of 105' vertically from the base plates

7.4.2 When trusses and/or putlogs are used over a great distance

**8.0 Scaffold Inspection**

8.1 All scaffolding shall be inspected daily and before each shift by the designated competent person.

8.1.1 Proof of this inspection shall be in the form of a tagging system or the like to indicate to others the status of the scaffold

8.1.1.1 Green tag – safe for use

8.1.1.2 Yellow tag – safe for use, may need to tie off in some areas

8.1.1.3 Red tag – not safe for use, under construction and/ or shut down

8.2 Visually inspect all components of the scaffold for defects prior to each day's use and following any occurrence that could affect the scaffold's structural integrity.

8.3 Immediately discard any defective components.

8.4 Inspections should include the following components:

8.4.1 Handrails, mid-rails, cross bracing and steel tubing for nicks and other damage, especially near the center span, and for signs that welding arcs may have struck the equipment

8.4.2 Weld zones on the scaffold frame for cracks

8.4.3 The ends of tubing for splits or cracks

8.4.4 Manufactured decks for loose bolts or rivet connections and bent, kinked, or dented frames

8.4.5 Plywood surfaces for softening due to rot or wear and for peeling at the edges or laminated layers

8.4.6 Safety planks for rot, cracks, cuts, and other external damage

8.4.7 Tie rods or bolts and angle iron cleats

8.4.8 Cams, springs, threaded connections, toggle pins, or other quick connecting devices

8.4.9 Casters for rough rolling surfaces, "sticky" swivels, and defective lock

8.5 Monthly qualified inspections

8.5.1 Scaffolds shall be inspected monthly by a qualified person representing the firm that installed the scaffolding. This shall be a thorough inspection documented and distributed

to SDC and all scaffold users.

8.5.2 Any noncompliant issues shall be corrected immediately by the scaffold installer to maintain a safe working condition.

## 9.0 Aerial and Scissor Lift Safety

9.1 All employees or subcontractors shall possess proof they have been trained in the specific lift they are to operate.

9.1.1 Training shall comply with OSHA and ANSI standards, to include:

9.1.1.1 Standard training

9.1.1.2 Practical training (familiarization)

9.1.1.3 Compliance with OSHA 1926 Subpart L and ANSI

9.2 Aerial lifts shall be equipped with guardrails on all sides.

9.3 Mid rail chains or bars shall be in place at all times while operating lifts.

9.4 Personal Fall Arrest equipment shall be used when required by the lift manufacturer.

9.4.1 All articulating boom lifts shall require the use of PFAS.

9.5 All manufacturers' instructions shall be followed at all times while operating lifts.

9.6 The operating manual shall be in the lift at all times.

9.7 Never climb the mid rail or top rails of lifts.

9.8 Always keep feet firmly planted on the lift floor at all times.

9.9 Lifts may not be used to access other points, unless:

9.9.1 This is the safest way to access that point

9.9.2 Workers are 100% protected from falls

9.9.3 Workers are trained in the requirements of using the lift as access

**Appendix A - Green Scaffold Safety Tag**

SHAWMUT

# THIS SCAFFOLD DOES MEET FEDERAL/STATE OSHA SPECIFICATION

## EMPLOYEES WORKING MUST BE TRAINED

**DATE** _____

_____

Shawmut Representative or Competent Person

**Appendix B - Yellow Scaffold Safety Tag**

SHAWMUT

# THIS SCAFFOLD DOES NOT MEET FEDERAL/STATE OSHA SPECIFICATION

## EMPLOYEES WORKING FROM THIS SCAFFOLD MUST WEAR AND USE APPROVED SAFETY HARNESSES

**DATE** _____

_____

Shawmut Representative or Competent Person

Appendix C - Red Scaffold Safety Tag

SHAWMUT

**DO NOT USE**
**THIS SCAFFOLD**
**KEEP OFF**
**THIS SCAFFOLD IS BEING ERECTED OR TAKEN DOWN**

**ONLY AUTHORIZED EMPLOYEES USING REQUIRED PERSONAL PROTECTIVE EQUIPMENT MAY WORK ON THIS SCAFFOLD**

**DATE**: _____
**SIGNED** _____

## Appendix D - Scaffold Tie-off Feasibility Study

**Job Name:** _____ **Job #:** _____

**Location:** _____ **Date:** _____

**Scaffold Company:** _____

**This form is to be completed by the competent person on the above job, by the above stated subcontractor. Proof of their competent person shall accompany this form. It shall be either a letter from that respective company indicating as such, or a card indicating they were trained as a competent person. It is understood that all scaffold erectors/dismantlers will use a complete Personal Fall Arrest System where feasible. This form is intended only to state the reasons why it may not be feasible to tie off.**

| **Job Description:** |
|---|
| |

| **How will the workers be protected?** |
|---|
| |

| **Explanation for lack of PFAS:** |
|---|
| |

| | |
|---|---|
| **Shawmut Design and Construction Superintendent** | **Date** |
| **Subcontractor Competent Person** | **Date** |
| **Shawmut Design and Construction Safety Manager** | **Date** |

# Daily Suspended Scaffold Inspection Checklist

**Inspection by Suspend Scaffold Foreperson/Competent Person:** _____ **Date** _____

***Item(s) Inspected Yes, No, or N/A with Comments***

| Item(s) of Inspection | YES | NO | N/A | Comments |
|---|---|---|---|---|
| 1. Tiebacks are secured to structural components. | | | | |
| 2. Independent lifelines are secured to independent anchorage. | | | | |
| *a. Lifelines have been protected from abrasion.* | | | | |
| *b. Lifeline is terminated with a bowline or a rolling hitch knot.* | | | | |
| *c. Lifeline reaches the lower level.* | | | | |
| 3. Wire hoisting rope is in good condition. | | | | |
| 4. Fist grips (3) are in good condition, have been installed properly and have been tightened to proper torque. | | | | |
| 5. Shackles are in good condition; secured by wire. | | | | |
| 6. Thimbles are being used in the eye and are in good condition. | | | | |
| 7. Platform – | | | | |
| *a. Proper overhang for stirrups* | | | | |
| *b. Free of debris* | | | | |
| 8. Guardrails have been installed on all open sides of the platform. | | | | |
| 9. Wire mesh has been installed around all open sides of the guardrail system. | | | | |
| 10. Uprights are in good condition and have been spaced at the proper intervals. | | | | |
| 11. Motors are in good condition. Emergency stop is operational. | | | | |
| 12. Stirrups are in good condition. | | | | |
| 13. Workers are utilizing personal fall arrest systems before getting on the scaffold. | | | | |
| 14. Rope grabs are being used properly (not knots) and are in good condition. **(*Termination/Splice Plates ONLY*)** | | | | |

| Item(s) of Inspection | YES | NO | N/A | Comments |
|---|---|---|---|---|
| 15. Outriggers – | | | | |
| *a. Calculations have been done by the rigging foreperson and the proper amount of counterweights are being used.* | | | | |
| *b. Counterweights have been secured.* | | | | |
| *c. The outrigger beams are in good condition.* | | | | |
| *d. Pipe frames or Delta frames are in good condition.* | | | | |
| *e. Mudsills and baseplates are being used under the load bearing frames.* | | | | |
| 16. Paperwork – | | | | |
| *a. CD-5 (Outrigger notification) has been filed, approved and is available for inspection. (occupied building)* | | | | |
| *b. Rigging foreperson has been designated and has received a "Certificate of Fitness" from his/her employer. (occupied building)* | | | | |
| *c. Employees working on the suspended scaffold trained by a recognized scaffold training course and all have completion cards on them.* | | | | |
| *d. Department of Buildings approved copy of special rigger's license is available on the site.* | | | | |
| *e. Approved/P.E. stamped drawings must be on-site which include a plan view and an elevation view, with full dimensions, detailing ropes, # of clips, and counterweights, as well as outrigger beams or other support devices.* | | | | |
| *f. Maintain a detailed Standard Operating Procedure (SOP) that specifies the securement of the suspended scaffold when work is not being performed.* | | | | |
| *g. Verify that the suspended scaffold will not be lowered to the street or deck of the sidewalk shed at the end of a shift.* | | | | |
| *h. Ensure that the Job Safety Analysis for the work being performed has been reviewed and signed-off on by SDC and the personnel performing the work.* | | | | |
| 17. All wire rope termination points – | | | | |
| *a. Shackle is being used.* | | | | |
| *b. Thimble is being used.* | | | | |
| *c. 3 J-Clamps are being used.* | | | | |

## Daily Lift Inspection Checklist

**Date:** _____ **Aerial or Scissor Lift ID #:** _____

**Operator's Name:** _____ **Shift:** _____

**Company Name:** _____ **Operator's Signature:** _____

**The Vehicle Inspection**

_____ Oil Level
_____ Hydraulic Oil Level
_____ Fuel Level
_____ Check the Lift and Surrounding Area for Leaks
_____ Coolant Level
_____ Tire Pressure and Condition of Wheels and Tires
_____ Battery and Charger
_____ Ground Control Switches

**Check Operations**

_____ Horn
_____ Gauges
_____ Brakes
_____ Lights
_____ Steering
_____ Attachments or Accessories
_____ Backup Alarm or Warning Buzzer
_____ Warning Lights

**Platform Lift Equipment Inspection**

_____ Lift and Travel Controls and Switches
_____ Placards, Decals and Control ID Labels
_____ Handrails, Guardrails and Safety Chains
_____ Platform Deck and Toe Boards
_____ Steering
_____ Attachments or Accessories
_____ Backup Alarm or Warning Buzzer
_____ Warning Lights

**IF THE AERIAL OR SCISSOR LIFT FAILS ANY PART OF THIS INSPECTION, REMOVE THE KEY AND REPORT THE PROBLEM TO YOUR SUPERVISOR. DO NOT ATTEMPT TO MAKE REPAIRS UNLESS YOU ARE A TRAINED AND AUTHORIZED SERVICE PERSON**

**RECORD ANY MALFUNCTIONS, DAMAGES OR PROBLEMS**

_____

_____

## Scaffold Tie-Off Feasibility

| | | | |
|---|---|---|---|
| **Job Name:** | | **Job #:** | |
| **Location:** | | **Date:** | |
| **Scaffold Company:** | | | |

This form is to be completed by the competent person on the above job, and by the above stated subcontractor. Proof of their competent person shall accompany this form. It shall be either a letter from that respective company indicating as such, or a card indicating they were trained as a competent person. It is understood that all scaffold erectors/dismantlers will use a complete Personal Fall Arrest System where feasible. This form is intended only to state the reasons why it may not be feasible to tie off.

**Job description:**

**How will the workers be protected?**

**Explanation for lack of P.F.A.S.:**

Shawmut Design and Construction – Superintendent — Date

Subcontractor Competent Person — Date

Shawmut Design and Construction – Safety Manager — Date

## MODULE 05 –Stairways and Ladders

## 1.0 Introduction

1.1 Working on ladders can pose significant safety hazards and the use of proper equipment and trained personnel can substantially reduce those hazards.

## 2.0 Purpose

2.1 To identify the essential requirements necessary for safe use, installation, and compliance of stairways and ladders on Shawmut Design and Construction projects.

## 3.0 Scope

3.1 This program is an overview of OSHA standards and is intended as a minimum set of guidelines.

3.2 Stairways shall be installed as early as possible to provide safe access between floors.

3.3 If permanent stairs cannot be installed quick enough, a temporary stair tower/ scaffold tower shall be installed.

3.3.1 In this instance, scaffold steps shall be large enough for 2-way travel (30” wide) and for rescue personnel to access, if applicable.

## 4.0 Responsibilities

4.1 The Project Manager:

4.1.1 Has the responsibility to hire a competent subcontractor to install safe access throughout the site.

4.2 The Superintendent:

4.2.1 Is responsible to oversee the planning involved with safe access through communicating needs with contract forepersons.

4.3 The Safety Manager:

4.3.1 Is responsible for periodic monitoring of work practice to determine compliance.

## 5.0 Stairways and Ladders

5.1 Introduction

5.1.1 Many accidents in construction are related to falling from poor access. Shawmut Design and Construction takes the following provisions to ensure worker safety and health.

5.1.2 Many aluminum ladders can be dangerous on construction sites due to lack of care and maintenance, and that they are conductive. As a result of this, Shawmut Design and Construction has eliminated the use of these ladders on our projects and does not condone the use of any aluminum ladder on any Shawmut Design and Construction jobsite.

5.2 Requirements for Ladders

5.2.1 A ladder, ramp or runway shall be provided for workers when there is a break in elevation of 19” or more.

5.2.2 Ladder rungs, cleats and steps must be parallel, level and uniformly spaced.

5.2.3 Ladders must never be tied to or fastened together to create longer sections unless they are so designed.

5.2.4 A metal spreader or locking device must be provided on each stepladder to hold the front and back sections in an open position during use.

5.2.5 When two or more separate ladders are used to reach an elevated work area, they are to be:

5.2.5.1 Off set with a platform or landing between the ladders.

5.2.5.2 The landing shall have appropriate fall protection in place if greater than 6’ above the lower level per 29 CFR 1926 subpart M.

5.2.6 Wooden ladders shall not be painted with opaque finishes, except for identification purposes.

5.2.7 Metal ladders are not permitted on Shawmut job sites.

5.2.8 Ladders shall never be used in a horizontal position for use as platforms, runways, or scaffolds.

5.2.9 Ladder shall be minimum Type 1A.

5.3 Job Made Ladders

5.3.1 Job made ladders will be built by a competent person who has been previously trained in the proper techniques of building job ladders.

5.3.2 They shall be built to a minimum standard of:

5.3.2.1 11.5” rung length

5.3.2.2 16 ¾” rung height

5.3.2.3 Parallel spacing

5.3.2.4 Allow for good hand and foot hold

5.3.2.5 Full compliance with ANSI job-built ladder standards

5.4 Ladder Safety Practices

5.4.1 Side rails shall extend over its support at least 36".

5.4.2 Ladders shall be set up at a 4:1 angle.

5.4.3 Ladders shall be secured at the top as soon as this can safely be achieved.

5.4.4 Ladders shall be properly cleated at the feet to prevent movement.

5.4.5 Users will use 3 points of contact at all times.

5.4.6 No one shall carry items up or down a ladder.

5.4.7 Users shall be trained by their respective employer in ladder safety.

5.4.8 Ladders are to remain free of grease, oil or other slippery hazards.

5.4.9 The area around the top and bottom of a ladder is to remain clear at all times.

5.4.10 No one shall be permitted to work on the top 3 rungs of a straight/extension ladder.

5.4.11 No one shall be permitted to work on the top 2 rungs of a step ladder.

5.4.12 Ladders shall have a coral installed at the top of the ladder access point as soon as concrete is placed and/or solid surface is in place.

5.4.12.1 Coral shall meet requirements of subpart M – OSHA guardrail standard

5.5 Ladder Training

5.5.1 All users of ladders shall be trained prior to use.

5.5.2 Training is done by each subcontractor.

5.5.3 Training may be done on the job.

5.6 Ladder Inspection and Repair

5.6.1 Ladders must be inspected before each use.

5.6.2 Damaged ladders are to be removed from service immediately.

5.6.3 No repairs may be made to manufactured ladders.

5.6.4 Job built ladders may be repaired by a competent person.

5.7 Requirements for Stairs

5.7.1 At least one stairway will be installed as soon as practical on all jobsites.

5.7.2 We shall plan for 2 means of egress at all times to different elevations.

5.7.3 At least one means of egress shall be a stairway / stair tower, permanent or temporary. This stair tower shall have treads at least 30” wide.

5.7.4 Stairways that are used in construction must be designed, constructed and maintained in accordance to the following OSHA guidelines.

5.7.5 Stairways that will not be part of the permanent structure on which construction work is being performed must have landings at every 12’ or less of vertical rise.

5.7.6 Each landing must measure:

5.7.6.1 At least 30“ long

5.7.6.2 At least 22“ wide

5.7.7 Stairs must be installed at an angle between 30 degrees and 50 degrees from horizontal.

5.7.8 Riser height and tread depth must be uniform within each flight of stair, including any foundation structure used as one or more treads of the stair. In any stairway system, variations in riser height or tread depth must not be more than ¼ “.

5.7.9 All parts of the stairway must be free from hazardous objects, such as protruding nails.

5.8 Stair Rails and Hand Rails

5.8.1 Hand-rails shall be provided on all stairways having 4 or more risers or more than 30“ above a lower level, whichever is less. The stair shall be equipped with at least one hand-rail and one stair rail along each unprotected side or edge.

5.8.2 Stair-rails must be at least 36” high.

5.8.3 Hand-rails shall be between 30” – 37”.

5.8.4 When the top edge of a stair rail also serves as a hand rail, its height cannot be more than 37“ nor less than 36“.

5.8.5 For all these heights, measurements are taken from the support surface of the stair rail to the surface of the tread in line with the face of the riser at the forward edge of the tread.

5.8.6 Hand rails and the top stair rail must withstand a force of 200 pounds applied within 2“ of the top edge, in any downward or outward direction.

5.8.7 Hand rails not part of the permanent structure must have a minimum clearance of 3“ between the hand rail and the wall or other structure it is supported by.

5.8.8 They shall provide for a good hand hold.

5.8.9 Shall not create a projection hazard.

5.8.10 Surfacing handrails and stair-rails shall prevent injury from punctures or lacerations and from snagging clothes.

5.8.11 A standard guardrail shall consist of a top rail, mid rail, or equivalent protection and post, and shall have a vertical height within the range of 39“ – 45“.

5.8.12 All guardrails shall be designed for a live load of 200 pounds.

5.8.13 All open sides of a stair way system shall have proper guardrails installed on all open sides.

5.8.14 Mid rails shall not be required if there are balusters spaced not more than 19” apart.

# MODULE 06 – Steel Erection Safety Program

## 1.0 Introduction

1.1 Shawmut Design and Construction incorporates the following Steel Erection Program to follow during day-to-day steel erection operations. Please pay particular attention to the pre-construction requirements.

## 2.0 Purpose

2.1 The objective of this section of the Shawmut Design and Construction Safety program is to minimize or eliminate accidents and loss related to steel erection. In addition, Shawmut Design and Construction is striving to ensure regulatory compliance for both the general contractor and the steel erection subcontractor.

## 3.0 Policy

3.1 Shawmut Design and Construction believes steel erection accidents are preventable through cooperation between contractors, training, safe work practices, and pre-work coordination with the fabricator. Proper job set up, scheduling, and coordination between Shawmut, engineer of record, the steel fabricator, the erector and concrete-testing companies can drastically affect jobsite safety. Shawmut Design and Construction will strive to comply with all aspects of Subpart R and will also require all subcontractors to do so.

3.1.1 See Appendix A for Pre-construction Compliance Checklist

## 4.0 Application

4.1 Subpart R sets forth requirements to protect employees from the hazards associated with:

4.1.1 Steel erection activities involved in the construction, alteration and or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs.

4.1.2 Exemptions: tower erection, pre-cast concrete erection, and reinforcing steel installation.

## 5.0 Responsibilities

5.1 Shop Drawings and Approvals:

5.1.1 Shawmut Design and Construction Project Manager and the Steel Fabricator shall review architectural/shop drawings to ensure compliance with 1926.750.

5.1.1.1 This should include the following:

5.1.1.1.1 Double connections require seats or off sets (1926.756(c) (1).

5.1.1.1.2 All column splices are 42” higher than the finish decks 1926.756(d).

5.1.1.1.3 Perimeter columns pre-punched web holes for fall protection 1926.756(e) (1).

5.2 Schedule Considerations:

5.2.1 Shawmut Design and Construction Superintendent must consider concrete testing requirements 1926.752 (a) within schedule development:

5.2.1.1 All concrete piers, walls, footings, and foundations must reach at least 75% of intended compression strength before structural steel is placed upon them.

5.2.1.2 ASTM testing methods must be used to test the concrete cylinders.

5.2.1.3 Written notification of test results shall be provided to steel erector before erection commences.

5.3 Shawmut's Responsibilities:

5.3.1 Prior to steel erection Shawmut shall provide for, or obtain the following:

5.3.1.1 Pre-Work Meeting

5.3.1.2 Before work will commence a meeting will occur that will include the Project Manager, Superintendent, Safety Manager and the steel sub to review coordinate, and formalize the expectations of all parties involved.

5.3.1.3 Topics may include:

5.3.1.3.1 Staging areas

5.3.1.3.2 Delivery sequence

5.3.1.3.3 Work sequence

5.3.1.3.4 Critical lifts

5.3.1.3.5 Site logistics

5.3.1.3.6 Fall protection

5.3.1.3.7 Temporary bracing

5.3.1.3.8 Lay down areas

5.3.1.3.9 Training Requirements

5.3.1.3.9.1 Connectors

5.3.1.3.9.2 Deckers

5.3.1.3.9.3 Riggers

5.3.1.3.9.4 Operators

## 6.0 Requirements

6.1 Written Steel Erection Safety Plan

6.1.1 A written steel erection safety plan will be submitted by the steel subcontractor at the pre work meeting.

6.1.2 The subject matter may include but is not limited to:

6.1.2.1 Staging areas

6.1.2.2 Deliveries

6.1.2.3 Crane lift schemes

6.1.2.4 Bracing

6.1.2.5 Stabilizing

6.1.2.6 Employee training records

6.1.2.7 Fall protection

6.1.2.8 Wind loading and high wind suspension

6.1.3 This plan must be approved by the Shawmut Project Manager, Superintendent and Safety Manager before work will commence.

6.2 Approval to Begin Steel Erection

6.2.1 Before the commencement of steel erection, Shawmut will provide written authorization to the steel erector ensuring:

6.2.1.1 Concrete in footings, piers, and walls have cured to a level that will provide adequate strength to support any forces imposed during steel erection. [1926.752(a) (1)]

6.2.1.2 Anchor bolt repairs, placements, and modifications were done with prior approval of the project structural engineer of record (EOR). All changes and field modifications will be forwarded to the EOR in a timely fashion and must also be available at the project site.

6.3 Site Layout

6.3.1 Shawmut, as the controlling contractor, will ensure that the following is provided:

6.3.1.1 Adequate access roads to and through the site for the safe delivery and movement of cranes, trucks, and the material to be erected.

6.3.1.2 Means and methods for vehicular control (within the site).

6.3.1.3 Adequate space for equipment and materials.

6.3.1.4 This space must be firm, properly graded, drained and readily accessible to work.

6.4 Falling Object Protection

6.4.1 The controlling contractor must bar other construction below the steel erection unless overhead protection is provided. Signage and sawhorses will identify areas with overhead hazards and will be provided by the selected steel subcontractor. Signs should read “Danger- People Working Overhead”.

6.4.2 Minimum protection shall be two (2) fully decked floors or minimum one (1) fully poured floor.

6.5 Fall Protection

6.5.1 Shall be provided by the steel erector and shall remain in place, to be used by the other trades only if the controlling contractor:

6.5.1.1 Has directed the steel subcontractor to leave the fall protection in place.

6.5.1.2 Has inspected and accepted the control and responsibility of the fall protection in writing.

6.5.2 Perimeter Cable Installation:

6.5.2.1 Shall be minimum of ¼” wire rope

6.5.2.2 Shall have a minimum of 3 U-bolt shackles (Crosby clamps) at all terminations. China shackles shall not be used.

6.5.2.3 All ends of wire shall terminate at a column, angle iron, or turn buckle. At no point shall a wire rope connect with another wire rope

6.5.2.4 Top rail shall be installed at 42” above finished floor. In the case where there will be >3” change the iron worker shall install a 3rd rail to allow for compliance with a 42” top rail above finish floor.

6.5.2.5 Cables shall be run on only straight runs – no turns are allowed

6.5.2.6 Maximum span between support terminations shall be 90’

6.5.2.7 Stanchions shall be installed to support <3” deflection when 200 pounds of pressure is applied to the cable system. Industry standard is every 8’, however the iron worker may choose different if they can prove another system is equally compliant.

6.6 Cranes and Rigging

6.6.1 Shawmut's Superintendent shall obtain the following from the steel subcontractor:

6.6.1.1 The most recent copy of the crane's annual inspection.

6.6.1.2 A copy of the crane operator's hoisting/hydraulic license.

6.6.1.3 A lift plan detailing the cranes capacity; maximum required pick and crane set up locations.

6.6.1.4 A rigging plan that identifies the type and capacity of the rigging to be used on site.

6.6.1.5 Qualification cards for riggers and signalperson

6.6.1.6 Daily crane inspection log

## 7.0 Steel Erection Assembly Safety Responsibility

7.1 Cranes and Rigging: Primary safety responsibility falls to the steel subcontractor and crane operator with Shawmut Design and Construction overseeing operations to ensure regulatory compliance. The selected hoisting contractor must comply with 1926.1400-1442 at all levels.

7.2 Crane Operators:

7.2.1 Must be responsible for those under their direct control.

7.2.2 The operator has the authority to stop all hoisting activities and refuse to handle loads until safety has been assured.

7.2.3 Safety latches on hooks must not be deactivated unless:

7.2.3.1 A qualified rigger has determined that the hoisting and placing of purloins and single joists can be performed safely by doing so: or

7.2.3.2 When equivalent protection is provided in a site-specific erection plan.

7.3 Rigging

7.3.1 All riggers shall be appointed by the steel erection contractor

7.3.2 Al riggers shall be qualified

7.3.3 ANSI-B30 Standards for wire rope sling removal:

7.3.3.1 Ten randomly distributed broken wires in one rope lay.

7.3.3.2 Five broken wires in one strand.

7.3.3.3 Severe localized abrasion or scraping.

7.3.3.4 Kinking, crushing, bird caging or any other damage resulting in distortion of the rope structure.

7.3.3.5 Evidence of heat or corrosion.

7.3.3.6 End attachments that are cracked, deformed, or worn to the extent that the strength of the sling is substantially affected.

7.4 Crane Inspection:

7.4.1 Prior to every shift, a competent person will inspect cranes being used.

7.4.2 The inspection points must include:

7.4.2.1 All control mechanisms for wear and contamination

7.4.2.2 Safety devices

7.4.2.3 Hooks and latches

7.4.2.4 Hydraulic system

7.4.2.5 Tires

7.4.2.6 Ground conditions-Firm, dry, and, a compacted solid surface.

7.4.2.7 If any deficiency is determined to be a hazard the crane must be removed from service.

7.5 Anchor Bolts

7.5.1 Approval by the EOR and the Shawmut Superintendent is required before anchor bolts can be:

7.5.1.1 Repaired

7.5.1.2 Replaced, or

7.5.1.3 Field modified

7.6 Plumbing Up

7.6.1 Must be installed when a competent person deems it necessary to ensure the stability of the structure, and

7.6.2 In place before the structure is loaded with joists, bundles of deck or bridging.

7.6.3 May be removed only with the approval of the competent person.

7.6.4 All guide wires shall have warning tape installed

7.7 Columns

7.7.1 Must be evaluated by a competent person to determine if guying or bracing is needed.

7.7.2 Must have minimum of 4 anchor bolts per column.

7.7.3 Can be set on level finished floors, pre-grouted leveling plates, leveling nuts or shim packs to adequately transfer the load.

7.8 Beams and Columns

7.8.1 During the placing of structural members, the load shall not be released until:

7.8.1.1 The members are secured by at least 2 bolts, per connection

7.8.1.2 The bolts should be drawn up wrench tight.

7.8.1.2.1 Or the equivalent has been installed.

7.8.1.3 A competent person must determine if more than 2 bolts are needed to ensure structural stability of cantilevered members.

7.9 Non-Bolted Connections

7.9.1 Must be installed per engineered drawing before released from support.

7.9.2 Temporary erection bolts shall be installed during steel fabrication, where possible.

7.9.3 If loads are to be temporary support before final detail is complete there will be an engineered stamped drawing showing this temporary detail.

7.10 Diagonal Bracing

7.10.1 Solid web structural members used as diagonal bracing must be secured by:

7.10.1.1 At least one bolt per connection

7.10.1.2 Or the equivalent as specified by the EOR

7.11 Multiple Lift Rigging - Requires the Following:

7.11.1 A maximum of five members per lift

7.11.2 A minimum of 7‘ between members

7.11.3 A 5:1 safety factor on all components

7.11.4 All loads must be rigged by a qualified rigger

7.11.5 Controlled load lowering must be engaged on all hoisting equipment.

7.12 Double Connections

7.12.1 Beam seats or off set connections are required on double connections.

7.12.2 The use of half pins on double connections is no longer allowed.

7.12.3 Special training is required for connectors making double connections.

7.13 Walking-Working Surfaces

7.13.1 Shear connectors, reinforcing bars, deformed anchors or threaded studs shall not be attached to the top flanges of the beams, joists, or beam attachments until the decking has been installed.

7.14 Metal Buildings Fall Protection

7.14.1 Purloins and girders shall not be used as an anchorage point for a fall arrest system unless they are set in place and capable of withstanding a 5000-pound point load.

7.15 Open Web Steel Joists

7.15.1 Where constructability does not allow a steel joist to be installed at the column:

7.15.1.1 An alternate means of stabilizing joists must be installed on both sides near the column and it must:

7.15.1.1.1 Provide equivalent stability to a steel joist field-bolted at the column.

7.15.1.1.2 Be designed by a qualified person.

7.15.1.1.3 Be shop-installed

7.15.1.1.4 Be included in the erection drawings

7.15.2 Where steel joists at or near columns span more than 60 ‘:

7.15.2.1 The joists need to be set in tandem with all bridging installed.

7.15.2.2 An alternative method of erection may be used, provided it:

7.15.2.2.1 Provides equivalent stability to the steel joist

7.15.2.2.2 Is designed by a qualified person

7.15.2.2.3 Is included in the site-specific erection plan

7.16 Steel Joist Modification

7.16.1 Any modification that affects the strength of a steel joist or steel-joist girder must be made with the approval of the project structural engineer of record (EOR).

7.17 Bolted Diagonal Bridging

7.17.1 When bolted diagonal erection bridging is required, the following will apply:

7.17.1.1 The bridging must be indicated on the erection drawing.

7.17.1.2 The erection drawing must be the exclusive indicator of the proper placement of this bridging.

7.18 Placing loads on joists

7.18.1 During the construction period, the employer placing a load on steel joists must ensure that the load is distributed so as not to exceed the carrying capacity of any steel joist.

7.18.2 No bundle of decking may be placed on steel joists until all of the following conditions are met:

7.18.2.1 The employer has first determined that the structure or portion of the structure is capable of supporting the load.

7.18.2.2 The bundle of decking is placed on a minimum of three steel joists.

7.18.2.3 The joists supporting one bundle of decking are attached at both ends; at least until bridging is installed and anchored.

7.18.2.4 The total weight of the bundle of decking does not exceed 4,000 pounds and placement of the bundle of decking is within 1 foot of the bearing surface of the joist end.

## 8.0 Employee Training

8.1 Steel Erection Training

8.1.1 The steel erection subcontractor shall furnish steel erection training to all employees. Employee training must be provided by a qualified person and furnished to the controlling contractor upon request.

8.1.2 All employees exposed to fall hazards must be trained and instructed in the following areas:

8.1.2.1 The recognition and identification of fall hazards in the work area.

8.1.2.2 The use and operation of protective systems such as guardrail systems, personal fall-arrest systems, positioning-device systems, fall-restraint systems, safety net systems, and other protection to be used.

8.1.2.3 The correct procedures for erecting, maintaining, disassembling and inspecting the fall protection systems to be used.

8.1.2.4 Procedures for protection from falls to lower levels and into holes and openings in walking/working surfaces and walls.

8.1.2.5 All the fall protection requirements of subpart R&M.

## 9.0 Special Training

9.1 The employer must also provide specialized training to employees involved in the following activities and furnish records of training to the general contractor upon request:

9.1.1 Multiple lift rigging operations, including:

9.1.1.1 Multiple lift hazards

9.1.1.2 Proper procedures and equipment required by to perform multiple lifts

9.1.2 Connecting

9.1.3 Connecting hazards

9.1.4 The establishment, access, proper connecting techniques and required work practices

## 10.0 Fall Protection

10.1 Compliance is the responsibility of the steel subcontractor. Shawmut Design and Construction supervision shall oversee fall protection efforts to ensure compliance. Fall protection is required at 6' for all steel erection activities.

10.2 All fall arrest equipment shall be designed and included in the steel erection safety plan. Fall distances shall be addressed and proper equipment designed and used for each site.

10.3 All fall arrest equipment shall be clearly marked showing manufacturer and inspected daily before use.

10.4 Final deck attachments and installation of shear studs shall not be done in the CDZ; fall protection must be completed first.

10.5 Floor and roof openings

10.5.1 Roof and floor holes shall be decked over.

10.5.2 Where large openings do not allow for continuous decking, guardrails or other type systems must be installed immediately to ensure worker protection.

## 11.0 Weather Conditions

11.1 Weather conditions must be monitored to establish if there is a hazard to workers or the general public. Wind is of primary concern. Anemometers will be considered for establishing the hazards. Metal decking and all other sheathing will be secured at the end of all workdays and additional intermittent steps may be needed when conditions require it.

**Appendix A Pre-Steel Erection Checklist**

| | Yes | No |
|---|---|---|
| 1. Steel Erector has submitted training records for all workers for the following activities: proof of 1926 Subpart R training, fall arrest, welding, aerial lifts, Rigging and signalperson. | | |
| 2. Has the Approval to Begin Erection been filled out by both SDC and the steel subcontractor? | | |
| 3. Has SDC obtained a copy of the crane operator's hoisting/hydraulic license? Has SDC obtained a copy of the crane's annual inspection? | | |
| 4. The steel contractor acknowledges that only approved fastening methods will be used to erect steel members. | | |
| 5. Is a site-specific erection plan required? Has a site-specific rigging and lift plan been submitted to Shawmut Safety Department? | | |
| 6. Are the site conditions adequate? (Access, grading, drainage, storage, compaction etc.) | | |
| 7. Has SDC obtained Competent Operator, Signalperson and Rigger documentation from the hoisting contractor? | | |
| 8. Have all anchor bolt/field modifications been approved by the EOR in writing? | | |
| 9. Are all top flanges of beams, joists, or beam attachments free of shear connectors, reinforcing bars, or threaded stars? (These must be attached after decking and fall protection is installed.) | | |
| 10. All connections (columns, beams, bracing, etc.) will be connected per OSHA and/ or EOR stamped drawings, including temporary bracing, before being released from crane? | | |
| 11. Are all columns set on level pre-finished floors, pre-grouted leveling plates, leveling nuts, or shim packs to adequately transfer the load? | | |
| 12. Are there any Open Web Steel Joists? If yes, has the bridging stability plan been reviewed and approved by Shawmut Safety and EOR on drawings? | | |
| 13. Has EOR documented in writing that the open web joists can support the load of deck bundles? | | |
| 14. The controlling contractor shall bar other construction below steel erection unless overhead protection is provided. | | |
| 15. The steel subcontractor acknowledges that all steel erection activities including connecting and decking are subject to the 6' fall rule. | | |
| 16. The steel subcontractor must provide a top (42") and mid wire rope (21") for fall protection and allow for this height after concrete is placed. | | |

**Appendix B Custody of Fall Protection**

**Date:** _____ **Time:** _____ **AM / PM**

**Project Number:** _____ **Project Name:** _____

Shawmut Design and Construction has inspected the fall protection installed by the steel erector in the following locations and finds it to be in conformance with applicable OSHA and Shawmut Design and Construction Safety Rules and Regulations.

| **Locations:** |
|---|
| |

Shawmut Design and Construction Inc. has inspected the fall protection installed by the steel erector in the following locations and finds it **NOT** to be in conformance with the applicable OSHA and Shawmut Design and Construction Safety Rules and Regulations.

| **Locations:** |
|---|
| |

Fall protection on the above-mentioned project is in conformance with applicable OSHA and Shawmut Design and Construction Safety Rules and Regulations.

**Signed:** _____

*(Shawmut Design and Construction Superintendent or Safety Manager Only)*

The following subcontractor is responsible for maintenance of the fall protection for the duration of its necessity on the above-mentioned project:

**Signed** _____ **Company Name**: _____

**Appendix C Approval to Begin Steel Erection**

## Approval to Begin Steel Erection

**Project:** _____ **Project No:** _____ **Date:** _____

**Prepared By:** _____ **Title:** _____

**To:** _____

(Print Company, Name of Representative and Title)

**Reason(s) for Notification:**

_____ Concrete Strength Exceeds 75% Compressive Design Strength

_____ Anchor Bolt Repair, Replacement or Modification

**Describe Location of Building or Column(s) Relating to this Notice:**

_____

_____

_____

**Concrete Strength**

_____ According to the Project's Testing Agency, the concrete and/or mortar in the footings, piers and/or walls to support structural steel reached 75% intended minimum compressive design strength in the area(s) described above. Reports of ASTM standard tests of field cured concrete sample(s) are available at the Project Site. Please immediately notify Shawmut Design and Construction of any questions or problems regarding the attached testing reports.

**Anchor Bolts**

_____ No anchor bolts have been subject to repair, replacement, or modification in the area(s) described above.

_____ Anchor bolts in the area(s) described above have been subject to repair, replacement, or modification. See attached Anchor Bolt Modification Log and the attached Structural Engineer of Record's approval for those modifications.

If the steel erector requires any anchor bolt changes in the area covered by this notice after the date of this notice, then the steel erector must notify Shawmut Design and Construction before making any anchor bolt repair, replacement or modification and wait for the structural engineer of record's approval before continuing steel erection at affected locations.

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Project Superintendent Signature** | **Date** | **Foreperson Signature** | **Date** |

## Deck Turnover Checklist

**Project:** _____

**Date:** _____ **Time:** _____

**Location:** _____

**Column Line:** _____ **to Column Line:** _____

**Floor(s):** _____

| | **Inspection Items:** | **N/A** | **Yes** | **No** |
|---|---|---|---|---|
| 1 | Cable guardrails installed around perimeter of building | | | |
| 2 | Perimeter cable guardrails installed properly | | | |
| 3 | Leading edge protection and signage in place to restrict access | | | |
| 4 | Cable guardrails installed around all shaft openings | | | |
| 5 | Shaft cable guardrails installed properly | | | |
| 6 | Do all cable dead ends have three Crosby clips | | | |
| 7 | Stair access provided to deck | | | |
| 8 | Adequate overhead protection provided in shaft ways | | | |
| 9 | All decking secured and tacked down | | | |
| 10 | Guy cables tagged with yellow visible tape | | | |
| 11 | Cable guardrails tagged with yellow visible tape | | | |
| 12 | Any unnecessary openings remaining in deck | | | |
| 13 | All loading bays cut in | | | |
| 14 | Is there hi-viz between turnover floor and CAZ | | | |

**Shawmut Design and Construction**

Name: _____ Title: _____ Date: _____

**Steel Erector**

Name: _____ Title: _____ Date: _____

# MODULE 07 – Industrial Hygiene

## 1.0 Introduction

Shawmut Design and Construction strives to create a safe work environment, with respect to our employees, subcontractors, visitors and general neighboring public. Many hazards in the construction industry may not be easily recognized. Shawmut shall do everything we can to eliminate these hazards. This module describes how we will mitigate these hazards to continue to offer a safe work environment and protection for the general public.

## 2.0 Purpose

The purpose of this procedure is to outline the Industrial Hygiene (IH) process, including resources to accomplish the purpose of this section. This procedure provides instruction to establish guidelines for (IH) surveillance and subsequent analysis of materials present or potentially present at Shawmut Design and Construction projects.

