



**6962 SW 47 ST
MIAMI, FL 33155
Phone: 305-463-7700
Fax: 305-463-7058**

**Primary SIC: 15
Primary NAICS: 233**

SAFETY BOOK



THE SAFETY AND HEALTH POLICY AND PLAN FOR



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SAFETY BOOK

Reviewed & Revised by Michael Vazquez
May 2019

Edgewater Construction Group Management Safety Policy

The management of this organization is committed to providing employees with a safe and professional workplace. Employees must report all accidents, injuries, and unsafe conditions to their supervisors. No such report will result in retaliation, penalty, or other discouragement; reports should be in written form or dictated to onsite supervisor or foreman and signed.

Employee recommendations to improve safety and health conditions will be given thorough consideration by this company. Disciplinary action will be enforced for those who willfully or repeatedly work in an unsafe manner.

Disciplinary action may take the form of

- 1) Written warning
- 2) Written warning and suspension without pay
- 3) Termination of employment

Management reserves the right to terminate the employment of any employee at any time for violation of company policies.

Management will participate in establishing and maintaining an effective safety program. This will include the following:

- Holding all management and supervisory staff accountable for their safety responsibilities in their respective departments, jobs, crews or workplaces
- Providing safety and health education and training as needed
- Reviewing and updating workplace safety policies, practices and performances

This policy statement serves to express this company's commitment to providing our employees with a safe and healthy workplace. This workplace safety and health program will be incorporated as the standard of practice for this organization. Compliance with these safe practices and those of any regulatory agency will be required of all employees as a condition of continued employment.

The main office or job site office shall make available to employees sections of this Program which directly provides information and rules to follow for their safety, at time of hire.

Edgewater Construction Group Safety Plan

Responsibilities

Senior Managers / Managers

- Communicate safe work practices regularly within the department.
- Attend departmental and company-wide safety meetings.
- **Formally recognize outstanding safety performance by any/all personnel.**
- Assist the Supervisor/Superintendent or any other personnel with the safety process as needed or as requested. This can include formal worksite periodic inspections.
- Uphold and enforce all known safe work practices.

Supervisors / Superintendents

- Ensure new-hire orientation is given to new employees, and is followed up at the work level
- Ensure employees are given training that includes safe work practices on equipment, tools, machines, processes, etc.
- **Personally conduct--or designate a qualified personnel to conduct-- regular inspections of the workplace**
- Conduct work discussions as needed prior to the start of new work that include safe work practices
- Investigate all incidents and take immediate corrective action to prevent re-occurrence
- Provide safety meetings on a regular basis and require attendance of all workers

All Employees

- Must immediately report all unsafe equipment or tools to their foreman, supervisor or manager
- This includes reporting unsafe behavior of other workers
- Are to uphold the safe work practices this company has established
- **If injured on the job, or become ill, are to immediately inform their supervisor, foreman or manager**

WORKSITE ANALYSIS

- All work areas, departments, and jobs need to be inspected on a regular basis to ensure safe work practices and safe and healthy conditions. These inspections are to be conducted by the Supervisor/Superintendent or his/her qualified and designated worker. Each inspection may not be required to be formal (written) although regular written completed inspections will be expected. This includes the purchase of new equipment or tools, or the re-working or retrofitting of workstations or equipment so as to ensure that safety and health is considered.
- If approached by workers who appear to have a true concern regarding a safety or health issue, supervisors or managers are required to act accordingly and give attention to the matter.
- All incidents **need to be investigated**. This includes property damage, equipment damage, incidents involving injury or illnesses, and near-miss type incidents. Managers will be involved as necessary or when requested, but should always have the information pertaining to all incidents in writing and submitted to office.

HAZARD PREVENTION AND CONTROL

- Safe work practices will be developed and employees will be trained on using these safe work practices to avoid injury and illnesses. This may include the implementation of task or job hazard analyses.
- Personal Protective Equipment (PPE) will be provided as necessary, and its use enforced by Supervisory and Management staff.
- Equipment, tools, machines, trucks, vehicles, and structures/facilities etc., need to be maintained in good working condition by a continued preventative maintenance process.

SAFETY AND HEALTH TRAINING

Safety and Health Orientation

Workplace safety and health orientation begins on the first day of initial employment or job transfer. Each employee should have access to a copy of the written safety program, through his or her supervisor, for review and future reference, and will be given a personal copy of any safe work practices, policies, and procedures pertaining to his / her job. Supervisors should question employees and should answer employees' questions to ensure knowledge and understanding of safe work practices, policies, and job-specific procedures. Supervisors are responsible to inform all employees that compliance with the safe work practices is **required**.

Job-Specific Training

- Managers, Supervisors and Foremen should receive basic safety and health training as it relates to their positions
- Supervisors will initially train employees on how to perform assigned job tasks safely.
- Supervisors will observe employees performing the work. If necessary, the supervisor will provide a demonstration using safe work practices, or remedial instruction to correct training deficiencies before an employee is permitted to do the work without supervision.
- Supervisors will review safe work practices with employees before permitting the performance of new, non-routine, or specialized procedures.

Periodic Retraining of Employees

All employees will be retrained periodically on safe work practices, policies and procedures, and when changes are made to the written safety program.

If necessary, individual employees will be retrained after the occurrence of a work-related injury caused by an unsafe act or work practice, or when a supervisor observes employees displaying unsafe acts, practices, or behaviors.

FIRST AID AND MEDICAL ASSISTANCE

There will be adequate first aid supplies and /or an adequate first aid kit available at each workplace.. Employees who receive work related injuries or illnesses will be given immediate attention in regards to the nature of their injury or illness.

INCIDENT INVESTIGATION

Incident Investigation Procedures

The supervisor at the location where the incident occurred will perform an incident investigation. Incidents can include property damage, near misses and workplace injuries and illnesses. These investigations are to assess the nature and the cause of the incident, not to place blame on personnel. Supervisors are required to use the following methods when investigating an incident:

- Implement temporary control measures to prevent any further injuries to employees or damage to equipment or property or the public.
- Review the equipment, operations, and processes to gain an understanding of the accident situation.
- Identify and interview each witness and any other person who might provide clues to the causes.
- Complete the incident investigation report.
- Provide recommendations for corrective actions.

Incident investigation reports must be submitted to the designated management personnel ASAP after the incident.

RECORD KEEPING PROCEDURES OFFICE AND ON SITE

The company will control and maintain all employee accident and injury records. Records are maintained in the main office for a minimum of five (5) years following the end of the year to which they relate. The data on the Injury and Illness log and posting of the Summary of Work-related injuries and illnesses will be in accordance with government regulations. The following will be included in the record keeping process:

- Log of Work-related Injuries and Illnesses (OSHA form 300) on site and in office
- Summary of Work-related Injuries and Illnesses (OSHA form 300A in office)
- Incident investigation reports (OSHA form 301 or similar ECG form)
- Workers' Compensation Notice of Injury



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**GENERAL CONSTRUCTION
Additional Safety and Health Work Practices
and Procedures, Including Hazard
Communication**

SAFETY WORK PRACTICES AND PROCEDURES **(Including use of Personal Protective Equipment)**

These safety work practices and procedures are developed to assist in achieving job safety by having no employee accidents. **Some are OSHA requirements.**

For these reasons, every employee is expected to abide by our safety work practices and procedures at all times.

Hard Hats –All employees are required to wear a hard hat on every job site at all times.

Eye Protection - All employees are required to wear safety glasses on the job site at all times.

Fall Protection – All employees exposed to falls over 6ft are required to be trained and use proper fall protection equipment and/or be protected by adequate guardrail systems or adequate safety nets.

Hand Protection - All employees involved in operations exposing hands to cuts, chemicals, burns, etc. are required to wear gloves that are appropriate to the exposure. The material safety data sheet (MSDS) should be used if in doubt about what type of glove to use.

Rubber Boots - Employees involved in operations exposing the feet/legs to hazards such as concrete burns, which can occur when placing uncured concrete, are required to wear rubber boots in good condition.

Other - Specific jobs may cause the need for other personal protective equipment. When this occurs, the employee is expected to utilize this equipment. It is the Job Superintendent's responsibility to see that equipment in use be appropriate and in good condition.

GENERAL:

Employees must follow the safety policy, safe work practices and procedures established by Edgewater Construction Group. Violations may result in disciplinary action, as described in the Safety Policy section.

Employees should report any equipment or condition considered to be unsafe, as well as what they consider to be unsafe work practices. This type of information should be reported to the Superintendent or to the person in charge of the job.

****When lifting, bend your knees, grasp the load firmly, and then raise the load with your legs, keeping the back as straight as possible. Don't twist body with a load, move your feet. GET HELP for HEAVY LOADS.**

When in doubt about the safety of a situation that is out of the norm, contact the Superintendent to find the proper procedure.

Good housekeeping practices improve safety for everyone. When you create clutter, clean it up. When clutter is left in the work area by someone else, clean it up and report this to the Superintendent.

****The possession or consumption of alcohol, drugs or any control substance is against policy and violators are subject to termination.**

VEHICLE OPERATIONS:

Employees driving company vehicles, or their personal vehicle on company business must have a current driver's license and an acceptable driving record. **NO IPOD'S OR HEADPHONES ARE PERMITTED BY OSHA WHILE DRIVING.**

When driving a company vehicle or their personal vehicle on company business, all traffic laws must be obeyed and driver and any passengers in the front seat must wear a seat belt.

SAFETY INSPECTIONS:

The Job Superintendent will complete an inspection from a safety stand-point at ****the start of each new job and on Monday morning of on-going jobs**. In order to ensure safety the Job Superintendent should check for the following: any unusual hazards, such as stumbling hazards or fall exposure, any overhead objects that could fall, areas-operations known to have contributed to employee accidents in the past, and other conditions that may be peculiar to the job or location. In addition, the Job Superintendent should assess whether any special personal protective equipment, tools, or procedures are needed.

The results of each internal inspection will be recorded on the CONSTRUCTION INSPECTION FORM. USE THE PROVIDED FORM HEREIN

Construction Inspection Form

Inspection By:

Project: The Estates of Acqualina			Date:	
	Description	X	OK	Comments/Correction Date
X = Needs Improvement/correction				
1	Fall protection			
2	Electrical--temporary panel, GFCI, no exposed wires			
3	Electrical tools/cords			
4	Ladders			
5	Scaffolds			
6	Personal protection equipment: hard hat, safety glasses, gloves, respirators (if needed)			
7	Site housekeeping, trip/slip hazards, puncture hazards, clear stairways			
8	Other			
Additional Comments:				

Edgewater Construction Group

HAZARD COMMUNICATION PROGRAM

GENERAL INFORMATION

In order to comply with 29 OFR 1926.59, Hazard Communication, and the following written Hazard Communication Program has been established by Edgewater Construction Group. All work units of the company are included within this program. The written program will be available in the office, and at your jobsite for review by any interested employee through a superintendent. Superintendent is responsible for the implementation and ongoing compliance with the program.

