Contractor Safety, Health and Environmental Guidebook

Marquette University

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Marquette University
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The safety policy of Marquette University is to provide for the protection of its faculty, staff, students, visitors, facilities and surrounding environment through the development and implementation of a comprehensive safety program.

Contractors are required to also provide safe workplaces and **implement their own safety programs.** This guidebook is intended to assist in coordinating Marquette Facilities, Planning and Management with contractor operations during construction, renovation projects and maintenance. By becoming familiar with the policies and procedures in this guidebook, the safety-minded contractor will get the job done safer and with less workplace hazards.

Contractors are required to comply with all applicable Federal, State, Local laws and University policies and also follow safe work practices for construction trades. Some of these regulations and safe work practices are outlined in this guidebook.

Due to the wide variety of construction operations, it is infeasible to outline every conceivable applicable regulation and work practice in this guidebook. Nothing in this guidebook should be construed to be part of the contract specification.

Contractor management and supervision must thoroughly review their own work practices and workplace hazards and then provide employees all the necessary training and equipment for their safety.

EMERGENCY NUMBERS – call 8-1911 from Marquette phone or call the Marquette University Police direct from any Cellular phone at (414) 288-1911.

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I. SAFETY PROGRAM OBJECTIVES

Safety and health programs strive to protect people, property, the environment, and must comply with governmental regulations. The objective of this guidebook is to assist in providing a safe environment for employees, students, visitors and construction workers in all areas during maintenance, renovation or new construction projects.

Major objectives of a contractor's safety and health program are to:

1. Protect employees, students, visitors, property, and environment from potential hazards.

2. Provide a safe and healthful workplace free from recognized hazards.

3. Comply with all governmental safety, health, environmental standards and University policies.

4. Maintain an effective health and safety program, which includes managers, supervisors, and employees.

5. Cooperate with building occupants and others involved in the work area to maintain a safe and healthful workplace.

II. BASIC SAFETY RULES

1. Vehicles must observe the posted speed limit. Unless otherwise posted, there is a campus wide speed limit of 5 mph.

2. Obey all posted warnings.

3. Smoking is permitted in designated areas only.

4. Fighting or horseplay is prohibited on Marquette University property.

5. Firearms are not allowed on Marquette University property.

6. Contractors must remain in designated areas at all times and use approved travel routes into and out of site and campus.

7. Work areas must be maintained in an orderly manner that does not block exits or traffic through the work area.

8. Trash must be removed daily. Contractors must supply their own trash receptacles and dumpsters.

III. SPECIAL PROCEDURES AND WORK PERMITS

The following special procedures are specific to Marquette University. Although some topics listed below are covered by regulations, they receive special interest in research and academic areas. The work permits noted below are to assist in coordinating contractor work activities and Marquette activities affecting the same systems. Failure to request these work permits in advance may result in a delay in work progress, Project Manager/ Construction Coordinator interaction, possible contract deficiencies, and may place future contracts in jeopardy.

1. Hazard Communication and Chemical Safety

a. Contractors shall have copies of Safety Data Sheets (SDS) available at the job site for review by the Project Manager/ Construction Coordinator and the Director of Environmental Health and Safety at all times.

b. Chemicals with strong odors and/or which are extremely hazardous often cause odor complaints and concerns among students, employees, and visitors. SDSs of materials that will produce strong odors and/or which are extremely hazardous will be forwarded, before use, to the Project Manager/ Construction Coordinator for review with the Director of Environmental Health and Safety.

c. To ensure that all contractor employees know and understand the hazards of all chemicals they are exposed to and they know how to protect themselves from hazardous chemicals, each contractor must establish and maintain an effective hazard communication program. The program must comply with OSHA standard 29 CFR 1926.59 or CFR 1910.1200.

d. The contractors HAZCOM program must provide:
   - A written hazard communication program,
   - An inventory of chemicals,
   - Material safety data sheets (MSDS) for all chemicals at the site,
   - Labeling of all containers and other warnings, and

- Employee training.