## 3.0 Scope

The processes and controls described in this procedure apply to Shawmut, Shawmut subcontractors, and lower tier subcontractors, visitors and vendors. While specific references are made to airborne contaminants, which include silica and lead dust, this process shall evaluate other possible work process contaminants by using other IH approved methods.

## 4.0 Responsibilities

4.1 **The Superintendent:** Has the overall responsibility for the health and safety on site, and with the support of the Shawmut Design and Construction Health and Safety Department, must assure that adequate resources and staff are available to implement the requirements of this section of the (approved) Health and Safety Plan.

4.2 **The General Superintendent, Construction Manager and/or Director of Field Operations:** Is responsible for assuring that the field supervision that report to him/her is responsible and accountable for compliance with these requirements.

4.3 **The Safety Manger:** Is responsible for training and educating project management and making preliminary workplace determinations of potential IH problems in those areas. The Health and Safety Department is also responsible for engaging the services of a Certified Industrial Hygienist.

4.4 **The Project Manager:** Is responsible for obtaining a hazardous material report prior to work commencing. If hazardous materials are detected and must be abated, the PM will work with the owner to assist them in finding the right abatement subcontractor to perform this work for them. Shawmut does not contract or work with hazardous materials without prior approval from the Safety Department, Risk Management Department, and Executive Leadership.

4.5 **Site Employees including Employees of Subcontractor:** Are responsible for following guidelines for personnel health as published in regulatory requirements and for following the directions provided by their company supervisors for their well-being.

Failure to follow the guidelines is grounds for disciplinary action up to and including termination or being barred from Shawmut Design and Construction projects.

## 5.0 Hazardous Materials Reporting:

5.1 Asbestos is used in many products today, so Shawmut requires a hazardous materials report on ALL sites with only the following exceptions:

5.1.1 New construction where we enter a “white box” – meaning we are only working with new drywall, joint compound, steel, and concrete. This is effective 2017.

5.2 Shall be provided by building owner before exploratory, demotion, or construction begin.

5.3 Results shall be shared with entire project team.

5.4 Report shall be stored hard copy on the site in the safety station, accessible to all tradespeople.

## 6.0 Definitions

**Air Monitoring:** The surveillance of airborne contaminants through the use of direct-reading instruments that are capable of providing real-time indications of airborne contaminant levels.

**Air Sampling:** The collection of airborne contaminants in a suitable container or an appropriate media for the purpose of contaminant identification and quantification.

**Air Surveillance:** The use of air monitoring and air sampling to identify and quantify airborne contaminants for the purpose of personnel and environmental protection.

**Intrusive Work:** Creation of a pathway or entering work situations involving unknown environments (e.g., culverts, tanks, boreholes, trenches, confined spaces), which may lead to a release and/or potential exposure to hazardous contaminants.

**Lower Explosive Limit (LEL):** - The lowest level (in %) of flammable vapor or gas that with adequate oxygen and an ignition source can produce fire and/or explosion.

**Permissible Exposure Limit (PEL):** Regulatory exposure limits, usually an 8-hour time weighted average (TWA) published by OSHA. These limits represent legal standards enforceable by federal administrative courts.

**Threshold Limit Valve (TLV):** Recommended exposure guidelines published by the American Conference of Governmental Industrial Hygienists (ACGIH). These values are expressed as TWAs, Short Term Exposure Limits (STELs), and ceiling (C) limits. Thus, TLV-TWA, TLV-STEL, and TLV-C limits are published in the TLV booklet by ACGIH.

**Threshold Limit Valve (TLV) Ceiling "C":** The airborne concentration that should not be exceeded at any time during the workday.

**Threshold Limit Valve (TLV) Short Term Exposure Limit (STEL):** TLV-STEL is a 15-minute TWA airborne exposure which should not be exceeded at any time during a workday even if the 8-hour TWA is within the TLV.

**Threshold Limit Valve (TLV) Time Weighted Average (TWA):** The TWA concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

## 7.0 Requirements

### 7.1 General

7.1.1 Air surveillance requirements are for protection of employees from toxic and hazardous environments that may be present on site. Controls may be outlined in the Site Specific Safety Plan, which may be developed for each potential hazard. No individual shall be allowed to enter or work in a toxic or hazardous environment without first having the atmosphere evaluated by qualified individual.

### 7.2 Surveillance Criteria

7.2.1 Air surveillance criteria shall be based on prudent air quality practices. As a minimum, air quality shall be in compliance with the OSHA standards. Rationale for air surveillance shall include, but not be limited to the following:

7.2.1.1 Determine the effectiveness of Environmental/Engineering controls

7.2.1.2 Determine the need and effectiveness of personal protective equipment (e.g., respiratory protection)

7.2.1.3 Determine the presence of harmful or dangerous atmospheres

7.2.1.4 Determine workers' exposure to hazardous substances

7.2.1.5 Determine the potential for flammable/explosive atmospheres

7.2.1.6 Define controlled access areas

7.2.2 Typical operations requiring air surveillance may include:

7.2.2.1 Entering unknown environments

7.2.2.2 Asbestos characterization and demolition

7.2.2.3 Opening and sampling containers

7.2.2.4 Confined spaces

7.2.2.5 Excavating contaminated liquid, or other hazardous materials

7.2.2.6 Cleanup (e.g., scrubbing)

7.2.2.7 Intrusive tasks

7.2.2.8 Intrusive tasks to lead surfaces

7.2.3 Air surveillance shall be conducted in the workers' breathing zone and work area to evaluate exposures. In known atmospheres (e.g., benzene, asbestos, silica dust particulate) air-monitoring results shall be compared with OSHA PEL(s) and Action Levels; American Conference of Governmental Industrial Hygienist (ACGIH) TLV-TWA(s), TLV-STEL(s) and TLV-C(s). Engineering and/or personal protective equipment shall be used whenever airborne concentrations exceed the acceptable sampled limits.

7.2.4 The controls stated for the respective contaminant level shall be adhered to until air-sampling results confirm that a change in control is warranted.

7.2.5 Perimeter and downwind air surveillance shall be conducted whenever contaminants have a potential to cross the site boundary and present a hazard to the public. Air monitoring and/or air sampling shall be performed in compliance with existing state and federal regulatory requirements.

7.3 Instrumentation Selection and Availability

7.3.1 The instrument selection shall be based on the available site information, the known or suspected hazards, and the sampling/monitoring technology.

## 8.0 Asbestos Safety

8.1.1 **Introduction**

Asbestos is a name given to a group of minerals which occur naturally as masses of long silky fibers. Asbestos is known for its unique properties of being resistant to abrasion, inert to acid and alkaline solutions, and stable at high temperatures. Because of these attributes, asbestos was widely used in construction and industry. Asbestos fibers are woven together or incorporated within other materials to create many products. There are three main types of asbestos fibers:

8.1.1.1 **Chrysotile** (White Asbestos): Fine, silky, flexible white fibers (the most commonly used asbestos in the United States and Canada). Current evidence suggests that Chrysotile may be less hazardous than Amosite or Crocidolite.

8.1.1.2 **Amosite** (Brown Asbestos): Straight, brittle fibers that are light grey to pale brown (the most commonly used in thermal system insulation).

8.1.1.3 **Crocidolite** (Blue Asbestos): Straight blue fibers.

8.1.2 There are three other types of asbestos fibers: Anthopylite, Tremolite, and Actinolite, which are found as contaminants in Asbestos Containing Materials (ACM).

8.1.3 People who work around or disturb asbestos may be at risk for developing asbestos associated diseases if proper precautions are not taken.

8.2 Definitions

8.2.1 **Asbestos Containing Material (ACM) –** any material containing more than 1% asbestos

8.2.2 **Friable Asbestos –** asbestos that has the ability to become airborne very easily

8.2.2.1 Examples may include:

8.2.2.1.1 Pipe insulation

8.2.2.1.2 Ceiling tile

8.2.3 **Non–Friable Asbestos** – asbestos that cannot easily become airborne

8.2.3.1 Example may include:

8.2.3.1.1 Floor tile or mastic

8.2.3.1.2 Roof flashing

8.2.3.1.3 Joint compound

8.2.4 **High-efficiency particulate air (HEPA) filter** – A filter capable of trapping and retaining at least 99.97% of 0.3 micrometer diameter mono-disperse particles

8.3 Policy

8.3.1 It is the policy of Shawmut Design and Construction to have all potentially hazardous materials removed by our owner or client (where possible) prior to mobilizing on site.

8.3.2 It is the policy of Shawmut Design and Construction to have all ACM identified prior to work commencing, where feasible.

8.3.3 This process is done through a Hazardous Materials Survey conducted by a qualified person.

8.4 Requirements

8.4.1 **Project Manager –** shall work with the client or owner to obtain a hazardous materials report prior to work commencing.

8.4.2 **Superintendent –** shall review the hazardous materials report with the Safety Manager and identify all suspect areas that remain in place during construction.

8.4.3 **Safety Manager** – review Hazardous Materials report and make necessary recommendations to ensure worker and pedestrian safety and health.

8.4.3.1 A site-specific safety plan may be required to warn people of the potential hazards of suspect materials which are to be left in place as they are not required to be removed due to their current condition.

8.5 Procedures

8.5.1 All areas that contain asbestos and are to remain in place are to be properly identified to all workers.

8.5.1.1 This may include:

8.5.1.1.1 Floor tile

8.5.1.1.2 Insulation

8.5.1.1.3 Fire proofing

8.5.2 If unknown materials or suspect materials are found on a project, Superintendents are to notify the Safety Manager immediately and a site plan may be drafted.

## 9.0 Lead

9.1 Introduction

9.1.1 Lead can be found in many shapes and forms. The main source of lead is in lead-based paints. This paint has primarily been used to protect structural steel, but was used in many other surfaces as it was a popular product.

9.1.2 Anytime you apply a lead-based paint or disturb the painted surface, you may be exposed to lead. Such applications may include:

9.1.2.1 Abrasive blasting

9.1.2.2 Welding, cutting and torch burning

9.1.2.3 Burning or heating with a torch

9.1.2.4 Power tool cleaning

9.1.2.5 Manual scraping or sanding

9.1.2.6 Normal demolition of structures

9.1.2.7 Burning flammable liquids or combustible materials that contain or are coated with lead

9.1.2.8 Installation of products that contain lead

9.1.2.9 Chemical stripping of lead painted surfaces

8.1.2.10 Lead operation clean-up activities

9.2 Purpose

9.2.1 This program is developed to protect all employees, subcontractors, visitors and family members of employees from any lead exposure.

9.2.2 Inhalation and ingestion of lead are two major routes of exposure by which lead can be absorbed into the body. It is therefore important to ensure preventative measures are taken to decrease worker exposure.

9.2.3 This program is designed to eliminate the risk of overexposure to lead because it may result in lead poisoning.

9.2.4 **Lead poisoning is a serious health hazard that can severely and permanently damage your blood forming, reproductive and nervous systems.** Working outdoors in high winds will not be a reason to work with disregard of this plan.

9.3 Scope

9.3.1 This policy applies to all Shawmut Design and Construction employees, subcontractors, visitors and clients. We shall also comply with all applicable federal, state, and local regulations related to lead work.

9.4 Policy

9.4.1 It is the policy of Shawmut Design and Construction to ensure that no employee, subcontractor, visitor, neighbor, or client be exposed to lead greater than the OSHA Action Level (AL) of 30 micrograms of lead per cubic meter of air over an 8 hour time weighted average. Only approved subcontractors shall be allowed to work with lead painted surfaces.

9.4.2 Shawmut Design and Construction is registered with the EPA as Remodel, Repair and Paint (RRP) Certified Contractor. Whenever SDC is required to work in a building built before 1978 that houses children under the age of 6 we are required to meet the mandates from this standard. All sub-contractors are also required to meet this standard and will be asked for proof of training before the job begins. Please contact your Safety Manager for further information on the EPA's RRP standard and what needs to be done meet the requirements.

9.5 Responsibilities

9.5.1 Project Managers

9.5.1.1 Ensure that a complete hazardous materials report was generated by the owner and includes all different levels and colors of suspected lead based paints.

9.5.1.2 Analytical results are to be reviewed by the Safety Department prior to proceeding with work.

9.5.1.3 Ensure contractors are licensed and insured to do lead work and have a competent person on site.

9.5.1.4 Ensure the contractor has a lead program that is in compliance with Shawmut Design and Construction, federal, state and local regulations.

9.5.1.5 Ensure a Toxicity Characteristic Leachate Procedure (TCLP) is conducted in accordance with this policy.

9.5.1.6 Maintain all records of inspections, air monitoring, analytical reports and TCLP reports in the job folder.

9.5.2 Safety Manager

9.5.2.1 Review and interpret all analytical results and abatement plans.

9.5.2.2 Write a Site Specific Lead Program for each project where necessary.

9.5.2.3 Review TCLP and proposed disposal plan.

9.5.2.4 Arrange for air monitoring of subcontractors and employees if required.

9.5.2.5 Assist in document control and maintain all records of:

9.5.2.5.1 Historical data

9.5.2.5.2 Inspections

9.5.2.5.3 Site specific lead plans

9.5.2.5.4 Analytical results

9.5.2.5.5 Summary of scope of work and controls used

9.5.3 Superintendent

9.5.3.1 Review Site Specific Lead Safety Plan written by safety manager.

9.5.3.2 Ensure appropriate contractors are utilized to perform all work on lead painted surfaces.

9.5.3.3 Ensure that all applicable workers are lead trained and in an appropriate lead program.

9.5.3.4 Maintain all files of certificates, licensing, safety procedures, site specific lead safety plan, analytic and TCLP results on site.

9.5.3.5 Ensure that all work practices and waste disposal is in accordance with Shawmut Design and Construction, federal, state, and local policies.

9.6 Procedures

9.6.1 The Occupational Safety and Health Administration requires all workers to be protected against airborne lead particles. There is no way of knowing what lead will do if and when it becomes airborne. Therefore OSHA requires initial exposure assessment monitoring to be conducted by a person within a lead program.

9.7 Disposal

9.7.1 Lead is a regulated hazardous material which needs to be disposed of properly. When lead is identified on a project, the safety manager and project manager need to determine if the entire lead painted surfaces may need to be disposed of as hazardous waste or if, after a TCLP is conducted and shown to be below the allowable disposal levels of that state. This test is done by a certified lab and CIH.

9.8 Health Effects of Lead

9.8.1 Lead can be absorbed into the body by breathing and swallowing. Lead does not go through the skin, but if it gets on the hands, it can be accidentally ingested while eating, drinking, or smoking.

9.8.2 Lead is hazardous when it gets into the bloodstream where it can move around the body. Lead can cause permanent damage to the brain and nervous system, kidneys, and reproductive systems. Lead also contributes to high blood pressure.

9.8.3 Lead accumulates in the blood, bones, kidneys, brain, and liver. It stays in the bones for decades and slowly leaches out. An elevated blood lead level usually means that there has been recent exposure to lead. The early effects of lead poisoning are not specific and resemble “flu-like” illnesses.

9.8.3.1 <u>Short Term Effects</u>

| | |
|---|---|
| Stomach Cramps | Headaches |
| Poor Appetite | Fatigue |
| Irritability/Anxiety | Constipation |
| Muscle and Joint Pain | Sleeping Problems |
| Weakness | Hyperactivity |
| Loss of Sex Drive | Impotence |

9.8.3.2 <u>Long Term Effects</u>

| | |
|---|---|
| High Blood Pressure | Nerve Disorders |
| Brain Damage | Kidney Damage |
| Reproductive Damage | Birth Defect |

9.9 Exposure Assessment

9.9.1 **I**nitial Determination

9.9.2 Before construction activities begin, each project will determine whether there is any risk of employee or subcontractor exposure to lead. Owner specifications will be reviewed to determine if the identification of the lead is present on the project. Additionally, a survey will be completed to see if there is any possible work procedures that need to be done that were not identified by the owner.

9.9.3 If the initial determination for lead or material suspected of containing lead is positive, the project will collect samples and send them to a laboratory for analysis of the lead content, so that we can properly protect our employees and subcontractors before commencing work operations.

9.9.4 Exposure Monitoring

9.9.4.1 If lead has been identified, each project will collect samples representative of a full shift including at least one (1) sample for each job classification in each work area either for each shift or, preferably, the shift with the highest exposure level. This will be accomplished while in compliance with OSHA Guidelines for Lead in Construction. A site safety lead plan may need to be written up by the project safety manager.

9.9.4.2 These samples must be representative of the monitored employee's regular daily exposure to lead. Samples can be collected by the competent person on the project; however, it would be preferable to contract a Certified Industrial Hygienist (CIH) for this service.

9.9.4.3 All pertinent information related to air monitoring shall be recorded.

9.9.5 Objective and Historical Data

9.9.5.1 The project may use data collected within twelve (12) months prior to lead activities in which the operations were conducted under workplace conditions that closely resemble the process, type of material, control methods, work practices and environmental conditions of the current operation. Project shall consult their Safety Manager before selecting this option.

9.9.6 Notification of Air Monitoring Results

9.9.6.1 Within five (5) work days after receiving air monitoring results, we will notify each employee and/or subcontractor in writing of the results which present his or her exposure (see attachment No.1). This notice will state whether or not the permissible exposure limit of 50 Mg/m3 was exceeded and if it was, what actions are being taken to reduce or control this exposure. The project will make a written record of this, including information observations, calculations, CIH reports, and any employee or subcontractor complaints of symptoms attributed to lead exposure.

9.9.7 Frequency of Air Monitoring

9.9.7.1 Category 1: Change in Process, Equipment and/or Controls

Monitoring shall be repeated when there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees or subcontractors being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the permissible limit (PEL) (50 Mg/m3)

9.9.7.2 Category 2: Action Level But < PEL (30 Mg/m3)

If the results reveal employee or subcontractor exposure to be at or above the action level but at or below the PEL (50 Mg/m3), the project will perform monitoring at least every six (6) months, and continue monitoring at the required frequency until at least two (2) consecutive measurements, taken at least seven (7) days apart, are below the action level at which time the project may discontinue monitoring.

9.9.7.3 Category 3: > PEL (50 Mg/m3)

If the results reveal the employee is above the PEL, the project safety manager will write up a project specific lead safety plan to ensure workers' safety and health. This plan may include more enhanced engineering controls and/or administrative controls. Increased PPE is always the last option.

9.10 Methods of Compliance

9.10.1 Whenever feasible, our first efforts to control lead exposure shall consist of engineering and work practice controls. When engineering and work practice controls do not reduce TWA exposure levels to less than 50 Mg/m3, then respirators shall be used as additional protection.

9.10.2 Engineering controls may include, but are not limited to:

9.10.2.1 Vacuum shrouded scalars and grinders

9.10.2.2 Vacuum blasters

9.10.2.3 Chemical pain stripping

9.10.2.4 Dust collection/ventilation

9.10.2.5 Removing paint before burning

9.10.2.6 Cleaning with HEPA (high efficiency particulate air) filter vacuums

9.10.2.7 Wet methods to remove dust

9.10.2.8 Use of long cutting torches to keep people farther away from any fumes that are generated

9.10.2.9 Use of mechanical ventilation to move fumes and dust away from employees

9.10.2.10 Positioning workers upwind or otherwise outside of visible fume or dust clouds

9.10.3 Written Compliance Program

9.10.3.1 If monitoring results are above the PEL, the project will establish and implement a written lead compliance program. This program will be reviewed and updated, if necessary, every six (6) months. The written program will be kept on site and made available to any potentially affected employee, employee representative, subcontractor, owner, or OSHA.

9.10.3.2 **The program will contain at least the following:**

9.10.3.2.1 A description of each activity in which lead is emitted, the equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices.

9.10.3.2.2 A description of the specific means that will be employed to achieve compliance, and where required, the engineering plans and studies used to determine methods selected for controlling exposure to lead.

9.10.3.2.3 A report of the technology considered in meeting the PEL.

9.10.3.2.4 Air monitoring data which documents the source of lead emissions

9.10.3.2.5 A detailed schedule for implementing the program, including documentation such as copies of purchase orders for equipment construction contracts, etc.

9.10.3.2.6 A work place program covering items, including:

9.10.3.2.6.1 Respirator selection and use

9.10.3.2.6.2 Protective work clothing and equipment

9.10.3.2.6.3 Housekeeping

9.10.3.2.6.4 Hygiene facilities and practices

9.10.3.2.7 Administrative Control Schedule (Job Rotation), if applicable.

9.10.3.2.7.1 A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and with respect to responsibility for compliance with the Lead Exposure Control Plan.

9.10.3.2.7.2 A description of inspection procedures, including the site, materials, employees, and equipment.

9.11 Training and Respirator Usage

9.11.1 All employees on projects where higher than the PEL of lead are expected, shall be notified of the existence of OSHA regulations regarding lead. This can be done by posting a notice on the jobsite bulletin board or wherever it will be seen by all. Employees who will be exposed to lead shall be properly trained before that exposure begins.

9.11.2 Training shall be repeated annually and will cover the following items:

9.11.2.1 The content of applicable state and federal regulations.

9.11.2.2 A list of specific operations (burning, welding, etc.) which result in lead exposure.

9.11.2.3 The purpose, proper selection, fitting, use and limitations of respirators.

9.11.2.4 The purpose and a description of the medical surveillance and medical removal protection programs.

9.11.2.5 Information on the health problems associated with excessive lead exposure. Particular emphasis should be placed on the reproductive problems that lead can cause in both men and women.

9.11.2.6 Engineering controls and work practices which will be used to control lead exposure. The contents of our lead exposure control program.

9.11.2.7 A warning that chelating agents should not routinely be used to remove lead from their bodies and should only be used under the direction of a licensed physician.

9.11.3 We shall also make readily available to all affected employees a copy of the regulations pertaining to lead. The project will ensure that the Respirator Program is followed and that all employees have been properly fit-tested.

9.11.4 Employee representatives should be notified that facial hair may prevent a proper fit test. Arrangements should be made before employees show up on the job to avoid confrontation.

9.11.5 Whenever a filter respirator is selected for use, the employee will be permitted to change the filter elements whenever an increase in breathing resistance is detected. Filters do not have an expiration date or mechanical detector for signifying its expiration. The only adequate means of filter life is breathing resistance.

9.11.6 Employees wearing respirators will be allowed to leave work areas to wash their face and respirator when necessary to prevent skin irritation.

9.11.7 When respirators are chosen that require fit testing, all employees will be properly fit tested.

9.12 Housekeeping

9.12.1 All surfaces shall be kept as free as practical of lead accumulations. Compressed air shall not be used for cleaning. Vacuuming is the preferred choice for cleaning; however, wet methods such as washing, wet sweeping, wet shoveling and wet brushing may be used when vacuuming is not practical. Vacuums will be equipped with HEPA filters and shall be emptied in a manner that minimizes the entry of lead into the air.

9.12.2 Warning signs

9.12.3 The following warning signs shall be posted in each lead exposure area:

**WARNING-HAZARD**

**LEAD WORK AREA**

**NO SMOKING, EATING OR DRINKING**

## 10.0 Silica

10.1 Introduction

10.1.1 Silicosis is a disabling and sometimes fatal disease caused by prolonged exposure to crystalline silica by inhalation. Overexposure to dust that contains microscopic particles of crystalline silica can cause fibrosis or scar tissue formations in the lungs that reduce their ability to work to extract oxygen from the air. In addition to silicosis, inhalation of crystalline silica particles has been associated with other diseases such as bronchitis, tuberculosis and lung cancer.

10.1.2 There are three (3) forms of silicosis:

10.1.2.1 Chronic Silicosis:

10.1.2.1.1 Usually occurs after ten or more years of exposure

10.1.2.2 Accelerated Silicosis

10.1.2.2.1 Results from higher exposures and develops much faster than chronic silicosis

10.1.2.3 Acute Silicosis

10.1.2.3.1 Occurs where exposures are the highest and can cause symptoms to develop within a few weeks

10.2 Background

10.2.1 Crystalline silica, also known as quartz, is a natural compound in the earth's crust and is the basic component of sand and gunite. Concrete, masonry products, drywall material and drywall compounds, glass, tile and manufacturing abrasives contain silica.

10.3 Procedures

10.3.1 Shawmut Design and Construction is dedicated to ensuring the safety and health of employees, subcontractor employees, the general public and our clients on all of our projects. Shawmut will use the following methods to reduce worker and general public exposure to airborne silica and nuisance dust:

10.3.1.1 Engineering Controls

10.3.1.1.1 By reducing the silica dust from the breathing zone of the employee or general public, the hazard is reduced. Examples of engineering controls may be fans, HEPA filtered vacuums, vacuum shrouded tools and working downwind.

10.3.1.1.2 Wet Methods

10.3.1.1.2.1 Silica dust is greatly reduced when it is wet.

10.3.1.1.2.2 Shawmut requires the use of wet methods wherever possible to reduce the exposure to silica dust. The following are examples where the use of wet methods should be used:

10.3.1.1.2.2.1 Concrete cutting

10.3.1.1.2.2.2 Core drilling

10.3.1.1.2.2.3 Masonry demolition

10.3.1.1.3 HEPA Filtered Vacuum Attachments

10.3.1.1.3.1 If the area is unable to become wet, the use of a vacuum attachment may be used to reduce the airborne silica dust.

10.3.1.1.3.2 The following activities may require the use of vacuum attachments

10.3.1.1.3.2.1 Drilling

10.3.1.1.3.2.2 Cutting/re-pointing masonry materials

10.3.1.1.3.2.3 Clean up operations

**NOTE: When using a vacuum attachment, HEPA filters should be used to reduce the exposure.**

10.3.1.2 Administrative Controls

10.3.1.2.1 When engineering controls are not good enough or infeasible, administrative controls shall be put into place to reduce the amount of time workers and the public may be exposed to airborne silica dust.

10.3.1.3 Personal Protective Equipment

10.3.1.3.1 It may be necessary to use PPE in addition to the above listed control methods.

10.3.1.3.1.1 If PPE is required, the following shall be conducted:

10.3.1.3.1.2 Employees shall be trained in:

10.3.1.3.1.2.1 Use

10.3.1.3.1.2.2 Limitations

10.3.1.3.1.2.3 How to don and doff equipment

10.3.1.3.1.2.4 Storage

10.4 Scope and Application

10.4.1 This policy applies to all Shawmut Design and Construction employees, subcontractors, visitors and clients. The processes and controls outlined in this program applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/$m^3$) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

10.4.2 Per 29 CFR 1926.1153 all subcontractors shall submit a written silica program, medical clearance documentation, respiratory protection program and a written exposure control plan prior to exposing anyone to crystalline silica above the action level (AL) on our sites.

10.5 Definitions

10.5.1 **Action level** means a concentration of airborne respirable crystalline silica of 25 µg/$m^3$, calculated as an 8-hour TWA.

10.5.2 **Competent person** means an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth establish Written Exposure Control Plan (WECP)

10.5.3 **Employee exposure** means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

10.5.4 **High-efficiency particulate air [HEPA] filter** means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.

10.5.5 **Objective data** means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

10.5.6 **Permissible exposure limit (PEL).** The employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50 µg/$m^3$, calculated as an 8-hour TWA.

10.5.7 **Physician or other licensed health care professional [PLHCP]** means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required to comply with this standard

10.5.8 **Respirable crystalline silica** means quartz, crystallite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality – Particle Size Fraction Definitions for Health-Related Sampling

10.6 Exposure Control Methods

10.6.1 **Specified Exposure Control Methods** - For each employee engaged in a task identified Appendix 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Appendix 1. When implementing the control measures specified in Appendix 1, each employer shall:

10.6.2 For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

10.6.3 For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

10.6.4 Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Appendix 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

10.7 Alternative Exposure Control Methods

10.7.1 **Exposure Assessment** - For tasks not listed in Appendix 1, or where the employer does not fully comply with Appendix 1 shall conduct an exposure assessment of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level by using one of the following options;

10.7.1.1 Performance option. The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

10.7.1.2 Scheduled monitoring option. The employer shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.

10.7.1.2.1 If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

10.7.1.2.2 Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

10.7.1.2.3 Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

10.7.1.2.4 Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in paragraph (d)(2)(iv) of this section.

10.8 **Reassessment of exposures**. The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposures at or above the action level have occurred.

10.9 **Employee Notification of Assessment Results.** Within five working days after completing an exposure assessment the employer shall individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

10.9.1 Whenever an exposure assessment indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL

10.10 Engineering and work practice controls (Elimination of Hazard).

10.10.1 The employer shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the AL, unless the employer can demonstrate that such controls are not feasible.

10.10.2 Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the AL the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

10.11 Respiratory Protection

10.11.1 Where respirator use is required, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 and SDC EHS Module 21

10.11.2 Where respiratory protection is required, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph and 29 CFR 1910.134. Respiratory protection is required:

10.11.2.1 Where specified by Table 1 or,

10.11.2.2 For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices or,

10.11.2.3 Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;

10.11.2.4 Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and

10.11.2.5 During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

10.11.3 Where respiratory protection is required employers shall submit to SDC the following

10.11.3.1 Copy of Respiratory Protection Program

10.11.3.2 Proof of employee medical evaluation

10.11.3.3 Fit testing

10.11.3.4 Employee training

10.11.3.5 Proof of compliance with PLHCP medical oversight

10.11.4 Subcontractors creating exposures above the Action Level are responsible to contain their exposure to their work zone to prevent overexposure to other people in the area.

10.11.5 General Note: Abrasive blasting. In addition to these of this section, the employer shall comply with other OSHA standards, when applicable, such as 29 CFR 1926.57 (Ventilation), where abrasive blasting is conducted using crystalline silica- containing blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica

10.12 Housekeeping

10.12.1 Dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica shall not be allowed. Wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are required.

10.12.2 Compressed air shall not be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless:

10.12.2.1 The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

10.12.2.2 No alternative method is feasible.

10.13 Written Exposure Control Plan (WECP)

10.13.1 Subcontractors shall complete the WECP and submit to SDC Super prior to creating silica exposures on our sites. This plan shall be submitted along with JSA and reviewed with all affected personnel by trade foreperson before operation begins.

10.13.2 The written exposure control plan shall contain at least the following elements:

10.13.2.1 A description of the tasks in the workplace that involve exposure to respirable crystalline silica;

10.13.2.2 A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;

10.13.2.3 A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and

10.13.2.4 A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

10.13.3 Subcontractors shall make the written exposure control plan readily available for examination and copying, upon request, to each employee covered by this section, SDC, or clients.

10.13.4 Subcontractors and employers shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

10.14 Medical Surveillance

10.14.1 Subcontractors shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under this section to use a respirator for 30 or more days per year.

10.14.2 Subcontractors shall ensure that all medical examinations and procedures required are performed by a Physician or other licensed health care professional (PLHCP).

10.14.3 Initial examination. The employer shall make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of this section within the last three years. The examination shall consist of:

10.14.3.1 A medical and work history

10.14.3.2 A physical examination with special emphasis on the respiratory system;

10.14.3.3 A chest X-ray

10.14.3.4 A pulmonary function test

10.14.3.5 Testing for latent tuberculosis infection; and

10.14.3.6 Any other tests deemed appropriate by the PLHCP.

10.14.4 Periodic examinations

The employer shall make available medical examinations that include the procedures outlined in the initial examination at least every three years, or more frequently if recommended by the PLHCP.

10.15 Communication of Respirable Crystalline Silica Hazards to Employees

10.15.1 Hazard Communication

The employer shall include respirable crystalline silica in the program established to comply with the hazard communication standard (HCS) (29 CFR 1910.1200). The employer shall ensure that each employee has access to labels on containers of crystalline silica and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (i)(2) of this section.

10.15.2 The employer shall ensure that at least the following hazards are addressed:

10.15.2.1 Cancer

10.15.2.2 lung effects

10.15.2.3 immune system effects, and

10.15.2.4 kidney effects.

10.16 Employee Information and Training

10.16.1 Subcontractors shall ensure that each employee can demonstrate knowledge and understanding of at least the following:

10.16.1.1 The health hazards associated with exposure to respirable crystalline silica;

10.16.1.2 Specific tasks in the workplace that could result in exposure to respirable crystalline silica;

10.16.1.3 Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;

10.16.1.4 The contents of this section;

10.16.1.5 The identity of the competent person designated by the employer.

10.16.1.6 The purpose and a description of the medical surveillance program.

10.16.2 Subcontractors shall make a copy of this section readily available without cost to each employee.

10.17 Recordkeeping

10.17.1 Air monitoring data

The employer shall make and maintain an accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica,

10.17.2 This record shall include at least the following information:

10.17.2.1 The date of measurement for each sample taken;

10.17.2.2 The task monitored;

10.17.2.3 Sampling and analytical methods used;

10.17.2.4 Number, duration, and results of samples taken;

10.17.2.5 Identity of the laboratory that performed the analysis;

10.17.2.6 Type of personal protective equipment, such as respirators, worn by the employees monitored; and

10.17.2.7 Name and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

10.17.3 The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

10.18 Objective Data

The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

10.18.1 This record shall include at least the following information:

10.18.1.1 The crystalline silica-containing material in question;

10.18.1.2 The source of the objective data;

10.18.1.3 The testing protocol and results of testing;

10.18.1.4 A description of the process, task, or activity on which the objective data were based; and

10.18.1.5 Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

10.18.1.6 The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

10.19 Medical Surveillance

The employer shall make and maintain an accurate record for each employee covered by medical surveillance section.

10.19.1 The record shall include the following information about the employee:

10.19.1.1 Name and social security number;

10.19.1.2 A copy of the PLHCPs' and specialists' written medical opinions; and

10.19.1.3 A copy of the information provided to the PLHCPs and specialists.

10.19.1.4 The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

## 11.0 Mold

11.1 Introduction

11.1.1 Mold spores waft through the indoor and outdoor air continually. When mold spores land on a damp spot indoors, they may begin growing and digesting whatever they are growing on in order to survive.

11.1.2 There are molds that can grow on wood, paper, carpet and foods. When excessive moisture or water accumulates indoors, mold growth will often occur, particularly if the moisture problem remains undiscovered or un-addressed.

11.1.3 There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.

11.2 Mold and Your Health

11.2.1 According to The Journal of the American Medical Association (JAMA) and the Centers for Disease Control and Prevention (CDC), mold growth in water-damaged homes can create a potential health hazard. There is always a little mold everywhere-in the air and on many surfaces. Mold exposure does not always present a health problem; but for those who are sensitive, mold spores can bring on allergic symptoms such as:

11.2.1.1 Respiratory problems, such as wheezing and difficulty in breathing

11.2.1.2 Nasal and sinus congestion

11.2.1.3 Burning and watering eyes

11.2.1.4 Dry, hacking cough

11.2.1.5 Sore throat

11.2.1.6 Nose and throat irritation

11.2.1.7 Shortness of breath

11.2.1.8 Skin irritation

11.3 Purpose

11.3.1 To establish the minimum requirements for protecting employees and property from the hazards associated with mold growth conditions, associated with the construction and manufacturing processes, and to provide procedures for mold prevention and remediation if encountered.

11.4 Objectives

11.4.1 Establish guidance and direction for response to moisture/water or mold growth conditions to assure prevention during construction and manufacturing and fabrication.

11.4.2 Establish mold identification and assessment criteria early to minimize damage to duct work, sheet-rock, lumber, carpet, wallpaper, air handling units or other construction related material.

11.4.3 Establish remediation and removal procedures.

11.4.4 Control potential health related effects.

11.5 Application

11.5.1 This program is applicable to all Shawmut Design and Construction projects and subcontractors performing construction activities directly or indirectly for Shawmut Design and Construction.

11.6 Managing Mold, Risk-Prevention Plan Components

11.6.1 Pre-construction planning

11.6.1.1 Project Coordination:

11.6.1.1.1 Shawmut Design and Construction Project Management, Superintendent, the owner, and the architect or design professionals shall discuss the subject of mold before the construction activities begin. Shawmut will immediately alert the architects to designs that allow water intrusion on moisture accumulation.

11.6.1.1.2 Shawmut Design and Construction will carefully document any architectural changes. On a standard architect/contractor project delivery method, the architects' approval must be obtained in writing. In the event that a recommendation is rejected, reiterate the recommendation in writing, copy the owner, and file it.

11.6.1.1.3 Shawmut Design and Construction will carefully pre-qualify all subcontractors and ensure that they have adequate experience in the specific application being bid.

11.6.1.1.4 Shawmut Design and Construction will inform the owner of any potential water intrusions or areas of concern from a mold standpoint prior to any construction activities on-site. The foresight and prevention planning could alleviate the problem from either a value engineering or material substitution aspect.

11.7 Procedures

11.7.1 If a water leak occurs during the process of construction, the following is to take place:

11.7.1.1 Stop the leak.

11.7.1.2 Call a restoration company immediately.

11.7.1.3 All areas that were wet are to be dried out per the recommendation of the restoration company.

11.7.1.4 Air monitoring shall be performed to ensure no mold is in the air.

11.7.1.5 When all clearances are complete, construction may resume.

11.7.2 If mold is discovered on a project, the following shall take place

11.7.2.1 The area in question shall be properly protected.

11.7.2.1.1 Use a temporary wall to block access to the area and to contain the mold spores from becoming airborne.

11.7.2.2 Contact the building owner or our client.

11.7.2.3 Coordinate to have air testing done immediately.

11.7.2.4 Coordinate to have a certified industrial hygienist come to the project to give further recommendations to prevent mold spores spreading or becoming airborne.

**NOTE: In any case, contact the Safety Department for a Site Specific Action Plan.**

## 12.0 Wood Dust

12.1 Background

12.1.1 Wood dust is a known carcinogen

12.1.2 Overexposure to wood dust can cause a variety of adverse health effects such as eye and skin irritation, allergies, reduced lung function, asthma and nasal cancer.

12.2 Individuals may be exposed to wood dust as a result of the following activities.

12.2.1 Table saw operations

12.2.2 Table chop saw operations

12.2.3 Manual saw cutting operations

12.2.4 Sanding operations

12.3 Procedures

12.3.1 Shawmut Design and Construction is dedicated to ensuring the safety and health for employees, subcontractor employees, the general public and our clients on all of our projects. While OSHA does not have a specific standard for wood dust Shawmut will use the following methods to reduce worker and general public exposure to airborne wood dust:

12.4 Engineering Controls

12.4.1 By reducing the wood dust from the breathing zone, the exposure is reduced. Examples of engineered controls: Fans, HEPA Filtered vacuums, vacuum shrouded tools and working downwind.

12.5 Administrative Controls

12.5.1 When engineering controls are not good enough or infeasible, administrative controls shall be put into place to reduce the amount of time workers and the public may be exposed to wood dust.

12.6 Personal Protective Equipment

12.6.1 It may be necessary to use PPE in addition to the above listed control methods.

12.6.2 If PPE is required the following shall be conducted.

12.7 Employees shall be trained in:

12.7.1 Use

12.7.2 Limitations

12.7.3 How to don and doff equipment

12.7.4 Storage

12.8 Air Monitoring

12.8.1 Air monitoring and sampling will be conducted when wood dust exposures are anticipated to check for overexposure. Sampling shall also be performed after engineering controls have been implemented to ensure exposure limits are within permissible range.

## 13.0 Polychlorinated Biphenyl (PCB's)

13.1 Definition and Description

13.1.1 Polychlorinated biphenyls (PCBs) are synthetic chemicals which are no longer produced in the United States, but are still found in the environment. PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was stopped in the U.S. in 1977 because of evidence they build up in the environment and can cause harmful health effects. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical devices containing PCB capacitors and hydraulic oils.