EMPLOYEE TRAINING AND INFORMATION

The Job Superintendent is responsible for the employee training program. He/She will ensure that all elements specified below are carried out.

Prior to starting work each new employee of Edgewater Construction Group will attend a health and safety orientation and will receive information and training on the following:

- An overview of the requirements contained in the Hazard Communication Standard.
- Chemicals present in their workplace operations
- Location and availability of our written hazard communication program,
- Physical and health effects of the hazardous chemicals.
- How to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment.
- Emergency procedures to follow if they are exposed to these chemicals.
- How to read labels and review MSDS' to obtain appropriate hazard information.

After attending appropriate training, each employee will sign a form to verify that they received and understood the training, procedures and policies within Edgewater Construction Group's Hazard Communication Program

Prior to a new chemical hazard being introduced into any section of this company, each employee of that section will be given information as outlined above. Job Superintendent is responsible for ensuring the Material Safety Data Sheets (MSDS) on the new chemicals are available when materials arrive.

Written Hazard Communication Program

It is the policy of Edgewater Construction Group, that the first consideration in the performance of work shall be the protection of the safety and health of all employees. The company has developed this Hazard Communication Program to ensure that all employees receive adequate information relevant to the possible hazards that may be encountered as a result of the various hazardous substances used in the company's operations and processes. The following program outlines how we will accomplish this objective.

SCOPE

This policy covers all potential workplace exposures involving hazardous substances as defined by federal, state, and local regulations.

HAZARD DETERMINATION

The company does not intend to evaluate any of the hazardous substances purchased from suppliers and/or manufacturers and have instead chosen to rely upon the evaluation performed by the suppliers or by the manufacturers of the substances to satisfy the requirements for hazard determination.

- No container or hazardous substances will be released for use unless the container is correctly labeled and the label is legible.
Any containers found to have damaged labels will be quarantined until a new label has been installed.
- All chemicals in bags, drums, barrels, bottles, boxes, cans, cylinders, reaction vessels, storage tanks, or the like will be checked by the receiving department to ensure the manufacturer's label is intact, is legible, and has not been damaged in any manner during shipment.

OSHA is to be notified if the manufacturer or distributor will not supply the MSDS or if it is not received after 30 days from request. Any new information will be passed on to employees involved.

New materials will not be introduced into the work area until an MSDS has been received.

The purchasing department will make it an ongoing part of its function to obtain MSDSs for all new materials when they are first ordered.

NON-ROUTINE TASKS

Prior to starting any new work on projects, each involved employee will be given information by his or her supervisor about hazards to which they may be exposed during such an activity. This information will include:

- The specific hazards.
- Protective/safety measures that must be utilized.
- Additional measures the company has taken to lessen the hazards, including special ventilation, respirators, and the presence of another employee, air sample readings, and emergency procedures.

MSDS INFORMATION

OSHA safe work practices outline the content, but not the exact form, of every Material Safety Data Sheet. **Here is what OSHA requires** each data sheet to contain:

- **IDENTITY.** The data sheet must contain the name of the chemicals found on the label. In addition, subject to deletion of legitimate trade secrets, it must give the chemical and common name of the substance. If the substance is a mixture and has not been tested as such, the data sheet must give the name of each hazardous constituent.
- **CHARACTERISTICS.** The data sheet must recite the physical and chemical characteristics of the chemical, such as vapor pressure, flash point, etc.
- **PHYSICAL HAZARDS.** Any potential for fire, explosion or reaction must be included in the data sheet.
- **HEALTH HAZARDS.** Signs and symptoms of exposure must be entered, as must all medical conditions that are likely to be aggravated by exposure.
- **ROUTES OF ENTRY.** The data sheet must specify whether the chemical typically enters the system by ingestion, inhalation, dermal exposure or some other route.
- **EXPOSURE LIMITS.** If OSHA has established an exposure limit for the chemical, or if a Threshold Limit Value has been established by the American Conference of Governmental Industrial Hygienists, these must be entered on the data sheet, as must any exposure limit used by the authority preparing the data sheet.
- **CARCINOGENS.** The data sheet must indicate whether the chemical is listed as a carcinogen by the National Toxicology Program, by OSHA, or by the International Agency for Research in Cancer.
- **USE AND HANDLING.** The data sheet must recite any general applicable precautions for safe handling and use that are known to the firm preparing the data sheet, including hygiene practices, protective measures during repair and maintenance of contaminated equipment and procedures for clean-up of spills and leaks. Industrial chemical consumers often might add site-specific procedures to the more general information offered by the chemical manufacturer.
- **EXPOSURE CONTROLS.** The data sheet must include a description of special procedures to be employed in emergencies, as well as a description of appropriate first aid.
- **DATES.** The sheet must bear the date of its preparation or of its latest revision.
- **INFORMATION SOURCE.** Finally, the sheet must recite the name, address and telephone number of the person who prepared the data sheet or of some other person who can provide additional information relating to the chemical, such as citations to scientific literature or specialized emergency procedures.

EXPLANATION OF TERMS USED ON MATERIAL SAFETY DATA SHEETS

SECTION I

Chemical Name and Synonyms—The product identification. The chemical or generic name of single elements and compounds.

Trade Names and Synonyms—The name under which the product is marketed and the common commercial name of the product.

Chemical Family—Refers to a grouping of chemicals that behave and react with other chemicals in a similar manner.

Formula—The chemical formula or single elements or compounds.

CAS Number—The Chemical Abstracts Service number, if applicable.

EPA—The code number assigned by the Environmental Protection Agency, if applicable.

DOT Classification—The appropriate classification as determined by the regulations of the Office of Hazard Material, Department of Transportation.

SECTION II

Hazardous Ingredients—The major components as well as any minor one(s) having potential for harm that are considered when evaluating the product.

TLV—Threshold Limit Value (TLV) indicates the permissible exposure concentration, a limit established by a government regulatory agency, or an estimate if none has been established.

SECTION III

Physical Data

Boiling Point (°F)—The temperature in degrees Fahrenheit at which the substances will boil.

Vapor Pressure. The pressure of saturated vapor above the liquid expressed in mm Hg at 20°C.

Vapor Density—The relative density or weight of a vapor or gas (with no air present) compared with an equal volume of air at ambient temperature.

Solubility in Water—The solubility of a material by weight in water at room temperature. The terms negligible, less than 0.1 percent, 0.1 to 1 percent; moderate 1 to 10 percent, applicable 10 percent or greater.

Appearance and Odor—The general characterization of the material, i.e., powder, colorless liquid, aromatic odor, etc.

Specific Gravity ($H_2O=1$)—The ratio of the weight of a volume of the material to its weight of an equal volume of water.

Percent, Volatile by Volume (%)—The percent by volume of the material that is considered volatile. (The tendency or ability of a liquid to vaporize.)

Evaporation Rate—The ratios of the time required to evaporate a measured volume of a liquid to the time required to evaporate the same volume of a reference liquid (ethyl ether) under ideal test conditions. The higher the ratio, the slower the evaporation rate.

SECTION IV

Flash Point (Method Used)—The temperature in degrees Fahrenheit at which a liquid will give off enough flammable vapor to ignite in the presence of a source of ignition.

SECTION V

Conditions to Avoid—Conditions that, if they exist with the substance present, could cause it to become unstable.

Incompatibility (Materials to Avoid)—Materials that will react with the substance.

Hazardous Decomposition Products—Refers to that reaction that takes place at a rate that releases large amounts of energy. Indicates whether or not it may occur and under what storage conditions.

SECTION VI

Health Hazard Data—Possible health hazards as derived from human observation, animal studies or from the results of studies with similar products.

Threshold Limit Value (TLV)—The value for airborne toxic material that are to be used as guides in the control of health hazards and represent concentrations to which nearly all workers may be exposed eight hours per day over extended periods of time without adverse effects.

Effects of Overexposure—The effects on or to an individual who has been exposed beyond the specified limits.

Emergency and First-Aid Procedures—Gives first-aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

SECTION VII

Stability—Whether the substance is stable or unstable, an unstable substance is one that will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure, or temperature.

A copy of the form you may want to use to list your hazardous substances by work area follows this page. This information would be based on the initial survey and subsequent hazard determination.

SECTION VIII

Spill or Leak Procedures—Steps to be taken if material is released or spilled. Method and materials to use to clean up or contain.

Waste Disposal Method—Method and type of disposal site to use.

SECTION IX

Special Protection Information

Respiratory Protection—Specific type should be specified, i.e., dust mask, NIOSH-approved cartridge respirator with organic-vapor cartridge.

Ventilation—Type of ventilation recommended, i.e., local exhaust, mechanical, etc.

Protective Gloves—Refers to the glove that should be worn when handling the product, i.e., cotton, rubber.

Eye Protection—Refers to the type of eye protection that is to be worn when handling or around the product.

Flammable Limits—The range of gas or vapor concentration (percent by volume in air) that will burn or explode if an ignition source is present. (Lel) means the lower explosive limits and (Uel) the upper explosive limits given in percent.

Extinguishing Media—Specifies the fire-fighting agent(s) that should be used to extinguish fires.

Special Fire-Fighting Procedures/Unusual Fire and Explosion Hazards—Refer to special procedures required if unusual fire or explosion hazards are involved.

WORK AREA HAZARDOUS SUBSTANCE LIST

Work Area:

[illegible]

Silica Exposure Control Plan

For



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1: PURPOSE

The purpose of this document is to establish and implement a written exposure control plan that identifies tasks involving silica exposure and methods used to protect employees.

Edgewater Construction is required to implement the components of the Plan to ensure compliance with the following applicable state and federal regulations. The following Occupational Safety and Health Administration (OSHA) standards are applicable for breathable crystalline silica.

- *General Standard 29 CFR 1910.1053*
- *Construction Standard 29 CFR 1926.1153*

2: SCOPE

The Silica Exposure Control Plan applies to all Purdue University employees who are expected to be exposed to breathable crystalline silica as outlined in section 4; or through other means, which are determined by Radiological and Environmental Management (REM) or their supervisor.

3: RESPONSABILITIES

3.1 Department Heads and/or Superintendents

- *Ensure Supervisor(s) understand their responsibilities for the preparation and implementation of the Silica Exposure Control Plan within each Project.*
- *Actively Support this Plan within each Project.*
- *Ensure an environment where all employees are required to follow this Plan.*

3.2 Supervisors

- *Implement and ensure procedures are followed in accordance with this Plan.*
- *Ensure that staff is aware of this Plan, instructed on the details of implementation, and provided with equipment, and methods of control (e.g. engineering controls, work practice controls and respirators).*
- *Contact REM to request technical assistance, and to evaluate health and safety concerns within their department.*

3.3 Employees

- *Comply with this Plan and any further safety recommendations provided by supervisors and/or REM regarding the Silica Exposure Control Plan.*
- *Contact supervisor or REM to request technical assistance, and to evaluate health and safety concerns within their department.*

4: SPECIFIED EXPOSURE CONTROL METHODS

For each employee working with materials containing crystalline silica and engaged in a task using the equipment and machines listed below, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified.

