- Prior to the electrical foreman de-energizing the system, the foreman will ascertain whether system or device has been turned over and accepted by the client; If system is signed off, the client shall assume responsibility for de-energizing system and becoming the tagging authority.
- Contractor Electrical foreman/craft journeyman places lock and tag and tries to engage the equipment.
- The electrical journeyman or lead man will meter the tagged equipment to verify that it is de-energized.

Operating Facilities and Equipment

All systems covered under this section whether electrical, mechanical or others are considered those systems where no future construction activity is warranted.

Electrically Operated Systems

- Client representative or designee de-energizes system demonstrating accuracy to construction electrical supervisor, then locks and tags.
- Construction electrical foreman/journeyman ascertains that fuses, breakers or throws have been removed, when applicable; tags, locks and tries system.
- Electrical foreman/journeyman, meters the side of the system to be worked on to verify it is de-energized and safe.
- Upon completion of work, the journeyman removes their lock/tag and advises the construction electrical supervisor.
- Client representative or designee clears system, removes lock and tag and re-energizes if necessary.

Other Systems

- Plant engineer or designee de-energizes system and makes system safe.
- Client mechanics or designee(s) makes first break in flanges, places blanks, blinds or valves, and demonstrates that the system is empty and decontaminated.
- Construction (Client) Coordinator or designee verifies that the system is de-energized and tagged.
- Construction Craft supervisor locks, tags and tries system, surrenders the key to the journeyman who will then perform the assigned task.
- Upon completion of work, the journeyman will return the key to the assigned supervisor and tag and lock are removed.
- Construction (Client) Coordinator or designee assures that system is clear, and then removes lock and tag.
- Client mechanics or designee(s) re-energize system.
- **Construction**
- All systems under this section whether electrical, mechanical or others, are considered those systems that are still in the construction phase.
- Equipment or circuits that are de-energized shall be maintained inoperative at their main power source and shall have locks and tags attached to prevent accidental turn on.
- A staff member shall be designated from the electrical department (Superintendent or General Foreman), to assume the responsibility, for the removal of locks and tags, and

activation of power from the main switchgear through end line component.

MEETING – PRE-CONSTRUCTION

- The Contractor, before starting work at the project site, shall attend a pre-construction "award" meeting with Gilbane to understand the project conditions and safety requirements.
- A project site tour shall be made to confirm the Contractor's awareness of potential safety hazards.
- The contractor to assure a safe work place shall provide appropriate methods, equipment, devices and material.
- The Contractor shall provide or develop his own project specific safety program and submit it to Gilbane for review prior to starting work at the project site.
- Such review shall not relieve the Contractor of responsibility for safety, nor shall such reviews be construed as limiting in any manner.
- It is the Contractor's obligation to undertake any action, which may be required to establish and maintain safe working conditions at the project site.

MEETINGS

- A project start safety conference will be held with the superintendent(s), safety coordinator and Foremen of each new Contractor prior to coming on the site.
- Gilbane will issue the project start package information and he will issue special instructions to the Contractors in support of the Project Safety Plan when needed.
- Gilbane will conduct regularly scheduled meetings with the Supervisors of new Contractors coming on the site and explain safety goals, contents of this manual and otherwise provide site orientation, safety activities and information. All Supervisors will be required to attend this orientation after coming on the site.
- Contractor meetings will be held as necessary and as directed by Gilbane. All Contractors actually working on the Project will have a representative at the safety meeting to maintain all safety requirements for their trade.
- Gilbane will conduct safety Meetings on a regularly scheduled basis. Minutes of the meeting will be a topic of all scheduling and progress meetings.
- All Contractors are required to hold weekly 10-15 minutes **"Tool Box" safety meetings** for all employees. Topics related to work assigned, and current safety problems will be discussed. Monthly meetings for supervisory and clerical employees will be held. Gilbane will monitor these "Tool Box" meetings through personal attendance or by reviewing a copy of the meeting report.
- Prior to starting any major operation, which would involve locking/tagging procedures, a meeting must be set up involving Gilbane, and every Contractor Superintendent and every Contractor Safety representative affected by the work.
- Specific procedures must be adopted and reviewed by all concerned with the operation prior to commencement of the work.

MASONRY

In addition to the requirements contained in OSHA 29 CFR 1926. 706, the following is required:

- A person, appointed by the Masonry Contractor, who meets the OSHA definition of Qualified Person, will prepare a Hazard Analysis. The Hazard analysis will be reviewed with the Gilbane Project Safety Manager and Gilbane Project Superintendent prior to start of work.
- The Mason's qualified person shall approve all changes in the Hazard Analysis.
- A copy of the Hazard Analysis shall be maintained at the project site showing all approved changes with a copy provided to Gilbane.
- The implementation of the Hazard Analysis shall be by a person appointed by the Masonry contractor who meets the OSHA definition of Competent.
- The Hazard Analysis shall be reviewed with each person working on the masonry wall each day prior to starting work.
- A safe means of access to the level being worked shall be maintained.
- There shall be protection provided to prevent tools and material from striking any person below the work/storage level.
- A tag line shall be used to control all loads.
- When loads are being hoisted, all personnel are to be prevented from walking under the load.
- No one shall be permitted to ride a load under any circumstances.
- A measuring device to accurately determine wind speed shall be provided by the masonry contractor with observations made available to Gilbane upon request.

Masonry Wall Bracing

- The masonry contractor shall provide to Gilbane a design, prepared by a Professional Engineer, meeting the requirements of OSHA 29 CFR 1926.706 (b) and the Standard Practice for Bracing Masonry Walls under Construction as developed by the Council for Masonry Wall Bracing.
- No one shall be permitted within the limited access zone of an unbraced or braced wall subjected to winds of more than 35 mph (20 mph if during the initial period of construction). Caution tape is not sufficient demarcation
- A DANGER sign shall be placed on every unsupported masonry wall that is more than 6 feet in height, braced or unbraced, and 50 feet or less in length. The sign shall be placed at each end of the wall and at intervals of not more than 100 feet along each side of the wall. The sign shall contain the words *DANGER* and *THIS UNSUPPORTED WALL IS UNSTABLE IN WINDY CONDITIONS.*

Fall Protection (See Elevated Work - Fall Protection)

- All employees engaged in masonry work, including overhand laying or any other activity that exposes them to a fall of 6 feet or greater shall be provided with and use fall protection. This protection shall be either a personal fall arrest system consisting of a full-body harness, double, shock-absorbing lanyard, and anchorage or a safety net or a guardrail. "Controlled Access Zones" are not permitted.
- Fall protection requirements shall be rigorously enforced with any observed violation cause for removal from the project.
- Body belts are not permitted as part of a fall restraint system. Only full body harnesses will be used as part of a personal fall arrest system.

Perimeter Protection

- A guardrail system will be constructed in accordance with OSHA 29 CFR 1926.500. Or alternative fall protection consisting of safety nets or personal fall arrest equipment provided.

MOTOR VEHICLES AND EQUIPMENT

- All equipment must be inspected daily before use by Contractor's operator. Contractor must also make documented and complete inspections at 30-day intervals with proper documentation maintained at the project site by Contractor and copies shall be made available to Gilbane upon request.
- Defective equipment shall be repaired or removed from service immediately.
- All Contractors' operators of construction equipment should be properly licensed and certified by a competent person. Copies of the certifications shall be maintained on project site by Contractor and made available to Gilbane upon request.
- Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be carried and all passengers shall be properly seated with seat belt used. Standing/kneeling on the back of moving vehicles is prohibited.
- Locations for storage of all fuels, lubricants, starting fluids, etc., shall be reviewed by Gilbane prior to use by Contractor for storage and shall conform to the requirements of the NFPA as well as the local Fire Marshal. No large storage fuel tanks will be permitted on site.
- Where required, contractors shall provide equipment diapers to protect from environmental spills.
- Drivers of motor vehicles shall have a valid state drivers license (CDL when applicable) and be instructed to exercise judgment as well as observe posted speed limits.
- All contractors' means of ingress and egress shall be adequately marked and kept clear of stored material, debris and equipment.
- Pedestrians always have right-of-way over motorized traffic.
- Horns shall be sounded at blind corners, when passing, and/or for warning.
- Established hand signals or turn signals are to be used.
- Reckless driving or other non-observance of these instructions will be cause for withdrawal of driving privileges on the project.
- Any ATV's used on the project shall be "four"- wheeled, not three-wheeled.
- All vehicles permitted access to the site must display an appropriate vehicle identification badge from the rear view mirror or other conspicuous location at all times while on the project.
- Seat belts shall be worn by all employees operating motor vehicles and any equipment with rollover protection structures during performance of work.
- Properly trained and equipped flag persons shall be used whenever construction traffic accesses or exits from public highways as well as when construction traffic and deliveries interfere with the planned flow of traffic on public highways.

OSHA REQUIRED TRAINING

- Instruction and training of employees is a requirement of OSHA and will be enforced on this project.

- Training of contractor personnel is the responsibility of the contractor.
- All contractor personnel must attend the Gilbane New Employee Orientation prior to their starting work on their first day on the project.

OSHA – Inspection

- It is Gilbane policy to allow OSHA to conduct an inspection of the project (subject to review by Gilbane Corporate Legal if necessary). If a contractor wishes to assert their rights under the U.S. Constitution regarding inspection by OSHA, then the contractor must so notify OSHA prior to the start of an inspection.
- Gilbane will accompany the OSHA inspection party at all times and will make arrangements for the necessary meetings between OSHA, contractors and organized labor representatives (if any). Gilbane does not assume liability or responsibility for the presence of any alleged hazards or their correction.
- Contractors will inform Gilbane of the issuance of any OSHA citations and provide a copy when requested.