13.2 Background

13.2.1 PCB's are a synthetic organic chemical compound of chlorine attached to biphenyl, which is a molecule composed of two benzene rings.

13.2.2 Polychlorinated biphenyls were widely used as dielectric and coolant fluids in electrical apparatus, cutting fluids for machining operations, carbonless copy paper and in heat transfer fluids.

13.2.3 Because of PCBs' environmental toxicity and classification as a persistent organic pollutant, PCB production was banned by the United States Congress in 1979 and by the Stockholm Convention on Persistent Organic Pollutants in 2001.

13.2.4 The International Research Agency on Cancer (IRAC), rendered PCBs as definite carcinogens in humans. According to the U.S. Environmental Protection Agency (EPA), PCBs cause cancer in animals and are probable human carcinogens.

13.2.5 Many rivers and buildings including schools and other sites are contaminated with PCBs, and there have been contaminations of food supplies with the toxins.

13.3 Common material containing PCB's

13.3.1 Window caulking

13.3.2 Paints

13.3.3 Transformers

13.3.4 Light ballasts

13.4 Testing Procedures:

13.4.1 A hazardous materials test can be done to determine if there are elevated levels of PCB's in the material we will be working.

13.4.2 This test should be provided by the owner of the building.

13.4.3 A request for this information shall go through our client. If a test has not been performed and PCB's are suspected Safety shall immediately be notified.

13.4.3.1 Shawmut will provide reasonable care to our workers and our clients.

13.4.3.2 We will work with our clients and 3rd party consultants to ensure the safety and health of everyone involved in jobs that have potential for existing PCB's.

13.5 Working around PCB's

13.5.1 Option 1 – PCB's are abated by a licensed firm and all substrate material, when applicable, has also been abated

13.5.1.1 No concerns based on industrial hygienist report

13.5.2 Option 2 – PCB's have been abated, but not substrate

13.5.2.1 PCB's can "leach" into substrate causing a continuing problem and one that will need an Operations Manual written by a qualified industrial hygienist.

13.5.2.2 If this is the case we will work closely with the IH to determine appropriate levels of protection for our workers in the event PCB's have leached into substrate material.

13.5.2.2.1 Procedures may include negative exposure assessments

13.5.3 Option 3 – PCB's are assumed and removed as bulk waste

13.5.3.1 PCB's can "leach" into substrate causing a continuing problem and one that will need an Operations Manual written by a qualified industrial hygienist.

13.5.3.2 If this is the case we will work closely with the IH to determine appropriate levels of protection for our workers in the event PCB's have leached into substrate material.

13.5.3.2.1 Procedures may include negative exposure assessments

13.5.4 Disposal of PCB's

13.5.4.1 Shall be done under the direction of the owner's representative / licensed Industrial Hygienist

13.5.4.2 Disposal will be in accordance with local and federal laws

# WRITTEN EXPOSURE CONTROL PLAN (WECP)

**General Information:**

| | | | |
|---|---|---|---|
| Date WECP was Completed: | | Subcontractor Completing Work: | |
| Job Name: | | Job Number: | |
| Name of Shawmut Superintendent: | | Subcontractor Competent Person: | |
| Form Completed by: | | Reviewed / Approved (SDC) by: | |
| | | | |
| Scope of Work to be Completed: | | | |
| Work Start Date: | | | |
| Work Duration: | ☐ Days ☐ Months ☐ Years | | |

| Respirators | | |
|---|---|---|
| Required: Y ☐ N ☐ | Medically Cleared and Trained: Y ☐ N ☐ | Fit-Tested: Y ☐ N ☐ |
| PPE required for scope of work (other than respirator) | | |
| ☐ Coveralls ☐ Gloves ☐ Rubber Boots ☐ Eye Protection ☐ High-Vis Reflective Vest ☐ Hearing Protection | | |
| Documents to be attached to WECP (☑ if present) | | |
| ☐ Subcontractor Exposure Control Program ☐ Respiratory Protection program ☐ Training Records ☐ PHA (*tasks, hazards, controls, tools and equipment*) | | |

# Site-Specific Silica Dust Prevention Initiatives

**Work description:**

| |
|---|
| |

**Primary silica control options (check those options used and explain use if needed)**

♦ Elimination / Substitution Controls (using procedures or products that do not create silica; must review Safety Data Sheets)

| | |
|---|---|
| Other means of demo: | |
| Different products: | |
| Other substitutions: | |

♦ Engineering Controls (when using ventilation, draw air out and don't expose others to exhaust dusts)

| | |
|---|---|
| Vacuuming: | |
| Wetting: | |
| Ventilation: | |
| Isolation: | |
| Other means: | |

♦ Administration Controls (reducing exposure by work schedules, timing, or planning options)

| | |
|---|---|
| Control points: | |
| Work schedule: | |
| Other means: | |

**Secondary silica control options (check those options used and explain use if needed)**

- Personal Protective Equipment

| | | | | | |
|---|---|---|---|---|---|
| Half-mask respirators: | | Cartridge type: | | Medical/ Fit tests confirmed: | |
| Full-face respirators: | | Cartridge type: | | Medical/ Fit tests confirmed: | |
| Supplied air units: | | | | | |
| Coveralls required: | | | | | |

- Hygiene and Decontamination Options (reducing exposures after work has stopped or during breaks)

| | |
|---|---|
| Water or washing facilities on site: | |
| Vacuuming clothing/self: | |

| *Safe Work Procedures and Other Details:* | |
|---|---|
| | |

**Signatures**

Subcontractor Foreperson: _____ Date/Time: _____

**The Subcontractor Foreperson**, as the designated competent person, will be solely responsible for the safe execution of this Written Exposure Control Plan (WECP) and will perform such in accordance with all applicable OSHA standards.

SDC Project Representative: _____

Date/Time: _____

**Table 1—Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica**

| Equipment/task | Engineering and work practice control methods | Required respiratory protection and minimum assigned protection factor (APF) | |
|---|---|---|---|
| | | ≤ 4 hours/shift | >4 hours/shift |
| (i) Stationary masonry saws | Use saw equipped with integrated water delivery system that continuously feeds water to the blade<br>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | None | None |
| (ii) Handheld power saws (any blade diameter) | Use saw equipped with integrated water delivery system that continuously feeds water to the blade<br>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions: | | |
| | -When used outdoors | None | APF 10 |
| | -When used indoors or in an enclosed area | APF 10 | APF 10 |
| (iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) | For tasks performed outdoors only:<br>Use saw equipped with commercially available dust collection system<br>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions<br>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency | None | None |
| (iv) Walk-behind saws | Use saw equipped with integrated water delivery system that continuously feeds water to the blade<br>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions: | | |
| | -When used outdoors | None | None |
| | -When used indoors or in an enclosed area | APF 10 | APF 10 |
| (v) Drivable saws | For tasks performed outdoors only: | | |

| Equipment/task | Engineering and work practice control methods | Required respiratory protection and minimum assigned protection factor (APF) | |
|---|---|---|---|
| | | ≤ 4 hours/shift | >4 hours/shift |
| | Use saw equipped with integrated water delivery system that continuously feeds water to the blade<br>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | None | None |
| (vi) Rig-mounted core saws or drills | Use tool equipped with integrated water delivery system that supplies water to cutting surface<br>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | None | None |
| (vii) Handheld and stand-mounted drills (including impact and rotary hammer drills) | Use drill equipped with commercially available shroud or cowling with dust collection system<br>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions<br>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism<br>Use a HEPA-filtered vacuum when cleaning holes | None | None |
| (viii) Dowel drilling rigs for concrete | For tasks performed outdoors only: | | |
| | Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism | APF 10 | APF 10 |
| (ix) Vehicle-mounted drilling rigs for rock and concrete | Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector | None | None |
| | OR | | |
| | Operate from within an enclosed cab and use water for dust suppression on drill bit | None | None |

| Equipment/task | Engineering and work practice control methods | Required respiratory protection and minimum assigned protection factor (APF) | |
|---|---|---|---|
| | | ≤ 4 hours/shift | >4 hours/shift |
| (x) Jackhammers and handheld powered chipping tools | Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact: | | |
| | -When used outdoors | None | APF 10 |
| | -When used indoors or in an enclosed area | APF 10 | APF 10 |
| | OR | | |
| | Use tool equipped with commercially available shroud and dust collection system | | |
| | Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | | |
| | Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism: | | |
| | -When used outdoors | None | APF 10 |
| | -When used indoors or in an enclosed area | APF 10 | APF 10 |
| (xi) Handheld grinders for mortar removal (*i.e.*, tuckpointing) | Use grinder equipped with commercially available shroud and dust collection system | APF 10 | APF 25 |
| | Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | | |
| | Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism | | |
| (xii) Handheld grinders for uses other than | For tasks performed outdoors only: Use grinder equipped with integrated | None | None |

| Equipment/task | Engineering and work practice control methods | Required respiratory protection and minimum assigned protection factor (APF) | |
|---|---|---|---|
| | | ≤ 4 hours/shift | >4 hours/shift |
| mortar removal | water delivery system that continuously feeds water to the grinding surface | | |
| | Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | | |
| | OR | | |
| | Use grinder equipped with commercially available shroud and dust collection system | | |
| | Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | | |
| | Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism: | | |
| | -When used outdoors | None | None |
| | -When used indoors or in an enclosed area | None | APF 10 |
| (xiii) Walk-behind milling machines and floor grinders | Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface | None | None |
| | Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | | |
| | OR | | |
| | Use machine equipped with dust collection system recommended by the manufacturer | None | None |
| | Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions | | |

| Equipment/task | Engineering and work practice control methods | Required respiratory protection and minimum assigned protection factor (APF) | |
|---|---|---|---|
| | | ≤ 4 hours/shift | >4 hours/shift |
| | Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism | | |
| | When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes | | |
| (xiv) Small drivable milling machines (less than half-lane) | Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant | None | None |
| | Operate and maintain machine to minimize dust emissions | | |
| (xv) Large drivable milling machines (half-lane and larger) | For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust | None | None |
| | Operate and maintain machine to minimize dust emissions | | |
| | For cuts of four inches in depth or less on any substrate: | | |
| | Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust | None | None |
| | Operate and maintain machine to minimize dust emissions | | |
| | OR | | |
| | Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant | None | None |

| Equipment/task | Engineering and work practice control methods | Required respiratory protection and minimum assigned protection factor (APF) | |
|---|---|---|---|
| | | ≤ 4 hours/shift | >4 hours/shift |
| | Operate and maintain machine to minimize dust emissions | | |
| (xvi) Crushing machines | Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points) | None | None |
| | Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions | | |
| | Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station | | |
| (xvii) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (*e.g.*, hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials | Operate equipment from within an enclosed cab | None | None |
| | When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions | None | None |
| (xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials | Apply water and/or dust suppressants as necessary to minimize dust emissions | None | None |
| | OR | | |
| | When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab | None | None |

## MODULE 08 – Demolition Safety Program

## 1.0 Purpose

The purpose of these guidelines is to identify and reduce any hazards associated with demolition on all Shawmut projects**.**

## 2.0 Scope

The scope of demolition applies to all Shawmut Design and Construction employees and employees of subcontractors with the exception of personnel in administrative areas.

## 3.0 Preparation

3.1 **Engineering Study**: Before undertaking any demolition operation, an **Engineering Survey** (or equivalent for non-structural demolition) shall be conducted by a qualified person to determine the condition and/or the load bearing capacity of the frame, floors, and walls and to determine the possibility of an unplanned structural collapse.

3.2 **Hazardous Material**: Before demolition, it should also be determined whether any hazardous materials (lead, asbestos, heavy metals), gases, chemicals, explosives, flammable materials, or similarly dangerous substances that may remain in pipes, vessels, and/or tanks. If this situation is encountered or the presence of such is suspected, the hazard must be mitigated before demolition is to take place.

3.3 **Policy:**

3.3.1 A hazardous materials report shall be requested by Shawmut to our client/ building owner and reviewed by the project team and safety department prior to conducting work

3.3.2 Under no circumstance is Shawmut Design and Construction to undertake even light removal of material from a structure (knowing that suspect material is present) until the hazard has been removed or protected. This work must be coordinated with the owner of the property since it is Shawmut Design and Construction policy that we do not directly contract for this type of work unless obtaining written approval from the Safety Department, Risk Management Department, and the Office of the President.

3.4 **Monitoring**: Where determined necessary, extensive photographing of the site and adjacent buildings and/or seismic monitoring should be conducted to document pre-existing conditions and site changes where applicable.

3.5 **Fire Protection:** As long as practical, sprinkler systems should be maintained and system shut-offs coordinated with and approved by Shawmut Design and Construction and the building owner/landlord.

3.6 **Utilities:** All utilities to the structure shall be shut off, disconnected or otherwise controlled from prior to demolition. All associated utility companies shall be given adequate advance notice.

3.7 **Safety Precautions:** If demolished material is dropped through floors without chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 6' back from the projected openings.

3.8 **Make Safe:** All electric, steam, water and other mechanical equipment shall be properly protected and made-safe prior to the start of demolition.

3.8.1 Please refer to SDC Make-Safe Procedures for more information. (Page 6)

3.8.2 All appropriate precautions shall be taken to identify any utilities before disturbance. This includes concrete slabs, walls, ceilings, etc. A thorough review of existing drawings shall occur and if this is inadequate or nonexistent, a scan of the locations shall be taken by a subcontractor. Ground Penetrating Radar shall be done in these areas.

3.9 **Signage:** Signs shall be posted where applicable to warn of the hazards.

3.10 **Removal:** Removal of demolished material from receiving areas shall not be permitted until it has been determined that debris handling from above has ceased.

3.11 **Floor Openings:** Shall be covered with a material that can withstand two times the maximum imposed load of people, tools, motorized equipment, etc. The floor shall be secured so that it cannot be accidentally removed, and it should be labeled **'FLOOR" or "COVER"**

3.12 **Employee Entrance:** To multi-story structures being demolished shall be completely protected by sidewalk enclosures or canopies. Protection shall be provided from the face of the building to a minimum of 13'. Enclosures shall be able to sustain a load of 150lbs per square foot (psf), or more depending on situation, determination by Qualified Person, or local laws.

## 4.0 Removal through Trash Chutes

4.1 No material will be dropped outside the exterior walls of the structure unless the area is adequately protected.

4.1.1 Water, where feasible, will be used as a safety mechanism in rubbish chutes to control dust and the possibility of fire.

4.2 Material chutes at an angle of 45 degrees from the horizontal shall be entirely enclosed, except for the openings equipped with closures at or about floor level where the material is being deposited.

4.3 The openings shall not exceed 48" in height as measured along the wall of the chute.

4.4 At all floors below the top floor, openings not being used shall be kept closed.

4.5 Each chute shall have a substantial gate near the discharge end. A competent person shall control the operation of the gate, and the loading of trucks.

4.6 When not in operation, the chutes and surrounding areas shall be securely closed off.

4.7 Any chute opening into which material is deposited shall be protected by a guardrail approximately 42" above the working surface on which the worker stands when dumping the material.

4.8 Where material is deposited from a "Bobcat" or other mechanized equipment, a securely attached bumper board not less than 4" thick and 6" high shall be provided at each chute opening.

4.9 Additional fall protection shall be provided, such as a controlled access zone, to eliminate fall hazards for anyone not in a machine.

4.9.1 Chutes shall be designed and constructed strong enough to sustain the impact of materials or debris deposited in them.

## 5.0 Removal through Floor Openings

5.1 All structural demolition will be pre-approved by a qualified person.

5.1.1 Demolition plans shall be stamped with a licensed PE.

5.2 Openings cut in floors for material disposal shall be no larger than 25% of the total floor area unless the lateral supports of the removed flooring remain in place.

5.3 Floors weakened or otherwise made unsafe by demolition activities shall be shored so that the intended loads from demolition operations can be sustained per the qualified person's recommendations.

## 6.0 Removal of Masonry and Walls

6.1 Masonry walls shall not be permitted to free fall onto building floors in mass that exceed the floors' rated safe load capacities.

6.2 No wall section more than one story high may stand without lateral bracing, unless that wall was originally designed and constructed to independently support itself.

6.3 All walls shall be left in a stable condition at the end of each shift.

6.4 Structural and load bearing members on any floor shall not be cut or removed until all floors above such floor have been demolished and removed. This provision does not prohibit the cutting of floor beams for the disposal of materials or for the installation of equipment.

6.5 The floor opening sizes and locations shall be determined by a qualified person.

6.6 Floor openings within 10' of any wall being demolished shall be planked solid, unless employees are kept out of the areas below.

6.7 In buildings of structural steel construction, the steel frame may be left in place during demolition of masonry. Where this is done, all steel beams, girders, and similar structural supports shall be cleared of all loose material as the masonry demolition progresses downward.

## 7.0 Removal of Walls, Floors and Material with Equipment

7.1 Mechanical equipment shall not be used on floors or working surfaces unless the floors or surfaces are capable of supporting the imposed load.

7.2 Floor openings shall have stop-bumpers to prevent equipment from running over the edge.

## 8.0 Storage

8.1 The storage of demolished materials on any floor shall not exceed the allowable floor loads.

8.2 For structures with wooden floors, the flooring boards may be removed from not more than one floor above grade to provide storage for debris provided that falling material does not endanger the stability of the structure.

8.3 When wood floor beams brace the interior walls of free-standing exterior walls, the beams shall be left in place until other equivalent support can be installed to replace them.

8.4 Floor arches, to an elevation of not more than 25' above grade, may be removed to provide storage area for debris provided that such removal does not endanger the stability of the structure.

8.5 Storage space into which material is dumped shall be blocked off, except for openings necessary for material removal. The opening shall be closed at all times when material is not being removed.

## 9.0 Make Safe Guidelines

### 9.1 Introduction

9.1.1 It is the policy of Shawmut Design and Construction to provide a work environment which is free from recognized hazards that are causing or likely to cause death or serious physical harm. Shawmut Design and Construction feels that the unexpected release of electricity, gas, sewage, water, etc. can be very dangerous, and has therefore implemented these minimum guidelines for conducting make-safe work prior to the start of demolition activities.

### 9.2 Policy

9.2.1 This policy shall be followed at the start of all projects where it has been determined there may be a potential for the unexpected release of hazardous elements. These are only the minimum guidelines; if a subcontractor has a stricter plan, and it has been approved by Shawmut Design and Construction's safety department, that plan may be used.

### 9.3 General Requirements

9.3.1 Where it has been decided that Shawmut Design and Construction shall conduct, or oversee demolition operations, the following make-safe operations should be conducted at a minimum of 1 full day before the project demolition team is allowed to begin.

9.3.2 Lighting fixtures in acoustic ceilings:

9.3.2.1 All lights are to remain in the ceiling as the acoustic ceiling is demolished.

9.3.2.2 After ceiling is demolished:

9.3.2.3 Electrician is to cut wires from panel and at the fixture itself (done while following SDC live work and lock-out/tag-out policies)

9.3.2.4 Once the demo crew sees this, they are to:

9.3.2.4.1 Drop light fixture;

9.3.2.4.2 Remove lights and ballasts;

9.3.2.4.3 Stack neatly for owner to remove;

9.3.2.4.4 Throw out empty light fixture.

9.3.2.5 Recessed lighting or equivalent in hard ceilings:

9.3.2.5.1 Electrician is to pull out entire can or fixture from the ceiling after following SDC policy on live work and lock-out/tag-out procedures.

9.3.2.5.2 Wires are to be locked and tagged out or removed from the panel.

9.3.2.5.3 They are also to be double checked prior to demolition work commencing.

9.3.3 Electrical

9.3.3.1 All power to the area where demolition work is to be performed is to be turned off.

9.3.3.2 Follow Shawmut Design and Construction lock-out/tag-out policy or completely remove the feed from the panel while following Shawmut Design and Construction's live work policy.

9.3.3.3 All wires are to be cut so everyone can see they are "dead" and will not create a hazard to the untrained worker.

9.3.3.4 The wires are to be cut at the top of the partition, or either side of the fixture so the untrained worker can see the wires are "dead."

9.3.3.5 All wires that are feeding another floor, or that are to remain "live" for life safety reasons: Are to be clearly marked with red danger tape; and

9.3.3.6 There shall be a meeting with the demolition foreperson, so they are aware of the live power areas.

9.3.3.7 At least one (1) electrician is to remain on site at all times during demolition operations. This electrician is not to perform any type of work outside of assisting the demolition crew and helping them with their power needs.

9.3.3.8 More electricians may be required due to the size of the demolition work.

9.3.3.9 The number of electricians required to maintain this policy is determined by the electrical subcontractor and SDC site superintendent.

9.3.4 Other Utilities shall be de-energized

9.3.4.1 All utilities, including but not limited to:

9.3.4.1.1 Gas

9.3.4.1.2 Sewer

9.3.4.1.3 Water

9.3.4.1.4 Oil

9.3.4.1.5 Mechanical equipment that may have stored anergy.

9.3.4.2 Shall be shut off, capped, and purged prior to any demolition work being performed in the area where these utility lines may be present.

9.3.4.3 Respective tradespersons for these utilities shall be on site at least one (1) day prior to the demolition crew coming on site.

9.3.4.4 If it is not possible to shut off and remove the utility, the lines shall be clearly marked with red danger tape and the demolition forepersons shall be informed by the respective company that those lines are still “live;”

9.3.4.5 It is not necessary to have a representative from each of these utility companies on site while demolition operations are underway, unless it is determined on site that a hazard may exist, in which case at least one (1) representative shall be on site full time.

☐

## MODULE 09 – Electrical Safety Program

## 1.0 Introduction

1.1 Shawmut Design and Construction has incorporated the following Electrical Safety Plan to educate employees in the recognition and avoidance of such dangers as electrical shock, electrocution, fires, and explosions. This program applies to both temporary and permanent power.

## 2.0 Purposes

2.1 Shawmut Design and Construction uses this program to enable employees to recognize unsafe conditions or work practices in which they may come in contact with live parts or currents, and to use the safe methods to avoid such contacts.

## 3.0 Definitions

3.1 Amperage – the amount of electrical current carried in a wire or other conductor.

3.2 Circuit - a path for the electricity to follow, must remain unbroken for electricity to flow.

3.3 Circuit breaker - a switch that opens the circuit when too much current passes through. Serves the same basic function as a fuse but can be reset.

3.4 Current – a flow of electrical energy.

3.5 Electrical shock - occurs when the body becomes part of the circuit.

3.6 Grounded – when the electrical circuit is connected to the earth.

3.7 Grounded conductor – a device that is intentionally connected to the earth.

3.8 Grounding conductor – a device that is used to connect electrical equipment to a grounding electrode.

3.9 Ground fault circuit interrupter (GFCI) - special circuit that detects an imbalance of as little as 5 milliamperes and break the circuit in 1/40 of a second.

3.10 Ohms - unit for measuring resistance to electricity.

3.11 Receptacle – a contact point on the outlet for the connection of a single attachment plug.

3.12 Volt - unit for measurement of force or pressure of electricity.

3.13 Voltage – the greatest effective difference in electric potential between any two conductors of the circuit.

## 4.0 General Requirements

4.1 All power cords are to be heavy duty construction grade (at least 14 gauge).

4.2 Power cords shall be hung overhead at least 8', unless the operation is <10 minutes. Additionally, they shall be cleaned up and inspected at the end of every day. They shall be re-inspected prior to each shift.

4.3 A lockable door should control access to all electrical rooms.

4.4 All temporary power panels and electric closets shall be labeled properly and secured.

4.4.1 Label shall read “DANGER - DO NOT ENTER – 120v/208 or 480v/277” as well as the name and phone number of the competent person for access.

4.5 All power shall be off a receptacle (laundry drops are not allowed). Temporary power units (receptacles) shall be:

4.5.1 mounted properly to non-conductive surface,

4.5.2 consist of junction boxes which shall include GFCI receptacles,

4.6 Wire nuts used for splicing shall be wrapped and secured with electric tape or made in a covered junction box.

4.7 There shall always be at least 36” of clearance around the entire electric panel.

4.8 All temporary panels and receptacles shall be heavy duty construction grade.

4.9 All knockouts on the panels shall be properly protected with the proper knockout device installed at all times.

4.10 There shall at no time be any open areas resulting in a direct path to the bus of the panel.

4.11 Circuit breakers or blanks shall be used to guard against accidental contact.

4.12 All power >50v shall be guarded against accidental contact by cabinets or other forms of enclosures, or by:

4.12.1 A height of >8’ where the chance of accidental contact is eliminated.

4.12.2 Location of a room or vault to which only qualified electricians have access.

4.13 All power shall be double insulated or made in a covered box at all times. This includes any splices to be capped with wire nuts and wrapped in rated electrical tape to meet a minimum of double insulated rating.

4.14 At no time shall temporary power be run through windows, doorways, or other sources that may cause the electrical power to get caught in a pinch point unless protection for the cords and cables is provided.

4.15 Electric systems shall be inspected and maintained on a regular basis, at least weekly.

4.16 Electric equipment shall not be opened, adjusted, repaired, or otherwise handled until it is de-energized and locked out according to the lock-out/tag-out policy.

4.16.1 See Shawmut Design and Construction’s Lock-out/tag-out policy.

4.16.2 See Shawmut Design and Construction’s Live Work policy.

4.17 De-energized equipment shall be tested before anyone works on it.

4.18 Electric lines shall not be hung by conductive objects.

4.19 Metal ladders shall not be used near any electric lines or on Shawmut sites.

4.20 All electric equipment that is exposed to flammable gases or vapors, combustible dust, or ignitable fibers shall be re-located to non-hazardous area, or properly protected against such hazards.

4.21 All circuit breakers shall be properly labeled.

4.22 Panel covers and dead fronts shall remain in place at all times while the panel is energized.

4.23 Panels shall be protected to prevent unauthorized access. This includes the use of locking devices.

4.24 All panels shall have a means to isolate the power in the event of an emergency. This shall be by way of disconnect device upstream of the panel which is readily accessible.

4.25 All cables leaving metal panels or boxes shall be secured with stress-relieving clamps.

4.26 Use outdoor, waterproof boxes if subject to water or outdoor elements.

4.27 All junction boxes shall be covered at all times when there are energized parts inside.

4.28 The site electrician owns marking and maintaining site marking of all temporary power running throughout the site for the duration of the project. This includes within the building as well as anything outside, in the air or underground.

## 5.0 Temporary Lighting

5.1 Shall be provided throughout all phases of construction.

5.2 Shall have guards properly installed at all times.

5.3 Shall be inspected daily to ensure compliance.

5.4 Shall be secured in place per the manufacturer's recommendations.

5.5 Incandescent bulbs are not allowed for temp lighting at any time.

5.6 Fluorescent lights shall have guards or plastic bulb covers.

5.7 Shall be at least:

5.7.1 Construction: 5' candles

5.7.2 First Aid Stations: 30' candles

## 6.0 Electric Tools and Equipment

6.1 All electric tools and equipment must be grounded and double insulated.

6.2 Electric tools and extension cords shall be inspected daily and before each use. Damaged equipment is never to be used and must be taken out of service right away.

6.3 All temporary power is to be GFCI protected at all times.

6.4 Tools and equipment shall be repaired only by a qualified person who can maintain the UL rating on the cord.

6.5 Extension cords are to run so as not to create a tripping hazard. Cords that run over hallways are to be elevated >8' or run along a wall.

6.6 Keep cords out of stairways and doorways.

## 7.0 Ground Fault Circuit Interrupter (GFCI) Policy

7.1 All power used for construction purposes shall be GFCI protected at all times.

7.2 All GFCI receptacles shall be inspected on a regular basis (minimum once per week) by a qualified person and results logged.

7.3 Log of GFCI testing shall be given to site superintendent weekly.

7.4 Damaged receptacles shall be fixed immediately or removed and taken out of service.

## 8.0 Live Work Procedures

### 8.1 Introduction

8.1.1 Electrical work remains to be one of the most dangerous jobs facing our industry today. Electricity is one of OSHA's four high hazard classifications due to the nature of the trade.

### 8.2 Purposes

8.2.1 Recognizing the dangers of electrical work, Shawmut Design and Construction has developed a policy to eliminate the hazards of working on live power.

### 8.3 Policy

8.3.1 It will be the policy of this company to reduce the exposure to live electricity wherever feasible. It may not always be possible to shut down the power to work on a panel, receptacle, switchgear, or other electric source. Recognizing this, Shawmut Design and Construction has developed a policy and procedure for these rare instances.

### 8.4 Scope

8.4.1 It is the policy for Shawmut Design and Construction to do everything in our power to eliminate the need to work on live power. It is to be determined by both the Shawmut Design and Construction Site Superintendent, and the electrical foreperson (qualified person) if it is feasible to shut the power off. After determining infeasibility, it is then that this policy shall be followed. A live work permit shall be issued and completely filled out 24 hours before work is to commence for review and approval by SDC Safety.

8.4.2 We will go to great lengths to ensure compliance with NFPA 70E by working closely with the qualified people and our client to work on a solution that allows for the work to be done safely. Live work is a last option and will never be taken lightly at Shawmut; therefore, following proper procedure and early planning will always be the key to success.

8.5 **Definitions**

8.5.1 Electrical Live Work -any work performed on energized electrical lines, breakers, transformers, or other electrical equipment >50volts. Only qualified, licensed electricians may work on live work upon approval from the Shawmut Design and Construction Safety Department.

8.6 **General Requirements**

8.6.1 Only qualified persons are allowed to work on circuits and equipment that have not been de-energized.

8.6.2 Employees are prohibited from entering areas containing exposed energized circuits and equipment unless sufficient illumination is provided that enables the employee to perform the work safely.

8.6.3 Employees are forbidden to perform work on or near exposed energized circuits or equipment if obstructions exist and are also prohibited from reaching blindly into areas that may contain energized live parts.

8.6.4 Portable ladders shall be constructed of nonconductive material if they are used where the employee or ladder could contact exposed energized circuits or equipment.

8.6.5 The area will be restricted to qualified personnel only while the “hot” work is being done and unqualified personnel will not be permitted to enter. Unattended entrances to rooms or spaces that contain energized lines or equipment shall be kept locked. Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit access to the work area. If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant shall be stationed to limit access to the work area, and to warn and protect others.

8.6.6 Each employee(s) shall work in a position from which a slip or shock will minimize bringing the employee’s body into contact with exposed circuits or un-insulated energized parts.

8.6.7 Each employee shall wear appropriate PPE as defined by NFPA 70E and NFPA table 130.7(7)(11) Each employee shall remove from his/her possession any personal conductive articles such as neck and wrist chains, rings, earrings, wrist- watches, etc. No employee shall wear clothing that, when exposed to flames or electric arcs could increase the extent of injury.

8.6.8 Appropriate insulated tools rated for the voltage being worked on shall be used. Each company and/or personal tool is to be inspected for defects prior to use by the employee using it per the manufacturer’s recommendation. If a defect is found, the tool shall not be used; it will be “red tagged” and taken out of service.

8.6.9 Rubber insulating mats/blankets shall be provided for use by the employee(s) to insulate the employee(s) from other energized circuits, parts or equipment.

8.6.10 Doors, hinged panels and the like shall be secured to prevent their swinging into an employee and causing that employee to come into contact with an exposed energized part.

8.6.11 At least two people should be present. The person observing the employee working on the energized line or equipment should be trained in first aid and be certified in Cardiopulmonary Resuscitation (CPR). The attendant shall have direct communication with the local rescue squad, if necessary. A first aid kit and fire extinguisher shall be readily available.

8.6.12 Each employee involved in “hot” work is to use extreme caution and common sense. If there are any questions or concerns, always check them out with your immediate supervisor before proceeding with the work. Appropriate measures shall be taken to prevent hazardous conditions from developing.

**Appendix A - Electrical "Live Work" Permit**

## Electrical "Live Work" Permit

### Section I

Description of the Work to be performed:

| |
|---|
| |

Can the equipment be de-energized? (Check one) ☐ Yes ☐ No

If no, explain:

| |
|---|
| |

If yes, see lock-out/tag-out permit log on Super's office wall.

If no, go to section II.

### Section II

"Hot Work" Procedure Check List:
Work may only be performed by a qualified person(s)
See Shawmut Design and Construction's Live Work Policy before completing this form

Check

1. ☐ Establish qualified member(s) of "hot work" team.
2. ☐ Establish and procure all necessary equipment.
3. ☐ Minimum personal protective equipment (PPE) required shall be:

| | | |
|---|---|---|
| * Safety Glasses | * Flame Resistant Face Shield | * Insulated Tools and/or Rated Gloves |
| * Non-conductive Hard Hat | * Flame Resistant Clothing | * Rubber Mats to Stand on |
| * All Employees Have the Right to Request and Utilize Additional PPE | | * 2 Journeyman Electricians |

4. ☐ Verify that a team member is CPR/First Aid trained.
5. ☐ Perform visual check of all protective clothing and equipment for defects.
6. ☐ Review all of the Owner/Client requirements, if applicable.

☐ I have completed all procedures listed above AND reviewed the work with all affected personnel.

| Name of Electrical Subcontractor Qualified Person | Signature | Date |
|---|---|---|
| Name of Client Representative Authorizing Live Work | Signature | Date |
| Name of Shawmut Representative and Position | Signature | Date |

**This permit must be completely filled out and signed, and on location before any live work is to be performed.*

## Appendix B - Electrical Shut Down Permit

| | | | |
|---|---|---|---|
| **Project Name:** | | **Date:** | |
| **Subcontractor:** | | **Requested By:** | |

**Reason for Panel Entry**

| |
|---|
| |

| | |
|---|---|
| **Panel location/number/name** | |
| **Has panel been locked out, tagged out and logged?** | |
| **Voltage in panel?** | |
| **PPE required?** | |
| **Has voltage tester been calibrated?** | |
| **CPR first aid trained personnel on standby:** | |
| **Barricade in place? Type?** | |
| **JHA reviewed, signed, dated.** | |

**Electrical Foreperson (Sub):** _____ **Date:** _____

**Shawmut Superintendent (SDC):** _____ **Date:** _____

## Appendix C - Weekly GFCI Receptacle Inspection Log

**Project Name:** _____ **Electrical Subcontractor:** _____

**Project Number:** _____ **Inspector:** _____

**Date:** _____

| GFCI Location | Good | Bad | Comments |
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# MODULE 10 – Lock-Out/Tag-Out Program

## 1.0 Introduction

1.1 Shawmut Design and Construction uses a Lock-out/Tag-out Program to safeguard employees from hazardous energies when performing work. This program identifies the procedures and practices that are used to shut down and lock and tag out machines, equipment, pipelines, and conduits. It is to be used to ensure that conductors and circuit parts are disconnected from sources of electrical energy, locked, tagged and tested before work begins where employees could be exposed to dangerous conditions. Sources of energy, such as capacitors or springs, shall be relieved of their energy. A mechanism shall be engaged to prevent re-accumulation of energy. All non-electrical energy sources must also be identified and locked and tagged out.

## 2.0 Responsibility

2.1 The SDC superintendent shall ensure that appropriate personnel receive instructions on their roles and responsibilities. **All persons installing a lock-out/tag-out device shall date, print their name and company name and sign their names on the tag.**

## 3.0 Policy

3.1 Shawmut Design and Construction requires that before servicing or maintenance is performed on machinery or equipment, or work must be performed where there is a danger of engulfment, that equipment be turned off, and areas are isolated. All devices that would provide energy are locked out and tagged out. Employees are required to comply with all restrictions and limitations.

## 4.0 Procedures

4.1 The following procedure is used by Shawmut Design and Construction as the sequence of our lock-out/tag-out program to prevent uncontrolled energy releases. The authorized employees will:

4.1.1 Notify all affected employees that a machine or equipment is going to be shut down and a lock-out/tag-out system will be implemented and explain why.

4.1.2 A qualified person shall:

4.1.2.1 Identify the type and magnitude of energy.

4.1.2.2 Understand the hazards of the energy.

4.1.2.3 Know the methods to control the energy.

4.1.2.4 Use the normal stopping procedure of the machine or equipment.

4.1.2.5 Isolate the machinery or equipment from the energy source.

4.1.2.6 Lock out the energy source with each authorized employee's assigned individual lock, and then place a tag stating the reason for the lock. If more than one individual is required to lock-out/tag-out equipment, each should place his/her own lock on the isolating device. When an isolating device does not accept multiple locks, a multiple lock-out device (hasp) may be used.

4.1.2.7 Release stored energy.

4.1.2.8 Ensure that no personnel are exposed to machinery or equipment.

4.1.2.9 Ensure that machinery or equipment is indeed “off” by checking the normal operating controls, and after verification, returning switches, etc. to the “off” position.

4.1.2.10 Complete the task.

4.2 **Restoring the Equipment or Machinery to Normal Condition**

4.2.1 After the job is complete, check all areas around the machinery or equipment to ensure that no one is exposed.

4.2.2 Remove all tools, equipment, and unused materials and perform appropriate housekeeping.

4.2.3 Ensure that no employees are exposed to machinery or equipment and notify all affected employees that lock-out controls are going to be removed.

4.2.3.1 Remove tag and lock by the individual authorized employee only.

4.2.3.2 Re-energize the machinery or equipment.

4.2.3.3 If machinery is in good working order, notify affected employees that normal operations can be continued.

4.3 **Procedures Involving More Than One Person**

4.3.1 For a simple lock-out/tag-out and where more than one person is involved with the job, each person shall install his/her own personal lock-out/tag-out device. A “tree device” shall be used so all locks can be applied.

4.4 **Procedures Involving More Than One Shift**

4.4.1 When lock-out/tag-out extends for more than one day, the lock-out/tag-out shall be verified to be still in place at the beginning of the next day. Where the lock-out/tag-out is continued on successful shifts, the lock-out/tag-out is considered to be a complex lock-out/tag-out. For this situation, the person-in-charge shall identify the method for transfer of the lock-out/tag-out and be responsible for all communication with all employees.

## 5.0 Training

5.1 Recommended training can include, but is not limited to:

5.1.1 Recognizing lock-out/tag-out devices;

5.1.2 Installing lock-out/tag-out devices;

5.1.3 Duties of employees in executing procedures;

5.1.4 Authorized and unauthorized removal of lock-out/tag-out devices;

5.1.5 Employee lock-out/tag-out methods.

5.1.6 Any required retraining

## 6.0 Requirements

6.1 Shawmut Design and Construction has established this Lock-out/Tag-out Program to prevent uncontrolled energy releases and has provided training to employees on the use of lock-out/tag-out devices and the procedures requiring its use. The proper lock-out/tag-out devices have been provided by Shawmut Design and Construction.

6.2 Supervisors, Foreperson, and Superintendents of Shawmut Design and Construction ensure that work procedures that require the use of lock-out/tag-out be conducted as specific to this program.

6.3 Employees of Shawmut Design and Construction are required to comply with the provisions of this Lock-out/tag-out Program. The authorized employees who use the lock-out/tag-out procedures must comply with the program's uses, restrictions and limitations. Other employees must comply with the restrictions, and not attempt start-up, or energize any equipment or meeting using the lock-out/tag-out procedure.

6.4 Subcontractors performing work for Shawmut Design and Construction use their own Lock-out/tag-out Program which meets or exceeds the Program of Shawmut Design and Construction. Subcontractors are informed of the need for a Program.