4.1 Stationary Masonry Saws

- **Engineering Control:** *Water continuously fed to the blade*
- **Respiratory Protection:** *None Required*

4.2 Drivable Saws

- **Engineering Control:** *Water continuously fed to the blade*
- **Respiratory Protection:**
 - *Enclosed Area: Can Not Use Saw in Enclosed Areas*
 - *Outside Area: None Required*

4.3 Handheld Power Saws

- **Engineering Control:** *Water continuously fed to the blade*
- **Respiratory Protection (less than 4 hours per shift):**
 - *Enclosed Area: N95 Dust Mask*
 - *Outside Area: None Required*
- **Respiratory Protection (more than 4 hours per shift):**
 - *Enclosed Area: N95 Dust Mask*
 - *Outside Area: N95 Dust Mask*

4.4 Walk Behind Saws

- **Engineering Control:** *Water continuously fed to the blade*
- **Respiratory Protection (less than 4 hours per shift):**
 - *Enclosed Area: N95 Dust Mask*
 - *Outside Area: None Required*
- **Respiratory Protection (more than 4 hours per shift):**
 - *Enclosed Area: N95 Dust Mask*
 - *Outside Area: None Required*

4.5 Ring Mounted Core Saw or Drill

- **Engineering Control:** *Commercial shroud or cowling with dust collection system*
- **Respiratory Protection:** *None Required*

4.6 Handheld and Stand-Mounted Drills

- **Engineering Control:** *Commercial shroud or cowling with dust collection system*
- **Respiratory Protection:** *None Required*

4.7 Dow Drilling Rigs for Concrete

- **Engineering Control:** Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: Can Not Use Drill in Enclosed Areas
 - Outside Area: N95 Dust Mask
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: Can Not Use Drill in Enclosed Areas
 - Outside Area: N95 Dust Mask

4.8 Vehicle-Mounted Drilling Rigs

- **Engineering Control:** 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. – OR – Operate from within an enclosed cab and use water for dust suppression on drill bit.
- **Respiratory Protection:** None Required

4.9 Jackhammers and Handheld Power Chipping Tools

- **Engineering Control:** Water continuously fed to the point of impact – OR – Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: None Required
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: N95 Dust Mask

4.10 Walk-Behind Milling Machines and Floor Grinders

- **Engineering Control:** Water continuously fed to the point of impact – OR – Commercial shroud or cowling with dust collection system
- **Respiratory Protection:** None Required

4.11 Small Drivable Milling Machines (Less than Half-Lane)

- **Engineering Control:** Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant.
- **Respiratory Protection:** None Required

4.12 Large Drivable Milling Machines (Half-Lane and Larger)

- **Engineering Control:** Use a machine equipped with exhaust ventilation on drum enclosure and supplemental water spray designed to suppress dust. – OR – Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant.
- **Respiratory Protection:** None Required

4.13 Crushing Machines

- **Engineering Control:** Use equipment designed to deliver water spray or mist at crusher and other points where dust is generated. – AND – Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.
- **Respiratory Protection:** None Required

4.14 Heavy Equipment (Hoe-Ramming, Rock Ripping, and Demolition)

- **Engineering Control:** Operate equipment from within an enclosed cab. – AND – When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.
- **Respiratory Protection:** None Required

4.15 Heavy Equipment (Grading and Excavating)

- **Engineering Control:** Apply water and/or dust suppressants as necessary to minimized dust emissions. – OR – When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.
- **Respiratory Protection:** None Required

4.16 Handheld Grinders for Mortar Removal

- **Engineering Control:** Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: N95 Dust Mask
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: Full Face Air Purifying Respirator
 - Outside Area: Full Face Air Purifying Respirator

4.17 Handheld Grinder for Uses Other than Mortar Removal

- **Engineering Control:** Water continuously fed to the grinding surface – OR – Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: None Required
 - Outside Area: None Required
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: None Required

4.18 Housekeeping

- *The employer shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to breathable crystalline silica*
 - *Use Wet Sweeping*
 - *Use HEPA-Filtered Vacuuming*
- *The employer shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to breathable crystalline silica.*

If you're exposed to breathable crystalline silica and engaged in task using equipment and machines not identified in the list above, contact REM for an exposure assessment to determine the engineering controls, work practices, and respiratory protection requirements to safely do your job.

Rescue Plan and Procedures

For



Working at Heights Rescue Procedures

This document is intended to provide guidance for developing site-specific working at heights rescue plans.

Company Policy on Working at Heights Rescues

The implementation and maintenance of a safe work environment is the collective responsibility of all employees, contractors, and visitors to the jobsite. It is our company policy to provide prompt medical treatment when a worker is injured on the jobsite. To do this, workers may have to perform a working at heights rescue to bring down a worker who has fallen and is suspended in a safety harness.

This procedure applies to all managers, supervisors, forepersons, employees, subcontractors, and visitors of ***The Estates At Acqualina*** jobsite.

Purpose of Working at Heights Rescues

When a worker falls and is suspended in a harness, it's important to rescue him or her as quickly as possible because of the following reasons.

- The worker may have suffered injuries during the fall and may need medical attention.
- When workers are suspended in their safety harnesses for long periods, they may suffer from blood pooling in the lower body. This can lead to suspension trauma.
- Suspended workers may panic if they are not rescued quickly.
- The event that led to the fall may create additional risks that need to be addressed.

Emergency Planning

The three main parts of emergency planning are:

- 1) Training**
- 2) Creating an emergency plan**
- 3) Outlining rescue procedures.**

1) Training

All site personnel must attend a site-specific safety training session where they will review emergency response procedures and receive instruction on alarms and assembly areas.

Train a designated crew to perform the rescue. This crew must know how to use the equipment that is available to them at the jobsite and where they can find it. They should review the rescue procedure every two weeks with the crane crews.

2) Emergency Response Plan

If a worker falls and is suspended by a safety harness, implement the emergency response plan by following the steps below.

Note: It's important to know your role.

1. The site supervisor (or alternate foreperson) takes control of the situation.
2. The site supervisor sounds the emergency alarm—two long blasts from a horn. All workers in the immediate vicinity of the incident stop working. The site supervisor quickly evaluates the situation and identifies any further hazards that could arise.
3. The site supervisor or their designate goes to get help if workers are close by. If no one is close enough, the site supervisor calls for help.
4. The site supervisor calls 911 to notify local police, fire, and ambulance if required.
5. The crane operator remains on standby. The operator frees the hook and waits for further direction in case the designated rescue team must perform a basket rescue.
6. The site supervisor (or a worker assigned to the task) isolates the accident zone and its perimeter to limit further exposure.
7. The site supervisor (or a worker assigned to the task) moves all non-affected personnel to a safe zone or directs them to remain where they are.
8. The site supervisor enables radio silence on the jobsite, except for crisis communications from emergency responders. These communications are conducted on a pre-selected "emergency only" radio channel.
9. The site supervisor sends a designated worker to the site gate to meet the response team (police, medical, fire, etc.) and ensure that they have a safe access path to the accident scene.
10. The site supervisor assembles the emergency rescue team at the accident site as quickly as possible to determine the best rescue procedure for the situation.

3) Rescue Procedures

The following rescue procedures are ordered (A) through (D), with (A) being the preferred method and (D) being the method used when there is no other means of rescue.

A. Elevating Work Platform Rescue—If an elevating work platform (EWP) is available on site and the suspended worker can be reached by the platform, follow the procedure below.

1. Bring the EWP to the accident site and use it to reach the suspended worker.

2. Ensure that rescue workers are wearing full-body harnesses attached to appropriate anchors in the EWP.
3. Ensure that the EWP has the load capacity for both the rescuer(s) and the fallen worker. If the fallen worker is not conscious, two rescuers will probably be needed to safely handle the weight of the fallen worker.
4. Position the EWP platform below the worker and disconnect the worker's lanyard when it is safe to do so. When the worker is safely on the EWP, reattach the lanyard to an appropriate anchor point on the EWP if possible.
5. Lower the worker to a safe location and administer first aid. Treat the worker for suspension trauma and any other injury.
6. Arrange transportation to hospital if required.

B. Ladder Rescue—if an elevating work platform is not available, use ladders to rescue the fallen worker with the procedure outlined below.

1. If the fallen worker is suspended from a lifeline, move the worker (if possible) to an area that rescuers can access safely with a ladder.
2. Set up the appropriate ladder(s) to reach the fallen worker.
3. Rig separate lifelines for rescuers to use while carrying out the rescue from the ladder(s).
4. If the fallen worker is not conscious or cannot reliably help with the rescue, at least two rescuers may be needed.
5. If the fallen worker is suspended directly from a lanyard or a lifeline, securely attach a separate lowering line to the harness.
6. Other rescuers on the ground (or closest work surface) should lower the fallen worker while the rescuer on the ladder guides the fallen worker to the ground (or work surface).
7. Once the fallen worker has been brought to a safe location, administer first aid and treat the person for suspension trauma and any other injury.
8. Arrange transportation to hospital if required.

C. Rescue from Work Area or Floor Below—if the fallen worker is suspended near a work area and can be safely reached from the floor below or the area from which they fell, use the following procedure.

1. Ensure that rescuers are protected against falling.
2. If possible, securely attach a second line to the fallen worker's harness to help rescuers pull the fallen worker to a safe area. You will need at least two strong workers to pull someone up to the level from which they fell.
3. Take up any slack in the retrieving line to avoid slippage.
4. Once the worker has been brought to a safe location, administer first aid and treat the person for suspension trauma and any other injury.
5. Arrange transportation to hospital if required.

D. Basket Rescue—if a worker has fallen and is suspended in an inaccessible area, you may need to perform a basket rescue.

For basket rescues, the basket must be designed by a professional engineer in accordance with good manufacturing processes to withstand all loads to which it may be subjected. It must be kept on site at

all times in an accessible location where it is clear of material or other equipment. Fit the rescue basket with appropriate rigging for quick hookup by the crane operator.

Always keep the following items in the rescue basket.

1. First-aid kit
2. Three lanyards equipped with shock absorbers
3. One full-body harness
4. Tag line attached to the basket at all times
5. Descent controller rescue device in good working condition
6. Secondary safety line to tie the basket above the headache ball of the crane.

To perform a basket rescue, follow the steps below.