Precast/Prestressed Concrete

- Fall Protection for all employees engaged in work with a fall exposure of 6 feet or greater above a lower level shall be either a guardrail system, a safety net system or personal fall arrest system. The use of "Safety Monitoring" and "Warning Line System" and "Controlled Access Zones" are not permitted. Refer to the Section "Elevated Work Fall Protection" for additional requirements.
- A pre-construction meeting between Gilbane, the Fabricator and the Erector must be held to discuss the following topics:
  a. Sequence of erection;
  b. Schedule of delivery by load list;
  c. Crane capacities;
  d. Crane lift plan with calculations based on load and crane location;
  e. Anchor bolt certification;
  f. Review of the structural plans and details;
  g. Stabilization plans for the structure during all phases of erection;
  h. Temporary bracing and guying procedures and equipment for deck members, columns and wall panels.
- The Erector is to provide Gilbane the following:
  a. Written erection plan prepared by a Company Officer or Professional Engineer indicating complete details of all phases of erection that shall include at least the following:
  b. Crane lift plans with load calculation based on the cranes to be used and various setup locations,
  c. Written stabilization plans for all phases including the use of temporary guying and bracing for columns and wall panels,
  d. Written documentation of temporary connection details for use until permanent connections are completed including capabilities of workers doing the installation, types of welds or adequacy of bolted connections.

e. Listing of competent persons for fall protection, crane operation and erection along with phone numbers for emergency contact.

f. Fall protection plan in accordance with Gilbane Safety Plan including Leading Edge protection both during installation and after. Sequencing breaks and end of workday protective measures will also be detailed. Interior floor hole protection must be provided per OSHA Subpart M greater than 2 inches in the least dimension.

g. Custody of Guardrail cables following completion of precast erection. Erector to present a plan detailing how the cables will be safely removed utilizing Personal Fall Arrest Systems; or safety nets.

h. Silica protection of workers during cutting of concrete.

i. Hazard Analysis of all operations, presented to all workers prior to each shift on hazards specific to the day's operation.

j. Proof of training for all erection crewmembers.

k. Delivery locations for trailers including adequate ground preparation and plan for unloading.

l. Wind loading considerations including when operations will be suspended due to high winds.

m. Any proposed field modifications to the approved Erection Plan shall be approved by a Company Officer or the Professional Engineer of Record, added to the plan, which shall be available at the jobsite. A copy must be submitted to Gilbane prior to any change.

n. Lifting inserts, which are embedded or otherwise attached to precast concrete members, shall be capable of supporting at least four times the maximum intended load applied or transmitted to them, and shall be used in accordance with the manufacturer's recommendations.

o. Lifting hardware shall be capable of supporting at least five times the maximum intended load applied or transmitted to the lifting hardware.

p. Adjustment of precast members, after initial placement, which requires the lifting of the members in any manner, shall not be made unless wire rope safety tiebacks are used or the members are attached to the crane load line.

q. Chains are not permitted to be used as slings. Chain "come-along" are permitted with proof of required inspections and certification.

PROJECT – CODE OF SAFE PRACTICES

- Each individual working on this project will be required to attend a safety orientation meeting at the start of their assignment. At the conclusion of the meeting, each will be required to sign a Code of Safe Practices as follows, indicating their agreement to follow that Code while on the Project. This does not relieve the trade contractor of any responsibility to properly orient and train their employees for the specifics of their work.

Project Name:

Employee Name: _____

Company: _____

I agree to abide by the following Code of Safe Practices while on this project:

1. To assist the project in being incident and injury free, I have granted permission to the

Construction Manager to discuss all aspects of working safely with me. Likewise, I have the right to discuss safety issues with the Construction Manager, other trades (regardless of trade jurisdiction or craft) and to stop work at any time I feel there is an unsafe condition to myself or to others.

2. I understand there are Above OSHA Requirements in the Project Safety Plan, and I will abide by those requirements.
3. I will work in a safe manner, protecting others, and myself and will report observed hazards to my supervisor. If not addressed, I will further report these hazards to the Construction Manager Superintendent.
4. I will dress appropriately for the project, wearing a long or short-sleeved shirt, long pants, and work boots with ankle protection, and substantial soles.
5. I will use personal protective equipment as required by my trade, and will wear my hard hat and safety glasses at all times.
6. I will abide by the six-foot fall protection rules, including the use of a harness where required.
7. I will park only in designated areas & observe a ten mile per hour speed limit on site.
8. I will only smoke or use tobacco products in designated areas.
9. I will eat only in designated areas and dispose of trash in proper containers.
10. I will not use any intoxicants or other controlled substances on the project.
11. I will report all injuries and accidents involving persons or property.
12. I will not bring any weapons, including knives with blades over 4 inches, onto the site.
13. I will conduct myself in a professional manner and not engage in any violence, horseplay, practical jokes, or other behavior obnoxious to the general public. I will not harass anyone else on site or any member of the public, sexually or otherwise. I will not bring, write or draw any sexually explicit materials on site.
14. I will not use headset-type radios, music players, personal televisions, or other personal entertainment devices on site.
15. I will not use my cell phone in work areas, around heavy equipment, or while engaged in work activities. If I must use a cell phone, I will do so in safe areas, and only to conduct jobsite business, or for a personal emergency.
16. I will comply with the security procedures established throughout the project, for entrance to the site.

Signed _____

PROJECT – SAFETY RULES

- All personnel on this project, including the employees of Contractor, will be required to comply with these rules. Contractor shall ensure and indicate that all its employees have read these rules and understood its contents. The employee must sign a declaration, which shall then be retained by Contractor with the employee's personnel file. In addition, Contractor shall comply with the following:
- Long or short sleeve shirts shall be worn at all times. All shirts shall be tucked in trousers at

all times. All shirts shall be hemmed at neck, sleeve and tail. "Muscle Shirts" are prohibited.

- Long pants are required. "Shorts" are prohibited.
- A well-constructed boot/shoe that provides ankle protection with a substantial, flexible sole shall be worn. Exposure to hazard dictates whether or not a protective toe guard will be required. Sandals, tennis shoes, or any other street type shoes (even if equipped with ANSI toe protection), will not be permitted.
- Loose fitting clothes or dangling jewelry shall not be worn around moving machinery, grinding operations, welding, or other hazardous operations.
- Hair, which could come in contact with, or be caught in machinery, shall be protected by a hardhat or hair net, as appropriate.
- Approved hard hats meeting specifications contained in the most current addition of the American National Standards Institute (ANSI), Z89.1 and/or Z89.2 are required. "Cowboy-type" hard hats are not allowed. Baseball caps and other soft headwear is not allowed under the Hard Hat suspension.
- All contractors' means of ingress and egress shall be adequately marked and kept clear of stored material, debris and equipment.
- No firearms are allowed on the project site.
- Practical jokes, horseplay, scuffling, wrestling and/or fighting are prohibited and may be grounds for immediate dismissal.
- Reflective vests or clothing shall be worn at all times.
- **Stilts may only be used where allowed by local regulation and then only where the floor is clean and free of debris and obstructions, there are no uncovered floor holes, where there are no pipe- stub-ups and all guardrails are raised to provide adequate fall protection.**
- Drinking and/or possession of intoxicants on The Owner's property are forbidden. The use of narcotics, unless authorized by a physician, and the Project Manager/Superintendent notified, is forbidden. Violation(s) of the above will result in immediate dismissal.

PROTECTION OF THE PUBLIC

Access to the Site

- No work shall be performed in any area occupied by the public unless specifically reviewed and permitted by Gilbane. In that the project interfaces with the public, precautions to be taken include, but are not limited to:
- Each Contractor shall take such necessary action as is needed to protect and maintain public use of sidewalks, entrances to buildings, lobbies, corridors, aisles, doors, exits and vehicular roadways. The Contractor shall protect the public with appropriate sidewalk sheds, canopies, catch platforms, fences, guardrails, barricades, shields, and adequate visibility as required by laws and regulations of governing authorities. Such protection shall guard against flying materials, falling or moving materials and equipment, hot or poisonous materials, flammable or toxic liquids and gases, open flames, energized electric circuits or other harmful exposures. Guardrails shall be made of rigid materials complying with the requirements for standard guardrails as defined by OSHA and the Project Safety Plan. Temporary sidewalks, ramps or stairs shall be provided with guardrails on both sides whenever permanent sidewalks, ramps or stairs are obstructed by the work. Gilbane may

authorize barricades, secured against accidental displacement, meeting the requirements of local authorities, where fences, sheds, walkways and/or guardrails are impractical. During the period when any barricade, fence, shed, walkway, or guardrail is removed for the purpose of work, a watchman shall be placed at all openings.

- Appropriate warnings, signs and instructional safety signs shall be conspicuously posted where necessary. In addition, a signalman shall control the moving of motorized equipment in areas where the public might be endangered. Warning lights, including lantern, torches, flares and electric lights, meeting the requirements of governing authorities shall be provided and maintained from dusk to sunrise along guardrails, barricades, temporary sidewalks and at every obstruction to the public. These warning signs and lights shall be placed at both ends of such protection or obstruction and not over 20 feet apart alongside of such protection or obstructions.
- With respect to operations being performed on public roadways, all DOT and/or municipality requirements towards public safety will be strictly observed.
- Access to the site is limited to the entrance designated for construction traffic as indicated on the site plans issued with the construction documents. At no time is Contractor personnel or vehicles to obstruct traffic on public streets or Owner entry driveways. All material deliveries shall be scheduled in advance with the Project Superintendent and shall be completed within the time segment allocated for the specific delivery.
- A temporary six-feet high fence, in compliance with laws and regulations of governing authorities, shall be provided and maintained around the perimeter of operations on the project site to control access to the work by employees, to protect the public, and to restrict access by unauthorized individuals.
- The above shall be implemented only where allowed by the governing authority. Where the owner of the property specifically prohibits such protective devices, rules and regulations of the governing authority shall apply.

Authorized Visitors

- All visitors to the site are required to register with Gilbane upon arrival. Each Contractor will be expected to regulate their visitors accordingly. All visitor passes expire upon departure from the site and are to be surrendered to the gate security guard.

Parking

- Parking shall be in designated areas only. All vehicles delivering materials to the Project shall be authorized to do so by Gilbane. Unauthorized vehicles may be removed at the direction of Gilbane and all towing charges will be the responsibility of the vehicle Owner.

Fire hydrants and all designated fire lanes shall remain clear at all times for the use of emergency vehicles.

Employee Identification

- Where required, all project site employees will be issued an identification badge and hardhat sticker upon completion of their initial safety orientation and after having passed their alcohol and drug test. All persons without a hardhat identification sticker shall report to Gilbane's office for verification of employment status, attendance at an orientation session, or issuance of a single day visitor pass. This identification badge will remain the property of Gilbane and the Owner. The identification badge shall be maintained in good condition and on the person to whom it is issued. The identification badge shall be returned to Gilbane or

the Owner when employment on the Project is terminated or when requested by Gilbane, or other authorized and designated person. All lost or stolen identification cards shall be immediately reported to Gilbane or the Owner.