**Appendix A – Lock-Out/Tag-Out Permit Log**

| Name | Company Name | Date | Time Locked Out | Multi-Person Lockout / Tagout* | Yes | No | Multi-shift Lockout / Tagout** | Yes | No | Time Power Restored |
|---|---|---|---|---|---|---|---|---|---|---|
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* If more than 1 person is required to work off power source, each individual must sign off and place their own lock and tag on that power source.
** If more than 1 shift is required ensure power is locked and tagged out at start of next shift.

# MODULE 11 – Personal Protective Equipment Program

## 1.0 Introduction

1.1 Shawmut Design and Construction incorporates the following Personal Protective Equipment (PPE) Program for all employees, subcontractor employees, visitors, and client vendors. Training shall be provided to each person required to wear PPE by their respective employers.

## 2.0 Purpose

2.1 Shawmut Design and Construction takes the position that the use of PPE will prevent employee injury, illness, or death.

2.2 The purpose of these guidelines is to identify minimum PPE and wearing apparel requirements. Everyone on a Shawmut Design and Construction jobsite shall wear the following PPE at all times:

2.2.1 Hard hat

2.2.2 Safety glasses

2.2.3 Hard toed/hard soled work boots

2.2.4 Long pants

2.2.5 Shirts with sleeves that cover the shoulder

2.2.6 Gloves, laceration protection, High Visibility vests, shirts or jackets where applicable

2.3 No one shall be permitted to work on a Shawmut Design and Construction Project without the minimum PPE.

## 3.0 Scope

3.1 The scope of this procedure is to apply minimal requirements to all employees for wearing apparel and PPE.

## 4.0 Procedure

4.1 The requirements apply to all Shawmut Design and Construction employees and employees of subcontractors with the exception of personnel in administrative areas, cabs of vehicles or equipment, or on break.

4.1.1 All PPE shall be inspected daily.

4.1.2 If any equipment is found to be damaged, it is to be removed from the project and the employee shall receive new safety equipment from their employer.

## 5.0 Wearing Apparel

5.1 All individuals shall wear suitable clothing at all times that will protect the body and extremities. Typical personnel hazards to be considered are:

5.1.1 Thermal burns from contact with hot items can be prevented by using long sleeve shirts and cloth gloves.

5.1.2 Chemical burns from acid/caustic residues can be prevented by using acid splash suits, protective boots and appropriate gloves.

5.1.3 Skin absorption of allergens or toxins in gaseous, liquid or solid states can be prevented through the use of splash suits, boots and gloves.

5.1.4 Loose clothing shall not be worn where it can contact or catch on energized conductors, moving parts, equipment or other hazards of this type.

5.1.5 Preference should be given to natural fibers in the clothing worn by personnel.

5.1.6 Short pants shall not be worn as outerwear.

5.1.7 Tank tops or sleeveless shirts shall not be worn as outerwear.

5.1.8 Jewelry shall not be worn when there is a danger of catching them on moving parts or contacting energized conductors.

## 6.0 Recommended Personal Protective Equipment

6.1 Footwear

6.1.1 All individuals shall wear sturdy work boots at all times.

6.2 Head Protection

6.2.1 All individuals, except when in cabs of equipment or vehicles, in administrative areas, or break areas shall wear hard hats.

6.2.2 The hard hats are utilized for the protection of heads of all site workers from impact and penetration from falling and flying objects and from limited electrical shock and burns. They shall meet the requirements and specification established in ANSI Z89.1 - 1969.

6.2.3 No ball caps shall be worn under hard hats.

6.2.4 Suspensions should be replaced annually and the shell every 5 years from the date of first issuance, not the date the hard hat was manufactured.

6.2.5 Do not paint or drill holes in the hard hat.

6.3 Eye and Face Protection

6.3.1 All individuals working on Shawmut Design and Construction projects shall wear eye protection (spectacles with side shields or goggles) at all times. All eye protection shall meet the requirements and specifications in ANSI Z87.1

6.3.2 Employees are required to use safety spectacles/goggles if their vision requires the use of corrective lens. One of the following must be complied with:

6.3.2.1 Safety goggles that incorporated corrective lens mounted behind the protective lens.

6.3.2.2 Prescription safety glasses with side shields

6.3.3 Additional eye and face protection, such as face shields, shall be utilized in addition to safety glasses / goggles as required by some specific tasks, such as grinding, chipping or cutting.

6.4 Respiratory Protection

6.4.1 Respirators shall be worn only after all means and methods to implement engineering controls are exhausted. Respiratory protection shall be worn by all individuals in accordance with the Respiratory Protection Procedure (refer to Shawmut Respiratory Protection Plan).

6.4.2 Workers shall be medically cleared to wear a tight-fitting respirator and provide proof of required training/ clearance.

6.5 Hearing Protection

6.5.1 Hearing protection shall be worn only after all means and methods to implement Engineering Controls are exhausted. All individuals shall wear hearing protection when in areas where the noise exposure meets or exceeds the following established limits:

| Duration per Day, Hours: | Sound Level dBA Slow Response |
|---|---|
| 8 | 90 |
| 6 | 92 |
| 4 | 95 |
| 3 | 97 |
| 2 | 100 |
| 1 1/2 | 102 |
| 1 | 105 |
| 1/2 | 110 |
| 1/4 | 115 |

6.5.2 Two types of hearing protectors are available for issue to employees. These types will be the standard earplugs or earmuffs. They will have a Noise Reduction Rating (NRR) of 20 decibels or higher.

6.5.3 Areas where hearing protection requirements are not posted but are suspected to exceed exposure limits should be reported to the Superintendent.

6.5.4 No unprotected person shall knowingly be subjected to hazardous noise exposure where protection is required.

6.6 Specialized Protective Equipment

6.6.1 NFPA70e PPE protocol will be followed during voltage testing operations.

6.6.2 When working from a boat or near open water, the worker shall wear a life jacket.

6.6.3 Impervious gloves shall be worn when handling harmful substances such as acids, caustics, cryogenic gases, etc.

6.6.4 Safety harnesses shall be used when fall prevention is not readily available or when the task calls for it (refer to Shawmut Fall Protection Plan).

6.7 Hand and Laceration Protection

6.7.1 Gloves and possibly cut resistant sleeves / clothing shall be used when cuts and lacerations are likely to occur, and they shall be specific to the task and be worn or when required by the task or the SDS.

6.8 Reflective Clothing

6.8.1 The wearing of high visibility vests/clothing is required when working near traffic and heavy equipment, reflective for night work and may be mandated on a full-time basis on project requirements.

## 7.0 Enforcement

7.1 Supervisory personnel are responsible for ensuring that the requirements of this policy are discussed with and implemented by their assigned personnel. All supervisors of work activities shall ensure that all personnel on their project comply with the requirements of this procedure.

7.2 Improper use or failure to use PPE and wearing apparel is considered a violation of safe work practices and work rules. Disciplinary action will be taken as outlined in the Disciplinary Action Policy.

**Appendix A PERSONAL PROTECTION RECOMMENDATIONS**

| APPLICATIONS | | |
|---|---|---|
| **OPERATION** | **HAZARDS** | **REQUIRED PROTECTION*** |
| Electric (Arc) welding | Spark, intense rays, molten metal | Welding helmet with filtered lens (See Exhibit B for lens shade selection) Fire retardant covering and gloves |
| Soldering, brazing, cutting, gas welding | Sparks, harmful rays, molten metal, flying particles | Welding goggles with filtered lens (See Exhibit B for lens shade selection). Leather gloves |
| Chemical handling | Splash, acid burns, fumes | Face shield over chemical goggles. Rubber gloves and apron |
| Chipping | Flying particles | Face shield- safety glasses – hearing protection |
| Grinding-light-heavy | Flying particles | Face shield - safety glasses - gloves |
| Chop saw cutting | Flying particles | Face shield - safety glasses – hearing protection – gloves |
| Laboratory | Chemical splash, glass breakage | Chemical goggles. Rubber gloves and apron |
| Machining | Flying particles | Face shield- safety glasses - gloves |
| High dust exposure (coal dust, fly ash) | Abrasive particles | Safety glasses, respirator |
| Compressed air blowing | Flying particles | Face shield- safety glasses |
| Work on pressurized lines | Splash | Face shield- safety glasses |
| Overhead work | Falling particles | Face shield- safety glasses |
| Lawn mowing, edging, use of chain saws | Flying particles | Face shield- safety glasses – hearing protection |
| Explosive activated tools | Flying particles | Face shield – safety glasses |
| Electrolytic battery testing repair | Splash, acid burns, fumes | Face shield – safety glasses |

**Appendix B WELDING OPERATION**

| | SHADE NUMBER |
|---|---|
| Shielded metal-arc welding:<br>1/16-, 3/32-, 1/8-, 5/32-inch electrodes | 10 |
| Gas-shielded arc welding (nonferrous):<br>1/16, 3/32-, 1/8-, 5/32-inch electrodes | 11 |
| Gas-shielded arc welding (ferrous):<br>1/16-, 3/32-, 1/8-, 5/32-inch electrodes | 12 |
| Shielded metal-arc welding:<br>3/16-, 7/32-, 1/4-inch electrodes | 12 |
| Shielded metal-arc welding:<br>5/16-, 3/8-inch electrodes | 14 |
| Atomic hydrogen welding | 10-14 |
| Carbon arc welding | 14 |
| Soldering | 2 |
| Torch brazing | 3 or 4 |
| Light cutting, up to 1 inch | 3 or 4 |
| Medium cutting, 1 inch to 6“ | 4 or 5 |
| Heavy cutting, 6“ and over | 5 or 6 |
| Gas welding (light), up to 1/8 inch | 4 or 5 |
| Gas welding (medium), 1/8 inch to 1/2 inch | 5 or 6 |
| Gas welding (heavy), 1/2 inch and over | 6 or 8 |

**NOTE:** In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium light in the visible light of the operation.

# MODULE 12 – Hand and Power Tool Safety

## 1.0 Purpose

The purpose of these guidelines is to identify and eliminate any hazards associated with handling power tools in construction.

## 2.0 Scope

The scope of hand and power tools applies to all Shawmut Design and Construction jobsites and people that work on these sites.

## 3.0 General Requirements:

3.1 All operators of power tools must be trained on the safe use and operation of the tools.

3.2 Manufacturer's recommendation must always be followed and no one should ever deviate from such. Refer to manufacturers' product user manual for recommended usage and maintenance.

3.3 Never carry a power tool by an electrical cord or air hose.

3.4 Never "yank" the cord or hose to disconnect it from its receptacle.

3.5 Keep cords and hoses away from heat, oil, and sharp edges.

3.6 Always disconnect tools when not in use.

3.7 Always disconnect tools before servicing, and/ or when changing parts such as blades, bits, and cutters.

3.8 Keep all non-associated personnel without the proper PPE at a safe distance from the affected work area.

3.9 Secure work with clamps or a vise, freeing both hands to operate the tool.

3.10 Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged- in tool.

3.11 Maintain tools with care. Keep them sharp and clean for efficient performance.

3.12 Maintain a solid footing when operating a power tool.

3.13 Loose clothing, ties, or jewelry shall be removed since they have the potential to get caught in moving parts.

3.14 All power cords are to be heavy duty construction grade (at least 14 gauge).

3.15 Power cords shall be cleaned up and inspected at the end of every day. They shall be re-inspected prior to each shift and run along walls or overhead to help prevent slips and trips.

3.16 Inspect tools daily before each use

3.17 Immediately remove all damaged portable electric tools from service and tag it:

**"DO NOT USE" or "OUT OF SERVICE"**

## 4.0 Safety Switches and Guards

4.1 Belt gears, shafts, pulleys, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment shall be guarded if a worker has the potential to come in contact with them.

4.2 Guards, as necessary, shall be provided to protect the operator and others from the following hazards

4.2.1 Point of operation

4.2.2 Rotating parts

4.2.3 Nip-points

4.2.4 Flying chips or sparks

4.3 Safety guards shall never be removed when the tool is operational.

4.4 A retractable lower guard shall cover the teeth of the saw, except when it makes contact with the work material.

4.5 The lower guard shall automatically return to the protective position when the tool is withdrawn from the work.

4.6 **The following power tools shall be equipped with momentary contact on/off control switches.** These tools may also be equipped with a lock-on control, if it allows the worker also to shut off the control in a single motion using the same finger or fingers.

4.6.1 Drills

4.6.2 Angle Grinders with wheels larger than 2" in diameter

4.6.3 Disc and Belt Sanders

4.6.4 Reciprocating Saws

4.6.5 Saber Saws

4.6.6 Table Saws

4.7 **The following power tools shall be equipped with a constant pressure switch that will switch off the power when the pressure is released.**

4.7.1 Circular Saws

4.7.2 Percussion Tools

4.7.3 Chain Saws

## 5.0 Electric Tools

Since electricity is so common in everyday use, workers easily become very complacent and relaxed around electric powered equipment. Electric hazards are one of the **top four (4) high hazards and causes of fatalities** on construction sites.

5.1 To protect workers from shock, tools have to be either three-wired cord with ground pin, be double insulated, or be powered by a low voltage isolation transformer.

5.2 Any time an adapter is used to accommodate a two-holed receptacle, the adapter wire shall be attached to a known ground.

5.3 The third prong (grounding pin) shall never be removed from a plug.

5.4 These practices shall be followed when using electric tools:

5.4.1 Operate the electric tools within their design limitations.

5.4.2 Use gloves and proper PPE.

5.4.3 Do not use electric tools in a damp or wet location.

5.4.4 Operate in a well-lighted area.

5.4.5 Store tools in a dry place when not in use.

5.4.6 When practical keep cords elevated at least 7' above the ground.

5.4.7 Inspect the tools and cords before every use.

5.4.8 All power tools shall be protected by GFCI receptacles at all times.

## 6.0 Pneumatic Tools

6.1 The main danger when using pneumatic tools is getting hit by one of the tool attachments or by a fastener attached to the tool.

6.2 Pneumatic tools (nail guns) that shoot nails, rivets, or staples and operate on pressures more than 100lbs per square inch (psi), must be equipped with a special device to keep the fasteners from being ejected unless the muzzle is pressed against the work surface.

6.3 Proper PPE such as safety glasses, face protection, and gloves are required when working with pneumatic tools.

6.4 Effective hearing protection may also be required.

6.5 When using pneumatic tools, workers shall check to ensure that they are properly fastened to the air hoses to prevent them from becoming disconnected. A “Positive Locking Device” or even a short wire will serve as an added safeguard.

6.6 A safety clip or retainer shall be installed to prevent attachments, such as chisels on chipping hammers, riveting guns, from being unintentionally shot from the barrel.

6.7 Screens shall be set up to protect nearby workers from being struck by flying fragments.

6.8 Heavy jack hammering can cause fatigue and strains; heavy rubber grips and padded gloves will drastically reduce these effects.

6.9 Workers operating a jack hammer should wear PPE consisting of safety glasses, padded gloves, sturdy work boots, and hearing protection.

6.10 Only use compressed air for cleaning purposes when the pressure is at or below 30 psi.

6.11 The use of hoses for lifting or hoisting tools shall not be permitted.

6.12 The 30psi requirement does not apply to concrete form cleaning.

6.13 Compressed air must never be used to clean or cool workers. This is also an extreme fire hazard, since ignition of oxygen impregnated clothing will burn ferociously.

## 7.0 Gasoline Powered Tools

The most serious hazards associated with gasoline powered tools come from fuel vapors that can ignite and explode and the release of carbon monoxide

7.1 Workers shall exercise caution when transporting and storing gasoline. Gasoline can only be transported and stored in approved containers.

7.2 Only gasoline containers approved for Shawmut projects are to be metal cans with a flashback arrestor and a pressure relief cap.

7.3 Fire extinguishers need to be posted in the immediate area.

7.4 Prior to refueling, ensure that the engine is shut off and allowed to cool down to prevent the accidental ignition of hazardous vapors.

7.5 Fuel dispensers and containers should be electrically bonded to prevent static charge.

7.6 If fuel power tools are used in a closed space/confined space, ensure effective ventilation to eliminate the potential of carbon monoxide buildup. Monitoring of CO is the responsibility of the contractor performing the work and only allowed once approved by Shawmut.

7.7 Proper PPE shall be used but not limited to eye and hearing protection.

## 8.0 Powder Actuated Tools

Powder actuated tools operate on the same principle as a loaded gun and shall be treated with the same respect and precautions.

8.1 They shall be operated only by trained workers who can readily produce certification or proof of proper training.

8.2 Each powder actuated tool shall be tested per manufacturer's recommendations each day before loading to ensure that the safety devices are operational.

8.3 Proper PPE shall include, at a minimum, eye protection and ear protection.

8.4 Operators shall select a powder level necessary to do the work without excessive force and clearly understand the material that the "Shot" will be shot into (i.e. solid versus hollow walls).

8.5 The muzzle end of the tool shall have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles.

8.6 The tool shall not be fired unless that muzzle is in place.

8.7 The tool shall not be allowed to operate until it is pressed against the work surface with a force of at least 5lbs or greater.

8.8 **Misfires: If a powder actuated tool misfires, the user shall wait at least 30 seconds, and then try firing it again. If it still does not fire, the user shall wait another 30 seconds so that the faulty cartridge is less likely to explode, then carefully remove the shot. The bad ("shot") cartridge shall be put in water.**

8.9 **Safety precautions to remember when operating a powder actuated tool include the following:**

8.9.1 Do not use tools in explosive or flammable atmospheres.

8.9.2 Inspect the tool before using it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.

8.9.3 Never point a tool at anyone.

8.9.4 Do not load the tool until it is absolutely necessary.

8.9.5 Do not leave a "loaded tool" unattended, especially where it could easily be stolen or fall into the wrong hands.

8.9.6 Keep your hands clear of the barrel.

8.9.7 If the tool develops a defect during use, it shall be tagged "DO NOT USE OR OUT OF SERVICE" and taken out of service until repaired.

8.9.8 When using powder actuated tools to apply fasteners, there are some precautions to consider:

- Do not fire fasteners into material that would let them pass through other side.

- Do not drive fasteners any closer than a ½ inch to a corner or edge.
- Do not drive fasteners into materials such as brick or concrete any closer than 3" to an edge or corner.
- Do not drive fasteners into very hard or brittle material that might chip or make the fastener ricochet.

8.9.9 Use an alignment guide when shooting fasteners into existing hole.

8.9.10 Do not drive fasteners into a spalled area caused by unsatisfactory fastening.

**9.0 Abrasive Wheels and Tools**

9.1 All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under normal operations.

9.2 Floor stand and bench-mounted abrasive wheels shall be provided with a guard in accordance with ANSI B7.1-1970.

9.3 The guard shall cover the spindle end, nut, and flange projections and shall be mounted in alignment with the wheel.

9.4 The guards must be strong enough to withstand the effects of a bursting wheel.

9.5 The maximum angular exposure of the grinding wheel periphery and sides shall not be more than 90 degrees, and the exposure shall not begin more than 65 degrees above the horizontal plane of the spindle.

9.6 Floor and bench-mounted grinders shall be provided with work rests that are rigidly supported and adjustable.

9.7 Work rests shall be kept at a safe distance not to exceed 1/8" from the surface of the wheel.

9.8 Portable grinders shall be equipped with safety guards or protection flanges, of a type and design and properly assembled so that the pieces of the wheel will be retained in case of accidental breakage and used in accordance with the manufacturer's instructions.

9.9 All abrasive wheels shall be closely inspected and ring-tested prior to use to ensure that they are free from cracks and defects.

9.10 The spindle nut shall be tightened only enough to hold the wheel in place.

9.11 PPE shall include eye and/or face protection and is mandatory when using wheels and tools.

## 10.0 Woodworking Tools

10.1 All fixed power-driven woodworking tools shall be provided with a disconnect switch that can be either locked or tagged in the **"OFF"** position.

10.2 **Band Saws:** All portions of a band saw shall be enclosed or guarded, except for the working portion of the blade between the bottom of the guide rolls and the table.

10.3 Band saw wheels shall be fully enclosed.

10.4 **Portable Circular Saws** shall be equipped with guards above and below the base plate or shoe.

10.5 The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts.

10.6 The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work and shall automatically return to the covering position when the blade is removed from the work.

10.7 **Radial Saws** shall have an upper guard that completely encloses the upper half of the saw blade.

10.8 The lower portion of the blade shall be guarded by a device that will automatically adjust to the thickness of and remain in contact with the material being cut.

10.9 Radial saws used for ripping shall have non-kickback fingers.

10.10 Radial saws shall be installed so that the cutting head will return to the starting position when released by the operator.

10.11 **Swing or Sliding Cut-off Saws** shall be provided with a hood that will completely enclose the upper half of the saw.

10.12 Limit stops shall be provided to prevent swing or sliding type cut-off saws from extending beyond the front and back edges of the table.

10.13 Each swing or sliding cut-off saw shall be provided with an effective device to return the saw automatically to the back of the table.

10.14 Inverted sawing of sliding cut-off saws shall be provided with a hood that will cover the part of the saw that protrudes above the top of the table or material being cut.

10.15 **Table Saws** shall have a hood over the portion of the saw above the table, so mounted that the hood will automatically adjust itself to the thickness of and remain in contact with the material being cut.

10.16 Circular table saws shall have a spreader aligned with the blade, spaced no more than ½" behind the largest blade mounted on the saw.

10.17 The mounting shall be adequate in strength to resist any reasonable side thrust or other force tending to throw it out of alignment.

10.18 Feeder attachments shall have the feed rolls or other moving parts covered or guarded so as to protect the operator from hazardous points.

## 11.0 Lasers

11.1 Precautions will be taken to ensure all workers that will use a laser are trained in proper use and the hazards associated with lasers. Each worker is to be issued a qualification card, which must be carried and made available upon request.

11.2 No worker will install, adjust, or operate any laser equipment without a valid qualification card.

11.3 Standard ”Laser in Use” warning signs shall be placed around the perimeter of the area the laser being used.

11.4 No laser equipment will be used that does not contain a label indicating make, maximum output, and beam spread.

11.5 Whenever a laser is not in use, shudders or caps will be used and the laser turned off.

11.6 When performing internal alignment, lasers will only be guided by mechanical or electronic means.

11.7 No laser beam will be directed at any worker.

11.8 When environmental conditions exist such as rain, fog, snow or extreme dust, use of lasers will not be permitted.

11.9 Workers using lasers will have appropriate laser safety goggles available.

11.10 **Laser beam shall never be directed at workers or passersby.**

# MODULE 13 – Cranes and Rigging Operations

## 1.0 Introduction

The safe operation and proper maintenance of heavy equipment on the site shall be the overall responsibility of the contractor. Each contractor shall also be held accountable for compliance with OSHA crane regulations for all heavy equipment or derricks on the site, whether contractor owned, leased, or rented.

## 2.0 Cranes, Heavy Equipment, and Rigging - General

2.1 Prior to its initial use on the site, assembly of conventional or tower crane, or after repairs have been made, each crane, derrick, or heavy equipment shall be thoroughly inspected by a certified independent third party. Any deficiencies found shall be corrected before the equipment is placed into service.

2.1.1 Additional inspections may be required following any major weather events.

2.2 A copy of the certification inspection (annual, post install, monthly, etc.) performed by a certified independent third party shall be submitted prior to the crane being operated on site.

2.3 All conventional, lattice boom, or tower cranes shall be inspected when assembled on the project by an independent qualified third-party inspector post installation and pre-use on the job.

2.3.1 Each tower crane and conventional crane shall be inspected monthly by a certified independent third-party company throughout the duration of the project.

2.4 Each contractor shall designate a competent person who shall inspect all cranes, derricks, and heavy equipment daily as a part of the contractor's job site inspection program. Such inspections shall be documented. Defective equipment shall be removed from service and repaired, and service/repair shall be documented.

2.5 The contractor or vendor supplying the equipment shall inspect each crane at least monthly and provide a written report as to the results of the inspection. Defective equipment shall be removed from service.

2.6 Loads shall never be passed or suspended over persons.

2.6.1 If approaching near workers, warning signal shall be given, such as an air horn or individual spotter.

2.7 Tag lines or guide ropes shall be used to control loads, unless they are not required per the lift plan written by a qualified person.

2.7.1 Tag lines or guide ropes shall not be attached to the rigging equipment, only the load.

2.7.2 Tag lines shall be free of knots or other items which could catch or snag on another object.

2.7.3 Tag lines shall be non- conductive.

2.8 Barricades for employee safety shall be maintained around the swing radius of the crane and other areas of hazard.

2.9 Cranes (including outriggers, cab, counterweights, etc.) and all lines attached to the crane, including tag lines, hoist lines, rigging equipment, and the load shall remain a minimum of 20' away from any power source.

2.9.1 If this is not feasible, the operation shall be documented in the crane lift plan and comply with Appendix A of 1926 1400 subpart CC.

2.9.2 The assembly or disassembly of cranes shall not take place below power lines.

2.10 All critical lifts shall have proper paperwork completed prior to pick.

2.10.1 **A critical lift is defined as having one or more of the following:**

2.10.1.1 Pick which exceeds 75% of crane's capacity

2.10.1.2 Multi-crane picks

2.10.1.3 Shutting down of public ways (streets, sidewalks, etc.)

2.10.1.4 Item being hoisted is >$100,000 in value

2.10.1.5 Item being hoisted has a replacement lead time of 4 weeks or more

2.10.1.6 If the SDC project team and/ or safety department determines a lift to be above the norm hazardous

2.10.2 A critical lift shall only occur pending approval from Corporate Safety Department. Factors that may allow for critical picks:

2.10.2.1 Crane location is too tight to fit a larger crane

2.10.2.2 Crane size is the largest available crane that can be used for operation (ie.600T mobile crane)

2.10.2.3 Larger crane is not available for 3 or more weeks

2.10.3 Factors that cannot be considered:

2.10.3.1 Financial benefit to using a smaller crane

2.10.3.2 Poor pre-planning

2.10.4 Note – if there are no other options and a critical lift is required, to exceed 85% of crane capacity, then a Professional Engineer review and approval shall be completed on the entire crane submittal.

## 3.0 Operator Qualifications

3.1 Each contractor shall select only those personnel meeting the following qualifications to operate cranes:

3.1.1 Licensed by a nationally recognized program and / or state issued license designated for the equipment they intend to operate.

3.1.2 Trained by a qualified person per OSHA.

3.1.3 OSHA will not accept Crane Institute Certification (CIC) (including recertification) issued on or after December 2, 2019, as evidence of compliance with OSHA's operator certification requirements in 29 CFR 1926.1427.

3.2 No one other than the above personnel shall be in, or on, the crane during operations. Exceptions are oilers or supervisors whose duties may require their presence.

3.3 **The Superintendent shall obtain a valid copy of the operator's license and/ or training records and maintain this copy in the site office.**

3.4 All cranes shall have the following in the cab at all times:

3.4.1 Spill kit for hydraulic leaks/ etc.

3.4.2 Fire extinguisher

3.4.3 Operator manual and load charts

3.5 All cranes shall be equipped with motion sensors / alarms or other means to warn people of its presence.

3.6 All personnel working around heavy equipment shall wear high visibility shirt, vest or jacket at all times.

3.7 All cranes shall be equipped with air cleaning (scrubbers) exhaust systems when used indoors or in areas with poor ventilation.

3.8 All cranes shall have a visible inspection sticker or other notification the equipment is fit for use.

## 4.0 Operator Responsibilities

4.1 Each operator will be specifically assigned the responsibility for safe operations and shall be given written instructions as applicable. These responsibilities shall include:

4.1.1 Verification of a current inspection (annual, post install, monthly, etc.) certification for the crane or heavy equipment.

4.1.2 Verification that manufacturer's rated load capacities, recommended operating speeds, and special warnings or instructions are posted on the crane or heavy equipment and are visible from the operator's station.

4.1.3 Crane will be inspected daily per 1926.1400 subpart cc, including but not limited to:

4.1.3.1 Condition of brakes under no-load conditions.

4.1.3.2 Functioning of various safety devices and limiting devices fitted to the hoisting apparatus.

4.1.3.3 The electric power installation.

4.1.3.4 The overload controls.

4.1.3.5 Condition of structural members for cracks, bends, misalignment, etc.

4.1.3.6 Fire extinguisher in cab.

4.1.3.7 Manufacturers operations manual and load charts.

4.1.4 Assuring that routine maintenance is performed, as well as necessary repairs.

4.1.5 Assuring that signaling and communications are adequate. This includes making sure personnel at materials loading and receiving areas use correct hand signals. Where conditions require, radio communications will be used with a clear channel for operations.

4.1.5.1 Operator will NOT lift or move a load until a clear signal is given.

4.1.6 Refusing to lift any loads that are not safely rigged. This refusal cannot be overridden by job supervisory personnel.

4.1.7 Making sure that adequate clearances exist between operating areas and nearby structures, especially power lines.

4.1.8 Each operator shall ensure that good housekeeping is maintained in their equipment.

4.1.9 Operator must be at the controls when a load is applied to the crane.

## 5.0 Operating Procedures

**Each contractor shall ensure that its operators:**

5.1 Not engage in any practice which may divert his/ her attention while engaged in operations.

5.2 Not operate the crane or heavy equipment if physically or mentally unfit, or if taking prescription drugs which may affect judgment.

5.3 Not respond to any signal which is unclear or is given by anyone other than appointed signalmen. **Exception: The operator shall respond to a stop signal given by anyone.**

5.4 Have final responsibility and control over the crane. When there is any doubt as to safety, the operator shall have the authority to stop and refuse to handle the loads until safety has been assured. Any manager, supervisor, or person attempting to bypass the operator's authority on this issue will be immediately removed from the project.

5.5 Shall be intimately familiar and have thorough knowledge of the crane and its care, the operators' manual, and load charts. He / she shall be responsible for notifying their supervisor of any needed adjustments or repairs, and for logging his findings in the inspection log.

5.6 Shall, upon request, demonstrate their ability to determine total load weight and its relationship to the crane load charts.

5.7 Immediately shut down the crane if any part of the crane, rigging or load strikes any object. The crane shall be re-inspected by a qualified person, and if damage is detected, all repairs shall be completed under the manufacturer guidelines.

5.7.1 The crane shall then be re-inspected by a third-party agency prior to beginning operations again.

5.8 Never leave the controls while there is a load on the hook.

5.9 Stop the operation if there are any problems and notify the qualified person. If damage is found re-inspection by third-party agency shall be required.

5.10 **Everyone involved with the erection, jumping, dismantling of a crane and/ or heavy equipment shall be intimately familiar with this operation and be under the direction of a qualified assembly/disassembly director.**

5.10.1 The following shall also be required:

5.10.1.1 Job safety analyses

5.10.1.2 Pre-lift safety meeting

5.10.1.3 Training records for those involved in the operation,

This includes but not limited to: crane operator, signal person and riggers

5.10.1.4 Additional paperwork which local, state, federal jurisdictions may require

5.10.1.5 Additional paperwork Shawmut Design and Construction Safety Department may require.

## 6.0 Contractor Responsibilities

6.1 Tower crane base shall have an 8' tall lockable barricade installed as soon practical.

6.2 Hoisting operations shall be planned out well in advance, and a minimum of 48 hours before the rigging operation commences.

6.3 Hoisting plan shall be submitted to Shawmut Safety for review at least 48 hours in advance.

6.4 Crane form or non-crane form shall be used and submitted, or contractor form if equivalent in information.

6.5 Form shall be completed and authored by a trained person:

6.5.1 Licensed or qualified crane operator

6.5.2 A person knowledgeable in crane and rigging operations through years of experience

6.5.3 Significant experience in crane planning and development

6.5.4 The crane operator shall review the crane plan and approve it before operation commences

6.6 Lift director shall be provided for all crane operations. This person shall be someone independent of the crane, rigging, and signaling operation.

6.6.1 Competent person as designated by contractor shall be acceptable.

6.7 Making sure that rigging equipment is in good condition and provided with safety devices as applicable. This includes such things as:

6.7.1 Safety latches on hoisting hooks.

6.7.2 Chains, wire rope, slings, etc., are free from defects and conform to standard load ratings for work being done.

6.7.3 Eye splices conform to safety standards.

## 7.0 Employee Training

7.1 Each contractor shall ensure that all of its employees involved in lifting, rigging, heavy equipment, and/ or crane activities receive comprehensive training on their responsibilities. This training shall include rigging and hand signals for those authorized to give signals. Said training shall be documented. There are no exceptions to this rule.

7.2 Proof of training is required to be submitted to Shawmut Superintendent and/ or Safety Department before rigging operations commence.

7.2.1 Proof of training shall consist of 3rd party training card. If training was done in house, subcontractor shall submit their training program to Shawmut Safety Department for review and approval. In addition, subcontractor shall furnish all records of training for their intended lead rigger on our site.

7.3 A rigging plan may be required as directed by Shawmut. If so, this plan shall be submitted to Shawmut at least 48 hours in advance of any rigging operation.

7.4 A Qualified Signalperson shall be on site during all rigging operations. This person shall have adequate training by a qualified training institute and must have proof of training submitted to Shawmut before rigging operations commence.

7.4.1 In the absence of 3rd party training, companies can submit their training program to Shawmut Safety Department for review and approval. In addition, subcontractor shall furnish all records of training for their intended lead qualified signalperson on our site.

7.5 If, at any time, a rigger or signalperson cannot demonstrate knowledge of the standard or operation, or appears to be working unsafe, lacking training, or otherwise compromising the operation, then the operation will be immediately stopped until an adequate qualified person arrives on site to oversee the operation.

## 8.0 Rigging

8.1 Each individual component of the rigging system shall be sized accordingly to be capable to support the entire load by itself. This includes shackles, slings, spreader bars, chain falls, bolts, etc. Example: if you are hoisting a 2-ton load, every rigging apparatus involved in the operation shall have a capacity of at least 2 tons.

8.2 All rigging shall be inspected daily and before each use by a qualified rigger.

8.3 At no point will the rigging equipment be at an angle below 45 degrees.

8.4 All equipment used as rigging must be labeled and clearly legible.

8.4.1 Any equipment missing tags or having non-legible tags shall be taken out of service immediately.

8.4.2 All rigging equipment shall have capacity tags original from the manufacturer in place at all times, including but not limited to shackles, chain blocks, roustabouts, slings, bolts, etc.

8.4.2.1 All rigging shall indicate manufacturer as well as capacity – clearly marked.

8.4.2.2 “CHINA” shackles and rigging are never allowed.

8.4.3 If rigging equipment is job made, such as welding eye bolt anchors for chain fall attachments, the entire system shall be reviewed and approved by a professional engineer. This paperwork must remain on site until the operation is complete.

8.5 Any rigging equipment found to be damaged shall immediately be taken out of service and where possible destroyed or removed from site immediately so it cannot be used by anyone else.

## 9.0 Ground Preparation

9.1 Ground conditions must be adequate and agreed upon by all parties – Shawmut, subcontractors, and Crane Company, before crane set up begins.

9.2 Shawmut will supply a designated area for the crane to set up.

9.2.1 This area will be designated by a qualified person, and meet the requirements provided by the crane company for bearing pressure on the ground.

9.2.2 All underground utilities will be properly identified and considered during planning stages.

9.2.3 Subcontractor/ Crane Company shall submit the following to Shawmut before mobilization:
Crane information – size, type, configuration, and dimensions.

9.2.4 Max weight of items being hoisted.

9.2.5 Total gross weight of operation – crane, counterweights, lines, blocks, load, rigging.

9.2.6 Determine what size outrigger cribbing to be used and supply cribbing for all operations.

9.2.7 Inform Shawmut on pick plan what the bearing pressure on the ground will be (under the outrigger pads and cribbing).