1. Make sure preferred methods A, B, and C are not possible.
2. Notify the crane operator right away to position the crane to attach the basket.
3. While the basket is being attached, the crew leader checks that all safety rigging is done and all the required safety equipment is available.
4. With two rescuers in the basket, hoist it to a position that is above and as close as possible to the fallen worker. A designated worker on the ground guides the basket with a tag line. The designated worker must make sure that when the rescue basket reaches the right elevation, the door of the basket is facing the structural steel to provide an easy exit for rescuer #1.
5. Rescuer #1 exits the rescue basket and gets into a position to reach the fallen worker. When doing this, rescuer #1 must be tied-off at all times to either the structure or the rescue basket.
6. Rescuer #2, who is still in the rescue basket, lowers the line that will be used to retrieve the worker. Rescuer #2 attaches an extra lanyard to the line if required.
7. Rescuer #1 assesses the fallen worker for injuries and then decides how to proceed (i.e., treat injuries first, guide the fallen worker into the rescue basket, or lower the basket to the ground with the fallen worker attached to it).
8. Once the fallen worker has been brought to a safe location, administer first aid. Treat the person for suspension trauma and any other injury.
9. Arrange transportation to hospital. A designated worker must accompany the injured worker to hospital.

If the basket rescue is the method used, keep the following points in mind.

- Perform a basket rescue only when it is not possible to use conventional equipment to rescue the fallen worker in a safe manner.
- Never exceed the maximum number of workers in the basket as indicated on the nameplate.
- Ensure that a competent worker inspects the crane and equipment being used prior to lifting rescuers.
- Always equip the crane with a fail-safe mechanism to prevent the boom from descending in the event of a power source or system failure.
- Maintain an adequate means of communication between the rescuers in the basket and the crane operator at all times.

- Ensure that workers in the rescue basket wear full-body safety harnesses attached to a lanyard and anchored to appropriate points in the basket at all times.
- Make sure that all rigging used to attach the rescue basket to the hook of a load line has a safety factor of 10 against failure. There should be a safety line attached to the load line directly from the basket.
- Do not allow cranes to travel while rescuers are in the basket.
- Do not use suspended rescue baskets during high winds, electrical storms, snow, ice, sleet, or other adverse conditions that could affect the safety of personnel on the platform or in the basket.

Post-Rescue Procedure

All non-affected workers should remain in the designated safe gathering zone until the site supervisor notifies them to do otherwise.

The site supervisor and health and safety representative should

- Begin the accident investigation.
- Quarantine all fall-arrest equipment that may have been subjected to fall fatigue effects and/or shock loading for further investigation.
- Secure the area (the OHSA requires that an accident scene not be disturbed where a fatal or critical injury has occurred).
- Determine whether or not the jobsite-specific rescue and evacuation plans were followed as designed.
- Record modifications or additions to the plans that the rescue team deems necessary.
- Record all documented communications with fire, police, MOL, and other contractors involved. (When a fall occurs and is arrested, you must notify the MOL in writing.)
- Record all documented statements from employees, witnesses, and others.
- Save all photographs of the incident.
- Record all key information such as dates, time, weather, general site conditions, and specific accident locales including sketches of the immediate incident area, complete with measurements if applicable.

Tower Crane Operators: Rescue Training

Time is of the essence when attempting to rescue an injured or ill tower crane operator. A rescue will involve training and a solid working knowledge of how to use the specific equipment. Ontario has several independent training providers you can hire to train your workers.

Safety Procedures for SIC # 3442 Metal Doors, Sash, Frames, Molding, and Trim

Office Personnel

Office Safety

1. Close drawers and doors immediately after using them.
2. Do not stand on furniture to reach high places.
3. Do not kick objects out of your pathway; pick them up or push them out of the way.
4. Open one file cabinet drawer at a time.
5. Put heavy files in the bottom drawers of file cabinets.
6. Do not block your view by carrying large or bulky items; use the dolly or hand truck or get assistance from a fellow employee.
7. Use the handle when closing doors, drawers and files.
8. Store sharp objects, such as pens, pencils, letter openers or scissors in drawers or with the tips pointing down in a container.
9. Do not tilt the chair you are sitting in on its back two legs.
10. Carry pencils, scissors and other sharp objects with the tips pointing down.
11. Use the ladder or step stool to retrieve or store items that are located above your head.
12. Position hands and fingers onto the handle of the paper cutter before pressing down on the blade.
13. Keep the paper cutter handle in the closed or locked position when it is not being used.
14. Do not use paper-cutting devices if the finger guard is missing.
15. Keep your fingers away from the ejector slot when loading or testing stapling devices.
16. Do not use extension or power cords that have the ground prong removed or broken off.
17. Use a cord cover or tape the cord down when running electrical cords across aisles, between desks or across entrances or exits.
18. Do not place your fingers in or near the feed of a paper shredder.
19. Do not plug multiple electrical cords into a single outlet.
20. Do not throw matches, cigarettes or other smoking materials into trash baskets.
21. Keep doors in hallways fully open or fully closed.
22. Use a staple remover, not your fingers, for removing staples.
23. Turn the power switch to "off" and unplug office machines before adjusting, lubricating or cleaning them.
24. Do not use fans that have excessive vibration, frayed cords or missing guards.
25. Do not place floor type fans in walkways, aisles or doorways.
26. Use the handrails when ascending or descending stairs or ramps.
27. Obey all posted safety and danger signs.
28. Do not use frayed, cut or cracked electrical cords.
29. Do not store or leave items on stairways or walkways.
30. Do not run on stairs or take more than one step at a time.
31. Do not jump from ramps, platforms, ladders or step stools.
32. Clean up spills or leaks immediately by using a paper towel, rag or a mop and bucket.

Hand Tool Safety

1. Do not continue to work if your safety glasses become fogged. Stop work and clean the glasses until the lenses are clear and defogged.
2. Use tied-off containers to keep tools from falling off scaffolds and other elevated work platforms.
3. Carry all sharp tools in a sheath or holster.
4. Tag worn, damaged or defective tools "Out of Service" and do not use them.
5. Do not use a tool if its handle has splinters, burrs, cracks, splits or if the head of the tool is loose.
6. Do not use impact tools such as hammers, chisels, punches or steel stakes that have mushroomed heads.
7. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
8. When using knives, shears or other cutting tools, cut in a direction away from your body.
9. Do not chop at heights above your head when you are working with a hand axe.
10. Do not carry sharp or pointed hand tools such as screwdrivers, scribes, aviation snips, scrapers, chisels or files in your pocket unless the tool or your pocket is sheathed.
11. Do not perform "make-shift" repairs to tools.
12. Do not use "cheaters" on load binders or "boomers."
13. Do not carry tools in your hand when you are climbing. Carry tools in tool belts or hoist the tools to the work area using a hand line.
14. Do not throw tools from one location to another, from one employee to another, from scaffolds or other elevated platforms.
15. Transport hand tools only in toolboxes or tool belts. Do not carry tools in your clothing.

General Housekeeping

1. Follow the instructions on the label and in the corresponding Material Safety Data Sheet (MSDS) for each chemical product you use when cleaning.
2. Mop up water around drinking fountains, drink-dispensing machines and ice machines.
3. Clean up fuel spills or leaks immediately by using a paper towel, rag, or a mop and bucket.
4. When cleaning floors, wet only a small area of the floor at one time and dry mop it before cleaning another section.
5. Use caution signs or cones to barricade slippery areas such as freshly mopped floors.
6. Do not use flammable liquids such as gasoline, acetone or paint thinner for cleaning floors.
7. Do not place material such as boxes or trash in walkways and passageways. Do not store or leave items on stairways. Do not block or obstruct stairwells, exits or accesses to safety and emergency equipment such as fire extinguishers or fire alarms.
8. Keep power cords away from path of vacuum cleaners and floor polishers.
9. Keep doors fully open or fully closed.
10. Visually inspect for sharp objects or other hazards before putting hands, legs or other body parts into trashcans, boxes, laundry bags or used-towel hampers.
11. Follow this procedure before picking up any trash bags or laundry bags: Grab the top of the bag above the tie-off with two hands and hold the bag away from your body.
12. In the event of a large oil spill, immediately spread the absorbent powder over the spill.
13. Straighten or remove rugs and mats that do not lie flat on the floor.
14. Return tools to their storage places after use.
15. Dispose of trash only in trash receptacles.
16. Dispose of oily rags in the container labeled "Oily Rags Only." Use only metal receptacles labeled "Oily Rags Only" for disposal of oily shop-rags.
17. Store liquid containers labeled "Flammable" only in cabinets, rooms or buildings labeled "Flammable Storage."

Machine and Equipment Safety

1. Replace the guards before starting machines, or after making adjustments or repairs to the machine.
2. Do not remove, alter or bypass any safety guards or devices when operating any piece of equipment or machinery.
3. Do not wear loose clothing or jewelry in the machine shop.
4. Long hair must be contained under a hat or hair net, regardless of gender.
5. Read and obey safety warnings posted on or near any machinery.
6. Do not try to stop a work piece as it goes through any machine. If the machine becomes jammed, unplug it before clearing the jam.

Grinders

1. Do not use grinding wheels that have chips, cracks or grooves.
2. Do not use the grinding wheel if it wobbles. Tag it "Out of Service."
3. Do not try to stop the wheel with your hand, even if you are wearing gloves.
4. Do not use grinder if it is not firmly anchored to the workbench.
5. Prior to installing a new grinding wheel, inspect the wheel for cracks or other visible damage. Tap the wheel gently with a plastic screwdriver handle to detect cracks that are not visible. If the wheel has a dead sound rather than a ringing sound, do not use the wheel.
6. Do not install a grinding wheel whose labeled RPM speed is lower than the rated speed of the grinder.
7. Do not grind on the side of an abrasive wheel labeled "Type 1."
8. Do not clamp a portable grinder in a vise to use it as a bench grinder.

Drills

1. Do not use dull, cracked or bent drill bits.
2. Physically check the security of the drill bit or cutting tool within the chuck prior to operation.
3. Keep your hands away from rotating parts.

Hydraulic/Pneumatic Tools

1. Do not point a charged compressed air hose at bystanders or use it to clean your clothing.
2. Lock and/or tag tools "Out of Service" to prevent usage of the tool.
3. Do not use tools that have handles with burrs or cracks.
4. Do not use compressors if their belt guards are missing. Replace the belt guards before using the compressor.
5. Turn the power switch of the tool to "Off" and let it come to a complete stop before leaving it unattended.
6. Disconnect the tool from the airline before making any adjustments or repairs to the tool.

Powder Actuated Tools

1. Wear impact-resistant safety goggles or face shields when operating any powder-actuated tools.
2. When using powder-actuated tools, do not drive fasteners into structural steel without first looking to see if the steel is backed by a steel plate or barricade, and to see if all personnel are away from the direct line of fire.
3. Do not attempt to fasten through a pre-drilled hole unless the powder-actuated tool has a whole locator.
4. Keep your head and body behind the powder-actuated tool when firing it.