- **Tours**
- It is of the utmost importance that a high degree of protection be afforded all persons touring the project site.
- The following guidelines shall be complied with by personnel who are responsible for the organization, direction and safe conduct of the tours:
- All group tours will be cleared through the Owner's representative and Gilbane, allowing for maximum notice.
- All tours will be coordinated by Gilbane to accommodate the Project schedule, to make necessary preparations, and to assure safety precautions are observed.
- Gilbane will review the following items with the person requesting the tour:

Number of visitors.

- Individual tour groups in non-hazardous areas should be limited to no more that 10 persons per tour guide (i.e. a tour group of 20 will require at least two tour guides).

Clothing

- Tour groups will be required to wear appropriate clothing (i.e. slack and low-heeled shoes).

Children

- Children under the age of 12 will not be permitted to accompany tours. An adult must accompany each child age 12 to 15. Only those 18 years of age and older are permitted to work on the project.

Protective equipment

- Hard hats, boots, raincoats, eye protection, etc., will be supplied as required.

Release and Hold Harmless Agreement

- Each visitor will be required to sign this form prior to the start of the tour. In the case of children, an adult must sign for them, preferably a parent.
- Immediately prior to entering the project site, all visitors shall be briefed about the need for careful and orderly conduct, including mention of any special hazards, which may be encountered.
- Technical and official visitor tours will be conducted in accordance with the above safety precautions. Since technical tours are often conducted through areas of more hazardous work, it is recommended that the number of people on such tours be proportionate to the degree of hazard involved.

Pressure Testing Safety Requirements

- Pressure testing involves hazards, such as the release of hazardous energy, being struck by loose fittings or burst pipe. In addition, if an inert gas, such as nitrogen is used, it can displace oxygen and can create an oxygen-deficient atmosphere, which can be harmful or fatal. If flammable gas is used, it can cause an explosion if there is an ignition source.
- The following procedure shall set forth the minimum requirements to ensure that pressure testing is performed safely. Contractors shall also develop a site/task specific Job hazard

Analysis (JHA), as well as their own procedures for safely pressure testing pipe, and review with Gilbane prior to starting this activity.

a. Contractor performing pressure testing shall barricade area off and place signage restricting access to only authorized personnel.
b. Authorized personnel shall wear appropriate PPE consistent with the contractors JHA. (examples should include: hard hat, safety glasses, face shield, gloves, etc in accordance with the MSDS for testing medium).
c. All mechanical devices, such as valves and blinds used to isolate the system shall have a lock and tag affixed by the contractor to prevent accident pressure release.
d. Contractor and authorized personnel shall walk down the system and check the integrity of all connections, caps, seals and fittings within the system to be tested to ensure they are secure.
e. Contractor shall install additional supports on piping necessary for increased pressure or weight of testing medium.
f. Test equipment and gauges shall be inspected by the contractor and confirmed to be in proper working order before testing is begun.
g. Maximum test pressure and duration of the test shall be communicated to the contractor's authorized testing personnel and Gilbane.
h. Contractor to develop a Venting procedure for dissipating inert gas safely.
i. Contractor shall develop a Drain procedure to drain water or other fluids safely, without polluting drains or creating slippery conditions.
j. Contractor shall review the JHA with all authorized personnel prior to the test.
k. Testing shall be performed under the supervision of the contractor supervisor.
l. Testing shall be conducted in accordance with pipe and testing equipment manufacturers precautions and specifications.
m. Test pressure shall not exceed the maximum allowable test pressure for any vessel, pumps, valves, or other components in the system.
n. All repairs or adjustments to the system being tested shall be done only after the system pressure is safely and completely relieved and the test gauges indicate 0 psig pressure.
o. Only mechanical devices, such as gate or ball valves shall be used for incremental release of flow in depressurizing systems. The opening or 'breaking' of flanges shall never be used as a means of depressurizing a tested system.
p. Upon acceptance of the pressure test, pressure in the system shall be completely relieved so that the test gauges indicate 0 psig, and verified by contractors supervisor.
q. Contractor shall conduct all testing in accordance with applicable laws, codes, and ASME B31, B16 and related standards.

SANITATION

Housekeeping

- The site, work areas, and all premises occupied by Gilbane and contractor's personnel will be maintained in a clean, healthy and sanitary condition.
- Work areas, passageways and stairs, in and around buildings and structures, shall be kept clear of debris. Construction materials shall be stored in an orderly manner. Storage areas

and walkways on the site shall be maintained free of dangerous depressions, obstructions, and debris. Construction equipment shall be stored or placed in an orderly manner.

- Good housekeeping on the project is mandatory and every employee must do his part daily to minimize dust and to clean up his work area to keep the project clean for safety and efficiency. Controls shall be observed which keep dirt from being tracked into areas outside the workspace. Immediate cleanup is required when dust, dirt or debris may affect the owner's operations.
- Eating within the construction project shall be confined to areas designated by Gilbane for such purposes. Employees shall properly dispose of all lunch refuse and drink containers in trash receptacles
- Failure to maintain adequate housekeeping and to perform daily clean-up will result in the following actions:
- Written Notice: Upon receipt, the contractor shall take immediate action to perform housekeeping and clean up.
- If having been given sufficient notice, the contractor fails to clean up; the work will be performed by others, and the errant contractor backcharged for all related costs.
- Daily and final clean up must be performed in accordance with contract documents.

Facilities

- The locations of lunch areas and employee toilet facilities will be designated by Gilbane and approved by the Owner.

Refuse and Garbage

- Each contractor will provide an adequate number of covered garbage containers. The site will be cleaned and garbage and refuse will be collected at least daily and removed from the building.

Potable Water

- Each contractor shall provide potable water at the work site and test it at least weekly if delivery is from other than municipal supplies.
- Sanitary facilities shall be provided for personal hygiene.

SIGNS, SIGNALS, BARRICADES AND LIGHTS (MOTOR VEHICLE EXPOSURE)

- Signs, signals and barricades shall be visible at all times where a hazard exists and will be in compliance with ANSI D6.1 (most recent version), Uniform Manual of Traffic Control or regulations promulgated by the local authority.

SCAFFOLD

- The Contractor's designated Competent Person shall inspect all scaffolds prior to each work shift with written documentation provided to Gilbane on a daily basis. All scaffolds shall bear a tag, signed and dated by the contractor's competent person, denoting that the scaffold has been inspected and is safe to use prior to any employee utilizing that scaffold that day.
- Any contractor using scaffolding shall provide to Gilbane the name of their Competent Person along with the content of the Competent Person's training program and proof of Scaffold User Training for all employees who may work on scaffolding.
- Ladder Jack scaffold are not permitted on Gilbane projects.

- Scaffolds with a width less than 60 inches must have guardrails (top, mid and toe) installed when the work platform is in excess of 48 inches above the floor or lower work area.
- Scaffold cross bracing is not permitted to be used as a substitute for guardrails. Swing gates will be provided at all ladder or stair access points. Where material is being landed on a scaffold, the outrigger extension will not be used to support the material unless it is deemed adequate by the manufacturer and a factor of safety of 4 is provided.
- All non-mobile scaffold frames shall have base plates installed.
- All mobile scaffolds will have wheels locked when in use and stationary.
- Nominal grade lumber is not allowed as scaffold planking.
- All individuals who are in scissor lifts shall wear a full body harness and be tied off by a lanyard to a manufacturer's approved anchorage point within the scissor lift. Standing on guardrails is not allowed. Only approved anchorages shall be used for fall arrest anchorage points.
- A mast climbing elevating work platform that may be adjustable by manual or powered means must meet the requirements of ANSI Standard ANSI/SIA A92.9-1993, American National Standard for Mast- Climbing Work Platforms.

STAIR SCAFFOLDS

- 'System' scaffold stairs shall be erected as early as possible during the building construction to facilitate safe access to all working levels, once the steel erector has released the floor/level to Gilbane. Scaffold stairs shall remain in place until the permanent stairs are constructed and made available for use by Gilbane.
- Stair scaffolds shall be constructed in accordance with manufacturer's instructions by trained and qualified workers under the direction of a competent person.
- Stair scaffolds shall be inspected daily by a competent person, authorized by Gilbane, at the beginning of each shift. The competent person shall date and initial a Scaffold tag, and place the tag at the entrance to the stair scaffold.
- Stairs used during winter months shall be enclosed to prevent ice and snow from creating slippery conditions. Temporary lighting in accordance with OSHA requirements shall be installed on all enclosed stair scaffolds.

Stair tower construction

- Stair towers used for vertical should be equivalent to the WACO "Millennium Ring" or Patent "Quick Erect Scaffold System". The mason style scaffolds stairs are not acceptable. See Appendix D for stair tower type.

STEEL ERECTION

Erection Plan

- An erection plan will be prepared by the Steel Erector's Qualified Person and reviewed with the Gilbane Project Safety Manager and/or Gilbane Project Superintendent prior to start of work. Refer to OSHA 1926, Subpart R, Appendix A.
- The erection contractor's qualified person shall approve all changes in the safety erection plan.
- A copy of the erection plan shall be maintained at the project site showing all approved

changes with a copy provided to Gilbane.

- The implementation of the erection plan shall be under the supervision of a competent person.
- A safe means of access to the level being worked shall be maintained. Climbing and sliding on columns or diagonals, is not allowed.
- Containers, such as buckets or bags, shall be provided for storing or carrying bolts or rivets. When bolts, driftpins, or rivet heads are being removed, a means shall be provided to prevent accidental displacement. Tools shall be secured in such a manner to prevent their falling.
- Fall protection provisions, such as lifeline attachments, dynamic fall restraints and other such devices shall be considered during shop drawing preparation, shall be incorporated in fabricated pieces, and shall have safety lines or devices attached prior to erection wherever possible.
- A tag line shall be used to control all loads.
- For the protection of other crafts on the project, signs shall be posted in the erection area by the erection contractor reading, "*Danger Men Working Overhead*" and only ironworkers allowed in this area. This will include shakeout areas, erection areas and the load travel path from the storage area to the erection area.
- When loads are being hoisted, all personnel are to be prevented from walking under the load.
- No one shall be permitted to ride a load under any circumstances.
- Crane personnel platforms will not be used for any purpose without the written approval of Gilbane.
- Material shall not be hoisted to a structure unless it is ready to be put into place and secured.
- Bundles of metal decking or small material shall be so secured as to prevent their falling out from the rigging.
- Christmas treeing (multiple lifts) is not allowed unless exception approved by Gilbane Regional Safety Manager.