9.2.8 Subcontractors shall furnish ALL cribbing plans above.

**CRANE SAFETY CHECKLIST (*submit 48 hours before crane mobilizes for approval from Shawmut Safety)**

**General Information:**

| | | | |
|---|---|---|---|
| Job Name: | | Job number: | |
| Subcontractor: | | Competent person: | |
| Crane Company: | | Date: | |
| Crane Size: | | Shawmut Representative: | |
| Crane Operator: | | Operator's License #: | |
| Rigging Company: | | License Expiration date: | |
| Qualified Rigger: | | 3rd Party Training: | |
| Qualified Signalperson: | | 3rd Party Training: | |
| Make and Model of Crane: | | Annual Crane Inspection Expiration: | |
| Form Completed by: | | | |
| Lift Director: | | Reviewed by: | |

**Load Characteristics:**

| | |
|---|---|
| Description of equipment to be lifted: | |
| Dimensions of max load: | |
| Documentation of max load: | |
| Total gross load from lift plan (max load, rigging, and contingency): | |
| Max pick radius: | |
| Total crane counterweights required: | |
| Crane capacity at max radius (off crane load chart): | |
| % of Total gross load/ crane: | |
| Tolerable wind speeds allowed per manufacturer? | |

**Rigging Plan:**

| | |
|---|---|
| Type of rigging equipment to be used: | |
| Tag lines to be used? | Yes / No – If no, explain on back of page |
| Rigging equipment inspected: by whom | Yes / No – Name: |
| What is the working load limit on each leg of the rigging? | |
| Does each piece of the rigging equipment support the entire load? (required) | Yes / No If No, please explain why. |
| What is the rigging configuration/ arrangement? | Choked? Bridle? Basket? Vertical? |
| Number of slings? | |
| Sling size? | |
| Sling length? | |
| Rated capacity of sling? | |
| Shackle diameter? | |
| Number of shackles used? | |
| Capacity of each shackle? | |
| Manufacturer rigging instructions reviewed? | Yes / No |

| Rigging Sketch Here |
| --- |
| |

| Description of Crane Activity: |
| --- |
| |

| Lift Plan Sketch Here: |
| --- |
| |

**Required Submittals:**

- Annual 3rd party crane inspection
- Operator qualifications
  - License
  - Proof of competency from employer
- Qualified signalperson
- Qualified rigger
- Rigging plan
- Lifting area diagram
- Load charts for all cranes
- Cut sheets for all rigging equipment

| Yes | No |
| --- | --- |

| | | |
|---|---|---|
| **Operator Qualifications:** (licensed as qualified and certified operator) * | | |
| **Qualified Rigger Identified**<br>Has proof of 3rd party certification been provided? If no, contact Shawmut Safety. | | |
| **Qualified Signalperson Identified**<br>Has proof of 3rd party certification been provided? If no, contact Shawmut Safety. | | |
| **Underground Utilities:** Properly located and marked and ground conditions are adequate to place weight of crane/ load to | | |
| **Overhead Hazards Identified:** including staying 20' away from power lines (unless exceptions are met per standard) | | |
| **Pre-Lift Safety Meeting Conducted AND Documented:** identifying responsible people (rigger, signalman, operator, communication method) | | |
| **Inspections:** complete (daily visual, monthly documented, annual by 3rd party) | | |
| **Assembly/Disassembly Director:** identified and is trained in proper set up/dismantling of this particular crane. | | |
| **Assembly/Disassembly Procedures:** identified and reviewed (owner's manual or company policy) – we must have a copy of this procedure. | | |
| **Outriggers:** set up properly per the A/D procedures and Lift Chart | | |
| **Cribbing:** must be determined by qualified person. May include 6x6 hardwood blocks to crane mats pre-engineered. Cribbing is in use based on soil condition. When cribbing is used it shall not have any gaps. Crane company owns cribbing. | | |
| **Swing Radius Protection:** protect swing radius with signage and barricades for pedestrians and traffic management with safety buffer zone. | | |
| **Ground Conditions**<br>A qualified person has reviewed the max bearing pressure applied to the ground and found the ground conditions to be able to support that load. | | |
| **Critical Lift – if any of the following are true, it IS a critical lift:**<br>Will the load: 1) exceed 75% of crane capacity, 2) use more than 1 crane, 3) require the shutdown of streets or public ways, 4) item being hoisted costs >$100,000, 5) item being hoisted will take > 4 weeks to replace, 6) Shawmut determines the pick to be high risk and labels it a critical pick.<br>* ***If yes, you must complete Shawmut's Critical Lift Form and sign below*** | | |

**Signatures**

Crane Operator: _____ Contractor / Rigger: _____

Date / Time: _____ Date / Time: _____

Contractor / rigger and operator are the competent persons and are solely responsible for the safe execution of the lift(s) and will complete the lift(s) in accordance with OSHA and ANSI standards

SDC Project Representative: _____ Date / Time: _____

## Pre-Lift Crane Planning Checklist

**Date:** _____ **Job #:** _____ **Location:** _____

**Time:** _____ **Inspected By:** _____

☐ **AM** ☐ **PM** (Competent Person)

| | | | | |
|---|---|---|---|---|
| **Load** | | | | |
| 1. | | Weight and center of gravity has been determined | ☐ Yes | ☐ No |
| 2. | | Anything inside/outside the load that could shift during the lift? | ☐ Yes | ☐ No |
| 3. | | Determine if the load needs protection against damage from the rigging | ☐ Yes | ☐ No |
| 4. | | All anchor bolts, hold downs, or fasteners have been removed | ☐ Yes | ☐ No |
| 5. | | Potential for binding – are load cells required to verify the load is free? | ☐ Yes | ☐ No |
| 6. | | Attachment points designed to take load weight | ☐ Yes | ☐ No |
| 7. | | Is the load structurally capable of being lifted? (bending & twisting issues) | ☐ Yes | ☐ No |
| **Personnel** | | | | |
| 1. | | The roles, responsibilities and qualifications for personnel have been defined (Riggers, Signalperson, Crane Operator, Lift Director) | ☐ Yes | ☐ No |
| **Area Preparation** | | | | |
| 1. | 1 | The location for the landing the load has been selected and prepared | ☐ Yes | ☐ No |
| 2. | 1 | Blocking or cribbing is available to set the load on | ☐ Yes | ☐ No |
| 3. | 1 | A travel path has been determined and cordoned off | ☐ Yes | ☐ No |
| 4. | 1 | Other personnel in the area have been notified of the lift | ☐ Yes | ☐ No |
| **Crane Considerations** | | | | |
| 1. | | Is the lift within the crane's rated capacity based on boom height & radius? | ☐ Yes | ☐ No |
| 2. | | Have boom deflections been considered? | ☐ Yes | ☐ No |
| 3. | | Have any potential crane boom obstructions been identified? | ☐ Yes | ☐ No |
| 4. | | Are there any wind speed limits for this lift? | ☐ Yes | ☐ No |
| 5. | | Have the ground bearing support conditions been met? | ☐ Yes | ☐ No |
| 6. | | Power lines in the area? Clearance distance and a spotter been established? | ☐ Yes | ☐ No |
| 7. | | Counterweight swing area of the crane barricaded? | ☐ Yes | ☐ No |
| **Prior to the Lift** | | | | |
| 1. | | The rigging has been inspected before use? | ☐ Yes | ☐ No |
| 2. | | The crane hook is positioned directly over the load's center of gravity? | ☐ Yes | ☐ No |
| 3. | | Softeners are used to protect the rigging where it could be damaged? | ☐ Yes | ☐ No |
| 4. | | The slings and rigging hardware positioned correctly? | ☐ Yes | ☐ No |
| 5. | | Rigging provides positive control of the load? (no slipping/shifting) | ☐ Yes | ☐ No |
| 6. | | Safe load paths have been established? | ☐ Yes | ☐ No |
| 7. | | Tag lines are being used to control the load? (where appropriate) | ☐ Yes | ☐ No |
| 8. | | Communication between signalperson and crane operator have been established? | ☐ Yes | ☐ No |

| PERSONNEL | Title | Name | Initial |
|---|---|---|---|
| | SDC Superintendent | X | |
| | SDC Project Manager | X | |
| | SDC Safety Manager | X | |
| | Lift Supervisor | X | |
| | Certified Crane Operator | X | |
| | Qualified Rigger | X | |
| | Qualified Signalperson | X | |
| | Dedicated Spotter | X | |
| | Soils Compaction Personnel | X | |
| | Flagger(s) | X | |
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**CRITICAL LIFT INFORMATION:**

| Operator to Verify the Following | Yes | No |
|---|---|---|
| All required OSHA paperwork, licenses and certifications have been completed and available in cab | | |
| Daily inspection completed and in cab | | |
| Lift plan reviewed and copy in cab | | |
| Crane configuration in compliance with lift plan | | |
| Outriggers installed per lift plan and proper dunnage installed | | |
| Operator has confirmed winds are not excessive for pick(s) | | |
| Operator has reviewed overhead hazards | | |
| Operator has reviewed underground hazards | | |
| Operator will measure and confirm max pick radius without load | | |
| Operator will confirm total gross load weight prior to reaching max radius | | |

| Contractor / Rigger to Verify | Yes | No |
|---|---|---|
| Taglines to be used | | |
| Swing radius barricaded, secured | | |
| Lift plan and crane permit reviewed with all affected | | |
| Traffic control plan in place | | |
| Signals system in place | | |
| Type: _____ | | |
| Slings and rigging inspected | | |
| Date inspected: _____ | | |

| Crane Location / Clearances (SDC to complete) | Yes | No |
|---|---|---|
| Has contractor developed a plan to control and protect vehicular and pedestrian traffic? | | |
| Will a full or partial road blockage be required? | | |
| Has contractor developed a scale plot plan showing crane location, adjacent structures, roadways, underground utilities, etc. with swing radius? | | |
| Has contractor completed a scale - to elevation sketch or drawing depicting crane, adjacent structures, and load? | | |
| Has contractor surveyed the area for overhead power lines and other hazards? | | |
| Will the load or any part of the crane be over any active or operating equipment? | | |
| Will the load be within 20' of any active electrical lines, pipes, or process system at any time during the pick? | | |

**Summary "Worst Case " Lift Scenario**

Max pick radius _____

Total gross load _____

Crane chart capacity @ max pick radius _____

% of crane capacity _____

| Attachments Provided | Yes | No | Verbal |
|---|---|---|---|
| Plot plan with crane location | | | |
| Elevation sketch | | | |
| Weight calculations for max load | | | |
| Rigging list / sketch | | | |
| Appropriate crane charts | | | |
| Traffic control plan | | | |
| Job hazard analysis | | | |
| Other information contractor/rigger or crane operator deems appropriate | | | |

**Signatures**

Crane Operator: _____ Contractor / Rigger: _____

Date / Time: _____ Date / Time: _____

Contractor / rigger and operator are the competent persons and are solely responsible for the safe execution of the lift(s) and will complete the lift(s) in accordance with OSHA and ANSI standards

SDC Project Representative: _____ Date / Time: _____

# ARTICULATING BOOM CRANE SAFETY CHECKLIST

**(*submit 48 hours before crane mobilizes for approval from Shawmut Safety)**

**Guidelines for the Completion of This Form**

The following criterion exempts the completion of this form for the use of an articulating boom crane at a jobsite:

- The articulating boom crane is used exclusively to load or unload a truck or trailer;
- The length of the boom does not exceed 135 feet; and
- The material is not raised vertically more than 100 feet during the unloading process.

**This form must be completed if the following criterion applies to the work activity on your jobsite:**

If an articulating boom crane is used for any other type of work at a jobsite – including but not limited to:

- deliveries at a jobsite beyond the maximums specified above;
- erecting steel,
- hoisting HVAC equipment,
- hoisting towers,
- erecting scaffolding,
- erecting sidewalk shed components,
- or any other loads in place while they are bolted or otherwise affixed;
- or assisting in the demolition of a building

***If in New York City, please see the bottom of Page 3 for additional requirements for the use of an articulating boom crane***

**General Information:**

| | | | |
|---|---|---|---|
| Job Name: | | Job Number: | |
| Subcontractor: | | Competent Person / Lift Director: | |
| Articulating Boom Crane Company: | | Date: | |
| Articulating Boom Crane Size | | Shawmut Representative: | |
| Articulating Boom Crane Operator: | | Operator's License #: | |
| Rigging Company: | | License Expiration Date: | |
| Qualified Rigger: | | 3rd Party Training: | |
| Qualified Signalperson: | | 3rd Party Training: | |
| Make and Model of Boom Crane: | | Annual Crane Inspection Expiration: | |
| Form completed by: | | Reviewed by: | |

**Load Characteristics:**

| | |
|---|---|
| Description of equipment to be lifted: | |
| Dimensions of max load: | |
| Total gross load from lift plan (max load, rigging, and contingency): | |
| Max pick radius: | |
| Boom crane capacity at max radius (off crane load chart): | |
| % of Total gross load / boom crane: | |

**Rigging Plan:**

| | |
|---|---|
| Type of rigging equipment to be used: | |
| Tag lines to be used? | Yes / No – If no, explain on back of page |
| Rigging equipment inspected: by whom | Yes / No – Name: |
| What is the working load limit on each leg of the rigging? | |
| Does each piece of the rigging equipment support the entire load? (required) | Yes / No, If No, please explain why. |
| What is the rigging configuration / arrangement? | Choked? Bridle? Basket? Vertical? |
| Number of slings? | |
| Sling size? | |
| Sling length? | |
| Rated capacity of sling? | |
| Shackle diameter? | |
| Number of shackles used? | |
| Capacity of each shackle? | |
| Manufacturer rigging instructions reviewed? | Yes / No |

| Rigging Sketch Here: |
| --- |
| |

| Description of Crane Activity: |
| --- |
| |

| Lift Plan Sketch Here: |
| --- |
| |

| | Yes | No |
| --- | --- | --- |

| | | |
|---|---|---|
| **Operator Qualifications:** (licensed as qualified and certified operator) * | | |
| **Qualified Rigger Identified**<br>Has proof of 3rd party certification been provided? If no, contact Shawmut Safety. | | |
| **Qualified Signalperson Identified**<br>Has proof of 3rd party certification been provided? If no, contact Shawmut Safety. | | |
| **Underground Utilities:** Properly located, marked and ground conditions are adequate to place weight of crane/ load to | | |
| **Overhead Hazards identified:** including staying 20' away from power lines (unless exceptions are met per standard) | | |
| **Pre-lift Safety Meeting conducted AND documented:** identifying responsible people (rigger, signalman, operator, communication method) | | |
| **Inspections:** complete (daily visual, monthly documented, annual by 3rd party) | | |
| **Outriggers:** set up properly per the A/D procedures and Lift Chart | | |
| **Cribbing:** must be determined by qualified person. May include 6x6 hardwood blocks to crane mats pre-engineered. Cribbing is in use based on soil condition. When cribbing is used it shall not have any gaps. Crane company owns cribbing. | | |
| **Swing radius protection:** protect swing radius with signage and barricades for pedestrians and traffic management with safety buffer zone. | | |
| **Ground Conditions**<br>A qualified person has reviewed the max bearing pressure applied to the ground and found the ground conditions to be able to support that load. | | |
| **Critical Lift – if any of the following are true, it IS a critical lift:**<br>Will the load: 1) exceed 75% of crane capacity, 2) use more than 1 crane, 3) require the shutdown of streets or public ways, 4) item being hoisted costs >$100,000, 5) item being hoisted will take > 4 weeks to replace, 6) Shawmut determines the pick to be high risk and labels it a critical pick.<br>* ***If yes, you must complete Shawmut's Critical Lift Form and sign below*** | | |

**Signatures**

Boom Crane Operator: _____ Contractor / Rigger: _____

Date / Time: _____ Date / Time: _____

Contractor / rigger and operator are the competent persons and are solely responsible for the safe execution of the lift(s) and will complete the lift(s) in accordance with OSHA and ANSI standards

SDC Project Representative: _____ Date / Time: _____

***New York City Specific Documentation Requirements:***

- The crane must possess a Certificate of Approval ("prototype approval");
- The crane must possess a Certificate of Operation ("CD" or annual registration);
- The crane must possess a Certificate of On-Site Inspection ("CN"); and
- The crane must be operated by a licensed New York City Hoisting Machine Operator ("HMO") who possesses an endorsement on their license to operate an articulating boom crane.

## CONCRETE PUMP TRUCK (BOOM) SAFETY CHECKLIST

### General Information:

| | | | |
|---|---|---|---|
| Job Name: | | Job Number: | |
| Subcontractor: | | Competent Person: | |
| Pump Truck Supplier: | | Date: | |
| Pump Max Boom Size: | | Shawmut Representative: | |
| Pump Truck Operator: | | Operator's License #: | |
| Make and Model of Pump Truck: | | License Expiration Date: | |
| Form Completed by: | | Current Annual Inspection Exp.: | |
| Reviewed by: | | | |

### Site Characteristics:

| | |
|---|---|
| Type of surface the concrete pump truck will be placed on: | |
| Does this site require a city/state/town permit? - Y / N? | If Yes, please attach Permit. |
| Does this task require Traffic / Pedestrian Controls? - Y / N? | If Yes, please provide traffic control / logistics plan. |
| Has a concrete wash area been provided / installed? – Y / N? | |
| Has there been an area established to pinpoint how and where the concrete washout activity will take place? – Y / N? | If Yes, explain how it will be washed-out within the JSA section. |
| Has the wind speed at the site been verified to not exceed the wind speed limit specified by the manufacturer? | |

| | Yes | No |
|---|---|---|
| **Underground Utilities:** *Has a Ground Bearing Pressure Survey (visual) been submitted? If YES, properly locate, mark-out and ensure the ground conditions are adequate to bear the weight of concrete boom/pump truck.* | | |
| **Ground Conditions:** *Has a qualified person reviewed the max bearing pressure applied to the ground and found the ground conditions to be capable of supporting the imposed weight of concrete boom/pump truck?* | | |
| **Overhead Hazards Identified:** *Are overhead power lines present? If YES, maintain a distance of 20' away from power lines (unless exceptions are met per standard) and provide alternative preventative measures.* | | |
| **Safety Briefing Conducted AND Documented:** *Have the responsible persons been identified and safety briefing held with all affected parties involved? (i.e. - concrete foreperson, concrete operator, communication methods established, etc.)?* | | |
| **Inspections by a Qualified Person:** *complete (visual daily inspections, documented monthly inspections, annual inspections according to manufacturer specifications by 3rd party regarding the structural integrity of boom parts that are exposed to structural fatigue and wear)* | | |
| **Outriggers/ Stabilizers:** *set up properly as per the manufacturer's specifications.* | | |
| Are there pins/whip-checks at each connection of the pump hose-lines to prevent whipping in case of separation when pressurized? | | |
| Are pipe supports designed for twice the rated load, including concrete at 150 lbs/ft3, provided for compressed air hoses used on concrete pumping systems? | | |
| Has the annual inspection sticker for the concrete pump truck been identified/ verified? | | |
| Have the necessary precautions been taken to remove any potential tripping hazards for concrete pump hoses running up active stairwells? | | |
| **Concrete Washout Location:** *Ensure that rinsing operations and concrete washout water containers are not located less than 30-ft from any sewer, drain, catch basin, or body of water without the written approval of the local commissioner. Precautions shall be taken to prevent concrete or mortar washings, sand, grit, or any other material that would cause clogging, from entering a sewer or drain.* | | |

| Describe the work activity involved in the concrete pump truck operation: |
|---|
| |

| Describe the job tasks in step-by-step fashion, identify the associated hazards at each step, and outline the proper hazard controls measures that will be used to eliminate/mitigate any risk of injury, illness, incident or property damage to the individual(s) performing that task, the public, Shawmut or Subcontractor personnel: |
|---|

**Job Safety Analysis**

| | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |

**Provide a Site Characteristics Sketch of the *boom configuration* (setup, placement, etc.) here:**

*Is the truck going back-in or pull-in to its position? Public Protection – Will there be shield protection to prevent splashing? Are ramps ADA approved? Will hoppers have a cage is place?*

**Signatures**

Concrete Pump Operator: _____ Concrete Foreperson: _____

Date / Time: _____ Date / Time: _____

The **Concrete Pump Truck Operator** and the **Concrete Foreperson** are the competent person(s) solely responsible for the safe execution of the concrete pump operation and will complete the work in accordance with OSHA and ANSI standards.

SDC Project Representative: _____ Date / Time: _____

| Project Name: | | Project #: | |
|---|---|---|---|
| Work Supervisor: | | Prepared by: | |

Brief description of the work or material being delivered / uplifted:

**Schedule of 'Routine' Lifts**

| Description of Load | Approx. Weight (lb) | Approx. Reach (ft) | Approx. Height (ft) | Method | Remarks |
|---|---|---|---|---|---|
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Continuation Sheet Attached? Yes ☐ No ☐

**Equipment to be used for the Lift** ***Please tick the appropriate box**

Telehandler ☐ Forklift ☐ Hoist ☐ Lorry Loader ☐ Excavator ☐

Other:

| Make: | |
|---|---|
| Model: | |
| Serial No: | |

| Attachments, Bucket, Jib etc.: | | |
|---|---|---|
| Test Certificate | Date of Last Inspection: | |
| Lifting Capacity | Max Safe Working Load (lbs): | |
| | Maximum Height (ft) / Load: | |
| | Maximum Reach (ft) / Load: | |

| Hazards Identified / Known on Site | | | | |
|---|---|---|---|---|
| Hazard | Yes | No | People at Risk | Control Measures |
| Fall Prevention | ☐ | ☐ | | |
| Overhead Electric Lines | ☐ | ☐ | | |
| Other Overhead Obstacles | ☐ | ☐ | | |
| Excavations | ☐ | ☐ | | |
| Unstable / Soft Ground | ☐ | ☐ | | |
| Hazardous Substances | ☐ | ☐ | | |
| Public Interface | ☐ | ☐ | | |
| Traffic / Road | ☐ | ☐ | | |
| Other Vehicles | ☐ | ☐ | | |
| Restricted Access | ☐ | ☐ | | |
| Loss / Fall of Load | ☐ | ☐ | | |
| Overturning of Equipment | ☐ | ☐ | | |
| Collision / Impact – Vehicles, Plant, Pedestrians, Building | ☐ | ☐ | | |
| Stability of Load | ☐ | ☐ | | |
| Other | ☐ | ☐ | | |

| Operator | |
|---|---|
| Name: | |
| License / Training: | Yes ☐ No ☐ If No, training by whom? |
| License Expiration: | |

# MODULE 14 - Heavy Equipment

## 1.0 Introduction

The safe operation and proper maintenance of heavy equipment on the site shall be the overall responsibility of the contractor. Each contractor shall also be held accountable for compliance with OSHA regulations for all heavy equipment on the site, whether contractor owned, leased, or rented.

## 2.0 Heavy Equipment - General

2.1 Prior to its initial use on the site or after repairs have been made, each piece of equipment shall be thoroughly inspected by a certified independent third party. Any deficiencies found shall be corrected before the equipment is placed into service.

2.2 Each contractor shall designate a competent person who shall inspect all heavy equipment daily as a part of the contractor's job site inspection program. Such inspections shall be documented. Defective equipment shall be removed from service and repaired, and service/repair shall be documented.

2.3 The contractor or vendor supplying the equipment shall inspect each piece of equipment at least monthly and provide a written report as to the results of the inspection. Defective equipment shall be removed from service.

2.4 Barricades for employee safety shall be maintained around the swing radius of the heavy equipment cab and other areas of hazard.

2.5 Seat belts shall be used at all times, except when not provided by manufacturer of equipment and/ or when roll over protection devices are not in use as per manufacturers guidelines.

2.6 Audible back up alarms shall be used at all times. If audible back up alarms are not used, adequate protection must be in place and approved to be used by Shawmut Safety.

2.7 Heavy Equipment shall remain a minimum of 10’ away from any power source.

2.7.1 Exception – during travel the distance may be shorter provided a safety plan is put in place via Job Safety Analyses.

2.7.2 There may be a greater distance required to remain away from the power source, so for that refer to OSHA guidelines.

2.8 Cell phone use shall be prohibited while operating heavy equipment.

2.9 All equipment shall be equipped with proper signage stating something like this:

2.9.1 “Danger – Swing Radius – Stay Clear”

## 3.0 Operator Qualifications

3.1 Each contractor shall select only those personnel meeting the following qualifications to operate heavy equipment:

3.1.1 Licensed by a nationally recognized program and/ or state issued license designated for the equipment they intend to operate

3.1.2 Trained by a qualified person per OSHA

3.2 No one other than the above personnel shall be in, or on the heavy equipment during operations. Exceptions are supervisors whose duties may require their presence.

3.3 **The Superintendent shall obtain a valid copy of the operator's license and/ or training records and maintain this copy in the site office.**

3.4 All heavy equipment shall have the following in the cab at all times:

3.4.1 Fire extinguisher

3.4.2 Manufacturers operations book

3.5 All personnel working around heavy equipment shall wear high visibility vests, shirts or jackets at all times.

3.6 All heavy equipment shall be equipped with air cleaning (scrubbers) exhaust systems when used indoors or in areas with poor ventilation.

3.7 When operator is not present, the following shall be in place:

3.7.1 Ignition shut off and keys are removed

3.7.2 Forks, buckets, and/ or blades in the down position

3.7.3 Wheels chocked

3.8 Operator must be at the controls when a load is applied to the heavy equipment.

3.9 All equipment shall have a visible inspection sticker or other notification the equipment is fit for use.

## 4.0 Operator Responsibilities

4.1 Each operator will be specifically assigned the responsibility for safe operations and shall be given written instructions as applicable. These responsibilities shall include:

4.1.1 Verification of a current "annual inspection" certification for the heavy equipment.

4.1.2 Verification that manufacturer's rated load capacities, recommended operating speeds, and special warnings or instructions are posted on the heavy equipment and are visible from the operator's station.

4.1.3 Daily inspection of:

4.1.3.1 Condition of brakes under no-load conditions.

4.1.3.2 Functioning of various safety devices and limiting devices fitted to the hoisting apparatus.

4.1.3.3 The electric power installation.

4.1.3.4 Condition of structural members for cracks, bends, misalignment, etc.

4.1.3.5 Fire extinguisher in cab.

4.1.4 Assuring that routine maintenance is performed, as well as necessary repairs.

4.1.5 Assuring that signaling and communications are adequate. This includes making sure that personnel at materials loading and receiving areas use correct hand signals. Where conditions require, radio communications will be used with a clear channel for operations.

4.1.6 Refusing to lift any loads that are not safely rigged. This refusal cannot be overridden by job supervisory personnel.

4.1.7 Making sure that adequate clearances exist between operating areas and nearby structures, especially power lines.

4.1.8 Each operator shall ensure that good housekeeping is maintained in their equipment.

4.1.9 The operator shall also oversee the safety of the people around them, including holes they dig, and ensure that the hole is dug in accordance with OSHA standards and no person shall enter that hole until it is safe to do so.

# Module 15 – Hazard Communication Program

## 1.0 General Information

1.1. Pre planning will impact the success of this program. In order to comply with OSHA 1910.1200 and 1926.59 Hazard Communication Standard, the following written Hazard Communication Program has been established for Shawmut Design and Construction.

1.2. The written program will be available at all Shawmut Design and Construction jobsites for review by any interested employee.

## 2.0 Container Labeling

2.1 **Subcontractor Foreperson,** shall verify all incoming container labeling received for use and communicate the verification to the SDC site Supt.

2.1.1 The identity of the contents. (The identity must match the corresponding SDS.)

2.1.2 Appropriate hazard warnings (including routes of entry, target organs and first aid measures)

2.1.3 The name address and phone number of the manufacturer, importer, or responsible party.

2.2 The subcontractor of each area will ensure that all secondary containers (those containers other than the original) will be labeled with:

2.2.1 **The identity of the contents.** (The identity must match the corresponding SDS.)

2.2.2 **Appropriate hazard warning** (including routes of entry, target organs and first aid measures).

2.3 Each container of hazardous chemicals received from the chemical manufacturer, importer or distributor will be labeled with the following information:

2.3.1 Product identifier

2.3.2 Signal word

2.3.3 Hazard statement(s)

2.3.4 Pictogram(s)

2.3.5 Precautionary statement(s)

2.3.6 Name, address and telephone number of the chemical manufacturer, importer or other responsible party

2.4 Shawmut Design and Construction and our subcontractors will use the GHS labeling system for secondary containers. When a chemical is transferred from the original container to a portable or secondary container, the container will be labeled, tagged or marked with a GHS label containing the following information:

2.4.1 Product identifier

2.4.2 Signal word

2.4.3 Hazard statement(s)

2.4.4 Pictogram(s)

2.4.5 Precautionary statement(s)

2.5 Portable containers into which hazardous chemicals are transferred from labeled containers and that are intended for the immediate use of the employee who performs the transfer do not require a label. If the portable container will be used by more than one employee or used over the course of more than one shift, the container must be labeled. Food and beverage containers should never be used for chemical storage.

2.6 Signs, placards, process sheets, batch tickets, operating procedures or other such written materials may be used in lieu of affixing labels to individual, stationary process containers as long as the alternative method identifies the containers to which it is applicable and conveys the information required for workplace labeling.

2.7 Where an area may have a hazardous chemical in the atmosphere (e.g., where extensive welding occurs), the entire area will be labeled with a warning placard.

2.8 Pipes that contain hazardous chemicals should be labeled in accordance with ANSI/ASME A13.1 and indicate the direction of flow. (Please note that this not a requirement of the OSHA HCS but a best practice or requirement of local jurisdiction.)

2.9 Workplace labels or other forms of warning will be legible, in English and prominently displayed on the container or readily available in the work area throughout each work shift. If employees speak languages other than English, the information in the other language(s) may be added to the material presented as long as the information is presented in English as well.

2.10 Note: After Dec. 1, 2015, distributors may not ship containers labeled by the chemical manufacturer or importer unless the label on the container meets GHS labeling requirements.

## 3.0 Safety Data Sheets (MSDS)

3.1 An SDS will be obtained and maintained for each hazardous chemical in the workplace. SDSs for each hazardous chemical will be readily accessible during each work shift to employees when they are in their work areas.

3.2 SDSs will be obtained from the chemical manufacturer, importer or distributor. The name on the SDS will be the same as that listed on the chemical inventory list. SDSs for chemicals or process streams produced by the company will be developed and provided by the Site Safety Manager/ Competent Person.

3.3 If problems arise in obtaining an SDS from the chemical manufacturer, importer or distributor, a phone call will be made to request an SDS and to verify that the SDS has been sent. The phone call will be logged and a letter will be sent the same day. The company will maintain a written record of all efforts to obtain SDSs. If these efforts fail to produce an SDS, the local OSHA office will be contacted for assistance.

3.4 **Subcontractors** are responsible for obtaining and maintaining safety data sheets (SDS) for the project and shall immediately forward them to the **Superintendent.** The SDS's shall be returned to the contractor once work is complete, but shall remain on site in hard copy form in the safety station for the duration of the project. It is the responsibility for the subcontractor competent person to monitor for compliance and if SDS's are missing to stop work until the proper forms are on site filed in the safety station.

3.5 **The project superintendent shall assure the SDS are readily available for project employee's workers.**

3.6 **The Site Safety Manager/ Competent Person** is responsible for administering the hazard communication program.

3.7 They are also be responsible for:

3.7.1 Reviewing the potential hazards and safe use of chemicals

3.7.2 Maintaining a list of all hazardous chemicals and a master file of SDSs

3.7.3 Ensuring that all containers are labeled, tagged or marked properly

3.7.4 Providing new-hire and annual training for employees

3.7.5 Maintaining training records

3.7.6 Monitoring the air concentrations of hazardous chemicals in the work environment

3.7.7 Properly selecting and caring for personal protective equipment

3.7.8 Directing the cleanup and disposal operations of the spill control team

3.7.9 Identifying hazardous chemicals used in nonroutine tasks and assessing their risks

3.7.10 Informing outside contractors who are performing work on company property about potential hazards

3.7.11 Reviewing the effectiveness of the hazard communication program and making sure that the program satisfies the requirements of all applicable federal, state or local hazard communication requirements

3.8 It is the policy for this company that when toxic or hazardous substances are received without an SDS or the appropriate one is not on file at **Shawmut Design and Construction**; the chemical will be isolated or not be accepted on site until such information is available.

3.9 **Safety Managers** will spot check and periodically review incoming data sheets for new and significant health/ safety information. They will see that any new information is passed on to the affected employees. If a SDS is incomplete, a new sheet will be requested from the manufacturer/ supplier by the **responsible subcontractor**, and made available to site personnel.

## 4.0 Employee Training and Information

4.1 Employees and subcontractors of **Shawmut Design and Construction** should receive information and training on the following by their respective companies:

4.1.1 An overview of the requirements contained in the OSHA Hazard Communication Standard, 1910.1200 and 1926.59.

4.1.2 Any operations in their work area where hazardous chemicals are present.

4.1.3 Location and availability of our written hazard program.

4.1.4 Physical and health hazards of the chemicals in their work area.

4.1.5 Methods and observation techniques used to determine the presence or release of toxic and hazardous substances in the work area.

4.1.6 Safe practices employees can use to protect themselves from hazards in their workplace; including specific procedures the employer has implemented to prevent exposure to hazardous chemicals such as appropriate engineering controls, emergency procedures, and personal protective equipment options.

4.1.7 Explanation of the labeling system and what the label information means.

4.1.8 Explanation of SDS's and how employees can use this information to protect themselves.

4.1.9 GHS Training on SDS, pictograms, labels, etc.

4.1.10 Any operations in their work area where hazardous chemicals are present.

4.1.11 Measures employees can take to protect themselves from hazards in their workplace; including specific procedures the employer has implemented to prevent exposure to hazardous chemicals such as appropriate work practices, emergency procedures, and personal protective equipment.

4.1.12 Explanation of the labeling system and what the label information means

4.1.13 Explanation of SDS's and how employees can use this information to protect themselves

4.2 Note: To facilitate understanding of the new GHS system, the OSHA HCS requires that employees be trained regarding the new label elements and SDS format by Dec. 1, 2013. Employers are required to update the hazard communication program and to provide any additional training for newly identified physical or health hazards no later than June 1, 2016.

4.3 Prior to a new chemical hazard being introduced into any section of the work site, the process will be reviewed and addressed at the site safety/foreperson's meeting before the scope begins. There will be a verification by SDC site personnel to ensure that the safety precautions listed in the SDS are adhered to without compromise.

## 5.0 Non Routine Tasks

5.1 The Site Safety Manager/ Competent Person and the immediate supervisor of an employee performing a nonroutine task, such as cleaning machinery and other process equipment, is responsible for ensuring that adequate training has been provided to the employee on any hazards associated with the nonroutine task. Employees share in this responsibility by ensuring that their immediate supervisor knows that the nonroutine task will be performed.

5.2 Special work permits are required for the performance of certain nonroutine tasks, such as entry to confined spaces, breaking and opening piping systems, and welding and burning. For some special tasks, employees are required to follow special lockout/tagout procedures to ensure that all machinery motion has stopped and energy sources are isolated prior to and during the performance of such tasks.

## 6.0 Recordkeeping

6.1 Records pertaining to the hazard communication program will be maintained by the Site Safety Manager/ Competent Person. The Site Safety Manager/ Competent Person will keep the following records:

6.1.1 Chemical inventory list

6.1.2 Hazardous material reviews

6.1.3 Copies of phone call logs and letters requesting SDSs

6.1.4 Employee training records

6.1.5 Warnings issued to employees for not following the hazard communication program

6.2 Shawmut complies with all federal requirements for hazardous communication.

6.3 All employees of Shawmut and subcontractors are required to attend GHS training before using chemicals.

6.4 Exposure of employees to inhalation, ingestion, skin absorption or contact with any chemical at a concentration level above those specified by the American Conference of Governmental Industrial Hygienists shall be avoided.

6.5 To avoid over exposure, the use of protective equipment shall be implemented.

6.6 Any equipment used must be approved for each purpose and use. All respirators shall comply with OSHA 29 CFR 1910.134

6.7 In general, all areas where chemicals are being handled shall be ventilated properly as per OSHA 1925.57 and shall be used continuously during the operation.

6.8 Disposal of chemicals shall be in accordance with all federal regulations.

6.9 Particle filter respirators or dust filters may be used for short or occasional exposures to dust when not feasible to control dust by exhaust ventilation.

## 7.0 List of Hazardous Chemicals

7.1 A thorough inventory of all known toxic and hazardous substances used at Shawmut Design and Construction projects should be conducted. Use the form below to help organize the inventory list. Further information on each noted substance can be obtained by reviewing the appropriate Safety Data Sheets.

| Identity of Chemical | Substances | Work Area and Process |
|---|---|---|
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## 8.0 Hazardous Substances in Unlabeled Pipes (if applicable)

8.1 The following policy has been established to ensure that our employees and subcontractors who work on unlabeled pipes have been informed about any hazardous substances contained within. Prior to starting work on unlabeled pipes workers are to contact their supervisor for the following information:

8.1.1 The hazardous substance in the pipe.

8.1.2 Potential hazards.

8.1.3 Safety protocol per hazard classification to be adhered to...

## 9.0 Informing Contractors

9.1 It is the responsibility of the **subcontractor or client vendor** to provide **Shawmut Design and Construction** with the following information:

9.1.1 Notify contractors at the site foreperson/safety of the toxic and hazardous substances to which they may be exposed while on the jobsite and how the appropriate SDS can be obtained.

9.1.2 Precautionary measures that need to be taken to protect contracted employees during the workplace's normal operating conditions and in foreseeable emergencies.

9.1.3 Explanation of labeling systems used by **subcontractor.**

9.2 **The Project Manager** will be responsible for contacting each subcontractor before work begins, to gather and disseminate any information concerning chemical hazards that the contractor will bring to our workplace and notify the assigned site Supt/safety manager of any high hazard product/ material.

9.3 If anyone has questions or does not understand this plan, please contact the **Health and Safety Director (617-622-7000).**

9.4 **Shawmut Design and Construction** hazard communication program will be monitored by the Safety Department to ensure that the policies are carried out and the plan is effective.

# MODULE 16 – Trenching and Excavation

## 1.0 Excavating and Trenching

1.1 A competent person will be present during excavation activities on all Shawmut Design and Construction projects. The competent person will provide direction and train site personnel with the use of a toolbox talk, scope specific to excavation and trench hazards and verbal communication during ongoing operations. They will evaluate the area for hazards associated with the type of work to be performed. Inspection of the excavation and adjacent areas will be done on a daily basis, before each shift and upon return from site established break times for possible caveins, failures of protective systems and equipment, hazardous atmospheres, or other hazardous conditions that may have arisen. An excavation safety checklist maybe requested by SDC site personnel along with a JSA to manage possible hazards.

1.2 All trench boxes, shields or other design methods will have tabulated date and / or be approved by a registered professional engineer and be in compliance with Subpart P. This data will be in writing and be kept on the jobsite while work is in progress. 29 CFR 1929.650 in its entirety will be incorporated by reference.

1.3 No matter how many trenches you have worked in, consider each and every one you enter as if it was your first.

1.4 Keep unauthorized personnel away from trenches and open excavations. Open excavations can collapse. If an individual should step too close to the edge, it may cause the banks to collapse, endangering not only the lives of the people in the hole, but anyone who may be standing on the banks.

1.5 Substantial perimeter protection (such as guardrails, jersey barriers, etc.) or coverings shall be provided around all excavations where personnel or vehicles are exposed to a fall into an excavation. This is extremely critical in areas where personnel and equipment are exposed to contractor's operations.

1.6 Excavations greater than 4' deep should be tested daily for hazardous atmospheres (such as oxygen deficiency, carbon monoxide, methane, and hydrogen sulfide) prior to employees entering trench in accordance with 29CFR 1926.651 (g). Shoring may be required in any excavation below 4'. See OSHA Regulation Subpart P 1926.650 through 1926.653.

1.7 No two trenches are alike. The following points must be considered when entering a trench:

1.7.1 Traffic

1.7.2 Adjacent structures and their condition

1.7.3 Soil

1.7.4 Groundwater/surface run-off

1.7.5 Underground utilities

1.7.6 Weather

1.7.7 Shoring (remember the 3S's- Sheet, Shore, Slope)

1.7.8 Testing and controls (atmosphere)

1.7.9 Means of entering and exiting excavation area

## 2.0 Safety Requirements

2.1 The following safety requirements shall be enforced for all excavations:

2.1.1 **Notify Dig Safe or national call before you dig within 72 hours (1-888-DIG-SAFE)**

2.1.2 **Record Date, time and assigned reference number.**

***Shawmut's Dig Safe Identification Number is 50978***

2.1.3 Prior to opening an excavation, soils testing may be required due to known hazards, by a geotechnical engineer to identify any existing hazardous materials present and to classify the soil type thus creating a guideline for PPE and retention protocol. A PHA shall be submitted for review to help identify and determine whether underground installations, i.e., telephone, water, fuel, electric, gas lines, etc. that maybe encountered, and if so, where such underground installations are located.

2.1.4 When the excavation approaches the marked location of such an installation, proper supports shall be provided for the existing installation. Utility companies and authorities shall be contacted and advised of proposed work prior to the start of actual excavation; hand excavation within 18 inches of any utility shall be protocol using appropriate hand tools.

2.1.5 The excavation contractor's competent person, in compliance with OSHA's excavation law 1926.650, 1926.651, 1926.652 and 1926.653, shall determine the classification of the ground to be excavated. Soil A, Soil B and Soil C.

2.1.6 Prior to entering any excavation, atmospheric readings may be taken if there is a potential concern, such as working in holes >4' deep. Periodic readings shall be taken while the workers are in the excavation. All readings shall be recorded.

2.1.7 The walls and faces of all excavations in which employees are exposed to danger from moving ground shall be guarded by shoring, sloping to the proper angle of repose, or some other equivalent means.

2.1.8 The determination of the angle of repose and design of the supporting systems shall be based on careful evaluation of pertinent factors such as type of soil; possible variation in water content of the material while the excavation is open; anticipated changes in materials from exposure to air, sun, water, or freezing; loading imposed by structures, equipment, overlying material; and vibration from equipment, traffic, or other sources.

2.1.9 The soils report shall be used as a guideline for cutting back the excavation sides to the proper angle of repose. Any shoring system being used on excavations 20' deep or less shall use the suggested design systems as offered in the OSHA standard. Any shoring systems that are deeper than 20' or are different than the suggested OSHA designs shall have drawings on them. These drawings shall be stamped by an in-state P.E. Again, copies of the shoring system drawings shall be on site during the excavation activities with a copy submitted to SDC site personnel and placed on file in the SDC safety station.

2.1.10 Shawmut Design and Construction or any subcontractor performing excavation work shall have a designated competent person on site during excavation operations. The excavation shall be inspected during excavation activities, after every rainstorm or other hazard increasing occurrence, and the protection against slides or cave-ins shall be increased if necessary. Signs of cracking or sliding of soils on tops or sides of the excavation are danger signs.

2.1.11 The designated competent person shall be familiar with the OSHA Excavation Standards and have the authority to stop work in the excavation at any time.

2.1.12 All excavations 4' deep or more shall require a means of egress every 25'. This means of egress may be a ladder, stairways or ramp.

2.1.13 In excavations that employees may be required to enter, excavated or other material shall be kept back at least 2’ from the edge of the excavation.

2.1.14 Water shall not be allowed to accumulate in an excavation. Diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation.