5. Do not fasten steel beams at a distance closer than ½-inch from the edge of the steel.
6. Before using powder-actuated tools do not alter, bypass, or remove the shield or guard at the muzzle end of the powder-actuated tool.
7. Do not load a powder-actuated tool until you are ready to fire it.

Riveting and Bolting

1. Do not use your hands to guide a bit into place when riveting or bolting steel.
2. Disconnect the snap and plunger from an air hammer when it is not in use.
3. Do not pass air-powered tools by the hose from one worker to another.
4. Do not throw material from one person to another. Use tag lines and a basket to hoist bolts, washers, drift pins, and tools.
5. Use a receptacle or a net to catch rivets or bolts that are knocked off or backed out from your work area.
6. Do not carry nuts, bolts, rivets, or drift pins in your hands or pockets; use the carrying/storing container provided for this purpose.

Lifting Equipment (Chains, Cables, Ropes, Slings)

1. Do not use chain slings if links are cracked, twisted, stretched or bent.
2. Fabricate all wire in wire rope slings by using thimbles; do not form eyes by using wire clips or knots.
3. Do not shorten slings by using makeshift devices such as knots or bolts.
4. Do not use a kinked chain.
5. Protect slings from the sharp edges of their loads by placing pads over the sharp edges of the items that have been loaded.
6. Do not place your hands between the sling and its load when the sling is being tightened around the load.
7. Wear work gloves when handling rough, sharp-edged or abrasive material such as chains, cables ropes or slings.
8. Do not alter or remove the safety latch on hooks. Do not use a hook that does not have a safety latch, or if the safety latch is bent.
9. Lift the load from the center of hooks, not from the point.

Personal Protective Equipment

1. Do not wear hard hats that are dented or cracked.
2. Wear safety glasses when operating drills and when cutting or snipping copper or light gauge wire.
3. Wear safety goggles when welding or soldering.
4. Do not continue to work if safety glasses become fogged. Stop work and clean the glasses until the lenses are clear and defogged.
5. Wear the di-electric gloves when working on electric current.
6. Do not wear jewelry or coats with metal zippers to work.
7. Wear earplugs or earmuffs in areas posted "Hearing Protection Required."

NO RADIOS, IPOD'S OR HEADPHONES ARE PERMITTED BY OSHA WHILE WORKING.

Compressed Gas Cylinders

Storage and Handling

1. Do not handle oxygen cylinders if your gloves are greasy or oily.

2. Store all cylinders in the upright position.
3. Place valve-protection caps on gas cylinders that are in storage or not in use.
4. Do not lift cylinders by the valve protection cap.
5. Do not store compressed gas cylinders in areas where they can come in contact with chemicals labeled "Corrosive."
6. Place cylinders on a cradle, sling board, pallet or cylinder basket to hoist them.
7. Do not place cylinders against electrical panels or live electrical cords where the cylinder can become part of the circuit.

Use of Cylinders

1. Do not use dented, cracked or other visually damaged cylinders.
2. Use only an open-ended or adjustable wrench when connecting or disconnecting regulators and fittings.
3. Do not transport cylinders without first removing regulators and replacing the valve-protection caps.
4. Close the cylinder valve when work is finished, when the cylinder is empty or whenever the cylinder is moved.
5. Do not store oxygen cylinders near fuel-gas cylinders such as propane or acetylene, or near combustible material such as oil or grease.
6. Stand to the side of the regulator when opening the valve.
7. If a cylinder is leaking around a valve or a fuse plug, move it to an outside area away from where work is performed and tag it to indicate the defect.
8. Do not hoist or transport cylinders by means of magnets or choker slings.
9. Do not use compressed gas to clean the work area, equipment or yourself.
10. Do not remove the valve wrench from acetylene cylinders while the cylinder is in use.
11. Open compressed gas cylinder valves slowly. Open fully when in use to eliminate possible leakage around the cylinder valve stem.
12. Purge oxygen valves, regulators and lines before use.

Electrical Powered Tools

1. Do not use power equipment or tools on which you have not been trained.
2. Keep power cords away from the path of drills, saws, vacuum cleaners, floor polishers, mowers, slicers, knives, grinders, irons and presses.
3. Do not use cords that have splices, exposed wires, or cracked or frayed ends.
4. Do not carry plugged-in equipment or tools with your finger on the switch.
5. Do not carry equipment or tools by the cord.
6. Disconnect the tool from the outlet by pulling on the plug, not the cord.
7. Turn the power switch of the tool to "Off" before plugging or unplugging it.
8. Do not leave tools that are "On" unattended.
9. Do not handle or operate electrical tools when your hands are wet or when you are standing on wet floors.
10. Do not operate spark-inducing tools such as grinders, drills or saws near containers labeled "Flammable" nor in an explosive atmosphere such as a paint spray booth.
11. Turn the power switch of electrical tools to "Off" and then unplug from the outlet before attempting repairs or service work. Tag the tool "Out of Service."
12. Do not use extension cords or other three pronged power cords that have a missing prong.
13. Do not remove the ground prong from electrical cords.
14. Do not use an adapter such as a cheater plug that eliminates the ground.
15. Do not plug multiple electrical cords into a single outlet.
16. Do not run extension cords through doorways, through holes in ceilings, walls or floors.
17. Do not drive over, drag, step on or place objects on a cord.

18. Do not stand in water or on wet surfaces when operating power hand tools, or portable electrical appliances.
19. Do not use a power hand tool to cut wet or water-soaked building materials or to repair pipe leaks.
20. Do not use a power hand tool while wearing wet cotton gloves or wet leather gloves.
21. Never operate electrical equipment barefooted. Wear rubber-soled or insulated work boots.
22. Do not operate a power hand tool or portable appliance that has a frayed, worn, cut, improperly spliced or damaged power cord.
23. Do not operate a power hand tool or portable appliance if a prong from the three-pronged power plug is missing or has been removed.
24. Do not operate a power hand tool or portable appliance that has a two-pronged adapter or a two-conductor extension cord.
25. Do not operate a power hand tool or portable appliance while holding a part of the metal casing or while holding the extension cord in your hand. Hold all portable power tools by the plastic handgrips or other nonconductive areas designed for gripping purposes.

Knives/Sharp Instruments

1. When handling knife blades and other cutting tools, direct sharp points and edges away from you.
2. Cut in the direction away from your body when using knives.
3. Store knives in knife blocks or in sheaths after using them.
4. Use the knife that has been sharpened; do not use a knife that has a dull blade.
5. Do not use honing steels that do not have disc guards.
6. Do not attempt to catch a falling knife.
7. Use knives for the operation for which they are named.
8. When opening cartons use the safety box cutters. Do not cut with the blade extended beyond the guard.
9. Do not use knives that have broken or loose handles.
10. Do not use knives as screwdrivers, pry bars, can openers or ice picks.
11. Do not leave knives in sinks full of water.
12. Do not pick up knives by their blades.
13. Carry knives with their tips pointed toward the floor.
14. Do not carry knives, scissors or other sharp tools in your pockets or an apron unless they are first placed in their sheath or holder.
15. Follow this procedure before picking up any bags that have sharp objects protruding from them: Grab the top of the bag above the tie-off using two hands and hold the bag away from your body.
16. Do not submerge hot glass in cold water or submerge a cold glass in hot water.

Files/Rasps

1. Do not use a file as a pry bar, hammer, screwdriver or chisel.
2. When using a file or rasp, grasp the handle in one hand and the toe of the file in the other.
3. Do not hammer on a file.

Chisels

1. Use a chisel that has been sharpened; do not use a chisel that has a dull cutting edge.
2. Hold a chisel by using a tool holder if possible.
3. Clamp small work pieces in the vise and chip toward the stationary jaw when you are working with a chisel.

Hammers

1. Use a claw hammer for pulling nails.
2. Do not strike nails or other objects with the cheek of the hammer.
3. Do not strike one hammer against another hammer.
4. Do not use a hammer if your hands are oily, greasy or wet.
5. Do not use a hammer as a wedge or a pry bar.

Painting Safety

1. Always wash your hands with soap and water after using paints. Do not use mineral spirits, paint thinner, acetone or any other toxic solvents to remove paint from your skin.
2. Store rags that have oil or paint on them in closed metal containers labeled "oily rags."
3. Press the pressure relief valve on painting canisters and painting guns prior to disconnecting them.
4. Do not store food or eat where spray painting is being performed.
5. Close the lids of containers of paint and thinner tightly after each use or when not being used.

Respirators

1. Use the respirator provided by your supervisor for your assigned duties.
2. Shave daily to prevent facial hair from interfering with the face seal of the respirator.
3. Do not wear contact lenses when wearing a respirator.
4. Return respirators to their carrying cases or cartons and store them in your locker or in the storage area when your work is completed. Only use the respirator that has been issued to you

Ladder Usage

1. Do not use ladders that have loose rungs, cracked or split rails, missing rubber pads, or are otherwise visibly damaged.
2. Keep ladder rungs clean and free of grease. Remove buildup of material such as dirt or oil.
3. Do not place ladder in a passageway or doorway without posting warning signs or cones that detour pedestrian traffic away from ladder. Lock the doorway that you are blocking and post the sign "Detour."
4. Allow only one person on the ladder at a time.
5. Face the ladder when climbing up or down.
6. Maintain a three-point contact by keeping both hands and one foot or both feet and one hand on the ladder at all times when climbing up or down.
7. Do not stand on the top two rungs of any ladder.
8. When performing work from a ladder, face the ladder and do not lean backward or sideways from the ladder.
9. Do not stand on a ladder that wobbles, or leans to the left or right.
10. When using an extension ladder, extend the top of the ladder at least 3 feet above the edge of the landing.
11. Secure the ladder in place by having another employee hold it.
12. Do not place ladders on boxes, concrete blocks, or other unstable bases.
13. Do not try to "walk" a ladder by rocking it. Climb down the ladder, and then move it.
14. Do not move a rolling ladder while someone is on it.

Saws

1. Keep control of saws by releasing downward pressure at the end of the stroke.
2. Do not use an adjustable blade saw such as a hacksaw if the blade is not taut.
3. Do not use a saw that has a dull saw blade.
4. Keep hands and fingers away from the saw blade while using the saw.
5. Do not hold the work piece against your body while using the saw.
6. Do not carry a saw by the blade.
7. When using a hand saw, hold the work piece firmly against the work table.