Fall Protection (See Elevated Work - Fall Protection)

- All workers engaged in steel erection activities including connecting, bolting-up, decking, welding or any other activity that exposes them to a fall of 6 feet or greater shall be provided with and use fall protection. This fall protection shall be either a personal fall arrest system consisting of a full-body harness, double, shock-absorbing lanyard, and anchorage or a safety net or a guardrail. Nether "Controlled Decking Zones" nor "Safety-monitor systems" are permitted. Metal deck is not considered a form of fall protection.
- Fall protection requirements shall be rigorously enforced during steel erection with any observed violation cause for removal from the project.
- Body belts are not permitted as part of a fall restraint system. Only full body harnesses will be used as part of a personal fall protection system.

Perimeter Protection

- A guardrail system of a minimum of two (2) 3/8-inch diameter 7 x 19 galvanized new aircraft cable. Top rail of the wire rope cables shall be erected at 43 ½ inches from the finished floor

and the midrail of the wire rope cable shall be installed approximately halfway between the finished floor and the top guardrail- approx. 22 inches.

- Wire rope guardrails shall be tensioned to 2,400 pounds of force, initially, and maintained to comply with OSHA fall protection requirements. Wire rope guardrails shall be installed immediately following the erection of beams and columns. The length of cable shall not exceed 120 feet without being terminated. Cables shall be terminated at all 90 degree turns and shall be 'looped' connections with 3 wire rope clips used at all connections (line splicing is not permitted). All sequence breaks will require a two (2)-cable assembly.
- Steel angle stanchions shall be installed and spacing on perimeter bays shall be as follows:
- Intermediate stanchions should be placed no greater than 8 to 10 feet apart to reduce deflection and meet the OSHA code requirements.
- Steel stanchions used at corners shall have diagonal supports installed to at least 80% of the height of the stanchion.
- Turnbuckles shall be installed on top and midrail wire rope cables at each perimeter side, and at intervals not to exceed 120 feet, or as directed by Gilbane. Loading bays shall have separate guardrail and turnbuckle assemblies installed.
- Maintenance of wire rope guardrail systems will remain with the steel erector until they leave the site.
- The steel erector will supply Gilbane with a new come-a-long and cable dogs (pork chops) for maintenance once the erector leaves the site.

Interior Protection

- Installation of guardrails at interior floor openings, i.e. stair or mechanical shafts, shall conform to one, or a combination of the following:
  - Option 1

    Install 3/8" galvanized air craft cable through stanchions at 43 ½ inches above finished floor. Terminate cables at 90 degree turns.
  - Option 2

    Bolt 2 ½" x 2 ½"x ¼"steel angles onto stanchions. A mid-stanchion / post is required for spans greater than 8 feet.
  - Option 3

    Secure 2"x 4" construction grade lumber to steel stanchions. A mid-stanchion / post is required every 8'
- Guardrails shall not be used as a horizontal lifeline as part of a personal fall arrest system unless designed by a Registered Professional Engineer and installed under the supervision of the steel erector's competent person.
- Top and Midrail cables, as outlined above, shall also be used at all sequence breaks.

Stretch and Flex Program

Purpose

- Soft tissue injuries are a major source of disabling injuries to our workforce, and result in significant costs and lost productivity to our industry. Warm up stretches before work begins can reduce the incidence and severity of soft tissue injuries. Therefore, all contractors of every tier shall ensure that all employees participate in stretching exercises at the beginning

of each workday.

Program Requirements

- All contractors and tradesmen are required to design and implement a Stretch and Flex Program for their employees. The purpose of the program is to gently condition the muscles and tendons of the workers before they engage in their duties in order to avoid injury.
- A Stretch and Flex Program shall be developed by each Contractor and submitted to Gilbane prior to commencing activities on site.
- Stretch and Flex activities shall be performed every day work activities are scheduled and they shall be performed before the work activities begin. Everyone is required to participate.

Recommendations

- Consult with a licensed Physician/Physical Trainer/Stretching Instructor/Yoga Instructor for the most suitable stretches for your work crew.
- Incorporate incentives for active participants.
- See Appendix E for an example of a Stretch and Flex Program.
- Check with your Company's insurance carrier. They may provide services, suggestions and guidance for your company's program.

THIRD PARTY INSPECTIONS

- In addition to visits and safety inspections by its own corporate or insurance representatives, Contractor is advised that authorized third parties may inspect the Project from time to time. Among others so authorized are representatives of the Owner and/or its agent, insurance companies and OSHA. Upon their proper identification and clearance through security, they are entitled to access and courteous consideration. Gilbane must be made aware of their presence upon arrival, and in any case as soon as possible, of the purpose and results of such visits which relate to safety.

TEMPORARY HEAT

- No open flame or Kerosene heaters are allowed.

TOOL BOX TRAINING

- Instruction and training of employees is an OSHA requirement and, as such, will be required on this project. Examples of such required training to be provided by Contractor are:
- Newly employed, promoted and/or transferred personnel shall be verbally instructed in the safety practices required by their work assignments.
- All work assignments must include specific attention to safety. "Follow-up" monitoring is required in order to prevent accidents.
- OSHA requires that employees performing specific non-routine tasks or operating specific equipment be trained in its usage.
- Training of contractor personnel is the responsibility of the contractor.
- Conduct Tool Box safety meetings for all employees at least once a week.
- Maintain an attendance record by having employees sign the reverse side of the Toolbox Safety Meeting Report, or equivalent form.
- Complete the Report and submit it to the Gilbane Office within 24 hours after each meeting.

- File all toolbox meeting reports and summaries so that they are available for review at any time during project operations or for a period of five years following termination of the project.
- It is the responsibility of Trade Contractor supervision to explain the hazards involved in an assignment to all employees, either individually or in a group before they actually begin an assigned task.
- This task may only require a few words, but in many cases it will require the actual demonstration of how the project can be done safely and the pointing out of the hazards that may be or will be encountered in any task.

WELDING, CUTTING AND BURNING – HOT-WORK

Electric Arc Welding

- A suitable, approved fire extinguisher shall be ready for instant use in any location where welding is done. Screens, shields, or other safeguards should be provided for the protection of men or materials, below or otherwise exposed to sparks, slab, falling objects, or the direct rays of the arc.
- A dedicated fire watch shall be present at all welding operations and remain for at least 1 hour after the hot work has halted.
- The welder shall wear approved eye and head protection. Men assisting the welder shall also wear protective glasses, head protection and protective clothing. Adequate exhaust ventilation shall be maintained at all welding and cutting work areas.
- Electric welding equipment, including cables, shall meet the requirements of the National Electric Code.
- All arc welding and cutting cables shall be of the completely insulated flexible type capable of handling the maximum current requirements of the work.
- Cables in need of repair shall not be used.
- The frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable connecting the circuit connector or through a separate wire which is grounded at the source of the current.
- All ground connections shall be inspected to insure that they are mechanically strong and electrically adequate for the required current.
- Welding practices shall comply with all applicable regulations.

Gas Welding or Cutting

- When gas cylinders are stored, moved, or transported, the valve protection cap shall be in place.
- When cylinders are hoisted, they shall be secured in an approved cage or basket. The valve cap shall never be used for hoisting.
- All cylinders shall be stored, transported, and used in an upright position. If the cylinder is not equipped with a valve wheel, a key shall be kept on the valve stem while in use.
- At the end of each work day or if work is suspended for a substantial period of time, compressed gas cylinder valves must be closed, regulators removed and properly stored.
- Cylinders containing oxygen or acetylene or other fuel gas shall not be taken into confined spaces.

- Cylinders containing oxygen or acetylene or other fuel gas shall be stored in designated areas outside the structure as approved by Gilbane.
- No one shall use a cylinder's contents for purposes other than those intended by the supplier.
- All hose used for carrying acetylene, oxygen or other fuel gas shall be inspected at the beginning of each working shift. Defective hose shall be removed from service.
- Oxygen cylinders and fittings shall be kept away from oil and grease. Oxygen shall not be directed at oily surfaces, greasy clothes or hands.
- Regulators, gauges, backflow check valves, and torches shall be kept in proper working order.
- An approved fire extinguisher shall be readily available.
- Flash arrestors are required on the oxygen and acetylene hoses, at the regulators.
- Appropriate personal protective equipment, such as burning glasses, shields, and/or gloves shall be used. Adequate exhaust ventilation shall be maintained at all welding and cutting work areas.
- Work permits shall be obtained daily, prior to any burning or cutting operations on the site.

Work Permit Procedures

General Procedures

- A copy of this section of the Project Safety Plan will be issued to all Contractors, and will serve as notice by Gilbane that a work permit as specified by Gilbane is necessary before starting any hazardous work activity.
- The work permit shall be obtained from Gilbane before starting each day's work. The procedures for initiating a hazardous work permit are listed on the permit application appropriate to the type of work.
- Hazardous work Permits include, but are not limited to the following activities: Hot Work, Confined space entry, Guardrail removal, Line Breaks, after Hours work, Trenching and excavation, Crane use and Barricade installation.
- Additional job-specific hazardous work permits may be required, due to special project conditions, to be incorporated into the project safety plan. These will also be considered as a contract commitment.

Hot Work

- Hot work is defined as a process or procedure, which could result in a fire if not properly controlled. Common types of hot work are welding, burning, cutting, brazing, soldering.
- Hot work will usually be permitted only during normal working hours. Permits will be issued the day before work is to be accomplished, and the work area will be inspected to verify that adequate control has been established.
- A copy of the permit will be available at the point of work. An adequate number of fire extinguishers will be available within 50-feet of the point of work for which a permit is issued.
- The Contractor will take the necessary precautions when welding or burning above walls to assure that protection is maintained on both sides of the wall and that areas below are protected on multilevel buildings.