2.1.15 Adequate physical barrier protection shall be provided at all excavations to eliminate the possibility of passing personnel and or vehicles from falling into the excavation. And the possibility of striking personnel in or exiting the excavation. Wells, pits, shafts, etc., shall have appropriate signage identifying the hazard and shall be barricaded and or covered.

2.1.15.1 Barriers for vehicles or heavy equipment shall be substantial, such as jersey barriers. And when used, top height must be compliant with OSHA subpart M (42” =/- 3”)

2.1.16 Guardrails shall be installed by site contractor at the top of excavations or trenches that are 6’ or more in depth. Guardrails shall comply with 29 CFR 1926.502

2.1.17 Other protective systems/ warning systems shall be used for all excavations/ trenches of any depth <6’ to warn of slip, trip, or fall hazard.

2.1.18 Walkways and ramps over excavations shall be constructed of proper planking (scaffold or equivalent), on appropriately rated stringers, with guard-rails on both sides. That consist of a mid and top rail.

2.1.19 If it is necessary to place or operate excavating machinery or trucks on a level above and near an excavation, a PHA will be written and reviewed by site staff, the side of the excavation exposed to the aforementioned shall be sheet-piled or shored and braced as necessary to resist the extra pressure of such superimposed loads.

2.1.20 When mobile equipment is used or allowed adjacent to excavations, substantial stop logs or barricades shall be installed.

2.1.21 Sides of trenches more than 5' deep shall be shored or sloped back to the angles of repose or proper protective systems in place.

2.1.22 Portable trench boxes or sliding trench shields may be used for the protection of employees in lieu of shoring or sloping. They shall be designed and constructed to provide protection equal to or greater than shoring required for the trench. The tab data and or engineered stamped plan shall be submitted to SDC site personnel and placed on record in the SDC safety station.

2.1.23 Open excavations in the public way shall be identified by appropriate signage, securely covered to adequately support 4 times its maximum load or guarded on all open sides with a standard guard-rail during non-working hours.

2.1.24 For all trenches / excavations >4' in depth, testing shall be conducted to test atmospheric conditions prior to worker entry. All testing shall be done as often as necessary to ensure the atmosphere remains safe.

2.1.25 All local, state, or federal requirements shall be met prior to any trench or excavation being made.

2.1.25.1 This is the responsibility of the site contractor to obtain full compliance.

## 3.0 Definitions

3.1.1 An **excavation** is any man-made cavity or depression in the earth's surface formed by earth removal and producing unsupported earth conditions by reasons of the excavation.

3.1.2 A **trench** is a narrow excavation at least 4' deep and not over 15' wide.

3.1.3 The **angle of repose** is the greatest angle above the horizontal plane at which a material shall lie naturally, without sliding.

3.1.4 Hazardous Atmosphere is an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful and may cause death, illness or injury.

**General Information:**

| | | | |
|---|---|---|---|
| Job Name: | | Job Number: | |
| Subcontractor: | | Competent Person: | |
| Form Completed by: | | Date: | |
| Dig Safe #: | | Shawmut Representative: | |
| Date Dig Safe Notified: | | Date Dig Safe on Site: | |

**Description of work:**

| |
|---|
| |

| Site Characteristics: | YES | NO | Comments |
|---|---|---|---|
| Soils hazardous materials analyses received? | | | |
| Any Hazardous Materials found? | | | |
| Underground Utilities identified? | | | |
| Proposed excavation area clearly marked out? | | | |
| For Private Property where Dig Safe or other one call center does not have access, has a Private Utility Locator company been called? | | | |
| Name of Private Utility Locator: | | | |
| Pre-excavation site inspection completed? | | | |
| Competent Person on site and identified?<br>Who is the CP for M/E/P trades if site contractor is not present? | | | |
| Will excavation be >5'? | | | |
| What will the cave in protection methods be? | | | |
| Attach tab data/ drawing/ sketch of timber shoring | | | |
| What will the access be? | | | |
| Are overhead power lines present? | | | |
| If yes, are signs posted and adequate safety precautions taken? | | | |
| Are the emergency shut off valves for all utilities known? | | | |
| Is fencing being installed? | | | |
| Will scrim be attached to the fence? | | | |
| If yes, are the fence posts driven or added bracing in place?<br>***remember - do not put scrim on gates*** | | | |
| Off hours protection in place? Describe: | | | |
| Blasting required? | | | |
| Confined space work (depth >4') need permit | | | |
| Erosion control methods identified? | | | |
| Hydraulic spill kits on site? | | | |
| Road work required? Need separate plan | | | |

# MODULE 17 – Concrete / Masonry Safety

## 1.0 Purpose

1.1 This document is to describe the policy for erection, placing, and dismantling of concrete formwork, and concrete placing operations as it relates to all Shawmut Design and Construction projects and all associated subcontractors and support organizations.

## 2.0 Scope

2.1 This document applies to all Shawmut Design and Construction job sites.

## 3.0 Handling of Concrete Products, Formwork and Associated Components

3.1 Concrete products contain caustic materials that may burn, dry, or damage skin tissues. Appropriate skin protective creams and lotions shall be provided and utilized by all effected personnel, when necessary.

3.2 Appropriate work attire is required for concrete work, forming, and placing operations. This includes at a minimum standard T shirts w/ sleeves and full-length pants, concrete gloves, protective eye wear and knee pads (when applicable), NIOSH approved dust masks, concrete rubber boots, and hard hat. During hot weather operations cooling vests and hard hat liners shall be provided to employees who request them by each employer.

3.3 Concrete buckets are to be inspected prior to each day's use for damage to the bucket and all of its components including the lifting apparatus, slings, hooks, cables, etc. If any one of the components is found to be damaged or defective, the bucket is to be removed from service and tagged as "OUT OF SERVICE" or "DO NOT USE" until it is repaired and deemed fit for service. All buckets shall be lifted by ANSI approved domestically made drop forged safety hooks and shackle assemblies. Personnel are not permitted to ride a concrete bucket for any reason at any time. Concrete buckets are never to be flown or suspended over personnel.

3.4 Concrete buggies (Georgia Buggies) may only be operated by trained and qualified personnel. Buggies will only be driven to and from drop areas with the operator facing the direction of travel to avoid potential accidents.

3.5 Access ramps, walkways, ladders, and formwork scaffolding are to be installed in an appropriate approved manner under the supervision of a qualified Competent Person. Any wall, or column form over 5 feet in height will have an appropriate means of access, tie off anchor point and work platform for pouring operations. Continuous wall forms over five feet in length and height will have a scaffold on at least one side for erection, pouring, and finishing operations.

## 4.0 Formwork Assembly, and Installation

4.1 Wall form scaffold platforms will be constructed under the guidance of a Competent Person. Forms or formwork six feet or greater in height will have at least one scaffold platform with which to work from.

4.2 Safe access is required and will be installed utilizing approved manufactured or equivalent ladders, ramps, stairways, or access towers.

4.3 Employees involved in formwork assembly operations over six feet in height are required to wear all appropriate fall protection equipment. 100% fall protection is required with all components being certifiable fall arrest components. Positioning devices are for positioning only and are not to be considered as a fall protection device. Two legged lanyards are to be utilized, with both legs

being attached at all times (with the exception for traversing), be sure one leg is attached at a different height/level than the other. If retractable lanyards or lifelines are in use, pay special attention to avoid the potential for pendulum swing.

4.4 Employees involved in constructing wall forms by hand using wood, metal, or aluminum module forms will be supervised by a qualified person. The qualified person will ensure that the first 8-foot lift of forms is set from a flat level surface, deck, or platform. Before setting any additional vertical panels, a scaffolding system utilizing wall form brackets or equivalent will be erected to allow for employee working platforms. The scaffolding system will be fully planked, and hand railed prior to use. Appropriate ladder access points, openings, and distances will be maintained.

## 5.0 Formwork Stripping and Removal

5.1 Prior to the removal of any formwork systems or components authorization will be obtained from the required authority to remove formwork to ensure that, the poured concrete has reached its required strength. This authority should be placed in writing in the superintendents daily and concrete logs.

5.2 Prior to stripping operations commencing, all appropriate flagging, pendants, signage, barricades and both written and oral notifications to other trades working in close proximity to stripping operations or areas needs to be communicated.

5.3 Concrete and site supervision must clearly mark with red danger tape (Danger Do Not Enter) concrete formwork stripping area. Do not permit unauthorized access to the stripping operations areas and subsequent lower areas as well.

5.4 Every effort is to be taken to reduce the potential for falling materials and debris while stripping formwork systems or components. This includes but is not limited to forklifts, scissors lifts, scaffolding systems, aerial lifts, etc. All lifts will be operated following the manufacturers recommended guidelines.

5.5 Trained watch personnel should be assigned to keep the area in, and around the stripping operations clear of unauthorized personnel and to maintain the integrity of the warning systems. Watch personnel will be provided with all appropriate safety equipment: i.e. reflective vest, bullhorn, flashlights, whistles, flagging, traffic cones, etc.

## 6.0 Masonry Work

6.1 Establish a limited access zone prior to start of masonry work. As per OSHA standard 1926.706a

6.2 Controlled access zones/ overhand bricklaying operations are not allowed as exceptions to our 6’ fall rule.

6.3 All masonry walls >8’ in height shall be adequately braced to prevent overturning and to prevent collapse. The bracing shall remain in place until permanent supporting elements of the structure are in place

6.4 Scaffold shall be erected and utilized as per SDC Scaffolding, Staging and Ladder Safety Program Module 04.

# MODULE 18 – Fire Prevention Welding and Burning

## 1.0 Purpose

This procedure is intended to present a base set of guidelines and is not intended to be all-inclusive.

1.1 It is intended that these procedures apply to all Shawmut Design and Construction company site activities and can be used as a framework for expanded site procedures.

1.2 This procedure is to be used in conjunction with the state and local fire marshals' regulations pertaining to construction.

## 2.0 Housekeeping

2.1 An orderly arrangement of material and equipment shall be maintained at all times as well as the maintenance of air quality during construction activities.

2.2 Materials shall be stored in a manner so as not to obstruct access to fire protection equipment, electrical panels, motor control centers or aisles and hallways that serve as an exit.

2.3 Materials in work areas shall be limited to actual needs and be stored in a manner to protect combustible material from ignition sources.

2.4 Construction areas shall be cleaned on a daily basis. Material is to be stored to prevent tripping, slipping and fire hazards.

2.5 Walkways, aisles, stairways and passageways shall be maintained in a clear and usable condition.

2.6 Containers shall be provided for the separation of waste. Containers to be used for the containment of combustible, flammable, or toxic wastes shall be constructed of metal and equipped with covers and labeled. Containers shall be emptied at regular and frequent intervals.

2.7 **Spill kits shall be available for the containment of material spills**. Individuals trained to handle the material shall clean up spills. Consult the SDS for proper handling instructions and disposal information.

2.8 Materials shall not be stored within six (6') feet of any inside opening or hoist way.

2.9 Materials shall be stacked, racked, blocked or interlocked so as to prevent sliding, falling or collapse.

## 3.0 Flammable and Combustible Liquids

3.1 Flammable liquids (such as gasoline, acetone, denatured alcohol, etc.) shall not be used for cleaning.

3.2 Solvents shall not be used near ignition sources.

3.3 Flammable liquids shall be handled and used only in approved, properly labeled metal safety cans, with flash arrestor screens in place, per the manufacturer.

3.4 OSHA, NFPA, approved, properly labeled storage cabinets located above ground shall be provided for the storage of flammable liquids above 25 gallons.

3.5 Stored quantities shall not exceed allowable limits and shall be stored in compliance with federal, state and local regulations.

3.6 Flammable and combustible liquids shall be stored per MSDS sheet requirements and not in areas used as exits, stairways or passageways.

3.7 Portable storage tanks shall be maintained in accordance with state and local fire marshal regulations. The proximity to buildings and other flammables shall be in compliance with appropriate regulations. Proper fire extinguishing equipment shall be maintained as outlined by CFR 1926.152, and fire department standards. A spill kit shall be on site and in close proximity to storage tanks.

3.8 Smoking shall be prohibited where refueling activities are in progress. Clear and legible signs shall be posted.

3.9 Vehicles shall not be permitted to idle, nor shall they be running anywhere near any building air-supply in-takes.

3.10 Combustible liquids, including oils or grease, shall be stored in accordance with OSHA and the local fire department-approved containers or storage tanks.

The tanks shall be:

- Maintained in a manner that prevents leakage.
- Located in areas free of combustible materials.
- Vented or otherwise constructed to prevent development of pressures or vacuum as a result of filling, emptying, or atmospheric temperature changes.
- Permanent storage areas shall be provided for containment or removal of the contents.
- All piping valves and fittings shall be capable of withstanding working pressures and stresses compatible with the type of liquid stored and maintained in a manner to prevent leaks. Shut off valves should be installed in case of a line rupture. These valves must be operable at all times.
- Fuel lines shall be equipped with valves capable of stopping the flow of fuel at the source and shall be located and maintained to minimize fire hazards. This does not apply to fuel lines on self-propelled type equipment.

3.11 Particular care will be taken when welding and cutting in locations where combustibles are nearby. When welding or cutting is done, the surrounding area must be inspected during and at the completion of the work. Combustible material shall be removed or protected with fire resistant blankets, and an adequate number of approved fire extinguishers must be immediately available.

3.12 A completed and approved hot work permit shall be on site as per SDC hot work policy.

3.13 As necessary, a fire watch shall be assigned the responsibility to observe the process to assure no latent fire is smoldering and that the fire watch stays at least 30 minutes following the operation. The fire watch shall have no other duties that take him from the immediate area.

3.14 Temporary structures shall be built in accordance with local and federal laws and they shall be constructed in such a manner that a fire cannot cause damage to any permanent structures.

3.15 Building permits shall be obtained for the building of such and be prominently displayed in the structure.

3.16 Temporary plastic enclosures which are susceptible to burning shall be protected from fires in accordance with NFPA 102 Standard for Temporary Structures.

- A specification sheet noting the fire resistance shall be submitted to the Project Manager and local Fire Marshall for review.
- Should be installed so as to not come in contact with a heat source.
- Exits should be clearly marked and personnel trained on the location of the exits.
- Fire extinguishers posted and maintained within 75' of any location inside the covered membrane.

## 4.0 Compressed Gas Cylinders

4.1 Compressed gas cylinder valves shall be closed whenever work is finished; cylinders are empty or are moved at any time.

4.2 Gauges shall be removed, and valve protection caps shall be in place before moving cylinders, except when cylinders are secured in a carrier designed for such use.

4.3 Compressed gas cylinders shall not be hoisted by the valve cap or by means of magnets or slings.

4.4 Compressed gas cylinders shall be secured in an upright position at all times, except for short periods when being carried or hoisted. When being hoisted, they shall be secured in an approved cage or basket.

4.5 Compressed gas cylinders shall be located to avoid exposure to sparks, hot slag, or flames. If this cannot be avoided, fire resistant shields shall be provided.

4.6 Compressed gas cylinders shall not be used as or placed where they may become part of an electrical circuit.

4.7 Compressed gas cylinders shall not be taken into a confined space.

4.8 Compressed gas cylinders shall not be used as rollers.

4.9 Cylinders in storage shall be separated (oxygen from fuel gas) by a 5' high barrier with a one-hour fire rating fire rating or by a distance of 20'.

4.10 Welding gases shall be stored in isolated areas and segregated by type of gas per the MSDS sheet.

**5.0 Cutting/Welding**

Hoses will be rolled up at the end of each shift and the gages disconnected at the cylinders. Caps shall be replaced.

5.1 Valves on fuel gas shall not be opened more than 1 1/2 turns, and where special wrenches are required for closing the valve, wrench shall be left in position on the stem at all times or until task completion and replacement of caps.

5.2 Fuel gas hose and oxygen hoses shall be easily distinguishable and shall not be interchangeable.

5.3 Hoses and torches shall be inspected before use, and defective hose removed from service.

5.4 Boxes used to store fuel gas hoses that have been in use shall be ventilated.

5.5 Torches shall be lighted by friction lighters or other approved devices only. Cylinders, all hose apparatus, and connectors shall be kept free of oil and grease, and not handled with oily or greasy hands or gloves.

5.6 Fuel gas/oxygen equipment shall be disconnected from the source when left unattended, at the end of shift and the cylinders separated per MSDS sheet requirements if inactivity of the set up will exceed 24 hours. Torches shall not be left inside a confined space unattended.

5.7 All employees shall utilize the proper personal protective equipment, clothing and engineering controls when performing or assisting in cutting and welding operations (i.e., burning glasses, shields, gloves and smoke eaters).

5.8 Welding leads and equipment shall be properly maintained as outlined by CFR 1926.351, and shall be inspected before use, welding lead connections at the arc welder shall have connection points shielded. Oxygen/fuel gas systems shall be equipped with UL or FM approved back-flow valves, flash-back arrestors, and pressure relief devices. Electric welding equipment, including cables, shall meet the requirements of the National Electric Code.

5.9 Arc welding and cutting operations shall be shielded by noncombustible or flameproof screens, shields, or other safeguards for the protection of personnel or materials exposed to sparks, slag, falling objects, or the direct ray of the arc.

5.10 Pipelines containing flammable liquids or gases, or electrical cables shall not be used as a ground.

5.11 The frame of all arc welding or cutting machines shall be effectively grounded.

5.12 If electrode holders are to be left unattended, the electrodes shall be removed, and the holder placed or protected from unintentional contact.

5.13 Welding machines shall be turned off when being moved or the welder must leave his/her work for any length of time.

5.14 No welding or cutting shall take place in the vicinity of flammable materials, compounds, or dust that may create an additional hazard.

5.15 A fire extinguisher with a 20lb. - ABC rating shall be at the work location during welding, cutting, soldering, or fire watch operations.

5.16 If normal fire prevention methods are not sufficient to adequately ensure the prevention of fires, additional personnel shall be added to guard against potential fires. Fire watches shall be trained and shall remain at the location for a sufficient amount of time after work is stopped to ensure that no possibility of fire exists.

5.17 Tanks, vessels, drums, etc. that have contained flammable or toxic liquids shall be filled with water or thoroughly cleaned before welding, cutting, or heating is attempted.

5.18 Sufficient ventilation shall be provided as needed to maintain welding fumes and smoke below action level limits. Where sufficient ventilation cannot be achieved, alternative methods shall be developed before work progresses.

5.19 Where preservative coatings are present, the coating shall be removed, or alternative methods used for a sufficient distance in each direction to prevent appreciable heating of the coating.

5.20 Smoke eater shall be utilized during any welding or cutting operations inside of a building.

## 6.0 Fire Protection Equipment

6.1 **Fire extinguishers** – a 20lb ABC type fire extinguisher shall be provided and maintained at the following locations:

6.1.1 For each 3000 square feet of a protected building and within 75' of uninterrupted travel and at all hot workstations.

6.1.2 Within 50' of where more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gases are being used.

6.1.3 In open storage yards within 75' of uninterrupted travel.

6.1.4 At flammable or combustible liquid storage areas.

6.1.5 On all motorized equipment.

CFR 1926 and NFPA regulations (NFPA Fire Protection Handbook, NFPA Inspection Manual, and NFPA Conducting Fire Inspections) shall be consulted to determine proper extinguisher type, size, and placement.

6.2 Fire extinguishers shall be properly supported, conspicuously marked, and clear access to each shall be maintained.

6.3 The foreperson and/or the Shawmut Design and Construction Superintendent shall inspect fire extinguishers at least once per month. A total maintenance inspection shall be completed annually by a third-party company.

6.4 Employees shall be trained in the use of fire extinguishers.

6.5 Fire extinguishers shall be replaced immediately after discharge with another fully charged, size and type extinguisher.

6.6 A water line should be extended as soon as possible to supplement the extinguishers.

## 7.0 Temporary Heating

7.1 Prior to installing a temporary heating system, plans and procedures have to be submitted to the Project Manager and the local fire department well in advance in writing. It should outline the duration of planned use. Fuel handling procedures, safety procedures, type of heating system, and other critical aspects of the plan should be outlined**.** The local fire department must approve the plan prior to implementation**.**

7.2 All heating equipment shall be piped, wired, and operated in accordance with the applicable laws, codes, and regulations, Underwriters Laboratories approved, and installed as per manufacturer guidelines.

7.3 The fuel supply to the temporary heating system shall have an automatic shut off in the event of a shut off.

7.4 Temporary heating systems that are fueled by propane shall have placards at all project entrances.

7.5 If 100lb propane cylinders are used, heating appliances should have a minimum of three (3) 100lb cylinders manifold together if the BTU rating of the appliance exceeds 100,000 BTUs.

7.6 If bulk propane is used, tanks shall be protected by jersey barriers and a fence. All piping shall be protected from impact or crushing.

7.7 Except during actual use, LPG cylinders shall not be stored within any building.

7.8 Open fires and warming fires are prohibited on all Shawmut Design and Construction projects. Violations of this rule shall be subject to dismissal from the project.

7.9 Temporary enclosures shall be made of fire-retardant materials.

## 8.0 Hot Work

**"Hot work"** is defined as a process or procedure causing an ark, spark, flame, or heat that could result in a fire if not properly controlled. Common examples of hot work include welding, burning, cutting, brazing and soldering.

Contractors shall control the hazards associated with hot work by developing, implementing and enforcing an effective fire prevention safety program that follows NFPA 51B, and uses the hot work permit system.

All planned hot work should be fully described during the permitting process which should be completed and approved by SDC site superintendent before the hot work begins. In addition, a hot work permit may also legally be required from the local fire department. This permit shall be required to be completed digitally and/ or posted on-site at all times.

Hot work permits may be restricted to normal work hours and the work area shall be inspected to see that adequate controls have been established (see fire prevention).

If fire alarms and fire detection system(s) need to be shut down during the performance of hot work, Shawmut Design and Construction may coordinate the landlord and the local fire dept. if required.

Subcontractors may reduce the risk of fire and related injury and property damage associated with hot work if they implement the following precautionary measures:

8.1 Verify that all equipment is inspected and in satisfactory working order.

8.2 Ensure that the area is clear of all combustibles.

8.3 Ensure that the hot work is not taking place in a flammable atmosphere.

8.4 Verify that floors are free from combustibles for a radius of 35'. If the floor is a combustible, it should be kept wet or otherwise protected, taking care to guard against possible electrocution.

8.5 Ensure that all openings and cracks in walls and floors or ducts are covered with fire retardant covers.

8.6 Protect and shield conveyor systems that may carry sparks to distant combustibles.

8.7 If hot work is being performed on a wall, partition, ceiling, or a roof, precautions shall be taken to prevent ignition of combustibles on the other side by relocating the combustibles, or if not feasible, provide a fire watch.

8.8 Hot work shall be done in close proximity to sprinkler heads provided the sprinkler shall be protected from accidental discharge. Once the task is completed, the sprinkler shall be put back in service.

8.9 Hot work shall only be conducted in an area where there is proper ventilation.

8.10 A fire watch shall be provided as per SDC Hot Work permit procedure.

8.11 Only trained personnel can be involved with hot work operations, such as NFPA 51B training or the equivalent.

# Hot Work Permit

| | | | |
|---|---|---|---|
| **Company**: | | **Date:** | |
| **Responsible Person:** (print name clearly) | | **Work Start Time:** | |
| **Fire watch from Local** | | **Work Stop Time** | |
| **Fire Department Required?** (circle one) | **Yes** **No** | **Location:** | |
| **Work to be Performed:** | | | |

**Check off all required items below as they are completed**

| | Yes | No |
|---|---|---|
| Flame or spark-producing equipment has been inspected and found in good repair? | | |
| Are there any combustible materials around area of arc, spark, or flame? | | |
| The work will be confined to the area or equipment specified on this permit. | | |
| Surrounding floors have been swept clean and, if combustible, wet down. | | |
| Contractor has a 10A or better fire extinguishers available and trained personnel to use them. | | |
| All combustibles have been relocated 35' from the operation and the remainder, if any, protected with flame retardant covers. | | |
| All floor and wall openings within 35' from the operation have been tightly covered. | | |
| Fire Watch to patrol the area, including floors below, during any lunch or rest period and for at least 1 hour after the work has been completed. | | |

I attest that the above precautions have been taken: _____ Time _____ Responsible Person Signature

Reviewed and approved by superintendent: _____ Time _____ SDC Superintendent Signature

Fire Watch complete: _____ Time _____ Fire Watch Print Name _____ Fire Watch Signature

Hot Work Permit Closed: _____ Time _____ SDC Superintendent Signature

***This permit expires 1 shift after the designated "start time." If work is to continue, another permit must be issued.***

## Appendix B - Hot Work Permit Issue Log

| Name | Date | Company | Start Time | Finish Time | Fire Watch Sign-Off Time | Location of Hot Work | Permit Returned |
|---|---|---|---|---|---|---|---|
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# MODULE 19 – Workplace Drug, Alcohol, Tobacco and Firearm Policy

## 1.0 Introduction

1.1 Shawmut Design and Construction uses this Drug, Alcohol, Tobacco and Firearm Policy to ensure a safe work environment for employees and all others on a work site. The use of these items-controlled substances (including narcotics, marijuana, or prescription drugs) by employee is not tolerated due to the unacceptable risks of work site accidents, injuries, illnesses or death.

## 2.0 Purpose

2.1 Shawmut Design and Construction will maintain a safe work site for all employees, and one in which the employees shall be free of the problems associated with the abuse of controlled substances, alcohol, tobacco or firearms.

## 3.0 Policy

3.1 The use or abuse of controlled substance, alcohol, tobacco, vape or firearms is not to be tolerated and is prohibited on Shawmut Design and Construction work sites, and any and all efforts will be taken to eliminate these items. Any and all personnel under a doctor's care that have been prescribed medication will follow the directions and adhere to all warnings. If used during construction duties, notify your supervisor and if there is any limitation, such as operating heavy equipment, it is the responsibility of the Competent Person to provide alternative work

## 4.0 Scope

4.1 The Drug, Alcohol, Tobacco, Vape and Firearm Policy applies to all employees of Shawmut Design and Construction, subcontractors and vendors of Shawmut Design and Construction and their clients. The non-prescriptive use, sale, possession, distribution, dispensation, manufacture, or transfer of a controlled substance, drug related paraphernalia, or the use of tobacco or firearms or being under the influence of controlled substances or alcohol shall not be tolerated and is prohibited on project sites.

## 5.0 Procedures

5.1 Shawmut Design and Construction will not tolerate abuse of controlled substances, use of alcohol, tobacco, vape or firearms. Shawmut Design and Construction retains the right to discipline and terminate as necessary in order to maintain employee compliance with this Drug, Alcohol, Tobacco, Vape and Firearm Policy.

5.2 No employee shall use, possess, purchase, sell, transfer or be under the influence of alcohol, drugs or other controlled substances while working for Shawmut Design and Construction, or while operating equipment. Additionally, substance abuse which affects an employee's work performance or results in the contractor being under the influence or impaired while working is also prohibited.

5.3 Substance abuse includes the misuse of alcohol, drugs or other substances that have known mind or function altering effects on a person. Prohibited substances include any psychoactive or controlled substances, except as legally prescribed by a licensed physician and used in accordance with the prescription.

5.4 Alcoholic beverages are prohibited on all work sites during and after working hours. The use of alcoholic beverages on any work site will result in immediate removal from the project.

5.5 The use of tobacco or vaping products (smoking or chewing) shall not be allowed at SDC offices or on SDC projects except at designated areas outside of the building.

5.6 The possession or use or the threatened use of a firearm or weapon at any SDC office or on any construction site will result in the immediate removal of the violator.

# MODULE 20 – Emergency Preparedness and Crisis Management

## 1.0 Introduction

Shawmut Design and Construction has incorporated this Crisis Management Program to prepare for the possibility of an unplanned, unwanted crisis or catastrophe. While we do everything we can to avoid a crisis or catastrophe, we want our staff and subcontractors to be as prepared as possible to control the situation should one occur.

## 2.0 Procedures

### 2.1 In the Event of an Emergency

2.1.1 This plan should be enacted in the unlikely event that an emergency occurs onsite, such as a serious accident requiring emergency medical response.

2.1.2 Serious accidents or incidents that require the enactment of the Emergency Procedures Plan are defined as follows:

2.1.2.1 Fatalities - Serious Injuries - Multiple Injuries

2.1.2.2 Major Accidents/ Incidents Involving Equipment

2.1.2.3 Major Oil/ Chemical Spill - Utility Disruption - Fire or Explosion

2.1.2.4 Workplace Violence, etc.

2.1.3 **Note:** The severity of the accident / incident will determine the action taken.

### 2.2 The Emergency Notification Plan Shall be Implemented as Follows:

2.2.1 If the emergency is a serious injury, DO **NOT** move that individual, unless there is a risk of further injury.

2.2.2 Notify a supervisor via cell phone or other means in order to immediately contact emergency services. **State that you have a 911 emergency** and request that the airway remains free, or if that supervisor has a cell phone they may contact **911** directly.

2.2.3 Provide the following information clearly and concisely to the office, or directly to 911:

2.2.3.1 **Nature of incident:**

2.2.3.1.1 Injury, fire, or other as described above.

2.2.3.2 **Location of incident:**

2.2.3.2.1 Give the exact location/description of the area.

2.2.3.3 **Number of injured:**

2.2.3.3.1 Give the number of injured person(s)

2.2.3.4 **Note:** Be prepared to answer questions from the 911 operators. **Answer them in a clear, short, and concise manner**. If an answer to any question posed to you is uncertain, state **"I do not know at this time."**

2.2.4 After the emergency services have been contacted, contact all Shawmut Design and Construction supervisory personnel to respond to the scene. Insist that all non-essential cell phone traffic cease until the emergency is under control.

2.2.5 If an incident has occurred, instruct a Shawmut Design and Construction staff member to go to a pre-designated point **(the site entrance),** to meet emergency personnel and direct them to the area of the incident.

2.2.6 Ensure that the Shawmut Design and Construction Safety Director **(Ph. # 617-622-7000)** is promptly notified so that senior management can be informed, and a thorough investigation may be conducted.

2.2.7 Shawmut Design and Construction management will remain in control of the scene until relieved by a superior authority, such as police or the fire department.

2.2.8 Shawmut Design and Construction personnel will maintain control of the site with respect to the media, the public, and non-personnel access. All questions from the media will be referred to the Crisis Management Team at the main office.

2.2.9 Efforts to preserve the scene and to gather information will be made by Shawmut Design and Construction management, as well as those designated to assist, until they are relieved of that responsibility by law enforcement or other agencies having jurisdiction.

## 2.3 In the Event of an Emergency Evacuation

2.3.1 One should determine if it should be:

2.3.1.1 Project wide OR

2.3.1.2 Local (pertaining to an area within the project)

### 2.3.2 Project - Wide Evacuation Procedures (Whole)

2.3.2.1 The Project Manager, General Superintendent, Safety Manager or appointed designee will be authorized to give the evacuation signal. The evacuation signal may be given via cell phone and/or intercom, and/or three blasts of an air horn, all emergency action plans will be posted on site and reviewed with all subcontractor foreperson at the site safety/foreperson's meeting. Gate designation signage should be in place to eliminate confusion by responding medical personnel.

2.3.2.2 Note: The warning method should be determined prior to starting the project or as the project progresses. Whenever the method is chosen, it must immediately be communicated to the project employees and be posted in a convenient location.

2.3.2.3 "Attention, all personnel, this is an emergency. All employees must evacuate their work areas and proceed to their designated muster points."

2.3.2.4 All other personnel must maintain silence and monitor for any other emergency instructions.

2.3.2.5 All field personnel must make a quick sweep of their work area.

2.3.2.6 All supervisory personnel notified shall then inform all workers including subcontractors, visitors and vendors, etc. of the order to evacuate and direct them to the appropriate muster points. (Ensure that a visitor log is signed)

2.3.2.7 Shawmut Design and Construction Supervisory Personnel shall make all efforts to ensure that prior to entering the site all people are aware of the evacuation procedures and their orientation towards their designated muster points.

2.3.2.8 All equipment must be secured at this time, all cranes must lower their loads and all equipment ignitions are shut off.

2.3.2.9 Personnel should not attempt rescue, as emergency services are already on their way to the site.

2.3.2.10 Shawmut Design and Construction supervisory personnel will act as the captain/co-captains.

2.3.2.11 At the muster point all supervisors are responsible for the accountability of their crews.

2.3.2.12 Every supervisor, including subcontractors, should use their timecards and visitor logs to check-off crew as they are accounted for.

2.3.2.13 Supervisors must verify crew accountability with their forepersons.

2.3.2.14 All must then report to the muster point captains with the headcount results. Forepersons and supervisors shall give their timecards to the muster point captains. This will also act as documentation for total accountability.

2.3.2.15 Employees are not permitted to return to work until the “All Clear” has being given by emergency services. Only then will the Shawmut Design and Construction Project Management permit work to resume.

### 2.3.3 Localized Evacuation Procedure (Small Jobs)

2.3.3.1 Supervisors have the authority to evacuate personnel from a specific work area. The Emergency Response Procedures should be followed to ensure that the appropriate emergency services have been notified.

2.3.3.2 Evacuation of a localized area should be to an area secure enough to be “out of harm’s way.”

2.3.3.3 The key to a proper evacuation is the ability to account for all personnel. The individual giving the evacuation signal must inform all personnel in that area, tell them where to go, and keep them together so that a proper headcount can be conducted.

2.3.3.4 Personnel not accounted for must be reported to the emergency responder’s immediately upon arrival.

## 3.0 Conclusion

3.1 Emergency evacuation procedures shall be adjusted accordingly as more assembly points are established and subcontractors proceed to work on the project.

3.2 **In the event of an emergency such as:**

3.2.1 Building collapse

3.2.2 Crane collapse

3.2.3 Fatality

3.2.4 Crime

3.2.5 Or any other event worthy of media coverage

3.2.5.1 **Call 9-1-1**

3.2.5.2 **Enact Emergency Action Plan**

3.2.5.3 **Note:** The ***Jobsite Superintendent*** is the Incident Commander from this point up until relieved by the appropriate authorities (Fire, Police).

3.2.5.4 Get a head count of all workers, vendors, and visitors that were on the site, by checking:

3.2.5.4.1 Visitor log

3.2.5.4.2 Daily reports

3.2.5.4.3 Foreperson headcounts

3.2.5.5 **Note**: Vendors and visitors should report to the field office, and only when you express permission should they be permitted to visit the site with an escort after filling out a “Visitor Log.”

3.2.5.6 Inform the official incident commander (fire chief) of incident update.

3.2.5.7 Do not permit anyone to leave the designated muster point until they have been accounted for.

3.2.5.8 Do not permit anyone back into the building until it is safe to do so.

3.3 **Immediately contact:**

3.3.1 **Shaun Carvalho** **617-719-2432 Cell**

3.3.2 **Jennifer Mays** **617-799-9296 Cell**

3.3.3 Permit only Shawmut staff and subcontractors onto the project site when the site has been relieved by the official incident commander.

3.3.4 News reporters and media should be directed to company spokesperson: Allison Gifford 857-334-5263 Cell.

3.3.5 **Note**: The media may not enter the jobsite without permission. Please do not talk about the incident with a reporter or anyone else you do not know.

3.3.6 Instruct subcontractor supervisors to assist in getting their employees to also refrain from speaking to the media.

3.3.7 Response to media inquiries:

Ask reporters and the media to wait in a specific area. Tell them that they will be addressed as soon as information is available.

**"*The incident is under investigation. Of course, our first concern is for the health and safety of the people involved. When we have more information, we will share it with you. A Shawmut Design and Construction spokesperson will address the situation shortly. At this time, we need to focus on the situation at hand."***

3.3.8 Message to unauthorized visitors to the site:

Instruct employees, subcontractors, and police officials to assist in keeping unwanted visitors out of the jobsite.

***"I'm sorry, our primary concern is safety. I cannot allow you on the jobsite at this time."***

3.3.9 All night and weekend media calls should be directed to Shawmut's main number at 617-622-7000; our call center will contact the duty officer who will contact the appropriate company spokesperson.

# MODULE 21 – Confined Space Program

## 1.0 Introduction

1.1 The following procedures apply to all confined spaces, such as but not limited to: open top vessels, confined spaces, pits, closed vessels, sewers, tanks, silos, vats, bins, tubs, pits, and pipes or other areas that must be entered through a manhole or other constructed opening. These procedures prescribe minimum standards for preventing employee exposure to dangerous air contaminations, oxygen deficiency, hazards from fixed or mobile mechanical/electrical equipment, the presence of combustibles, and establish minimum requirements for safe entry, work processes and emergency rescue.

## 2.0 Definitions

2.1 Confined Space - A space defined as a space that is:

2.1.1 Large enough and so configured that an individual can bodily enter and perform assigned work

2.1.2 Has limited or restricted means for entry and exit

2.1.3 Is not designed for continuous occupancy

2.2 Dangerous air contaminations - an atmosphere presenting the threat of death, injury, acute illness, or disablement due to the presence of flammable and/or explosive, toxic, or otherwise injurious or incapacitating substances.

2.3 Dangerous air contamination due to the flammability of a gas or vapor is defined as an atmosphere containing gas or vapor at a concentration greater than 20% of its lower explosive (lower flammable) limit (LEL).

2.4 Dangerous air contamination due to combustible particulate is defined as a concentration greater than 20% of the minimum explosive concentration of the particulate.

2.5 Dangerous air contamination due to the toxicity of a substance is defined as the atmospheric concentration immediately hazardous to life or health.

2.6 Hazardous Atmosphere is defined as

2.6.1 An atmosphere that may expose an individual to the risk of health, incapacitation, impairment or ability to self-rescue, injury or acute illness from one or more of the following causes:

2.6.1.1 Flammable gases, vapors or mist in excess of 10% of its lower flammable limit (LFL).

2.6.1.2 Airborne combustible dust at a concentration that meets or exceeds lower flammable limit (LFL)

2.6.1.3 Atmospheric oxygen below 19.5% or above 23.5%.

2.6.1.4 Atmospheric concentration of any substance for which a dose or permissible exposure limit (PEL) is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z which could result in the individual exposure in excess of its dose or permissible exposure limit (PEL).

2.6.1.5 Any other atmospheric condition that is immediately dangerous to life and health

2.7 Oxygen deficiency - an atmosphere containing oxygen as a concentration of less than 19.5% by volume.

2.8 Permit required confined space means a confined space that has one or more of the following characteristics

2.8.1 Contains or has the potential to contain a hazardous atmosphere

2.8.2 Contains a material that has the potential to engulf an entrant

2.8.3 Has an internal configuration that an entrant could become trapped or asphyxiated by inwardly conveying walls or by a floor which slopes downward and tapers to a smaller cross section

2.8.4 Contains any other recognized serious safety or health hazards.

## 3.0 Procedures

3.1 Pre-Entry

3.1.1 The Superintendent will contact the company assigned Safety Manager and jointly develop a detailed program as required on each project. The Superintendent will also discuss, monitor, and enforce the project “Confined Space” program with the crew foreperson assigned the work to include the following “pre-entry” activities:

3.1.2 All lines which may convey dangerous substances into the space will be disconnected, blocked or effectively isolated to prevent dangerous air contamination and/or oxygen deficiency from developing. This will be done in such a manner that inadvertent reconnection is prevented by utilizing the SDC Lock Out Tag Out procedures.