Screwdrivers

1. Always match the size and type of screwdriver blade to fit the head of the screw.
2. Do not hold the work piece against your body while using a screwdriver.
3. Do not put your fingers near the blade of the screwdriver when tightening a screw.
4. Do not force a screwdriver by using a hammer or pliers on it.
5. Do not use a screwdriver as a punch, chisel, pry bar or nail puller.
6. Use a screwdriver that has an insulated handle for electrical work.
7. Use a drill, nail, or an awl to make a starting hole for screws.
8. Do not carry a screwdriver in your pocket.
9. Do not use a screwdriver if your hands are wet, oily or greasy.
10. When using the spiral ratchet screwdriver, push down firmly and slowly.
11. Do not use a screwdriver to test the charge of a circuit.

Wrenches

1. Use box or socket wrenches on hexagon nuts and bolts as a first choice, and open-end wrenches as a second choice.
2. Do not use wrenches that are bent, cracked, badly chipped or that have loose or broken handles.
3. When using an adjustable wrench, turn the wrench so that the fixed jaw, not the adjustable jaw, provides positive pressure in the item to be turned.
4. Do not slip a pipe over a single-head wrench handle for increased leverage.
5. Do not use a shim to make a wrench fit.
6. Size the adjustable wrench to fit the nut before turning.
7. Use a split box wrench on flare nuts.
8. Do not use a wrench with broken or battered points.

Pliers

1. Do not use pliers as a wrench or a hammer.
2. Do not slip a pipe over the handles of pliers to increase leverage.
3. Use pliers with an insulated handle for electrical work.
4. Do not use pliers that are cracked, broken or sprung.
5. When using diagonal cutting pliers, shield the loose pieces of cut material from flying into the air by using a cloth or your gloved hand.

Tool Boxes/Chests/Cabinets

1. Use the handle when opening and closing a drawer or door of a toolbox, chest, or cabinet.
2. Tape over or file off sharp edges on toolboxes, chests or cabinets.
3. Do not stand on toolboxes, chests or cabinets to gain extra height.
4. Lock the wheels on large toolboxes, chests or cabinets to prevent them from rolling.
5. Push large chests, cabinets and toolboxes; do not pull them.
6. Do not open more than one drawer of a toolbox at a time.
7. Close and lock all drawers and doors before moving the tool chest to a new location.
8. Do not use a toolbox or chest as a workbench.
9. Do not move a toolbox, chest or cabinet if it has loose tools or parts on the top.

Warehouse

1. When stocking shelves by hand, position the materials to be shelved slightly in front of you, so you do not have to twist when lifting and stacking materials.
2. Visually inspect for sharp objects or other hazards before reaching into containers such as garbage cans, boxes, bags or sinks.
3. Remove or bend nails and staples from crates before unpacking the crates.
4. When cutting shrink-wrap with a blade, always cut away from you and your co-workers.
5. Do not try to kick objects out of pathways. Push or carry them out of the way.
6. Do not let items overhang from shelves into walkways.
7. Move slowly when approaching blind corners.
8. Place heavier loads on the lower or middle shelves.
9. Remove one object at a time from shelves.
10. Place items on shelves so that they lie flat and do not wobble.

Hand Truck Safety

1. Tip the load slightly forward so the tongue of the hand truck goes under the load.
2. Push the tongue of the hand truck all the way under the load to be moved.
3. When loading hand trucks, keep your feet clear of the wheels.
4. Push the load so that weight will be carried by the axle and not the handles. The operator should only balance and push.
5. Place the load so it will not slip, shift or fall. Use straps, if provided, to secure the load.
6. Do not try to catch the load if it is falling or slipping. Get out of the way.
7. Do not walk backward with the hand truck, unless you are going up stairs or ramps.
8. When going down an incline, keep the hand truck in front of you so you can control it at all times.
9. Move hand trucks at a walking pace.
10. Keep the center of gravity of the load as low as possible by placing heavier objects below the lighter objects.
11. For extremely bulky or pressurized items such as gas cylinders, strap or chain the items to the hand truck.
12. When going down an incline, keep the hand truck in front of you so that it can be controlled at all times.
13. Store hand trucks with the tongue under a pallet, shelf, or table.
14. Do not exceed the manufacturer's load rated capacity. Read the capacity plate on the hand truck if you are unsure.

Drum Handling

1. Roll a drum by pushing against the middle of the drum with both hands.
2. Use a cradle-type drum tilter when tilting drums.
3. Do not manually upright drums under any circumstances – use a forklift.
4. Do not roll a drum up a skid by yourself.
5. Chock both sides of the drum when storing it in a horizontal position.

Handling Chemicals

1. Do not use gasoline for cleaning parts.
2. Follow the instructions on the label and in the corresponding Material Safety Data Sheet (MSDS) for each chemical product used in your workplace.
3. Use personal protective clothing or equipment such as neoprene gloves, rubber boots, shoe covers, rubber aprons and protective eyewear, when using chemicals labeled “Flammable,” “Corrosive,” “Caustic” or “Poisonous.”
4. Do not use protective clothing or equipment that has split seams, pinholes, cuts, tears, or other visible damage.
5. Each time you use your gloves, wash your gloves before removing them using cold tap water and normal hand-washing motion. Always wash your hands after removing the gloves.
6. Do not drag containers labeled “Flammable.”

Pneumatic Stapler

1. Do not discharge stapler unless it is touching the cardboard of the box being built.
2. Keep your free hands from behind the box flap being stapled.
3. If something or someone distracts you from your work, discontinue the stapling operation until it is safe to resume.

Vehicle/Driving Safety

1. **Only employer-authorized personnel may operate any company vehicle.**
2. Do not operate a vehicle if you are ill or fatigued.
3. Do not operate a vehicle if you are taking medication whose container label indicates that the medication may cause drowsiness or other side effects.
4. Shut all doors and fasten seat belt before moving the vehicle.
5. Obey all traffic patterns and signs at all times.
6. Do not drive on the road shoulder.
7. Use side and rearview mirrors before making lane changes, turns and sudden stops.
8. Turn the vehicle off before fueling.
9. Do not smoke while fueling a vehicle.
10. Wash hands with soap and water if you spill gasoline on your hands.

Vehicle Fueling

1. Turn the vehicle off before refueling.
2. Do not smoke while refueling a vehicle.

3. If you spill fuel on your hands, wash with soap and water.
4. Clean up small spills from around fuel tanks with paper towels or, rags before climbing onto tank.
5. If a large fuel spill occurs, do not walk through it; follow your company's reporting and clean up procedure.
6. Always stay in attendance when truck is being refueled.

Personal Protective Equipment (PPE)

For



Written Hazard Assessment for Selecting Personal Protective Equipment

- Identifying and evaluating equipment and processes
- Reviewing injury/accident/incident records
- Reviewing previously selected PPE

Date of Evaluation:

Workplace
Evaluated By:

Evaluator Title:

<u>HAZARD TYPE</u> [impact, penetration, chemical--(corrosive, reactive, toxic, irritant, flammable, etc.), heat, harmful (or nuisance) dust, light / radiation, electrical, biohazard, noise, other]	<u>LOCATION/ SOURCES/ TASKS</u>	<u>ANALYSIS OF RISK</u> (Low/ Medium / High)		<u>PPE (REQUIRED)</u>	<u>PPE (OPTIONAL)</u>
		Level of Risk	Seriousness of Potential Injury		

Personal Protective Equipment Training Meeting Record for

Company Name **Edgewater Construction Group**

Company Address **6962 SW 47th Street**

Date of Training _____ Training Provided By _____

TRAINING TOPIC COVERED

- (1) A summary of the standard and our written program
- (2) When PPE is necessary
- (3) What PPE is necessary
- (4) How to properly don, doff, adjust, and wear PPE
- (5) Limitations of the PPE
- (6) Proper care, maintenance, useful life, and disposal of the PPE

[illegible]

Employee Acknowledgement of Personal Protective Equipment Training

I, _____ have been trained in the company's personal protective equipment program. The protective equipment required in my work area and its function(s) has been identified and explained and I am aware of the company's policy and requirement.

Employee's Signature

Date

Supervisor's Signature

Date

Fall Protection Safety Program for Precast/Prestressed Concrete Structures

**For
Edgewater Construction Group**

This Precast/Prestressed Concrete Structures Fall Protection Plan is specific for the following project:

Location of Job:

The following Fall Protection Plan is prepared for the prevention of injuries associated with falls. A Fall Protection Plan must be developed and evaluated on a site by site basis.

I. STATEMENT OF COMPANY POLICY

Edgewater Construction Group is dedicated to the protection of its employees from on-the-job injuries. All employees of **Edgewater Construction Group** have the responsibility to work safely on the job. The purpose of this plan is:

- (a) To supplement our standard safety policy by providing safety standards specifically designed to cover fall protection on this job and; (b) To ensure that each employee is trained and made aware of the safety provisions which are to be implemented by this plan prior to the start of erection.

This Fall Protection Plan addresses the use of other than conventional fall protection at a number of areas on the project, as well as, identifying specific activities that require non-conventional means of fall protection. These areas include:

- a. Connecting activity (point of erection).
- b. Leading edge work.
- c. Unprotected sides or edge.
- d. Grouting.

This plan is designed to enable employers and employees to recognize the fall hazards on this job and to establish the procedures that are to be followed in order to prevent falls to lower levels or through holes and openings in walking/working surfaces.

Each employee will be trained in these procedures and is urged to strictly adhere to them except when doing so would expose the employee to a greater hazard. If, in the employee's opinion, this is the case, the employee is to notify the foreman of the concern and the concern addressed before proceeding.

Safety policy and procedure on any one project cannot be administered, implemented, monitored and enforced by any one individual. The total objective of a safe, accident free work environment can only be accomplished by a dedicated, collective effort by every individual involved with the project from management down to the last employee.

Each employee must understand their value to the company; the costs of accidents, both monetary, physical, and emotional; the objective of the safety policy and procedures; the safety rules that apply to the safety policy and procedures; and what their individual role is in administering, implementing, monitoring, and compliance of their safety policy and procedures. This allows for a more personal approach to compliance through planning, training, understanding and cooperative effort, rather than by strict enforcement. If for any reason an unsafe act persists, strict enforcement will be implemented.

II. FALL PROTECTION SYSTEMS TO BE USED ON THIS PROJECT

Where conventional fall protection is infeasible or creates a greater hazard at the leading edge and during initial connecting activity, we plan to do this work using a safety monitoring system and expose only a minimum number of employees for the time necessary to accomplish the job. The maximum number of workers to be monitored by one safety monitor is six (6). We are designating the following trained employees as designated erectors and they are permitted to enter the controlled access zones and work without the use of conventional fall protection.