Confined Space

- When work in confined spaces is scheduled, such as a caisson, boiler, deep excavations, etc., consideration must be given to two major known and recognized hazards:
- The possibility of fire or explosion, flammable gases, fumes, vehicle fumes, vapors, or dusts.
- The possibility of injury to the worker (or loss of consciousness) as a result of inhalation or absorption through the skin of toxic materials or from oxygen deficiency.
- For work in a confined space, the responsibility for recognition and advance notification is the Contractor's. The Project Superintendent and the Project Safety Coordinator will be notified and will evaluate the situation, issuing a work permit in those cases for which he considers it necessary. The Contractor will be responsible for providing equipment and special instructions for the worker, such as ventilating units, respirators, safety belts and life lines, etc., and for conformance to all applicable OSHA standards.
- It is required that the "buddy system be used and that an observer will tend all workers in a confined space. Rescue procedures should be agreed upon beforehand.

Guard Rail Opening

- The Project Superintendent and the Regional Safety Manager may approve work, which requires the opening of guardrails or the removal of holes covers to be performed, in advance. Particular attention shall be given to the alternate means of fall protection, which will be required to safely perform the work and protect other workers in the vicinity of the fall exposure. Specific plans for providing alternate fall protection shall be described in the request for the work permit.

Off-Hours Work

- The Project Superintendent and the Project Safety Coordinator shall approve work, which is required to be performed outside normal working hours established at the site, in advance. Any work occurring within the existing Owner facility shall be at the convenience of the Owner, and shall comply with all conditions imposed by the contract specifications and the work permit issued by the Project Safety Coordinator or other persons identified by the Owner.

OWNER REQUIREMENTS

- Refer to the attached Owner Requirements for additional provisions, which must be followed.

APPENDIX A:
TABLE OF FINES

Violation	First Offense	Second Offense
Assured Grounding Program Violation	$200	$400
Clothing Not Adequate	$50	$100
Confined Space Violation	$1000/ Removal	N/A
Electrical Cord Defective	$250	$500
Electrical Cords Not Protected on Floor or Not Raised	$250	$500
Equipment Violation	$250	$500
Eye Protection Missing	$250	$500
Failure to Protect Public	$1000	$2000
Fall Protection Not Present	$1000/ Removal	N/A
Fire Extinguisher Missing	$500	$1000
Fire Watch Missing	$500	$1000
Food Consumption	$100	$200
Footwear Not Adequate	$100	$200
Gas Cylinders Stored Incorrectly / Not Identified	$200	$400
General Duty Violation	$500	$1000
Guard Rail Removal	$1000/ Removal	N/A
Hard Hat Missing	$250	$500
Hearing Protection Missing	$250	$500
Hot Work Permit Missing	$500	$1000
Housekeeping Poor	$500	$1000
Ladder Defective	$250	$500
Ladder Not Secured	$500	$1000
Lockout Violation	$1000	$2000
Material Storage Improper	$500	$1000
MSDS Missing	$100	$200
Not Following Safety Plan	$500	$1000
Open Hole	$1000/ Removal	N/A

Orientation Not Attended	$200	$400
Power Tool Defective	$500	$1000
Scaffold Violation	$500	$1000
Smoking in Non-Designated Area	$500	$1000
Standing on Top of Ladder	$500	$1000
Tool Box Meeting Not Held	$100	$200
Traffic Citation	$50	$100
Trench/Excavation Permit Missing	$200	$400
Trenching Violations	$2000/ Removal	N/A
Uncertified Lifting Device	$500	$1000
Urinating/Defecating in Building	$1000/ Removal	N/A
Written Haz Com Program Missing	$100	$200
Hand Protection Violation	$250	$500
Radio and Headsets	$250	$500
Infection Control Violation	$1000	$2000

APPENDIX B:
HAND PROTECTION REFERENCE

Purpose

- To aid in the prevention of hand and finger injuries when performing construction operations.

Objective

- To ensure hand protection is used in situations where there are known hazards present.
- Identify specific areas which historically have caused injuries.
- Establish mandatory guidelines for the use of hand protection.

Scope

- This procedure identifies specific situations which require the use of hand protection, but is not meant to be all inclusive. Other situations not identified in this document should be identified/reviewed during pre-task planning. Gloves should be worn for hand protection in any situation where exposure to hazards exist.

Procedure

- **Mandatory Hand Protection While Working**
  - **When metal materials with sharp edges are being handled such as:**
    a. Handling or working around sheet metal siding, roofing, etc.
    b. Metal unistrut materials and all thread rods
    c. Handling or working around tie-wire
    d. Handling metal floor grating
    e. Handling wire rope during rigging operations
    f. Handling or working around metal studs
    g. Handling of metal duct work
  - **Cutting operations involving hand-held, non power-operated cutters:**
    a. Using hand-held tubing cutters for cutting metal and hard plastic-type piping
    b. Using hack saws for cutting metal
    c. Using cross-cut saws for wood cutting
  - **Handling of wood materials:**
    a. Placing plywood sheeting on floors, scaffolds, etc.
    b. Unloading and loading wood of any type
    c. Moving and transfer of wood
  - **Concrete operations where hands are exposed:**
    a. Power and hand troweling operations
    b. During the cleaning of chutes used for delivery of concrete
    c. During concrete removal operations
  - **During the use of utility knives or exacto knives:**
    a. Cutting sheet rock
    b. Trimming wire sheathing or other stripping operations
    c. Cutting insulation
    d. Trimming temporary plastic walls
    e. Cutting/scoring paper, vinyl tiles, etc.
  - **Sharpening knives, saws and blades**
  - **While pulling wire in or around electrical panels**
  - **While performing Energized Electrical Work (EEW) operations**
  - **During use of impact-type tools:**

a. Using impact hammers to chip concrete
b. Using jackhammers on concrete and similar operations
c. Using fence post drivers for driving posts and/or stakes
d. Using power-actuated power tools

- **During welding operations**
- **While operating a grinder:**
  a. The grinding helper shall also utilize gloves to prevent impalement by flying debris
- **Working on or near materials affected by extreme temperatures:**
  a. Mechanics working on or around hot parts
  b. Workers performing operations around refrigerant or argon lines
- **Handling hazardous materials which require the use of hand protection to avoid skin contact, as indicated on the material Safety Data Sheet (MSDS) for the material, to include but not limited to:**
  a. Paints, solvents, adhesives, caustics or corrosives
  b. Petroleum products such as gasoline, diesel, hydraulic fluids and used motor oil
- **Working with glass materials where the edges are exposed and present a hazard**
- **Personnel involved in the removal and handling of trash**
- **Protective gloves may be worn for hand protection in the Clean Rooms when hands are exposed to hazards described by this procedure. Clean Room Protocol should be contacted to review glove selection for work performed within the Clean Room**

- Different exposures require the use of different types of gloves. Evaluate each situation to ensure which is the appropriate type of hand protection. (See chart below)

OPERATION	*GLOVE TYPE*
Energized Electrical Work (EEW)	Electrically insulated-rated rubber gloves with leather protectors
Welding operations	Gauntlet-type leather welding gloves
Grinding Operations	Tight-fitting leather gloves
Exposure to sharp edges & metal burrs (handling ductwork, metal studs)	Cut-resistant gloves (Kevlar® or tight-fitting leather)
Utility knives, hacksaws, & cross-cut saws	Cut-resistant gloves (Kevlar®)
Concrete work	Rubber or leather gloves
Exposure to petroleum products	Chemical-resistant gloves per the MSDS requirements & manufacturers requirements (Neoprene, PVC, Nitrile or Rubber) *

Exposure to hazardous materials such as solvents, paints, adhesives, etc.	Chemical-resistant gloves per the MSDS requirements & manufacturers requirements (Neoprene, PVC, Nitrile or Rubber) *
Working around machinery	Tight-fitting leather gloves should be utilized when hand protection is necessary around rotating equipment to prevent entanglement of gloves/hands in machinery
Proximity & exposure to excessive heat, or hot piping and equipment.	Kevlar® heat resistant gloves and sleeves.
Using saws – portaband, and reciprocating.	Tight-fitting leather gloves.
Handling wire rope/rigging.	Tight-fitting leather gloves.
Handling glass	Cut-resistant gloves - Kevlar®
Handling wood	Tight-fitting leather gloves

GLOVES *

- Neoprene – Protects from acids, caustics, oils, greases and many solvents
- PVA – protects from aromatics, ketones and chlorinated solvents (Xylene, Trichloroethylene)
- Butyl – protects against common organic acids and caustics, alcohols, esters, acetone and ketones
- PVC – protects against chemicals, oil and greases, acids and petroleum hydrocarbons
- Nitrile – protects against greases, oils, acids and solvents

APPENDIX C:
TOWER CRANE ERECTION AND DISMANTLING PROCEDURE

Background

- Given the numerous and tragic tower crane accidents that have occurred around the country in recent months, Gilbane Building Company has issued this Policy to control the risks associated with the erection, climbing/jumping and dismantling of cranes on our projects.

Applicability

- This Policy applies to all projects and must be included in all current and future Bid packages.

Tower Crane Safety Coordination Meeting

- Prior to the planned erecting, dismantling or jumping of tower cranes, a 'Safety Coordination Meeting' shall be conducted with Gilbane Building Company and the following stakeholders as applicable.
  The stakeholders that must be present at the meeting shall be:
  a. General Contractor Superintendent / Designee
  b. Subcontractor providing, leasing or using the crane
  c. Independent Third party Crane Inspector
  d. Crane Operator and Oiler
  e. Lead Tower Rigger (and Rigging Crew, if available)
  f. Assembly/Disassembly Director
  g. Crane Site Safety Coordinator
  h. Site Safety Manager
  i. Flagmen/Communications Personnel
  j. All Other Personnel Taking Part in the Operation
  k. State or local regulatory agency representative, if applicable.