3.1.3 The space will be emptied, flushed, or otherwise purged of dangerous substances to the extent feasible.

3.1.4 To the extent feasible, provisions will be made to ensure ready entry and exit by preventing obstruction of the opening or passageway during work procedures.

3.1.5 The air will be tested with sufficient frequency and shall be conducted by a contractor/site safety authorized competent person to ensure that safe conditions are maintained, with an appropriate device or method to determine whether dangerous air contamination and/or oxygen deficiencies exist. Written record of such testing results will be maintained at the work site for the duration of the work with copies to the Superintendent for analyses and future reference.

3.1.6 Where two or more confined spaces are interconnected, each will be continuously ventilated with either stationary or approved portable blowers provided for this purpose prior to entry and during occupation of the confined space.

3.1.7 Where two or more confined spaces are interconnected, each space will be tested, the results recorded, and the most hazardous condition found will govern procedures to be followed.

3.1.8 No source of ignition will be introduced until implementation of appropriate provisions of this section have ensured that dangerous air contamination due to flammable and/or explosive substances does not exist or will not occur.

3.1.9 Whenever oxygen-consuming equipment such as propane heaters, plumbers' torches or furnaces and the like are to be used, measures will be taken to ensure an adequate source of combustion air and adequate exhaust gas venting. This is to prevent the depletion of available oxygen by the open flame equipment and accumulation of toxic gases such as carbon monoxide.

3.1.10 Instruct all crew personnel as to the requirements contained in the project "Confined Space" program and explain that they are responsible for following all of the detailed steps as described. Said training and instruction will be documented.

3.1.11 A confined space permit may be required on this project. This permit must be signed and posted at the confined space entry location prior to starting any work.

3.2 **Additional safety equipment may be required as follows:**

- Portable instruments with audible alarms to detect oxygen deficiency, toxic gas, and flammable vapors
- Full body harness and lifelines appropriate for the size of the opening and hazards involved
- Self-contained or air-line breathing equipment and 5-min. pack
- Spark-proof tools
- Portable low voltage isolating transformers
- Class (1) Group (D) explosion-proof lights
- Explosion-proof fans or air movers
- Appropriate chemical resistant clothing providing complete body protection
- Work site warning devices and communication equipment
- Mechanical lifting devices for rescue of persons working in a confined space that has a configuration making manual rescue difficult

3.3 **Entry and Operation Procedures**

3.3.1 The requirement such as, but not limited to, safety glasses, hard hats, self-contained breathing apparatus, body harness and lanyard, hoists, atmospheric testing devices, ventilation blowers, and communication devices will be provided as required for each job.

3.3.2 Employees will be trained by their supervisors in the use of safety equipment, operating and rescue procedures, and communication procedures, including instructions about the hazards which are likely to be experienced. Said training will be documented.

3.3.3 Under no circumstance is any Shawmut employee permitted to loan out an air monitor to any subcontractor involved in confined space work. That monitor must be provided by the sub itself.

3.4 Additional Safety Requirements

3.4.1 Training – all persons involved with Confined Space work will be properly trained:

3.4.1.1 Attendants – workers outside the entry point monitoring conditions for the entrants/ workers inside the confined space

3.4.1.2 Entrants – workers entering and working in confined space

3.4.1.3 Air monitoring equipment – shall ALWAYS be used, for permit and non-permit required confined spaces

3.4.1.3.1 Equipment shall be properly calibrated by a competent person as required by the equipment manufacturer.

3.4.1.4 A pre task plan shall be written and approved by the Shawmut Safety Manager before confined space work commences

3.4.1.5 Rescue procedures will be identified, and a rescue team will be readily available and trained before work commences

3.4.1.5.1 This includes rescue equipment

3.4.2 Requirements:

3.4.2.1 All persons are trained

3.4.2.2 Rescue plan has been established by subcontractor and approved by Shawmut Safety

3.4.2.3 A stationed Attendant will be outside the confined space at ALL times, for permit and non-permit

3.4.2.4 Continuous air monitoring shall occur during all confined space operations

**PERMIT VALID FOR 8 HOURS ONLY. ALL COPIES WILL REMAIN AT THE JOB UNTIL JOB IS COMPLETED.**

| | |
|---|---|
| Site Location and Description: | |
| Purpose of Entry: | |
| Foreperson/Supervisor: | |

**Requirements Completed**

| | Date | Time | | Date | Time |
|---|---|---|---|---|---|
| Lockout/Tagout | | | Retrieval Equipment | | |
| Line(S) Blanked | | | Lifelines | | |
| Purge-Flush Vent | | | Fire Extinguishers | | |
| Secure Area (Signs) | | | Lighting (Explosive Proof) | | |
| Breathing Apparatus | | | Protective Clothing | | |
| Standby Safety Person | | | Respirator(S) Ventilation | | |
| Full Body Harness | | | Burning/Welding Permit | | |

**Note**: Bold Denotes Minimum Requirements to be Completed Prior to Entry.
**Note**: Items that Do Not Apply Enter a N/A in the Blank

**RECORD CONTINUOUS MONITORING RESULTS EVERY 2 HOURS**

| Monitoring | Permissible | | Employees Working in Area |
|---|---|---|---|
| % Of Oxygen | 19.5%-23.5% | | |
| Flammables | Under 10% | | |
| Toxics | As Specified | | |

Gas Tester Name and Date of Last Calibration: _____ Date: _____

Safety Standby Person is Required for All Confined Space Work: _____

Safety Standby Person: _____

Emergency Phone Numbers: _____

# MODULE 22 – Respiratory Protection Program

## 1.0 Purpose

1.1 The purpose of this program is to protect the health of the people who work on our sites, who may be exposed to hazardous atmospheres in the conduct of their work, and to provide appropriate protection from these hazards. This program sets forth the Shawmut Design and Construction practices for respirator use and care of respirators and contains requirements for establishing and maintaining a respiratory program.

## 2.0 Policy

2.1 Dust masks do not offer adequate protection for gasses, fumes or solvent vapors.

2.2 A respirator wearer must be physically capable of withstanding the additional strain that a respirator demands on the respiratory system. Additionally, employees who have a history of sensitivity or disease from exposure to certain contaminants must not be allowed to work in contaminated areas. Plan in advance for these restrictions by contacting the safety manager in order to coordinate physicals, fit tests and proper maintenance training.

## 3.0 Engineering Controls

3.1 The primary objective of Shawmut Design and Construction's respirator program is to control occupational disease caused by breathing air contaminated with harmful dust, fog, fumes, mists, gases, smoke, sprays and vapors. Shawmut Design and Construction will implement the following engineering controls:

3.1.1 General and local ventilation

3.1.2 Substitution of less toxic materials

3.1.3 Enclosure or confinement of the work task

3.2 When engineering controls have not eliminated the hazard, as a last resort respirators will be used.

## 4.0 Responsibilities

4.1 Respirator Administrators:

4.1.1 SDC Safety Department

4.1.2 Subcontractor management for their personnel

4.2 The responsibilities of the respirator administrators will include:

4.2.1 Monitoring of respirator hazards.

4.2.2 Maintenance of all respirator records.

4.2.3 Approve respirator protection needs for each operation as required.

4.2.4 Approve all training programs.

4.2.5 Approve fit test procedures.

4.2.6 Approve respirator use and selection by subcontractors and Shawmut employees.

4.3 Supervisors

4.3.1 Coordinate with the Safety Manager any specific training required for any task requiring respiratory protection.

4.3.2 Record any complaints related to the respirator usage and correct any hazards.

4.3.3 Report any first aid and medical treatment in accordance with company policies.

4.3.4 Prohibit any employee with lapsed or incomplete respirator clearances.

4.3.5 Inform each affected employee of the results of exposure monitoring within one day of receiving such results and assure inclusion of all exposure reports in the Shawmut Design and Construction record keeping system.

4.3.6 Monitor employee compliance with the respirator program compliance.

4.4 Workers

4.4.1 Use respiratory protection in accordance with the instructions and training provided.

4.4.2 Immediately report any defects in the respiratory protection equipment and, whenever there is a respirator malfunction, immediately evacuate to a safe area.

4.4.3 Promptly report to the supervisor any symptoms of illness that may be related to respirator usage or exposure to hazardous atmosphere.

4.4.4 Wash their assigned reusable respirators at the end of each work shift when used and disinfect at least weekly.

4.4.5 Be clean-shaven in all facial areas that seal the respirator to the face.

4.4.6 Inspect the respirator before each use in accordance with the training provided.

4.4.7 Perform a user seal negative and positive respirator fit check each time a respirator is donned in accordance with training provided

4.4.8 Provide documentation of required medical evaluation.

## 5.0 Selection of Respirator

5.1 Subcontractor employers shall provide the respirators when such equipment is necessary or requested by the employee.

5.2 Employers shall provide the respirators that are applicable and suitable for the purpose intended.

5.3 Shawmut Design and Construction has established, according to OSHA 1910.134, a Respiratory Protection Program along with maintenance and cleaning operations.

5.4 Respirators are used for two purposes:

5.4.1 Protect against an oxygen deficiency or enriched atmosphere, which is anything less than 19.5% oxygen or greater than 23.5% oxygen. Normal atmosphere has about a 21.5% oxygen level. This type of atmosphere will be determined by the safety manager or outsourced licensed industrial hygienist by taking samples and will continuously be monitored.

5.4.2 Protect against toxic contaminants such as:

5.4.2.1 Asbestos

5.4.2.2 Carbon monoxide

5.4.2.3 Lead

5.4.2.4 Paints and epoxies

5.4.2.5 Heavy dust and irritants

5.5 Proper respirator protection is based upon air surveillance, and bulk sampling of suspected hazardous substances. Testing is performed for chemical and physical properties of the contaminant, as well as the toxicity and concentrations of hazardous material.

## 6.0 Types of Respirators

6.1 Dust mask disposable respirators

6.1.1 Used for nuisance dust

6.1.2 Mist from sprays that do not produce harmful vapors

6.2 Negative pressure respirators (@ 5% breathing resistance inhaling through filter cartridges).

6.2.1 Half Face Respirator

6.2.1.1 Welding, cutting and burning operations where ventilation cannot be provided.

6.2.1.2 Protection from low level of contamination from sulfur dioxide, asbestos, chlorine, ammonia and other organic vapor or acid gases.

6.2.2 Full Face Respirator

6.2.2.1 Provides higher degree of protection for face and eyes than the half mask respirator.

6.2.2.2 Uses are the same as the half mask respirator, however it provides a slightly higher protection level due to a better face fit.

6.2.3 Powered Air Purifying Respirators (PAPR)

6.2.3.1 Battery powered blower passes air through a filter cartridge where the air is clean and forced through a hose to the face piece.

6.2.3.2 PAPRs provide air at a positive pressure.

6.2.3.3 Provide the highest degree of protection of all air purifying respirators.

6.2.4 Self-Contained Breathing Apparatus (SCBA)

6.2.4.1 Advantages:

6.2.4.1.1 Can be used in immediate life-threatening environments.

6.2.4.2 Disadvantages:

6.2.4.2.1 Heavy and awkward to wear.

6.2.4.2.2 Air supply will only last 30 to 60 minutes.

6.2.5 Air Supplied Respirator

6.2.5.1 Delivers breathing air through a supply hose connected to the worker's face piece. These respirators provide the following:

6.2.5.1.1 Continuous air supply.

6.2.5.1.2 Residual breathing air, in airline, in case of an air supply failure.

6.2.5.1.3 Worker comfort and protection.

6.2.5.1.4 Air supply requirements are Grade D breathing air.

## 7.0 Selection of Cartridges

7.1 Cartridges are selected according to the contaminants in the work area. Shawmut Design and Construction's Safety Manager approves respirators and cartridges to be used. Any substitution must be approved by the administrator.

7.2 Manufacture's masks must be used with the same manufacture's cartridges. You can never substitute filters with another manufacture's mask.

## 8.0 Cleaning and Storage of Respirators

8.1 Respirators will be cleaned and sanitized after each day of use.

8.2 Remove the cartridge to keep it dry.

8.3 Remove the following and wash each separately:

8.3.1 Face piece

8.3.2 Inhalation and exhalation valve flaps

8.3.3 Gaskets, breathing tubes

8.3.4 Cartridge element connection

8.3.5 Wash in a warm sanitizing detergent solution

8.3.6 Rinse in warm water and let dry at room temperature in a non-contaminated area

8.3.7 Reassemble only after respirator is completely dry

## 9.0 Storage of Respirators

9.1 Each respirator user shall receive two zip-lock bags. One will be used for the storage of the filters and the second will be used for the clean respirator.

9.2 Respirators and filters will be stored in a cool, dry place free of contaminants, dust and excessive heat that may cause damage to the respirator.

## 10.0 Daily Inspection of Respirators

10.1 Wearing a poorly maintained or defective respirator is like wearing no respirator at all. Air takes the path of least resistance. If air can get through a break in the seal rather than be forced through the filters, that is the path of least resistance.

10.2 Inspection of Respirator:

10.2.1 **Face piece** - Check for cracks, tears, excessive debris. Check inner lip for excessive wear. This will not allow for a proper seal.

10.2.2 **Inlet valve** - Must be intact and should lay flat and be free of tears and holes.

10.2.3 **Exhalation valve** - This is the most important part of the respirator. It stops contaminated air from getting into the respirator after you exhale. This must lay flat and not have holes and/or tears.

## 11.0 Medical Examinations

11.1 Persons assigned to tasks that require the use of a respirator must be physically able to perform the work while using a respirator. The respirator users' medical status must be reviewed regularly.

11.2 When respirators are worn in toxic atmospheres, the individual is provided with appropriate laboratory tests. The finding of these tests, when correlated with other exposure data, such as air-sampling data for wearers of such equipment, will serve as an indication of the effectiveness of the program. It is the policy of Shawmut Design and Construction that positive evidence of exposure should be followed up with appropriate surveillance of work-area conditions to determine if there is any relationship to inadequate respiratory protection or a need for additional engineering controls.

## 12.0 Training and Fit Testing

12.1 Before any Shawmut Design and Construction employee or subcontract employee on our site puts a respirator on, they will have had a full medical exam and be fit tested. The fit test will be done by a qualified person. Records for fit tests and training will be reviewed by the Safety Manager when requested.

12.2 All Shawmut Design and Construction employees, and subcontractor workers required to use respiratory protective equipment will be instructed in the proper use of the equipment, maintenance and its limitations. Those Shawmut Design and Construction employees and subcontractor workers who will be required to use respiratory protective equipment in atmospheres immediately dangerous to life or health will be trained in rescue procedures (confined space).

12.3 Training will be conducted by a manufacturer's representative or a competent person, and will include instructions on fitting and checking the piece-to-face seal. The employee will be given the opportunity to handle the respirator, wear it in normal air for a period of time to become familiar with it and practice adjusting it, and then wear it in a test atmosphere.

12.4 Training of Shawmut Design and Construction employees will also include the following:

12.4.1 Nature of the respiratory hazard and what may happen if the respirator is not used properly

12.4.2 Engineering and administrative controls being used and the need for the respirator as added protection

12.4.3 Reasons for selecting a certain respirator/cartridge

12.4.4 Limitations of the respirator

12.4.5 Methods of donning the respirator and checking its fit and operation

12.4.6 Respirator maintenance and storage

12.4.7 Proper method for handling emergency situations

# OSHA Appendix D

## Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. The National Institute for Occupational Safety and Health (NIOSH) of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Employee Signature _____ Date _____

# MODULE 23 – Material Handling and Storage

## 1.0 Purpose

1.1 Our goal is to eliminate strain and sprain injuries and by instituting a program around material handling we will achieve that goal. Additionally, we aim to ensure that non-qualified employees do not operate material handling equipment. Material handling activities may involve the use of powered industrial equipment, other non-motorized mechanical equipment, rigging equipment and/or physical human interaction to complete the task. Following establish safe work practices will reduce the potential for bodily injuries and property damage.

## 2.0 Mechanical Equipment

2.1 Only trained and authorized employees will be allowed to operate any motorized or mechanical equipment. All others will be prohibited.

2.2 Conduct and document daily inspection of equipment.

2.3 Remove from service any equipment that is found defective.

2.4 Inspect your work area and prohibit entry of others. Use caution tape to warn others or to restrict others.

2.5 Use a spotter if your vision is blocked or you cannot see where you are going.

2.6 Never exceed load capacities.

2.7 Never allow anyone underneath a raised load.

2.8 Inspect floor/ground surfaces. Ensure path is level and floor capacities are not exceeded for task.

2.9 Forks are to be <6” above the ground when operating industrial lift truck or rough terrain lift truck.

## 3.0 Rigging Equipment

3.1 Only qualified riggers and signal personnel shall be used to rig and direct the movement of the materials.

3.2 Inspect all rigging equipment (i.e. chains, wire ropes, hooks, slings) prior to use

3.3 All rigging equipment shall be designed by an engineer, either pre-engineered or job made. Either way this is to be approved by a qualified person.

3.4 Destroy or remove from service any defective rigging equipment.

3.5 Never exceed the weight limits of the equipment

3.6 Use a tag line for all loads.

3.7 Never swing loads over other workers or other personnel

3.8 Never leave a suspended load unattended

3.9 Never swing loads near electrical lines

## 4.0 Material Storage

4.1 Storage of material shall not create a hazard. Bags, containers, bundles, etc., stored in tiers shall be stacked, blocked, interlocked and limited in height so that they are stable and secure against sliding or collapse.

4.2 Flammable Material Storage – Refer to Material Safety Data Sheet for storage requirements. Do not store in area with other combustibles.

4.3 Hazardous Materials - Refer to Material Safety Data Sheet for storage requirements. Do not store incompatibles together.

4.4 When stacking pallets ensure pallet rating is not exceeded.

4.5 All material shall be stored on wheels, when practical, to easily be moved throughout site.

4.6 Only material ready for installation within 48 hours shall be brought to the site unless approval is granted by site Superintendent.

4.7 Material shall be stored as per agreed upon location with site Superintendent.

4.8 Attention shall be made to all installed equipment, to include the installation of inverted impalement protection (threaded rod/ straps, etc.) as necessary.

## 5.0 Housekeeping

5.1 All Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage.

5.2 Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard.

5.3 All debris shall be cleaned up in real time to central location. Debris shall not accumulate by any person on the job and each contractor owns their own debris management per contract.

## 6.0 Back Safety

6.1 Lifting is very much a part of our everyday jobs. And, because it is something we do so often, we tend to do it without thinking, or until we strain a muscle, or worse, hurt our backs.

6.2 Plan the lift by looking at the object to be lifted and the surrounding area.

6.3 If the object is too heavy or too awkward for you get help or use a mechanical lifting device.

6.4 Clear the area of any items that may interfere with the lifting.

**6.5** Plant your feet and lift with your legs. **DO NOT TWIST YOUR BACK!**

## 7.0 Ergonomic Risk Factors

7.1 There are three main risk factors associated with ergonomics related injuries. Minimizing these risk factors or changing how we approach them can reduce the chance of injury.

7.1.1 FORCE – Tasks that require a high level of physical exertion such as heavy lifting are at risk for causing injury.

7.1.2 REPETITION – Task that require performing the same motion or series of motions continually for an extended period of time are at risk of causing injury.

7.1.3 AWKWARD POSTURES – Tasks that require us to assuming positions that place stress on the body, such as reaching above the shoulder, squatting, leaning over a counter, or twisting the body while lifting are at risk for.

# MODULE 24 – Safety Complaint Procedures

## 1.0 Introduction

1.1 Shawmut Design and Construction believes in free and open communication to help promote our Zero Accidents policy. In an effort to do this, we have constructed a direct reporting procedure to our Safety Department to report or discuss safety issues. This complaint line is for anyone to use, including subcontractors, Shawmut employees, visitors, clients and the general public.

## 2.0 Purpose

2.1 The purpose of this program is to promote our safety efforts and to continue to provide a place of employment which is free from recognized hazards. We recognize that a Shawmut representative cannot see everything at all times, and therefore encourage our subcontractors to push the safety effort throughout our projects. This is another way they can do that.

## 3.0 Procedures

### 3.1 How to file a complaint with Shawmut Safety Department

**Note:** The Occupational Safety and Health Act of 1970 gives employees the right to file complaints about workplace safety and health hazards. Further, the Act gives complainants the right to request that their names not be revealed to their employers. Complaints from employees and their representatives are taken seriously by the Shawmut Safety Department.

### 3.2 If you would like to report hazards at your worksite to Shawmut Design and Construction, or you have been discriminated against on the basis of safety and health issues, choose one of the following:

3.2.1 **Speak with the SDC on site superintendent or your supervisor.**

3.2.2 File a complaint online if you believe your working conditions are unsafe or unhealthful. If you are concerned about confidentiality, you may prefer to file your complaint from your home computer or a computer in your local library. Address the safetydepartment@shawmut.com and your complaint will be dealt with in the strictest confidence.

3.2.3 **Fax** the Shawmut Safety Department **617-622-8000**. Be sure to include your name (optional), address (optional) and telephone number so if you want us to, we can contact you to keep you updated of the correction process.

3.2.4 Telephone **1-877-342-SAFE.** Shawmut Safety Department can discuss your complaint and respond to any questions you may have. If you receive a voicemail just leave the nature of the complaint and the **Project Name**. The corrective action, if necessary, will be posted within seven working days.

### 3.3 Shawmut Design and Construction Complaint Handling Process

Shawmut Design and Construction evaluates each complaint to determine how it can be handled best: by **an off-site** investigation (phone/fax) **or an on-site** inspection. Employees who would like an on-site inspection must submit the name of the project. Workers who complain have the right to have their names withheld and if volunteered the Safety Department will not reveal this information. At least one of the following four criteria must be met for Safety Department to conduct an on-site inspection:

3.3.1 A telephone call to 1-877-342-SAFE, by a current employee, employee representative, subcontractor or subcontractor workers with enough detail to enable SDC Safety to determine that a violation or danger likely exists that threatens physical harm or that an imminent danger exists;

3.3.2 An allegation that physical harm has occurred as a result of the hazard and that it still exists;

3.3.3 A report of an imminent danger;

3.3.4 Inadequate response from a supervisor who has received information on the hazard through a verbal/phone/fax investigation.

3.3.5 Phone Investigation

3.3.5.1 The Hotline **1-877-342-SAFE** method enables Safety to respond more quickly to hazards where none of the four criteria listed above are met or where the employee or employee representative requests the phone method.

3.3.5.2 The Safety Department telephones the project supervisor, describes the alleged hazards, and then follows up with a fax/e-mail or a letter.

3.3.5.3 The supervisor must respond within five days, identifying in writing any problems found and noting corrective actions taken or planned.

3.3.5.4 If the response is adequate, the Safety Department generally will not conduct an inspection.

3.3.5.5 The original complaint will be posted with the response in a conspicuous location within seven business days.

3.3.5.6 If still not satisfied, the complainant may then request an on-site inspection.

3.4 Inspection Priorities

3.4.1 Shawmut Design and Construction's top priority for inspection is:

3.4.1.1 **Imminent danger:** a situation where workers face an immediate risk of death or serious physical harm;

3.4.1.2 **Second priority:** Employee complaints and referrals;

3.4.1.3 **Third priority:** Follow-up inspections to determine whether previously cited violations have been abated.

3.5 Evaluating Employee Complaints

3.5.1 Before beginning an inspection, Shawmut Design and Construction Safety Department must be able to determine from the complaint that there are reasonable grounds to believe that a violation of an OSHA standard or a health and safety hazard exists. If the Safety Department has information indicating that a supervisor is aware of the hazard and is correcting it, the department may not conduct an inspection after obtaining the necessary documentation from the supervisor.

3.5.2 Complaints are not necessarily inspected in "first come, first served" order. The Safety Department ranks complaints based on the severity of the alleged hazard and the number of employees exposed. That is why lower priority complaints can often be handled more quickly using the phone method than through on-site inspections.

3.6 **Refusing to Work Because Conditions are Dangerous**

3.6.1 When you believe working conditions are unsafe or unhealthful, you should call your supervisor's attention to the problem. If your supervisor does not correct the hazard or disagrees with you about the extent of the hazard, you also may file a complaint with the Safety Department.

3.6.2 Workers do have the right and responsibility to refuse to do a job if they believe in good faith that they are exposed to an imminent danger. "Good faith" means that even if an imminent danger is not found to exist, the worker had reasonable grounds to believe that it did exist.

3.7 **The Four Conditions Required to Refuse a Task:**

3.7.1 Your right to refuse to do a task is protected if **all** of the following conditions are met:

3.7.1.1 Where possible, you have asked the employer to eliminate the danger, and the employer failed to do so; and

3.7.1.2 You refused to work in "good faith." This means that you must genuinely believe that an imminent danger exists; and

3.7.1.3 A reasonable person would agree that there is a real danger of death or serious injury; and

3.7.1.4 There isn't enough time, due to the urgency of the hazard, to get it corrected through regular enforcement channels, such as requesting a safety inspection.

3.8 **When All of these Conditions are Met, You Should Take the Following Steps:**

3.8.1 Ask your supervisor to correct the hazard;

3.8.2 Ask your supervisor for other work;

3.8.3 Tell your supervisor that you won't perform the work unless and until the hazard is corrected; and

3.8.4 Remain at the worksite until ordered to leave by your supervisor. If your supervisor discriminates against you for refusing to perform the dangerous work, contact **Shawmut Design and Construction Safety Department immediately 1-877-342-SAFE.**

# MODULE 25 – Safety Meeting and Tool Box Safety Program

## 1.0 Introduction

Implementation of this program is a must if we are to provide our workers the training necessary for the promotion of effective safety awareness.

Attached you will find a description as to how the program will function and instructions for supervision to follow.

It will be the respective project superintendent's job to conduct, manage and assure attendance at all Tool Box Talk / safety meetings.

## 2.0 Objective

The Weekly Safety / Foreperson Meeting is a mandatory safety meeting to be held by the project superintendent with his respective job forepersons. Conducted on a weekly basis, this safety related meeting is an effective training aid with the primary objective being increased employee hazard awareness and job performance.

The Toolbox Talk Safety Meeting is a meeting held each week by project forepersons. The foreperson for each crew conducts a toolbox training session with their respective crew, passes around a sign in sheet, and then submits that topic & sign in sheet to the Project Superintendent each week and file in their folder in the safety station.

Additionally, we will conduct weekly all hands safety meetings/ briefings. These are held with all site personnel to discuss safety events, challenges, or highlight best practices. Speakers can be the site superintendent, job forepersons, or individual tradespeople.

## 3.0 Activity

The project superintendent will obtain the necessary subject material and outlines for discussion. The meeting should last a reasonable amount of time to fully cover the topic and should encourage questions and any participation. If applicable, the project superintendent shall also review a particular jobsite SDS which affects multiple trades on the project at the meeting and record it on the form.

Subject matter for the meeting does not have to follow the prepared outline provided. Actual jobsite conditions, accidents, near misses and their causes, or upcoming activities and anticipated hazards are additional topics of discussion which the superintendent might wish to expand upon.

Make-up training should be arranged by the project superintendent for anyone who misses Tool Box Talk training session.

Note: Shawmut also has a Spanish version of the Tool Box agenda available upon request.

Subcontractors shall supply their own toolbox talks for their crew. In the event they do not have one, the Project Super may provide one for their use.

## 4.0 Summary

A written record must be kept of the meeting held with the topic covered and attendance documented. The Tool Box Talk should be signed by all meeting attendees.

Shawmut Safety Managers may periodically attend meetings. Superintendents and Shawmut management are also encouraged to attend to both show support for safety and ensure the talks are meaningful.

## 5.0 Safety Meeting Outline for Tool Box Talks

### Supervisors/ Forepersons/ Competent Person

**YOU ARE THE SAFETY INSTRUCTORS!** Don't minimize your responsibility. Setting the example and demonstrating interest in promoting safety on the job is of the greatest importance. Accidents cost companies' time and money, and cause workers and their families undue anguish.

## 6.0 Guidelines for Conducting Fast, Efficient. Meaningful Safety Meetings

### 6.1 Pre-planning

6.1.1 You can do this very easily and quickly. First, read and understand the safety topic and important safety reminders. Since each job has its own individual safety requirements and problems, take the time to write your comments in the space provided on our safety meeting form.

### 6.2 Start the meeting promptly:

6.2.1 Remember, **YOU** are running the meeting, so get their attention and keep it. Don't allow horseplay or interference. Keep in mind that time is of the essence. If you are prepared, most of the meetings can be conducted in a very efficient time frame. Once you have completed the meeting, ask for questions on the topics discussed and also for safety recommendations. Be very careful - don't encourage topics other than safety.

## 7.0 Conclusion

As a supervisor, you must set a good example for your employees. If they see you violating rules, they will too.

Remember, safety education promotes safety awareness which, in turn, reduces accidents and even fatalities.

# MODULE 26 – Safety Committee Program

## 1.0 Introduction

Shawmut Design and Construction incorporates the following safety committee policy to meet the requirements outlined in the Shawmut safety manual. This program is established and is followed by all employees involved with the committees, including those in the office and the field. We have several types of committees; a corporate safety steering committee, regional safety committees, project safety committees, and subcontractor safety committees. This allows for representatives from all types of our business to have a voice in our safety program.

## 2.0 Purpose

Shawmut Design and Construction feels very strongly about the safety of our employees, subcontractors, and the general public around our sites that we impact. This is why we have established a safety committees to help aid in reaching everyone about our safety rules and regulations governed through our safety program.

## 3.0 Policy

It is the policy of this company to set up a team of employees to act as a safety committee. The purpose of these committees is to work hand in hand with the Safety Department in providing a safe and healthy work environment for Shawmut internal and external operations. We want to create a wealth of knowledge with respect to safety to help more people with regards to client and subcontractor relations. The safety committee will meet once a month throughout each term.

Additionally, each jobsite shall establish a safety committee through the jobsite forepersons, competent persons, and site superintendents. They shall meet weekly to discuss safety and when training opportunities arise, create learning for all to increase knowledge around importance of jobsite safety.

## 4.0 Scope

Shawmut Design and Construction has coordinated a safety committee involving a true cross functional team, representing all areas of the company. It is the policy for this committee to meet on a monthly basis to discuss recent safety issues both within the company and the industry as a whole. The safety committee program at Shawmut Design and Construction involves interaction from all listed members. Items included in this program are:

- **Create interest in safety and health issues**
- **Provide advice and consultation to employees and management of S&H issues.**
- **Management leadership and commitment**
- **Accountability**
- **Ensuring all tasks are carried out safely and efficiently**
- **Safety programs, policies, and plans**
- **Safety processes, procedures, and practices**
- **Safety goals and objectives**
- **Safety program audits**
- **Safety tracking and metrics**
- **Safety communications to maintain a high level of awareness on safety**

## 5.0 Responsibilities

5.1 Shawmut Design and Construction encourages every person within the company to sign up for at least one term on the safety committee.

5.2 The members of the safety committee will vary based on type of committee:

**5.2.1 Corporate safety steering committee:**

5.2.1.1 Executive chair

5.2.1.2 Chief safety officer

5.2.1.3 Regional safety directors

5.2.1.4 Safety ops

5.2.1.5 Risk management

5.2.1.6 Regional director of operations

5.2.1.7 PST

5.2.1.8 Marketing

**5.2.2 Regional safety committees:**

5.2.2.1 Safety Director

5.2.2.2 Safety Managers

5.2.2.3 General Superintendent

5.2.2.4 Project Executive

5.2.2.5 Project Manager

5.2.2.6 Superintendent

5.2.2.7 Estimator

**5.2.3 Project Safety Committees:**

5.2.3.1 Superintendent

5.2.3.2 Safety manager

5.2.3.3 Crew lead / competent person

5.2.3.4 Stewards

**MODULE 27 – Incident Reporting and Investigation**

## 1.0 Incident Response and Reporting Procedures

### Emergencies

In the event of a catastrophe or major accident occurring on a Shawmut Project, safety must be notified as soon as physically possible. The Safety Department in conjunction with Risk Management will assist in responding and investigating the situation.

In the event of any potentially serious bodily injury on site, the project Safety Manager or Superintendent should:

- Call **911**
- Administer first aid, if applicable
- Secure, preserve and document the scene
- Call safety and the executive of the designated business group
- Call Risk Management at **617-622-7500** to coordinate an appropriate plan of action and file a first report

### Non-Emergencies

In the event of an injury requiring medical attention, the project Safety Manager or Superintendent should:

- Arrange transportation of the injured party to a medical center, if applicable
- Escort the employee back to the work site
- Call Risk Management at **617-622-7500** to file a report, or complete a **First Notice of Incident Form** (located at I:\Template\Risk Management)

1.1 For incidents involving injury to a subcontractor's employee, sub-sub employee, or owner vendor staff, the Superintendent shall request a copy of the employer's incident report.

1.2 In the event of a fatality, or when an employee is in imminent danger of death as a result of a jobsite injury, the regional OSHA office must also be immediately contacted. Civil authorities, Safety and Risk Management along with the executive of the designated business group for Shawmut Design and Construction must be notified immediately.

1.3 The OSHA 300 log for Shawmut must be kept on file.

## 2.0 Incident Investigation

2.1 Incident investigation is the principal tool for potentially identifying the cause of a loss. The development of casual information allows for the targeting of prevention activities to correct safety-related deficiencies, thereby preventing a similar reoccurrence in the future.

2.2 Subcontractors shall conduct an incident investigation for all injuries their employees sustain. This shall be in writing and submitted to Shawmut within 48 hours of incident occurrence.

2.3 A **First Notice of Incident** report must be completed in a timely fashion while incident details are still fresh and any witnesses are available to provide statements.

2.4 The Superintendent shall work with safety and the project team to analyze the unsafe conditions, defective equipment, failure of maintenance or improper acts, and initiate appropriate corrective actions as necessary, including the enactment of Shawmut's **Disciplinary Action Policy**.

2.4.1 Control the scene to prevent additional injury to the victim, rescuers and/or other employees and the public.

2.4.2 Provide for the welfare of the injured employee.

2.4.3 Depending on availability, the project Superintendent or Safety Manager should accompany the injured employee and take him to the hospital. Caution should be exercised when transporting the injured employee as some injuries should not be transported alone.

2.4.4 Superintendent shall follow-up with a call/personal visit to the injured party's home/hospital, and thereafter as appropriate.

2.4.5 Superintendent should have injured employee tell what happened in his own words. Have the employee demonstrate how it happened if possible. Ask the injured employee to describe his/her training and/or experience with equipment, where his/her foreperson was at the time, etc.

2.4.6 Secure the scene and start the gathering of facts immediately.

The investigation should follow the 6-step process.

1) Preserve and document the scene w/ pictures, Sks etc.

2) Collect fact thru interviews. Allow witnesses to describe the incident in their own words. Interview witnesses separately. Questions and interviews should be fact finding not fault finding.

3) Develop a sequence of facts leading up to the incident.

4) Determine the causes

5) Develop effective recommendations.

6) Write a detailed report:

All injuries, no matter how minor they may appear, must be reported to a superintendent by the end of the same workday. **Identify and Obtain:**

- Damaged property
- Make and model of equipment involved, if applicable
- Equipment maintenance and modification records
- Appropriate state licenses for lifts, rigging, equipment, as applicable
- Identify assigned competent person
- Complete information on any components of equipment, including manufacturer and the name of the repair shop where the part was last installed/repaired, etc.
- Name and address of all parties involved (i.e. witnesses)
- Title, training, and experience of those involved
- Time of occurrence
- Name of injured party
- Location of incident
- Note if the employee was performing a job other than typical, or working in a department other than the normal assigned department
- The injured party's version of the incident
- Obtain statements from those who witnessed the incident
- Diagram the incident noting position of stock, machinery, equipment, injured party, and witnesses
- Photograph the area of the incident (do not photograph images of injuries)
- Was there a failure to report an unsafe condition?
- Was an unsafe work procedure not previously identified?

## 3.0 Post-Incident Procedures

3.1 The Superintendent shall work with safety to establish recommendations to prevent a re-occurrence and correct any similar contributing causes which may have lead to the incident. This includes the enactment of Shawmut's **Safety Commitment Policy.**

3.2 **Safety Meetings**

Serious or potentially serious events should be discussed immediately in a special safety meeting to advise fellow workers of the status of the injured party in an effort to increase awareness and reduce any speculation that may occur.

### 3.3 Public Notification

All inquiries by the press and media should be directed to the executive of the designated business group as well as Safety and Risk Management.

Adequate information should be communicated in order to facilitate an adequate and appropriate response to media inquiries.

# MODULE 28 – Safety Inspections and Close Out Procedures

## 1.0 Introduction

1.1 Construction by its very nature is a dynamic occupation with ever changing environments. With this being true, it is vital to constantly evaluate and assess our sites to ensure they are free from recognized hazards that are likely to cause serious injury or death. To that end, Shawmut Design and Construction has incorporated the following safety inspection program to assist in the identification of potential physical and behavioral hazards on project construction sites.

Shawmut Design and Construction has many people in this company that are trained to recognize hazards in the construction industry. Most employees that are involved with field operations have OSHA 30-hour training.

## 2.0 Objective

2.1 Shawmut Design and Construction uses this program to identify potential hazards on the construction site and takes appropriate measures to eliminate recognized hazards.

## 3.0 Procedures

3.1 All Shawmut Design and Construction employees are empowered with the authority to stop work and take appropriate measures when hazards are identified.

3.2 A safety inspection can occur at many various times by a variety of people, as it is in all of our best interests to constantly be on the look out to identify and correct hazardous environments.

3.3 When a safety inspection occurs, the visit and hazards shall be documented through a safety report.

## 4.0 Responsibilities

4.1 Superintendent

4.1.1 Close out all safety issues in a timely fashion.

4.1.2 Immediately dangerous to life and health issues are to be addressed immediately by anyone who sees this happen.

4.1.2.1 It is beneficial to document when something like this is witnessed, but this is done after the situation has been abated.

4.1.3 When hazards have been identified, they are to be closed out within a timely fashion by:

4.1.3.1 Conduct safety inspections

4.1.3.2 Filing the safety report with the date corrected for the identified hazard.

4.1.3.3 All supporting documents shall be sent along with the close out paperwork, which may include, but not be limited to:

4.1.3.3.1 Safety meetings

4.1.3.3.2 Tool Box talks

4.1.3.3.3 Pictures

4.1.3.3.4 Verbal conversations

4.1.3.3.5 Notice of non-compliance

4.1.3.4 Issues are to be addressed in a timely fashion and not left in a manner which continues to expose workers to the hazard.

4.1.4 Project Managers

4.1.4.1 Conduct safety inspections

4.1.4.2 Assist superintendent with support documentation.

4.1.4.3 Work with superintendent to issue notices of non-compliance, where applicable.

4.1.4.4 Act as liaison between superintendent and subcontractor offices where needed.

4.1.5 Safety Manager

4.1.5.1 Conduct safety inspections

4.1.5.2 Review identified hazards.

4.1.5.3 Review abatement procedures and ensure they were done correctly in a timely fashion.

4.1.5.4 Assist superintendent and field staff in identifying and creating solutions to hazards.

4.1.5.5 Do all necessary research when and if necessary for field staff.

4.1.6 Construction Managers

4.1.6.1 Conduct safety inspections

4.1.6.2 Assist superintendents with identifying and abating safety hazards and violations.

4.1.6.3 Ensure superintendents have conducted the proper initial and follow up paperwork and that they have been submitted in a timely fashion.

4.1.7 Subcontractors

4.1.7.1 Close out open items as soon as possible.

## 5.0 Conclusion

5.1 Shawmut Design and Construction believes in providing a place of employment which is free from recognized hazards that are causing or likely to cause injury or death.