The safety monitor shall be identified by each project manager. Only individuals with the appropriate experience, skills, and training will be authorized as designated erectors. All employees that will be working as designated erectors under the safety monitoring system shall have been trained and instructed in the following areas:

1. Recognition of the fall hazards in the work area (at the leading edge and when making initial connections-point of erection).
2. Avoidance of fall hazards using established work practices which have been made known to the employees.
3. Recognition of unsafe practices or working conditions that could lead to a fall, such as windy conditions.
4. The function, use, and operation of safety monitoring systems, guardrail systems, body/belt/harness systems, control zones and other protection to be used.
5. The correct procedure for erecting, maintaining, disassembling and inspecting the system(s) to be used.
6. Knowledge of construction sequence or the erection plan.

A conference will take place ****prior** to starting work involving all members of the erection crew, crane crew and supervisors of any other concerned contractors. This conference will be conducted by the supervisor in charge of the project. During the pre-work conference, erection procedures and sequences pertinent to this job will be thoroughly discussed and safety practices to be used throughout the project will be specified. Further, all personnel will be informed that the controlled access

zones are off limits to all personnel other than those designated erectors specifically trained to work in that area.

Safety Monitoring System

A safety monitoring system means a fall protection system in which a competent person is responsible for recognizing and warning employees of fall hazards. The duties of the safety monitor are to:

1. Warn by voice when approaching the open edge in an unsafe manner.
2. Warn by voice if there is a dangerous situation developing which cannot be seen by another person involved with product placement, such as a member getting out of control.
3. Make the designated erectors aware they are in a dangerous area.
4. Be competent in recognizing fall hazards.
5. Warn employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner.
6. Be on the same walking/working surface as the monitored employees and within visual sighting distance of the monitored employees.
7. Be close enough to communicate orally with the employees.
8. Not allow other responsibilities to encumber monitoring. If the safety monitor becomes too encumbered with other responsibilities, the monitor shall (1) stop the erection process; and (2) turn over other responsibilities to a designated erector; or (3) turn over the safety monitoring function to another designated, competent person.

The safety monitoring system shall not be used when the wind is strong enough to cause loads with large surface areas to swing out of radius, or result in loss of control of the load, or when weather conditions cause the walking-working surfaces to become icy or slippery.

Control Zone System

A controlled access zone means an area designated and clearly marked, in which leading edge work may take place without the use of guardrail, safety net, or personal fall arrest systems to protect the employees in the area. Control zone systems shall comply with the following provisions:

1. When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.

When control lines are used, they shall be erected not less than 6 feet (1.8 m) nor more than 60 feet (18 m) or half the length of the member being erected, whichever is less, from the leading edge.

2. The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
3. The control line shall be connected on each side to a guardrail system or wall.
4. Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
5. Each line shall be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.
6. Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) from the walking/working surface.
7. Each line shall have a minimum breaking strength of 200 pounds (.88 kN).

Holes

All openings greater than 12 in. x 12 in. will have perimeter guarding or covering. All predetermined holes will have the plywood covers made in the precasters' yard and shipped with the member to the jobsite. Prior to cutting holes on the job, proper protection for the hole must be provided to protect the workers. Perimeter guarding or covers will not be removed without the approval of the erection foreman.

Precast concrete column erection through the existing deck requires that many holes be provided through this deck. These are to be covered and protected. Except for the opening being currently used to erect a column, all opening protection is to be left undisturbed. The opening being uncovered to erect a column will become part of the point of erection and will be addressed as part of this Fall Protection Plan. This uncovering is to be done at the erection foreman's direction and will only occur immediately prior to "feeding" the column through the opening. Once the end of the column is through the slab opening, there will no longer exist a fall hazard at this location.

III. IMPLEMENTATION OF FALL PROTECTION PLAN

The structure being erected is a multi-story total precast concrete building consisting of columns, beams, wall panels and hollow core slabs and double tee floor and roof members.

The following is a list of the products and erection situations on this job:

Columns

For columns 10 ft to 36 ft long, employees disconnecting crane hooks from columns will work from a ladder and wear a body belt/harness with lanyard and be tied off when both hands are needed to disconnect. For tying off, a vertical lifeline will be connected to the lifting eye at the top of the column, prior to lifting, to be used with a manually operated or mobile rope grab. For columns too high for the use of a ladder, 36 ft and higher, an added cable will be used to reduce the height of the disconnecting point so that a ladder can be used. This cable will be left in place until

a point in erection that it can be removed safely. In some cases, columns will be unhooked from the crane by using an erection tube or shackle with a pull pin which is released from the ground after the column is stabilized.

The column will be adequately connected and/or braced to safely support the weight of a ladder with an employee on it.

Inverted Tee Beams

Employees erecting inverted tee beams, at a height of 6 to 40 ft, will erect the beam, make initial connections, and final alignment from a ladder. If the employee needs to reach over the side of the beam to bar or make an adjustment to the alignment of the beam, they will mount the beam and be tied off to the lifting device in the beam after ensuring the load has been stabilized on its bearing. To disconnect the crane from the beam an employee will stand a ladder against the beam. Because the use of ladders is not practical at heights above 40 ft, beams will be initially placed with use of tag lines and their final alignment made by a person on a man lift or similar employee positioning systems.

Spandrel Beams

Spandrel beams at the exterior of the building will be aligned as closely as possible with the use of tag lines with the final placement of the spandrel beam made from a ladder at the open end of the structure. A ladder will be used to make the initial connections and a ladder will be used to disconnect the crane. The other end of the beam will be placed by the designated erector from the double tee deck under the observation of the safety monitor.

The beams will be adequately connected and/or braced to safely support the weight of a ladder with an employee on it.

Floor and Roof Members

During installation of the precast concrete floor and/or roof members, the work deck continuously increases in area as more and more units are being erected and positioned. Thus, the unprotected floor/roof perimeter is constantly modified with the leading edge changing location as each member is installed. The fall protection for workers at the leading edge shall be assured by properly constructed and maintained control zone lines not more than 60 ft. away from the leading edge supplemented by a safety monitoring system to ensure the safety of all designated erectors working within the area defined by the control zone lines.

The hollow core slabs erected on the masonry portion of the building will be erected and grouted using the safety monitoring system. Grout will be placed in the space between the end of the slab and face shell of the concrete masonry by dumping from a wheelbarrow. The grout in the keyways between the slabs will be dumped from a wheelbarrow and then spread with long handled tools, allowing the worker to stand erect facing toward the unprotected edge and back from any work deck edge.

Whenever possible, the designated erectors will approach the incoming member at the leading edge only after it is below waist height so that the member itself provides protection against falls.

Except for the situations described below, when the arriving floor or roof member is within 2 to 3 inches of its final position, the designated erectors can then proceed to their position of erection at each end of the member under the control of the safety monitor. Crane hooks will be unhooked from double tee members by designated erectors under the direction and supervision of the safety monitor.

Designated erectors, while waiting for the next floor or roof member, will be constantly under the control of the safety monitor for fall protection and are directed to stay a minimum of six (6) ft. from the edge. In the event a designated erector must move from one end of a member, which has just been placed at the leading edge, they must first move away from the leading edge a minimum of six (6) ft. and then progress to the other end while maintaining the minimum distance of six (6) ft. at all times.

Erection of double tees, where conditions require bearing of one end into a closed pocket and the other end on a beam ledge, restricting the tee legs from going directly into the pockets, require special considerations. The tee legs that are to bear in the closed pocket must hang lower than those at the beam bearing. The double tee will be "two-lined" in order to elevate one end higher than the other to allow for the low end to be ducked into the closed pocket using the following procedure.

The double tee will be rigged with a standard four-way spreader off of the main load line. An additional choker will be attached to the married point of the two-legged spreader at the end of the tee that is to be elevated. The double tee will be hoisted with the main load line and swung into a position as close as possible to the tee's final bearing elevation. When the tee is in this position and stabilized, the whip line load block will be lowered to just above the tee deck. At this time, two erectors will walk out on the suspended tee deck at midspan of the tee member and pull the load block to the end of the tee to be elevated and attach the additional choker to the load block. The possibility of entanglement with the crane lines and other obstacles during this two lining process while raising and lowering the crane block on that second line could be hazardous to an encumbered employee. Therefore, the designated erectors will not tie off during any part of this process. While the designated erectors are on the double tee, the safety monitoring system will be used. After attaching the choker, the two erectors then step back on the previously erected tee deck and signal the crane operator to hoist the load with the whip line to the elevation that will allow for enough clearance to let the low end tee legs slide into the pockets when the main load line is lowered. The erector, who is handling the lowered end of the tee at the closed pocket bearing, will step out on the suspended tee. An erection bar will then be placed between the end of the tee leg and the inside face of the pocketed spandrel member.

The tee is barred away from the pocketed member to reduce the friction and lateral force against the pocketed member. As the tee is being lowered, the other erector remains on the tee which was previously erected to handle the other end. At this point the tee is slowly lowered by the crane to a point where the tee legs can freely slide into the pockets. The erector working the lowered end of the tee must keep pressure on the bar between the tee and the face of the pocketed spandrel member to very gradually let the tee legs slide into the pocket to its proper bearing dimension. The tee is then slowly lowered into its final erected position.

The designated erector should be allowed onto the suspended double tee, otherwise there is no control over the horizontal movement of the double tee and this

movement could knock the spandrel off of its bearing or the column out of plumb. The control necessary to prevent hitting the spandrel can only be done safely from the top of the double tee being erected.

Load bearing Wall Panels: The erection of the load bearing wall panels on the elevated decks requires the use of a safety monitor and a controlled access zone that is a minimum of 25 ft and a maximum of 1/2 the length of the wall panels away from the unprotected edge, so that designated erectors can move freely and unencumbered when receiving the panels. Bracing, if required for stability, will be installed by ladder. After the braces are secured, the crane will be disconnected from the wall by using a ladder. The wall to wall connections will also be performed from a ladder.

Non-Load bearing Panels (Cladding): The locating of survey lines, panel layout and other installation prerequisites (pre-welding, etc.) for non-load bearing panels (cladding) will not commence until floor perimeter and floor openings have been protected. In some areas, it is necessary because of panel configuration to remove the perimeter protection as the cladding is being installed. Removal of perimeter protection will be performed on a bay to bay basis, just ahead of cladding erection to minimize temporarily unprotected floor edges. Those workers within 6 ft of the edge, receiving and positioning the cladding when the perimeter protection is removed shall be tied off.

Detailing

Employees exposed to falls of six (6) feet or more to lower levels, who are not actively engaged in leading edge work or connecting activity, such as welding, bolting, cutting, bracing, guying, patching, painting or other operations, and who are working less than six (6) ft from an unprotected edge will be tied off at all times or guardrails will be installed. Employees engaged in these activities but who are more than six (6) ft from an unprotected edge as defined by the control zone lines, do not require fall protection but a warning line or control lines must be erected to remind employees they are approaching an area where fall protection is required.