- The following topics are to be covered during the Tower Crane Safety Coordination meeting:
  a. Scope and sequence of work
  b. Site and Logistics Plan
  c. Crane mat engineered design drawings
  d. Roles and responsibilities
  e. Required Licenses and certifications
  f. Rigging to be used (including softening material if nylon web slings used)
  g. Inspection scope and frequency of all rigging equipment, materials and tools prior to erection, dismantling and raising/lowering
  h. Rigging diagrams, capacities and specific sequence of rigging operations
  i. Engineering specifications and inspection schedule of all equipment including but not limited to collars, ties, and bolts
  j. Permit validity and qualifications and training of personnel
  k. A Plan for tower cranes during inclement weather, including relevant weather warnings and compliance with manufacturer's manual (including maximum recommended wind

speeds for erection/dismantling, and anemometer equipment/location)

l. All Loads and lifting components and capacities (a scale on site to verify the weights is preferred)
m. Communications systems
n. Self rescue devices for the operator
o. All engineered drawings and certifications
p. Foundation designs and structural bracing design and installation
q. Crane Installation inspection (see note)*
r. Specifications of the assist/erection Crane and rescue crane.

* Inspection & Certification by Engineer of Record. Once fully erected, the engineer of record for the crane must provide Gilbane Building Company with a certified and signed report stating that he or she (or his or her designee) has inspected the crane installation. This certified report must verify that the crane is installed in accordance with plans filed with Gilbane and the city or state where applicable, and that the engineer of record for the crane has reviewed the appropriate technical testing records, including torque, plumb, and magnetic particle reports for the crane. In addition, once every twelve (12) months, the crane shall be inspected by a qualified 3rd party, independent crane inspector.

- The engineer of record for the crane must submit written plans and specifications to Gilbane and the applicable state or federal agency that detail the erection, jumping and dismantling procedure for the crane that is to be erected, jumped or dismantled at the site. These plans must be prepared by the licensed engineer and in conjunction with the licensed rigger and must be received prior to the safety coordination meeting.

- During the safety coordination meeting the Plan for the Erection, Dismantling, Raising & Lowering of the Tower Crane ('The Plan') shall be reviewed.

- **The Plan for Erection, Dismantling, Raising & Lowering of the Tower Crane shall include:**
  a. Crane set up procedures, including steps for onsite assembly of the Tower crane and assist crane.
  b. A written job plan which describes the intended operation of the subject crane including specific uses of the crane and the nature and weight of anticipated loads.
  c. A site specific Job Hazards Analysis describing the steps involved in tower crane erection, jumping, dismantling and operation, the related hazards, and the controls to be implemented to mitigate these hazards. (Note-the JHA shall also address protection from fall hazards to the erection crews, and fall rescue.).
  d. The sequence of operation
  e. Climbing schedule, in advance.
  f. Rigging materials to be used
  g. Weights of all crane components

- **Site Logistics plans including:**
  a. Crane swing radius plans, including plans to ensure multiple tower cranes on site will not strike each other.

b. Site plans showing ground storage space for each component, including truck positioning and off-loading activities as well as assembly area.
c. A description of the relationship of the crane to the building under construction, including minimum clearances between the tower, counter-weights, jibs, and any other relevant moving parts of the crane to parts of the building, including thrust-outs, cornices, window bays, and any other fixed points.
d. A description of the maximum permissible radius and load ratings for the configuration and the site location of the tower crane, and the building component weights to be lifted.
e. Description of the proximity of high voltage overhead power lines to the operating radius of the tower crane, and tower electrical grounding methods.
f. Communication plans for ground-men, riggers and other crane operators and others on site.
g. Identification of each lift with respect to weight, the necessary mobile crane reach and rigging accessories required (refer to Gilbane Crane Lift Plan). A scale on site to verify the weights of each component is recommended.
h. Counter-weight specifications if they are prepared on site.
i. Safety, proximity and redundancy systems and limit switches to be installed
j. Size of banners to be applied as 'wind sails', (Note- banners, signs or flags cannot be affixed to any mast or jib section, per manufacturer's instructions.)
k. Location and type of wind measuring devices and manufacturers maximum recommended wind speeds for erection, climbing, dismantling, and operation.

- **Certifications, including:**
  a. Operators shall have current applicable state Hoisting license (or where no applicable state Hoisting license is issued) shall hold a current certification by NCCCO as a certified tower crane operator.
  b. Riggers shall be qualified, and may be required to hold a current certification by NCCCO as a certified rigger.
  c. Riggers who rig (connect) loads lifted by a tower crane shall be qualified to ANSI A10.42 , or hold a current certificate by NCCCO as a certified Rigger.
  d. Signalpersons who provides hand or verbal signals to a tower crane operator shall be qualified and trained, or hold a current certificate by NCCCO as a certified Signalperson.
  e. Written statement of each crane operator's experience and qualification to operate the type of tower crane utilized, shall be included with the copy of applicable state issued license or NCCCO certificate.
  f. A certification issued by a state-licensed Crane Certifier and/or independent third party crane inspector for subject tower crane, current to within 1 year of the operation period of the crane on the project.
  g. The manufacturer's erection sequence for counter-jib, jib, counter-weight machine deck, and tower spire and procedures for installation of jib and counter-jib support pendants.
  h. The type and calibration of torque wrenches and/or belt-stretchers and the procedure to be used for all tower sections and slew-ring bolts, including re-torquing after final assembly.
  i. A procedure for written verification of all slew-ring and tower section bolt torques to be maintained at the worksite or on the crane.

j. Documentation of compliance with FAA and other state and local permits as applicable.
k. A plan stamped by a Registered Professional Engineer detailing the tower crane supports, such as foundation, railway, floor support and tie-in collars, as well as soil stability and bearing capacity, reinforced steel design, foundation tower anchor placement and concrete specifications.
l. Verification by the crane employer that during the time periods of erection, climbing and dismantling of the tower crane, a third party independent Tower Crane inspector will be present on site to assure that such processes and operations are performed in accordance with the manufacturer's recommendations and any applicable state and federal safety regulations.
m. Verification that the erection, dismantling, raising and lowering of the tower crane will be conducted in compliance with the manufacturer's recommendation for the specific crane.
n. Verification that, before each climb, the following have been performed:
o. Inspection of the load bearing members of the climbing and support system
p. Balancing the crane per the manufacturers instructions
q. Inspection of the crane to determine that there are no obstructions to the free movement of the mast (tower).
r. Verification that no employees, other than those engaged in the erection, climbing or dismantling of the crane, are to be permitted in the area below the crane during erection, climbing and dismantling work. This 'exclusion zone' below the crane shall be that open area below the current activity where employees are exposed to potential hazards within the maximum radius of the crane measured from its base.
s. In addition, erection, climbing/jumping or dismantling shall be conducted off hours, or weekends-when no other workers, other than those engaged in the erection, climbing and dismantling of the crane, are present.
t. Further, only those workers actually engaged in erection, climbing or dismantling of the crane shall be allowed on the crane during the erection, climbing or dismantling processes. No other work shall be performed on the crane while these processes are taking place.

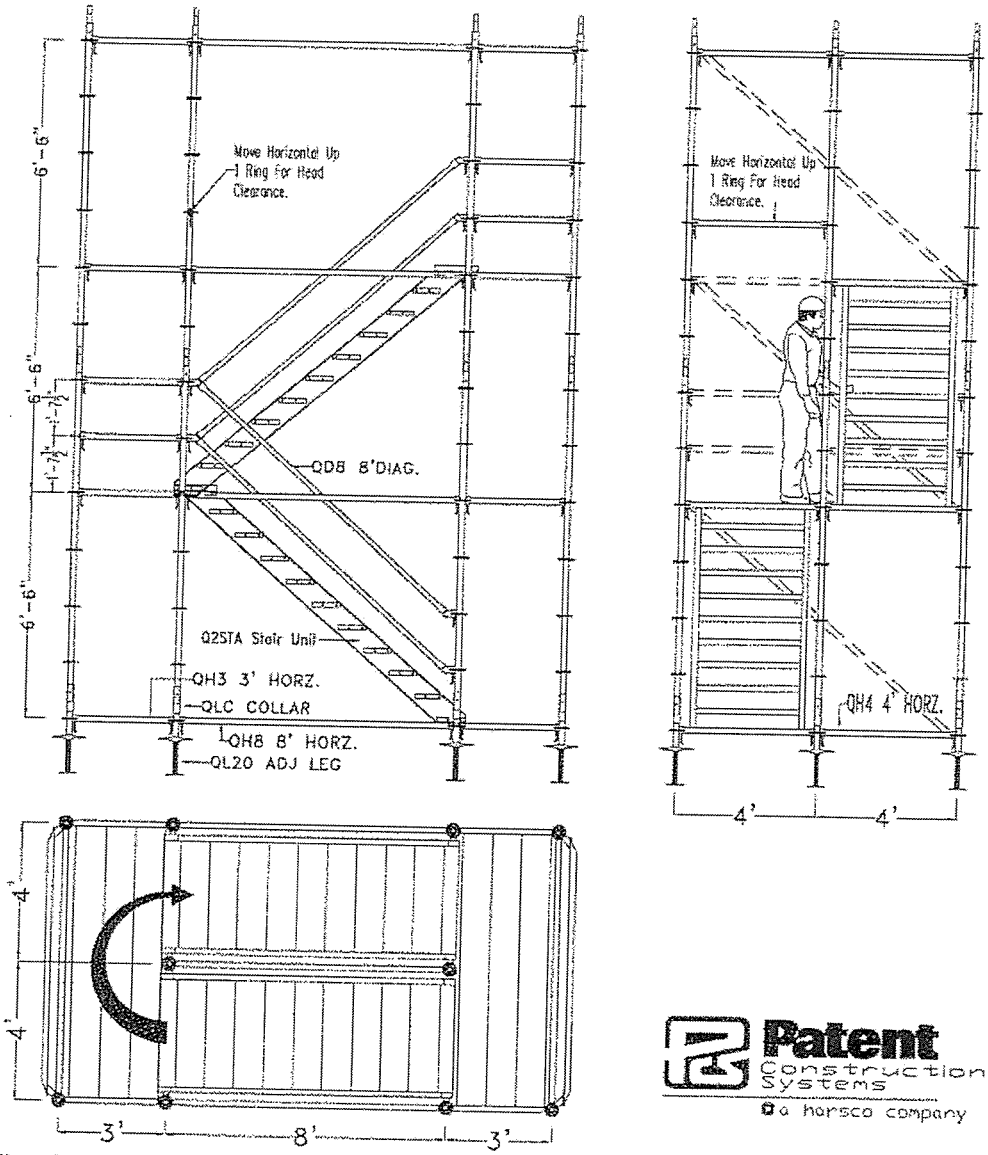
- **Inspections and Testing (including):**
  a. An inspection conducted by a state-licensed independent Tower Crane inspector for subject tower crane prior to erection, upon erection and every 3 months, or bi monthly in adverse conditions, and after lighting strikes or significant environmental events, and after tower erection or jump.
  b. Capacity testing of tower crane after erection and climbing. This shall be performed with a known weight to ensure proper calibration, per manufacturers instructions.
  c. Proof Load testing in accordance with manufacturer's requirements within 12 months preceding the cranes arrival and use on site.
  d. Visual, and functional motion tests or all systems and components by the third party tower Crane inspector in accordance with manufacturers requirements. In addition, the inspection shall include, but not limited to: non-destructive testing and x-ray welds, visual inspection of boom lattice, turntable, bolts, pins, load blocks, weight ball, slings, hoist lines, limit switches, counterweights, walking surfaces, braces and collars, etc.
  e. Non-destructive inspection of all welds and magnaflux testing on all suspect welds.

f. Inspection responsibilities of supervisors, inspection intervals and what is to be inspected, i.e., a written crane inspection program.
g. A written crane maintenance and preventive maintenance program.
h. A written testing schedule (in accordance with manufacturers requirements and ASME B30.3) for functional motions, limiting devices and brakes, including, but not limited to: load hoisting and lowering, boom hoisting, lowering and traversing the trolley, swing motion, brakes and clutches, and limit, locking and safety devices.
i. Safety meeting intervals, who will conduct meetings and what general and specific topics will be discussed.