# MODULE 29 – Heat Illness Prevention Plan

## 1.0 Introduction

1.1. High temperatures and humidity place ***our employees*** at risk of heat illness. Controlling heat stress is the responsibility of management and employees.

## 2.0 Responsibility

2.1. Superintendents, Project Manager and/or Foreperson for ***Shawmut and/or subcontractors are responsible*** for all facets of this program and have full authority to make decisions to ensure the success of the program.

2.1.1. Supervisors' Responsibilities

2.1.2. Assure workers drink enough water.

2.1.3. Set up work/rest cycles

2.1.4. Monitor conditions

2.1.5. Adjust work practices and assignments

2.1.6. Oversee new worker's heat acclimatization

2.1.7. Heat stress training for workers

2.1.8. Treating heat stress

2.1.9. Following up on heat illness incidents to prevent recurrence

2.1.10. Provide safety meetings.

2.2. Workers' Responsibilities

2.2.1. Follow instructions

2.2.2. Be alert to signs of heat illness in themselves and others

2.2.3. Drinking water before, during and after work

2.2.4. Reporting and responding to heat stress problems.

## 3.0 Written Program

3.1. **Shawmut Design and Construction** will review and evaluate this policy on an annual basis, when changes occur to underlying regulations or when facility operational changes occur that require a revision of this document. Heat prevention procedures shall be in writing and made available to employees.

## 4.0 Definitions

4.1. “Acclimatization" means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.

4.2. "Heat Illness" means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

4.3. “Environmental risk factors for heat illness” means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.

4.4. “Personal risk factors for heat illness” means factors such as an individual’s age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body’s water retention or other physiological responses to heat.

4.5. “Provision of water” Employees shall have access to potable drinking water provided by employer. Where it is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift. Employers may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour. The frequent drinking of water shall be encouraged

4.6. “Shade” means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

## 5.0 Provision of Water

5.1. Water shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift. We may begin the shift with smaller quantities of water if we have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour.

5.1.1. Bring at least 2 quarts per employee at the start of the shift.

5.1.2. Supervisor will monitor water containers every 30 minutes, and employees are

5.2. Encouraged to report to supervisor low levels or dirty water.

5.2.1. Supervisor will provide frequent reminders to employees to drink frequently, and more water breaks will be provided.

5.2.2. Place water containers as close as possible to the workers, not away from them.

5.2.3. When drinking water levels within a container drop below 50%, the water shall be replenished immediately; or water levels should not fall below the point that will allow for adequate water during the time necessary to effect replenishment.

5.2.4. Disposable/single use drinking cups will be provided to employees, or provisions will be made to issue employees their own cups each day.

## 6.0 Shade

6.1. Employees suffering from heat illness or believing a preventative recovery period is needed shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times. Shade means blockage of direct sunlight. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside, unless the car is running with air conditioning.

6.2. If the National Weather Service prediction on the previous day is for the temperature high for the work area to exceed 85°F, shade must be up as of the beginning of the shift and present throughout. Or we may choose to measure the temperature hourly during the work shift to determine whether the temperature exceeds 85°F at the worksite. This will be done by reading thermometers on site. If this method is chosen, we will promptly provide actual shade for the remainder of the shift once a reading exceeds 85 degrees.

6.3. In addition, shade will be provided at the request of employees no matter the temperature.

6.4. Employees shall be allowed and encouraged to take a cool-down rest in the shade for a period of no less than 5 minutes at a time when they feel the need to protect themselves from overheating. Such access to shade is permitted at all times.

6.5. Regardless of what the predicted high has been the previous day, employers are expected to know if the actual temperature is exceeding 90°F at their worksite. If the temperature reaches 90º F, shade must actually be present regardless of the previous day's predicted temperature high.

6.6. Supervisor will set up an adequate number of umbrellas, canopies or other portable devices at the start of the shift and will relocate them to be closer to the crew. The nearest shaded area must be as close as practicable. Usually this will mean that shade must be reachable within a 2 ½ minute walk, but in no case is it permissible for shade to be located more than ¼-mile or a 5-minute walk away, whichever is shorter.

**Note**: The time it realistically takes to get to the shaded area is always the critical consideration, and this will be taken into consideration if the means of access is by vehicle instead of walking.

6.7. Employees have access to office or construction trailer, or other building with air conditioning.

6.8. Every morning there will be a short tailgate meeting (in an understandable language) to remind workers about the importance of rest breaks and shade.

6.9. An enclosed area used to provide shade must allow cooling at least comparable to the cooling that would be provided in a shaded unenclosed area in the same location.

6.10. Shade can be provided by buildings, canopies, lean-tos, or other partial or temporary structures that are either ventilated or open to air movement. Trees and dense vines can provide shade that is superior to artificially provided shade and are accepted as compliant sources of shade if the canopy of the trees or vines is sufficiently dense to provide substantially complete blockage of direct sunlight.

6.11. The interior of a vehicle may not be used to provide shade unless the vehicle is air-conditioned, and the air conditioner is operating. Similarly, metal storage sheds and other out-buildings do not provide protection from sunlight that meets the definition of shade unless they provide a cooling environment comparable to shade in open air (i.e., they must be mechanically ventilated or open to air movement).

6.12. The shaded area must let employees assume a comfortable posture and must not cause exposure to another hazard. Therefore, the shade requirement cannot be met by using areas underneath mobile equipment.

6.13. Areas shaded by artificial or mechanical (as opposed to natural) means, such as by a pop-up canopy as opposed to a tree, must allow for employees to avoid contact with bare soil. Where the shaded area is a lawn, no such item need be provided, regardless of the means by which the area is shaded.

6.14. During the shift, there must always be enough shade to accommodate those employees who seek it to cool off as required by the standard. Keep in mind, the hotter the weather gets, the more employees are likely to seek shade at the same time. Enough shade will be provided so that 25 percent of the employees on a shift can sit comfortably in the shade without touching each other. When required we will follow a procedure to ensure that employees who desire access to shade will not be deprived of it due to lack of space, such as rotating employees or setting up additional shade structures

6.15. *Non-agricultural employers* may provide cooling measures other than shade during the preventative recovery period, if they can demonstrate that the alternative is at least as

effective as shade. Such cooling measures include other options or technologies such as fans and misting devices where the employer can demonstrate that they are at least as effective as shade at allowing the body to cool.

## 7.0 High Heat Procedures

7.1. High-heat procedures shall be implemented when the temperature equals or exceeds 95º F. These procedures shall include the following to the extent practicable:

7.1.1. Ensure that effective communication by voice, observation, or electronic means is maintained so that employees at work site can contact a supervisor when necessary. Electronic devices, such as a cell phone or text messaging device, may be used for this purpose only if reception in area is reliable.

7.1.1.1. Observing employees for alertness and signs and symptoms of heat illness.

7.1.1.2. Reminding employees throughout the work shift to drink plenty of water.

7.1.1.3. Close supervision of a new employee by a supervisor or designee for the first 14 days of the employee's employment by the employer, unless the employee indicates at the time of hire that he has been doing similar outdoor work for at least 10 of the past 30 days for 4 or more hours per day.

## 8.0 Emergency Procedures

8.1. Heat-related illnesses occur when a body is unable to cool itself. Older workers, workers in poor physical condition, workers with a poor diet or employees taking certain medications are more at risk. Some heat-related illnesses are: heat rash, heat cramps, fainting, heat exhaustion, and heatstroke. The following symptoms are commonly associated with the different heat illness medical conditions. ***Given the variability in recognition and reporting of heat illness symptoms, the information listed below should be used only as a general guideline.***

8.2. **Heat Rash (Prickly Heat)** - Heat rash is a skin irritation caused by excessive sweating and clogged pores during hot, humid weather.

General Symptoms:

8.2.1. Can cover large parts of the body

8.2.2. Looks like a red cluster of pimples or small blisters

8.2.3. Often occurs on the neck, chest, groin, under the breasts, or in elbow creases

8.2.4. Uncomfortable so it can disrupt sleep and work performance

8.2.5. Complicated by infections

8.3. **Heat Cramps** - Heat cramps affect people who sweat a lot during strenuous work activity. Sweating makes the body loose salts and fluids and minerals. If only the fluids are replaced and not the salts and minerals painful muscles cramps may result.

General Symptom:

8.3.1. Painful muscle spasms in the stomach, arms, legs, and other body parts may occur after work or at night.

8.4. **Fainting (Heat Syncope)** - Employees who stand for long periods or suddenly get up from a sitting or lying position when working in the heat may experience sudden dizziness and fainting. In both cases, the fainting is caused by a lack of adequate blood supply to the brain. Dehydration and lack of acclimatization to work in warm or hot environments can increase the susceptibility to fainting. Victims normally recover consciousness rapidly after they faint.

General Symptoms:

8.4.1. Sudden dizziness

8.4.2. Light-headedness

8.4.3. Unconsciousness

8.4.4. What to do: Move to cool area and replace fluids.

8.5. **Heat Exhaustion** - Heat exhaustion is the body's response to an excessive loss of the water and the salt contained in sweat. Older employees or those with high blood pressure are more susceptible to heat exhaustion. Cool temperature is not a valid indicator of a normal body temperature. Although the skin feels cool the internal body temperature may be dangerously high and a serious medical condition may exist.

General Symptoms

8.5.1. Heavy sweating

8.5.2. Painful muscle cramps

8.5.3. Extreme weakness and/or fatigue

8.5.4. Nausea and/or vomiting

8.5.5. Dizziness and/or headache

8.5.6. Body temperature normal or slightly high

8.5.7. Fainting

8.5.8. Pulse fast and weak

8.5.9. Breathing fast and shallow

8.5.10. Clammy, pale, cool, and/or moist skin

8.5.11. What to do: Move to cool area and replace fluids.

## 9.0 Heatstroke

9.1. Heatstroke is usually fatal unless emergency medical treatment is provided promptly.

General Symptoms:

9.1.1. No sweating because the body cannot release heat or cool down

9.1.2. Mental confusion, delirium, convulsions, dizziness

9.1.3. Hot and dry skin (e.g., red, bluish, or mottled)

9.1.4. Muscles may twitch uncontrollably

9.1.5. Pulse can be rapid and weak

9.1.6. Throbbing headache, shallow breathing, seizures and/or fits

9.1.7. Unconsciousness and coma

9.1.8. Body temperature may range from 102 - 104 °F or higher within 10-15 minutes

9.1.9. **If the mu*scles begin to twitch uncontrollably, keep the person from self-injury. Do not place any* objects *in the mouth.***

9.1.10. **Monitor *body temperature and continue cooling efforts until emergency medical treatment is provided to the victim.***

9.1.11. What to do: Get medical help immediately.

9.1.11.1. Move employee to shady area and remove outer clothing.

9.1.11.2. Wet skin and increase air movement around worker.

9.1.11.3. Give fluids to drink.

9.1.11.4. NEVER leave *a suspected heat stroke victim alone or let them go home.*

***9.1.11.5. Always* seek medical help.**

## 10.0 Acclimatization

10.1. In the event of a heat wave or during hot weather the following NIOSH acclimatization procedure will be followed:

10.1.1. Regimen for current experienced workers working in jobs where heat levels are high enough to produce heat stress is:

10.1.1.1. 50% exposure on day 1

10.1.1.2. 60% exposure on day 2

10.1.1.3. 80% exposure on day 3

10.1.1.4. 100% exposure on day 4

10.1.2. Regimen for new workers or workers returning from vacation or other absence (1 week or longer)

10.1.2.1. 20% exposure on day 1

10.1.2.2. 40% exposure on day 2

10.1.2.3. 60% exposure on day 3

10.1.2.4. 80% exposure on day 4

10.1.2.5. 100% exposure on day 5

## 11.0 Training

11.1. Employee training. No employee or supervisor shall begin outdoor work to which this section applies unless the employee or supervisor has received the training required by this section. Training in the following topics shall be provided to all supervisory and non-supervisory employees before working outdoors.

11.1.1. The environmental and personal risk factors for heat illness, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment.

11.1.2. The employer's procedures for complying with the requirements of this standard.

11.1.3. The importance of frequent consumption of small quantities of water, up to 4 cups per hour under extreme conditions of work and heat.

11.1.4. The importance of acclimatization.

11.1.5. The different types of heat illness and the common signs and symptoms of heat illness.

11.1.6. The importance of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers.

11.1.7. The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary.

11.1.8. Procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider.

11.1.9. How to provide clear and precise directions to the work site.

11.1.10. Supervisor training. Prior to assignment to supervision of employees working in the heat, training on the following topics shall be provided:

11.1.11. The information shown in the bullets above.

11.1.12. The procedures the supervisor is to follow to implement the applicable provisions in this section.

11.1.13. Modify working hours to work during the cooler hours of the day, when possible.

11.1.14. Acclimatization.

11.1.15. The importance to check all employees and stay alert to the presence of heat-related symptoms.

11.1.16. Supervisors will carry cell phones or other means of communication, to ensure that emergency services can be called, and check that these are functional at the worksite prior to each shift,

11.1.17. Every morning remind workers about worksite location and emergency medical procedures.

11.1.18. The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

11.1.19. How to monitor weather reports and how to respond to hot weather advisories.

11.1.20. The employer's procedures for complying with each requirement of this standard.

## 12.0 In the Event of An Accident or Acute Illness.

12.1. **Call 911.**

12.2. **Render first aid if appropriate.**

12.2.1. Direct someone to watch for and direct any emergency vehicles into:

12.2.2. The site and then to the victim.

12.2.3. Notify or have someone notify the on-site Foreperson.

12.2.4. Secure the site of the accident/incident for follow-up investigation.

12.2.5. Notify your management of accident/incident.

12.2.6. Follow up with written information and proper accident/incident reports to the jobsite office

12.2.7. Medical facility location is posted in jobsite trailer.

# MODULE 30 – Stop Work Policy

## 1.0 Shawmut's Core Value: Safety

### 1.1 Actively Drive a Safe and Injury-free Environment

1.1.1 "I am committed to providing my co-workers, subcontractors, clients and the general public with a workplace and environment which is free from hazards and risk. My number one priority each day is to make sure each person working with or for Shawmut goes home safely without accident or incident. I am empowered and responsible for enforcing Shawmut's ***zero accident/zero tolerance*** policy."

## 2.0 Stop Work Policy

2.1 Shawmut Design and Construction is committed to providing all employees with a safe working environment and to protect life, health and property. In an effort to support this commitment, Shawmut has in place for every Shawmut Employee and every Subcontractor Employee a Stop Work Policy.

2.2 Whenever a hazardous situation is present to any person, Shawmut employee, subcontractor employee, or vendor, has the right to stop work so that all hazards are eliminated or safe work practices are incorporated. For the purposes of this policy, a hazardous situation may include but not limited to:

2.2.1 A situation for which the individual is not properly trained or experienced

2.2.2 A situation for which the individual is not equipped with the proper safety or personal protective equipment.

2.2.3 Damaged tools or equipment

2.2.4 A hazard that is not typical to the individuals work activates or job.

2.2.5 A worker unfit for work due to the influence of illegal substance or alcohol.

2.2.6 A near miss incident

2.2.7 A danger that would normally stop work in the affected area such as an immediate danger to life and health.

2.3 All employees and subcontractors are required to report all stop work actions immediately to their supervisors or Superintendents for investigations. During the investigation, the employee refusing to work must not leave the site or return to the work activity without authorization.

2.4 The individual initiating the action (employee or subcontractor) is protected from discipline, retribution or discriminate by Shawmut.

# MODULE 31 – Return to Work Program

## 1.0 Purpose

The purpose of these guidelines is to foster an environment that keeps people engaged should a workplace injury occur. It is The Shawmut Group's* (Shawmut) intent and goal to try our very best to prevent all injuries, however should someone become injured as a result of working on our sites we want them to get the best treatment possible and minimize their time off site, so they can resume their normal daily routine and life.

**(Shawmut) includes all companies related to The Shawmut Group including Shawmut Design and Construction and Starlite Building Company*,

## 2.0 Scope

The scope of this program applies to all areas under Shawmut's control, including jobsites and offices for our employees as well as subcontracted employees.

## 3.0 Policy Statement

3.1 It is the policy of Shawmut to provide our employees injured on the job with the best possible recovery program so that they can return to work with minimal emotional and financial disruption in their lives. We endorse a Return to Work (RTW) policy that endeavors to return injured workers back to their regular assignments as soon as possible. We also encourage our subcontractors to create a RTW program for their employees.

3.2 In order to return injured workers to the job as soon as possible, Shawmut will provide temporary work tasks tailored to the physical capabilities of employees who are injured on-the-job. We make every effort to bring our employees back to work immediately following an injury. We will ask employees to perform only those job functions that the medical provider has determined can be safely performed during the recovery process. All alternative and modified job assignments will be structured to meet the physical capacities and therapy needs of the injured worker.

3.3 Shawmut will communicate this policy to all subcontractors as well and it shall be their responsibility to create a RTW program and modified duty tasks for their employees.

## 4.0 Definitions

4.1 **Sedentary Work** – Exerting up to 10 pounds of force occasionally (occasionally: activity or condition exists up to 1/3 of the time) and/or a negligible amount of force frequently (Frequently: activity or condition exists from 1/3 to 2/3 of the time) to lift, carry, push, pull, or otherwise move objects, including the human body. Sedentary work involves sitting most of the time but may involve walking or standing for brief periods of time. Jobs are sedentary if walking and standing are required only occasionally and all other sedentary criteria are met.

4.2 **Light Work** - Exerting up to 20 pounds of force occasionally, and/or up to 10 pounds of force frequently, and/or a negligible amount of force constantly (Constantly: activity or condition exists 2/3 or more of the time) to move objects. Physical demand requirements are in excess of those for Sedentary Work. Even though the weight lifted may be only a negligible amount, a job should be rated Light Work: (1) when it requires walking or standing to a significant degree; or (2) when it requires sitting most of the time but entails pushing and/or pulling of arm or leg controls; and/or (3) when the job requires working at a production rate pace entailing the constant pushing and/or pulling of materials even though the weight of those materials is negligible. NOTE: The constant stress and strain of maintaining a production rate pace, especially in an industrial setting, can be and is physically demanding of a worker even though the amount of force exerted is negligible.

4.3 **Medium Work** - Exerting 20 to 50 pounds of force occasionally, and/or 10 to 25 pounds of force frequently, and/or greater than negligible up to 10 pounds of force constantly to move objects. Physical Demand requirements are in excess of those for Light Work.

4.4 **Heavy Work** - Exerting 50 to 100 pounds of force occasionally, and/or 25 to 50 pounds of force frequently, and/or 10 to 20 pounds of force constantly to move objects. Physical Demand requirements are in excess of those for Medium Work.

4.5 **Transitional / Restricted Duty –** this term refers to work that is offered where a medical provider indicates someone has a work related injury that resulted in a medical injury or illness preventing them from performing their work at 100%.

## 5.0 Eligibility

5.1 All active employees of Shawmut that reports to suffer from a work-related injury or medical condition that is support by medical documentation.

5.2 All subcontractors shall create a return to work program for their employees as well and allow for light duty work to allow their staff to resume a normal routine as soon as medically cleared to do so.

## 6.0 Transitional Work Program – How It Works

6.1 Employee reports a work-related injury or medical condition to the designated representative.

6.2 Risk Management and our Nurse Case Manager will call an immediate meeting with the project team, project safety manager, and direct manager of the injured worker. This meeting will be to discuss the well being of the injured, any immediate needs, the extent of the injury, root cause, and medical treatment plan/ return to work status with medical provider.

6.3 The authorized representative will report the workers' compensation claim to the insurance carrier.

6.4 The injured employee's direct manager and senior leader shall contact them immediately to make sure they are receiving the care they need.

6.5 Once the employee reports the need for medical care that is the result of a work-related incident the employee is provided information on our "transitional duty worksheet"

6.6 Each employee must return the completed work capacity form or a signed note from the examining physician to the Nurse Case Manager or designated representative within twenty-four (24) hours of each medical examination.

6.6.1 Once restrictions are received, an offer for employment shall be verbally discussed with the injured worker, Nurse Case Manager, and direct manager.

6.6.2 If offer is refused, a formal written offer will be issued to the injured worker.

6.7 How long will Transitional Work be available?

6.7.1 Transitional Work will be available as long as the disability and corresponding restrictions are supported by approved medical documentation and to the discretion of Shawmut based on the business needs and subject to the same requirements as stated in Shawmut's employment guidelines.

## 7.0 Roles and Responsibilities

### 7.1 Employee

7.1.1 Report all injuries, no matter how slight, immediately to your immediate supervisor.

7.1.2 When possible, get treatment from an approved medical provider (see appendix) as these providers can provide the best possible care.

7.1.3 Inform the medical provider of Shawmut's RTW policy.

7.1.4 Return to work following medical treatment and report to your immediate supervisor. If it's not medically possible to return to work, report to your supervisor via phone immediately following your medical evaluation.

7.1.5 Report to work in your temporary, modified job assignment following receipt of temporary, modified job offer by Shawmut.

7.1.6 Follow your medical provider's orders with respect to established work restrictions, limitations, therapies, etc.

7.1.7 Return to your normal work assignment as soon as your medical provider deems it is safe.

### 7.2 Immediate supervisor

7.2.1 Understand and adhere to the Shawmut's RTW policy.

7.2.2 Maintain close communication with the injured employee throughout the healing process.

7.2.3 Report job injuries to the Nurse Case Manager / Risk Management Department in a timely fashion.

7.2.4 Follow established RTW program guidelines for every employee involved in a lost time injury.

7.3 **Employer**

7.3.1 Establish clear, consistent RTW policies and procedures.

7.3.2 Ensure that Shawmut's RTW policies and procedures are uniformly followed.

7.3.3 Work with medical providers to create the best plan for each individual case to allow for effective treatment and overall well-being of the injured employee, which includes getting the injured worker back to their normal daily routine as quickly as possible.

## 8.0 Return to Work Restriction Program

8.1 The process to return to work is as follows:

8.1.1 Risk Management notifies management an employee is available to return to work with defined conditions.

8.1.2 Risk Management continues to check in with employee

8.1.3 Risk Management / Safety / Management Meet Monthly and review current people out work due to an injury, or on a light duty program to identify timeline and strategy around getting the individuals back to work.

## Appendix

Local Approved Medical Providers (for non-emergent care):

- **Eastern Massachusetts**
    - Dr. John Buress
      10 Hawthorne Place, Suite 114
      Boston, MA 02114

      **617-314-2018**

      ***Hours of Operation:*** *Monday-Friday 7:30am-4pm*

    - Partners Urgent Care
      1815 Massachusetts Ave
      Cambridge, MA 02140

      **857-856-5770**

      ***Hours of Operation:*** *Monday - Sunday: 9:00 am-9:00 pm*

    - New England Baptist Hospital Occupational Health Center
      125 Parker Hill Avenue
      3rd Floor, Suite 360
      Boston, MA 02120

      **617-754-5620, ext. 1**

      ***Hours of Operation:*** *Monday-Friday 8:00 am-4:30 pm*

- **Central Massachusetts**
    - Carewell Urgent Care
      500 Lincoln Street
      Worcester, MA 01605

      **774-420-2111**

      ***Hours of Operation:*** *Monday-Sunday: 8:00am-8:00pm*

    - Carewell Urgent Care
      333 Southwest Cutoff
      Northborough, MA 01532

      **508-466-8677**

      ***Hours of Operation:*** *Monday-Sunday: 8:00am-8:00pm*

- Carewell Urgent Care
  380 John Fitch Highway
  Fitchburg, MA

  **978-696-3547**

  ***Hours of Operation:*** *Monday-Sunday: 8:00am-8:00pm*

- **South Shore – Massachusetts**

  - Carewell Urgent Care
    42 Washington St
    Norwell, MA

    **781-421-3503**

    ***Hours of Operation:*** *Monday-Sunday: 8:00am-8:00pm*

- **North Shore – Massachusetts**

  - Carewell Urgent Care
    229 Andover Street (Route 114)
    Peabody, MA 01960

    **978-826-5950**

    ***Hours of Operation:*** *Monday-Sunday: 8:00am-8:00pm*

  - AFC Urgent Care North Andover
    129 Turnpike Street
    North Andover, MA 01845

    **978-470-0800**

    ***Hours of Operation:*** *Monday-Friday 8:00am-8:00pm & Saturday and Sunday 8am-5pm*

  - AFC Urgent Care Methuen
    380r Merrimack Street
    Methuen, MA 01844

    **978-975-0700**

    ***Hours of Operation:*** *Monday-Friday 8:00am-8:00pm & Saturday and Sunday 8am-5pm*

- **Providence, Rhode Island**
    - Concentra Medical Center
      290 Branch Ave
      Providence, RI 02904

      **401-722-8880**

      ***Hours of Operation:*** *Monday-Friday 8:00 am-5:00 pm*

    - Carewell Urgent Care
      535 Centerville Road
      Warwick, RI 02886

      **401-773-7220**

      ***Hours of Operation:*** *Monday-Sunday: 8:00am-8:00pm*

- **New York, NY**
    - City MD https://www.citymd.com/urgent-care-locations
    - Medrite Urgent Care https://medriteurgentcare.com/urgent-care-locations

- **Los Angeles County and Southern California**
    - US Healthworks https://www.ushealthworks.com/Medical-Center/California.html
    - Concentra https://www.concentra.com/urgent-care-centers/

# MODULE 32 – Active Shooter Scenarios

## 1.0 Introduction

1.1 This section is designed to create awareness and develop planning in the workplace in the event of an “Active Shooter” scenario.

## 2.0 Definition

2.1 Active shooter is defined as:

2.0.1 An individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, active shooters use firearms and there is no pattern or method to their selection of victims.

## 3.0 Purpose

3.1 Shawmut Design and Construction recognizes that active shooter scenarios have been on the rise in the past decade. Office and jobsite planning, awareness can be a crucial element to survival and saving others during an active shooter scenario.

## 4.0 Policy

4.1 Talk with your jobsite or office about these planning measures outlined by the Department of homeland security and Shawmut Design and Construction to help prepare and potentially react to an active shooter scenario.

## 5.0 Scope

5.1 The Department of Homeland security states, active shooters are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting & mitigate harm to victims. Therefore, the rapid decisive actions of individuals on the ground can make the difference in reducing injuries and fatalities.

## 6.0 Pre-Planning

6.1 Hold a site or office meeting to discuss an active shooter scenario. Emphasis awareness discuss potential signs; has there been workers or contractors that have exhibited behaviors that suggest high levels of agitations, has someone threated violence and or suggested violence in the workplace.

6.2 Know that active shooter situations often evolve quickly, and it is important to react as fast as possible.

6.3 Identify egress and emergency evacuation routes, walk through these exit strategies physically and mentally. Talk with your team about possibly needing to escape through a window if needed. Engage workers to plan potential scenarios based on their office or jobsite settings.

6.4 Review office and jobsite access. Can job trailers be kept locked, can keypads or card readers be used to secure job trailers or offices to limit access.

## 7.0 Know the Response Run, Hide & Fight

7.1 **Run** out of the building or area where the shooting in occurring as soon as possible and quietly as possible. Leave your belongings behind, communicate with others to follow help them escape if possible but do so as quietly and effectively as possible. Once you make it out follow commands of law enforcement, exit buildings with hands visible and raised.

7.2 **Hide** if there is no possible safe egress because the shooter is blocking the only option for escape find the nearest room that can be secured and barricade yourself in place. Try not to attract attention, silence cell phones, contact 911 if possible, to give shooter locations if you cannot speak leave phone on for dispatch to listen. Lock doors if possible and barricade. Move desk or other furniture in place to prevent the shooter from entering.

7.3 **Fight** As a last resort when there is no other means to escape the shooter then prepare to fight as aggressively as possible. Work with others if possible and plan a coordinated attack. Throw objects at the shooter to limit shooters abilities, use speed surprise & aggressive actions. Move fast do not hesitate when attacking your life and potentially others depend on it.

# MODULE 33 –Water Intrusion Prevention and Mitigation Program

## 1.0 Introduction

1.1 Water infiltration is one of the costliest types of incidents that we face in building construction because water can be suddenly released or enter a building from a variety of sources, such as but not limited to:

1.1.1 Inclement Weather
1.1.2 Flooding and Surface Water
1.1.3 Open Sided Floors
1.1.4 Temporary Roofs
1.1.5 Roofs and Balconies
1.1.6 Water in Pipe Systems

1.2 This Water Damage Prevention Plan will focus on factors influencing the occurrence of water damage losses and the loss control steps that can be implemented to reduce their frequency and severity.

## 2.0 Purpose

2.1 The purpose of this plan is to outline the steps we can take to prevent a water break and the protocols in the event of a water break during construction. Having a prevention and mitigation plan in place can help prevent and limit damage should a problem occur. This plan incorporates pre-task planning, identifying risks, proper sequencing of work, and response measures if leaking water is found.

## 3.0 Scope

3.1 One of the first steps in planning includes establishing an Emergency Response Team (ERT). This purpose of the Emergency Response Team (ERT) is to ensure that there are enough workers and equipment available to prevent water from entering the building, damaging stored material, and clean up. A contact list needs to be maintained and kept current of all trade forepersons or lead workers to assist in the shutting down and protecting of their systems/equipment, such as the sprinkler fitters, plumbers and pipe fitters, and electricians.

3.2 The Emergency Response Team should have unrestricted access to all areas of the site. After the water event has been controlled, the ERT will assess the damage and document it with photos/videos and a incident report. In the event of a severe leak an emergency restoration company will assist with clean-up efforts.

## 4.0 Sources of Water Damage

### 4.1 Inclement Weather

4.1.1 A responsible person(s) will be assigned to monitor weather conditions and prepare the site for inclement weather. Such preparation shall include the securing of materials stored out in the open and protecting it from weather conditions. The material(s) will be stored on pallets or other dunnage, covered with tarps, and kept out of low-lying areas, no matter inside or outside the building. Designated emergency response team(s) shall be available to take prompt corrective action in the event the inclement weather penetrates the building.

4.2 **Flooding and Surface Water**

4.2.1 Protection the jobsite from water damage starts on day one. The underground utilities, tanks and vaults can be damaged by flooding. Site grading and drainage shall be completed as soon as possible. Underground pipes, tanks and vaults can float if the systems are not filled or securely anchored. It is also important to schedule the installation of machinery, electrical systems, or other equipment in subgrade levels before the necessary water protection is provided. Pumps shall be available to remove water from pits, tanks, excavations, and foundation areas. Site drains shall be kept clear and protected with silt fencing or hay bales until the job is ready to be turned over. The silt fence and hay bales will capture and keep most foreign material out of the drainage system and prevent it from becoming clogged.

4.3 **Open-sided Floors**

4.3.1 Ideally, no finished work, such as drywall, painting or trim, shall be started on a floor until the entire exterior wall finishes are installed, caulked and sealed. If work must continue in areas that are not watertight, then every precaution must be made to ensure that such openings are enclosed. This may include temporary waterproof, windproof, fireproof material. Windblown rain can damage the areas adjacent to the openings, floors, and adjacent surfaces. When rain is allowed to collect on the floors, water can flow to lower areas, and cause damage beyond the immediate penetration point. It is important that these temporary enclosures are regularly inspected and maintained to prevent further damage.

4.4 **Temporary Roofs**

4.4.1 The location and construction of temporary roofs shall be part of the construction planning process for all projects. Temporary roofs are required to cover the elevator core, tower crane openings, large mechanical openings, and stairwells, and at areas determined to be prone to water entry. Extensive planning and coordination with all the subcontractors shall occur to ensure that they are aware of which floors have been designated for temporary roofs. They will implement plans with appropriate means and methods to avoid damaging temporary roofs to ensure that water does not penetrate to lower floors and cause damage.

4.4.2 The following best practices shall be implemented for temporary roof floors:

4.4.2.1 Sleeves in all deck penetrations shall be installed so as to protrude about the finished floor elevation and create a dam effect and keep water from penetrating to lower floors. These sleeves, pipe, conduit, and other mechanical openings should be sealed with waterproof fire stop/caulking to prevent water from flowing down and around the sleeve or pipe openings.

4.4.2.2 Electrical and communications rooms and/or duct banks shall have curbs installed and waterproof flashing. The curbing shall provide a physical barrier and prevent water from flowing down these vertical openings and damaging sensitive equipment.

4.4.2.3 Waterproof membrane shall be installed over all area where water will likely drain to lower levels, such as the gap between the floor and the exterior curtain wall system.

4.4.2.4 Temporary dams and gutters shall be installed around openings associated with stairways, elevator shafts, and large electrical and mechanical floor penetrations to prevent water from traveling vertically down the shafts.

4.4.2.5 Floor drains shall be installed on floors designated for temporary roofs to expedite the natural drainage off the floors. Water also can be collected in barrels equipped with pumps that can then pump the water into the drain stack.

4.4.2.6 The floor below the temporary roof should be inspected before, during and immediately after inclement weather to ensure that water is not draining onto the floor or floors below.

4.4.2.7 If schedule permits, finish work shall be not permitted on the two floors immediately below the temporary roof. This will provide an added layer of protection in the event that water does start to leak through the temporary roof.

## 4.5 Roofs and Balconies

4.5.1 Roofing subcontractors shall ensure that their installed material is sealed along leading edges to prevent it from being damaged by high winds. Subcontractors shall also complete the sealing around roof drains and ensure that the drain screens are installed. These drain screens will help to keep foreign material from clogging the pipe. They also need to coordinate their work with the plumbing subcontractor so that the roof drains are completed and tied into the drain system. If required, this will also include temporary drain lines to handle any the additional flow that that the permanent drains cannot handle. In some instances, some temporary drain lines can fail due to being inadequately sized for the weight and flow of water. These requirements will be discussed during the preliminary water damage prevention meetings.

4.5.2 Drains on all roof areas shall always be kept clear. Good housekeeping practices are important. Debris and construction material can easily wash into the drains resulting in clogging. Housekeeping, proper storage practices and drains needs to be inspected on a regular basis by the Project Field Team. All roofs shall be monitored before and during inclement weather to ensure any leaks are contained, drained, and cleaned up as soon as they are possible.

## 4.6 Water in Pipe Systems (potable water, hydronic HVAC systems, fire sprinklers, drains and vents)

4.6.1 Preventing water damage associated with piping systems is mostly dependent on the quality of the work performed by the various subcontractors installing these systems. There are many new and different products being used today, and it is required that the installers be trained on the proper procedures to cut, connect, and support the pipe systems. Subcontractors will be required to provide adequate supervision to ensure that the tradesmen are adhering to the installation guidelines established by the manufacturer. It is our continuous goal of to implement a thorough QC program. This includes that all of the pipe system tests will be witnessed, accepted by Owner's Consultant, and documented prior to being covered up, whether inside or outside the building.

4.6.2 Pipe systems shall be tested with air under low pressure before they are tested with liquids. This is especially important if the building is exposed to freezing temperatures and temporary or permanent heat is not available. When a system is tested with water, it shall be completely drained so it is not susceptible to freezing temperatures.

4.6.3 Communication and coordination during testing and commissioning of pipe systems is extremely important for a successful water damage prevention plan. All subcontractors will be required to notify **us** and other tradespeople when and which systems are being tested. The subcontractors must have enough workers available to check and respond quickly to any leaks, prevent ones from happenings, and mitigate any further damages. There shall be an adequate means of communication, either cell phones or radios, so that the signal to shutoff the valves is promptly communicated and acted upon.

4.6.4 Water in pipe systems can be susceptible to freezing; therefore, good planning is required to ensure that the building can maintain appropriate temperatures to avoid damages due to frost. Wind also can severely affect the building's ability to maintain adequate temperatures, so it is important for the team to make sure that all affected exterior openings **are** blocked off and weather tight. If heating is not provided, the water shall be shutoff at the curb valve before it enters the building. In cold climates, the building's temperature shall be monitored during non-working hours, such as overnight, weekends, holidays and work stoppage. (*See the next section on detection and response*.)

4.6.5 As water is introduced into pipe systems, it is important that all valves are tagged with signage and placards. **We** will manage a worksheet and easy to read diagram that provides the location and type of various active valves around the job site. This is so that responders and security personnel can easily find the valves in the event of a water leak.

## 5.0 Controls and Planning

5.1 Pre-task Planning

5.1.1 Pre-task planning is critical in prevention of any accidental construction leaks. First step in pre-task planning is for project teams and key foreman to have a good understanding of the existing building hydronic system designs.

5.1.2 The Pre-task Plan template shall be utilized for any risky activities with the potential for water breaks. This shall be filled out by the Subcontractor's Foreman, reviewed with all workers involved with the task and submitted to Shawmut Superintendent and Safety Manager.

5.1.3 For any high-risk activities Subcontractors are required to fill out and submit a Job Hazard Analysis (JHA).

5.1.4 Before work begins workers should inspect existing systems to identify any preexisting water problems. Identify any live systems that may require impairment.

5.1.5 Pre-construction meetings will take place with mechanical and fire protection subcontractors to review water damage protection and quality control measures. Some key concerns are system-testing protocols for leak monitoring after activation, leak detection protocols, alarm systems, flow detection and monitoring, as well as system and component inspections. Shawmut field team to witness all wet system tests to help recognize potential problems.

5.2 Proper Work Sequencing

5.2.1 Schedule impairment of any live systems that may be affected. Delivery of finish materials such as drywall, paneling, ceiling tiles, and wood finishes should be scheduled after high-risk activities are complete. Store materials off the ground, on dunnage, and away from moisture sources, and cover porous materials with plastic sheeting or tarps. At the end of each day, have workers walk the entire project to make sure all temporary water sources have been turned off.

## 6.0 Response

6.1 The employees responding to the alarms or who are onsite as part of the Emergency response Team shall have post orders. They shall know what steps to take under the various alarms and weather conditions. Since the job can have numerous sensors monitoring different systems, they need to have unrestricted access to all areas of the site, know the location of various valves and know how to shutoff the valves.

6.2 Since some valves are easier to turn then others, especially under high-water pressure, our team shall conduct practice drills so employees can practice locating valves, as well as turning them off. This process is especially important as construction progresses because it might become difficult to find the values as all are built and equipment is installed.

## 7.0 Emergency Clean-up

7.1 An emergency clean-up kit shall always be made available and, depending on the size of the job, several kits might need to be provided. The kits shall contain wet vacs, fans, blowers, squeegees, absorbent material, extension cords with ground fault circuit interrupter (GFCI) protection, waterproof tarps, waterproof sheet membrane material and waterproof caulk. Emergency generators shall also be made available on the jobsite in the event of a power failure. Such materials shall be securely stored inside rolling job boxes and keys assigned to members of the Water Damage Prevention Response Team. The final step in the response is to protect the building, material and equipment from additional damage. After the water event has been controlled, the field project team shall assess the damage and documents it with pictures/video it should be formally recorded as an incident report on Pro Core. Our Risk Manager and Safety Team must be notified immediately.

7.2 **Responding to Water Damage**

7.2.1 The project site will have the following response equipment:

7.2.1.1 On all floors (1) Spill kit will be located inside all elevator lobbies next to fright elevator. A plastic hamper, along with fire sprinkler shut off guns for both pendant and concealed heads, hose, and puddle pump.

7.2.1.2 Fire sprinkler shut offs are located

7.2.1.3 Main domestic water shut off valve is located

7.2.1.4 The on-site Emergency Response Team has been trained on the locations of the domestic water and hydronic heating shut off valves.