IV. CONVENTIONAL FALL PROTECTION CONSIDERED FOR THE POINT OF ERECTION OR LEADING EDGE ERECTION OPERATIONS

A. Personal Fall Arrest Systems

In this particular erection sequence and procedure, personal fall arrest systems requiring body belt/harness systems, lifelines and lanyards will not reduce possible hazards to workers and will create offsetting hazards during their usage at the leading edge of precast/pre-stressed concrete construction.

Leading edge erection and initial connections are conducted by employees who are specifically trained to do this type of work and are trained to recognize the fall hazards. The nature of such work normally exposes the employee to the fall hazard for a short period of time and installation of fall protection systems for a short duration is not feasible because it exposes the installers of the system to the same fall hazard, but for a longer period of time.

Anchorage or special attachment points could be cast into the precast concrete members if sufficient preplanning and consideration of erectors' position is done before the members are cast. Any hole or other attachment must be approved by the engineer who designed the member. It is possible that some design restrictions will not allow a member to be weakened by an additional hole; however, it is anticipated that such situations would be the exception, not the rule. Attachment points, other than on the deck surface, will require removal and/or patching. In order to remove and/or patch these points, requires the employee to be exposed to an additional fall hazard at an unprotected perimeter. The fact that attachment points could be available anywhere on the structure does not eliminate the hazards of using these points for tying off as discussed above. A logical point for tying off on double tees would be using the lifting loops, except that they must be cut off to eliminate a tripping hazard at an appropriate time.

Providing attachment at a point above the walking/working surface would also create fall exposures for employees installing their devices. Final positioning of a precast concrete member requires it to be moved in such a way that it must pass through the area that would be occupied by the lifeline and the lanyards attached to the point above. Resulting entanglements of lifelines and lanyards on a moving member could pull employees from the work surface. Also, the structure is being created and, in most cases, there is no structure above the members being placed.

- (c) The use of a cable strung horizontally between two columns to provide tie off lines for erecting or walking a beam for connecting work is not feasible and creates a greater hazard on this multi-story building for the following reasons:
 - (1) If a connector is to use such a line, it must be installed between the two columns. To perform this installation requires an erector to have more fall exposure time attaching the cable to the columns than would be spent to make the beam to column connection itself.
 - (2) If such a line is to be installed so that an erector can walk along a beam, it must be overhead or below him. For example, if a connector must walk along a 24 in. wide beam, the presence of a line next to the connector at waist level, attached directly to the columns, would prevent the connector from centering their weight over the beam and balancing themselves. Installing the line above the connector might be possible on the first level of a two-story column; however, the column may extend only a few feet above the floor level at the second level or be flush with the floor level. Attaching the line to the side of the beam could be a solution; however, it would require the connector to attach the lanyard below foot level which would most likely extend a fall farther than 6 ft.
 - (3) When lines are strung over every beam, it becomes more and more difficult for the crane operator to lower a precast concrete member into position without the member becoming fouled.

Should the member become entangled, it could easily dislodge the line from a column. If a worker is tied to it at the time, a fall could be caused.

6. The **ANSI A10.14-1991 American National Standard for Construction and Demolition Operations - Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use**, states that the anchor point of a lanyard or deceleration device should, if possible, be located above the wearer's belt or harness attachment. **ANSI A10.14** also states that a suitable anchorage point is one which is located as high as possible to prevent contact with an obstruction below should the worker fall. Most manufacturers also warn in the user's handbook that the safety block/retractable lifeline must be positioned above the D-ring (above the work space of the intended user) and **OSHA** recommends that fall arrest and restraint equipment be used in accordance with the manufacturer's instructions.

Attachment of a retractable device to a horizontal cable near floor level or using the inserts in the floor or roof members may result in increased free fall due to the dorsal D-ring of the full-body harness riding higher than the attachment point of the snap hook to the cable or insert (e.g., 6 foot tall worker with a dorsal D-ring at 5 feet above the floor or surface, reduces the working length to only one foot, by placing the anchorage five feet away from the fall hazard). In addition, impact loads may exceed maximum fall arrest forces (MAF) because the fall arrest D-ring would be 4 to 5 feet higher than the safety block/retractable lifeline anchored to the walking-working surface; and the potential for swing hazards is increased. Manufacturers also require that workers not work at a level where the point of snap hook attachment to the body harness is above the device because this will increase the free fall distance and the deceleration distance and will cause higher forces on the body in the event of an accidental fall.

Horizontal cables used as an anchorage present an additional hazard due to amplification of the horizontal component of maximum arrest force (of a fall) transmitted to the points where the horizontal cable is attached to the structure. This amplification is due to the angle of sag of a horizontal cable and is most severe for small angles of sag. For a cable sag angle of 2 degrees the horizontal force on the points of cable attachment can be amplified by a factor of 15.

It is also necessary to install the retractable device vertically overhead to minimize swing falls. If an object is in the worker's swing path (or that of the cable) hazardous situations exist: (1) due to the swing, horizontal speed of the user may be high enough to cause injury when an obstacle in the swing fall path is struck by either the user or the cable; (2) the total vertical fall distance of the user may be much greater than if the user had fallen only vertically without a swing fall path.

With retractable lines, overconfidence may cause the worker to engage in inappropriate behavior, such as approaching the perimeter of a floor or roof at a distance appreciably greater than the shortest distance between the anchorage point and the leading edge. Though the retractable lifeline may arrest a worker's fall before he or she has fallen a few feet, the lifeline may

drag along the edge of the floor or beam and swing the worker like a pendulum until the line has moved to a position where the distance between the anchorage point and floor edge is the shortest distance between those two points. Accompanying this pendulum swing is a lowering of the worker, with the attendant danger that he or she may violently impact the floor or some obstruction below.

The risk of a cable breaking is increased if a lifeline is dragged sideways across the rough surface or edge of a concrete member at the same moment that the lifeline is being subjected to a maximum impact loading during a fall. The typical 3/16 in. cable in a retractable lifeline has a breaking strength of from 3000 to 3700 lbs.

The competent person, who can take into account the specialized operations being performed on this project, should determine when and where a designated erector cannot use a personal fall arrest system.

B. Safety Net Systems

The nature of this particular precast concrete erection worksite precludes the safe use of safety nets where point of erection or leading edge work must take place.

1. To install safety nets in the interior high bay of the single story portion of the building poses rigging attachment problems. Structural members do not exist to which supporting devices for nets can be attached in the area where protection is required. As the erection operation advances, the location of point of erection or leading edge work changes constantly as each member is attached to the structure. Due to this constant change it is not feasible to set net sections and build separate structures to support the nets.
2. The nature of the erection process for the precast concrete members is such that an installed net would protect workers as they position and secure only one structural member. After each member is stabilized the net would have to be moved to a new location (this could mean a move of 8 to 10 ft or the possibility of a move to a different level or area of the structure) to protect workers placing the next piece in the construction sequence. The result would be the installation and dismantling of safety nets repeatedly throughout the normal work day. As the time necessary to install a net, test, and remove it is significantly greater than the time necessary to position and secure a precast concrete member, the exposure time for the worker installing the safety net would be far longer than for the workers whom the net is intended to protect. The time exposure repeats itself each time the nets and supporting hardware must be moved laterally or upward to provide protection at the point of erection or leading edge.
3. Strict interpretation of **1926.502(c)** requires that operations shall not be undertaken until the net is in place and has been tested. With the point of erection constantly changing, the time necessary to install and test a safety net significantly exceeds the time necessary to position and secure the concrete member.
4. Use of safety nets on exposed perimeter wall openings and open sided floors, causes attachment points to be left in architectural concrete which must be

patched and filled with matching material after the net supporting hardware is removed. In order to patch these openings, additional numbers of employees must be suspended by swing stages, boatswain chairs or other devices, thereby increasing the amount of fall exposure time to employees.

5. Installed safety nets pose an additional hazard at the perimeter of the erected structure where limited space is available in which members can be turned after being lifted from the ground by the crane. There would be a high probability that the member being lifted could become entangled in net hardware, cables, etc.
6. The use of safety nets where structural wall panels are being erected would prevent movement of panels to point of installation. To be effective, nets would necessarily have to provide protection across the area where structural supporting wall panels would be set and plumbed before roof units could be placed.
7. Use of a tower crane for the erection of the high rise portion of the structure poses a particular hazard in that the crane operator cannot see or judge the proximity of the load in relation to the structure or nets. If the signaler is looking through nets and supporting structural devices while giving instructions to the crane operator, it is not possible to judge precise relationships between the load and the structure itself or to nets and supporting structural devices. This could cause the load to become entangled in the net or hit the structure causing potential damage.

C. Guardrail Systems

On this particular worksite, guardrails, barricades, ropes, cables or other perimeter guarding devices or methods on the erection floor will pose problems to safe erection procedures. Typically, a floor or roof is erected by placing 4 to 10 ft wide structural members next to one another and welding or grouting them together. The perimeter of a floor and roof changes each time a new member is placed into position. It is unreasonable and virtually impossible to erect guardrails and toe boards at the ever changing leading edge of a floor or roof.

1. To position a member safely it is necessary to remove all obstructions extending above the floor level near the point of erection. Such a procedure allows workers to swing a new member across the erected surface as necessary to position it properly without worrying about knocking material off of this surface.

Hollow core slab erection on the masonry wall requires installation of the perimeter protection where the masonry wall has to be constructed. This means the guardrail is installed then subsequently removed to continue the masonry construction. The erector will be exposed to a fall hazard for a longer period of time while installing and removing perimeter protection than while erecting the slabs.

In hollow core work, as in other precast concrete erection, others are not typically on the work deck until the precast concrete erection is complete. The deck is not complete until the leveling, aligning, and grouting of the joints is

done. It is normal practice to keep others off the deck until at least the next day after the installation is complete to allow the grout to harden.

2. There is no permanent boundary until all structural members have been placed in the floor or roof. At the leading edge, workers are operating at the temporary edge of the structure as they work to position the next member in the sequence. Compliance with the standard would require a guardrail and toe board be installed along this edge. However, the presence of such a device would prevent a new member from being swung over the erected surface low enough to allow workers to control it safely during the positioning process. Further, these employees would have to work through the guardrail to align the new member and connect it to the structure. The guardrail would not protect an employee who must lean through it to do the necessary work, rather it would hinder the employee to such a degree that a greater hazard is created than if the guardrail were absent.
3. Guardrail requirements pose a hazard at the leading edge of installed floor or roof sections by creating the possibility of employees being caught between guardrails and suspended loads. The lack of a clear work area in which to guide the suspended load into position for placement and welding of members into the existing structure creates still further hazards.
4. Where erection processes require precast concrete stairways or openings to be installed as an integral part of the overall erection process, it must also be recognized that guardrails or handrails must not project above the surface of the erection floor. Such guardrails should be terminated at the level of the erection floor to avoid placing hazardous obstacles in the path of a member being positioned.