- **Safety Log:**
  The Concrete Contractor, or his or her designee, shall keep a log on site and available at all times of all safety coordination meetings held, inspection logs, certifications, engineering plans, work orders, manufacturers specifications, etc.

- **General:**
  All provisions of 1926.14000 and 1926.1435 shall be complied with, unless stricter requirements are specified herein.

APPENDIX D:
STAIR TOWER TYPES



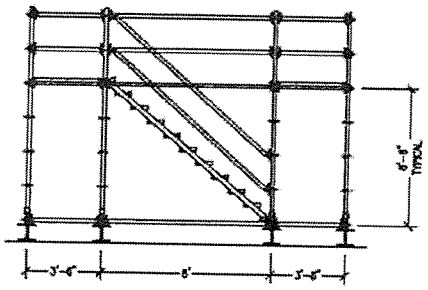
Butts & Ties Required At 13' Vertical Intervals

Patent Construction Systems
a horsco company

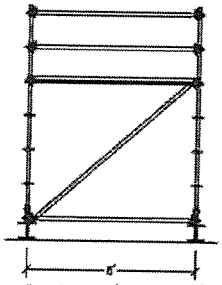
WACO®
Scaffolding & Equipment

PROJECT: MILLENNIUM STAIRTOWER			SHEET NO.: SC1
CONTRACTOR			DRWG. BY: T.DUTTING
JOB NUMBER	REV.: A	DATE: 12/12/08	CHKD BY
SALESMAN		BRANCH	

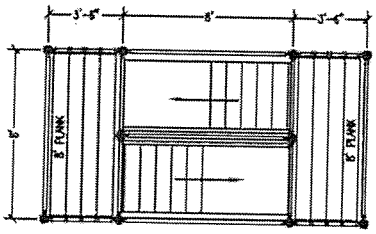
The details provided in this drawing, including dimensions, load limits and product capabilities are for ORIGINAL WACO Scaffolding and/or Shoring products only! The recipient of this information is aware of these restrictions and assumes all risks when using this information with competitive materials, INCLUDING those advertised as "WACO compatible, WACO style, or interchangeable with WACO".



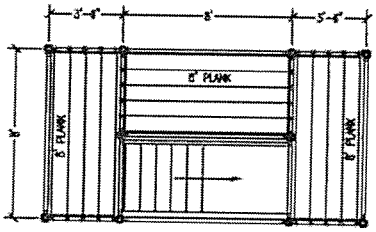
TYPICAL ELEVATION (ONE LIFT)



SIDE VIEW (ONE LIFT)

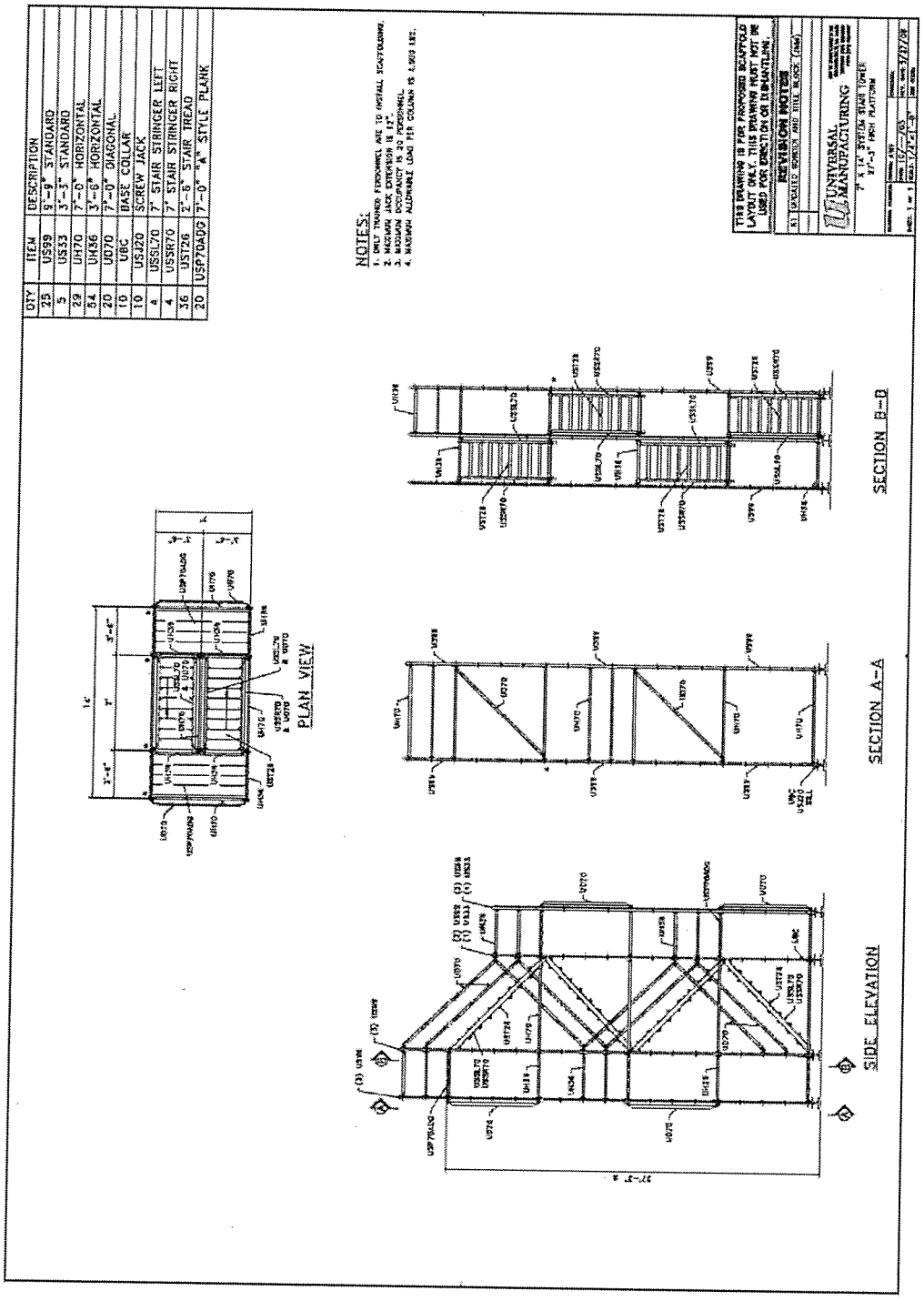


TYPICAL STAIR TOWER PLAN



TOP LEVEL SOLID DECK

PART NO.	DESCRIPTION	7'-6"	14'-0"	20'-6"	27'-0"	33'-6"	40'-0"	46'-6"	53'-0"	59'-6"	66'-0"	72'-6"	79'-0"	85'-6"	92'-0"	98'-6"	105'-0"	111'-6"	118'-0"
	NUMBER OF 6'-6" LIFTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1800-33	3'-3" STANDARD	–	–	10	–	–	10	–	–	10	–	–	10	–	–	10	–	–	10
1800-50	4'-11" STANDARD	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1800-66	6'-6" STANDARD	–	10	–	–	10	–	–	10	–	–	10	–	–	10	–	–	10	–
1800-10	9'-11" STANDARD	10	10	20	20	20	40	50	50	60	70	70	80	90	90	100	110	110	120
1801-36	3'-6" LEDGER	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152
1801-40	4'-0" LEDGER	10	14	18	22	26	30	34	38	42	46	50	54	58	62	66	70	74	78
1802-60	6'-0" LEDGER	20	27	34	41	48	55	62	69	76	83	90	97	104	111	118	125	132	139
1806-20	2' R/D ADJ. JACK w/ BASEPLATE	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
1806-60	6'-0" STEEL PLANK	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81
1803-60	5'-0" DIA DIAGONAL BRACE	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
1805-84 1805-85	STAIR STRINGER RH STAIR STRINGER LH	1 1	2 2	3 3	4 4	5 5	6 6	7 7	8 8	9 9	10 10	11 11	12 12	13 13	14 14	15 15	16 16	17 17	18 18
0805-40 G	1800-40 4' STEEL STEP	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	187	198
1800-06	STAIR COLLAR	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10


NOTES:
1. ONLY TRAINED PERSONNEL ARE TO INSTALL SCAFFOLDING.
2. MAXIMUM JACK EXTENSION IS 12".
3. MAXIMUM OCCUPANCY IS 20 PERSONNEL.
4. MAXIMUM ALLOWABLE LOAD PER COLUMN IS 2,900 LBS.
QTY | ITEM | DESCRIPTION
25 | US99 | 9'-9" STANDARD
5 | US33 | 3'-3" STANDARD
29 | UH70 | 7'-0" HORIZONTAL
84 | UH36 | 3'-6" HORIZONTAL
20 | UD70 | 7'-0" DIAGONAL
10 | UBC | BASE COLLAR
10 | USJ20 | SCREW JACK
4 | USSL70 | 7' STAIR STRINGER LEFT
4 | USSR70 | 7' STAIR STRINGER RIGHT
36 | UST26 | 2'-6" STAIR TREAD
20 | USP70ADG | 7'-0" "A" STYLE PLANK
THIS DRAWING IS FOR PREPARED SCAFFOLD LAYOUT ONLY. THIS DRAWING MUST NOT BE USED FOR ERECTION OR FABRICATION.
REVISION NOTES
UNIVERSAL MANUFACTURING
7' X 14' SPIRAL STAIR TOWER
17'-3" HIGH PLATFORM
PLAN VIEW
SECTION B-B
SECTION A-A
SIDE ELEVATION

APPENDIX E:
STRETCH AND FLEX POSTER

STRETCH AND FLEX PROGRAM
PRE-WORK WARM-UP STRETCHING PROGRAM

SHOULDER SHRUG WITH HIGH REACH (Target: Biceps, Lats, Forearms)
Shrug shoulders while raising arms overhead, above shoulders
Extend your body upwards on your toes
Extend and spread fingers
Hold for 20 seconds

LATERAL STRETCH (Target: Lats, Obliques)
Place right hand on hip
Extend bent left arm overhead
Bend upper body and head to the right
Hold for 20 seconds
Repeat on the opposite side

UPPER TRUNK STRETCH (Target: lower back, abdominals)
Stand with your feet about 12 inches apart
Support the small of your back with your hands
Pull in your stomach and take deep breath
Arch back slowly, and exhale
Bend your head and neck as you go

FOREARM & FINGER STRETCH (Target: wrist, fingers, forearms)
Stretch arms forward and point fingers up
Grasp fingers with opposite hand and pull back slightly for 15 seconds
Then point fingers down
Grasp fingers with opposite hand and pull back slightly for 15 seconds
Switch to other hand

CHEST STRETCH (Target: chest, shoulders)
Put shoulders back
Grasp hands behind your back
Raise hands slightly while bending forward slightly
Hold for 20 seconds

ROTATOR CUFF STRETCH (Target: shoulders, rotator cuff)
Place shoulders back
Raise arm and place hand behind back
Reach as if you were scratching your upper back
Hold for 20 seconds
Repeat with other arm

CALF STRETCH (Target: calves)
With feet shoulder width apart, place left leg forward
Keep right leg straight and feet flat on the floor, bend left knee and place both hands on it
Move hips forward, hold for 20 seconds
Switch legs and repeat

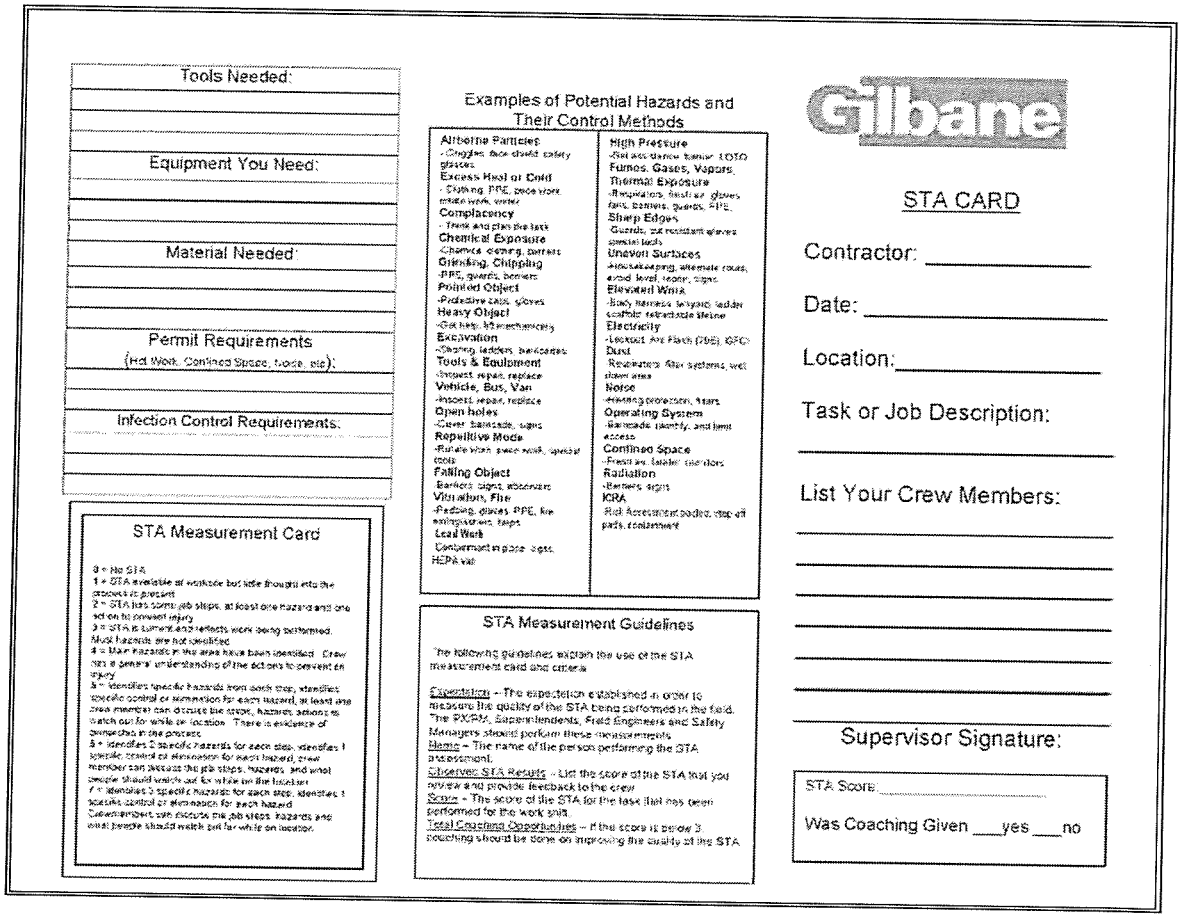
HAMSTRING STRETCH (Target: hamstrings)
Place feet apart beyond shoulder width
Bend forward, keeping back straight
Try to touch the floor with both hands
Hold for 20 seconds

QUAD STRETCH (Target: quadriceps)
Brace yourself on a stationary object
Grasp right ankle behind hips with right hand
Hold for 20 seconds then repeat with left ankle

Be relaxed • Breathe normally • Do not over stretch to point of pain • Do not bounce - move slowly • Stop if you feel pain or dizziness.

Gilbane Cares

APPENDIX F:
SAFETY TASK ANALYSIS



Tools Needed:

Equipment You Need:

Material Needed:

Permit Requirements
(Hot Work, Confined Space, Excavation, etc):

Infection Control Requirements:

STA Measurement Card

0 = No STA
1 = STA available at worksite but was not brought into the discussion at present
2 = STA lists some job steps, at least one hazard and one action to prevent injury
3 = STA is current and reflects work being performed. Most hazards are not identified
4 = Most hazards in the area have been identified. Crew has a general understanding of the actions to prevent an injury
5 = Identifies specific hazards from each step, identifies specific control or elimination for each hazard, at least one crew member can discuss the steps, hazards, actions to watch out for while on location. There is evidence of connection in the process
6 = Identifies 2 specific hazards for each step, identifies 1 specific control or elimination for each hazard, crew member can discuss the job steps, hazards, and what people should watch out for while on the location
7 = Identifies 3 specific hazards for each step, identifies 1 specific control or elimination for each hazard. Crewmembers can discuss the job steps, hazards and what people should watch out for while on location.

Examples of Potential Hazards and Their Control Methods

Airborne Particles
-Goggles, face shield safety glasses
Excess Heat or Cold
- Shelter, PPE, pace work, rotate work, water
Complacency
- Think and plan the task
Chemical Exposure
-Chemical cleanup, barriers
Grinding, Chipping
-PPE, guards, barriers
Pointed Object
-Protective cloth, gloves
Heavy Object
-Get help, lift mechanically
Excavation
-Shoring, ladders, barricades
Tools & Equipment
-Inspect, repair, replace
Vehicle, Bus, Van
-Inspect, repair, replace
Open holes
-Cover, barricade, signs
Repetitive Mode
-Rotate when pace work, special tools
Falling Object
-Barriers, signs, attenuators
Vibration, Fire
-Padding, gloves, PPE, fire extinguishers, tarps
Lead Work
-Containment in place, signs, HEPA vac
High Pressure
-Set exclusion barrier, LOTO
Fumes, Gases, Vapors
Thermal Exposure
-Respirators, heat/fire gloves, fans, barriers, guards, PPE
Sharp Edges
-Guards, cut resistant gloves, special tools
Uneven Surfaces
-Housekeeping, alternate route, avoid level, repair, signs
Elevated Work
-Body harness, lanyard, ladder, scaffold, retractable lifeline
Electricity
-Lockout, Arc Flash (PPE), GFCI
Dust
-Respirators, filter systems, wet down area
Noise
-Hearing protection, fears
Operating System
-Barricade, identify, and limit access
Confined Space
-Procedure, tasker, monitors
Radiation
-Barriers, signs
ICRA
-Risk Assessment packet, drop off pads, containment

STA Measurement Guidelines

The following guidelines explain the use of the STA measurement card and criteria

Expectation – The expectation established in order to measure the quality of the STA being performed in the field. The PX/PM, Superintendents, Field Engineers and Safety Managers should perform these measurements
Name – The name of the person performing the STA assessment.
Observed STA Results – List the score of the STA that you observe and provide feedback to the crew
Score – The score of the STA for the task that has been performed for the work shift
Total Coaching Opportunities – If the score is below 3 coaching should be done on improving the quality of the STA

Gilbane

STA CARD

Contractor: _____

Date: _____

Location: _____

Task or Job Description:

_____

List Your Crew Members:

_____

_____

_____

_____

_____

_____

_____

Supervisor Signature:

STA Score: _____

Was Coaching Given ___yes ___no

Job Steps	Potential Hazards	Control Methods
List the steps required to perform your job or assigned task. Number each step. For example: 1, 2, 3, etc.	List the potential hazards for each step. Number as they correspond with the job steps.	List your methods to control potential hazards. Use the same number listed in "Potential Hazards"