e. **Asbestos containing materials.** Upon discovery of materials that may contain asbestos (Presumed Asbestos Containing Material, PACM) the Contractor should contact the Project Manager/ Construction Coordinator. The Project Manager/ Construction Coordinator will arrange for testing. Upon discovery of PACM the contractor shall not disturb the areas containing the PACM.

f. **Lead awareness.** Before operations on any paint that may contain lead, the contractor should contact the Project Manager/ Construction Coordinator to arrange for testing.

g. **Fluorescent light bulbs & PCB containing ballasts disposal.**
   1.) Personnel removing fluorescent light bulbs are responsible for examining the bulb to determine if the bulb should be recycled due to mercury vapor & lead content and making sure the bulbs are moved to a central collection point. Bulbs should be packaged and labeled according to Universal Waste requirements. Personnel removing fluorescent ballasts are responsible for examining the ballast to determine if it contains PCBs (Polychlorinated Biphenyls), removing any PCB containing ballasts from the fixture, placing each ballast into proper containers, labeling the container to indicate that it contains PCBs and making sure the containers are moved to a central collection point.

h. **Plumbing work.** If liquid mercury is discovered in plumbing, stop working, notify the Project Manager. Contractor plumbers should be trained in bloodborne pathogen awareness. If employee exposure to human blood and/or body fluids is anticipated, contractor employees must have documentation of Hepatitis B vaccination or declination form.

2. Hot Work and Red Tag Permit System

a. The contractor shall prepare and carry out and effective fire protection and prevention plan, including provisions for fire protection and suppression equipment.
   - Housekeeping - with provisions for prompt removal and disposal of accumulations of combustible scrap and debris, shall be maintained in all areas of the jobsite. Self closing metal containers shall be used for disposal of waste saturated with flammable liquids.

- Codes and regulations – The contractor shall comply with the requirements of the current revisions of the National Electrical Code, National Safety Code, and the National Fire Protection Association standards.
- Smoking – Smoking or other sources of ignition shall not be permitted in areas where flammable or explosive materials are stored for present. All areas shall be conspicuously posted: NO SMOKING OR OPEN FLAMES. There is a no smoking policy in effect within all MU facilities.
- Cleaning and degreasing – Gasoline and liquids with a flash point below 100 degrees Fahrenheit shall not be used for cleaning or degreasing.
- Fire extinguishers – Distinctly marked fire extinguishers rated 2A40B:C should be according to NFPA standards.

b. Hot work involving the use of open flames, welding apparatus, and spark producing equipment can result in fires and explosions. It is very important that all contractors utilize the Marquette Hot Work Permit program.

c. 48 hours before performing hot work, contractors shall submit a Hot Work Permit to the Department of Facilities Services. The Project Manager/ Construction Coordinator may be able to provide assistance filling out the Hot Work Permit.

d. Fire Suppression and Fire Alarm systems – Red tag Permit System must be followed any time a sprinkler system is shut down for any reason. Contact the Department of Facilities Planning & Management at (414) 288-7335, 48 hours before work on these systems. Note: operations that create dust or particles, such as sanding and spray painting, may affect fire alarm systems.

3. Hazardous Work Permit Program

a. ***Chemical fume hoods*** *and related duct work require a Hazardous Work Permit. The contractor will contact the Project Manager/ Construction Coordinator to initiate the Hazardous Work Permit at least one week before moving or repairing hoods or related ductwork.*

b. ***Rooftop work*** *may require a Hazardous Work Permit. The contractor will contact the Project Manager/ Construction Coordinator to initiate the Hazardous Work Permit at least one week before accessing the roofs.*

4. Underground Utility Location

a. Anyone proposing to excavate, dig, bore, tunnel, blast or disturb the earth in any manner which may damage buried utilities is required to call the Diggers Hotline and Private Lines (3 working days) before starting the proposed work. In the event of a **bona fide emergency**, notification may be made directly to the Department of Facilities Planning & Management.n.

5. Utility Service Interruptions

a. Before any work involving the planned or possible interruption of utilities such as electric, water, gas, or steam services, permission from the Department of Facilities Planning & Management is required. Contact Department of Facilities Planning & Management through your Project Manager/ Construction Coordinator.

6. Excavations and Trenches

a. A daily inspection of excavations, the adjacent areas, and protective systems shall be performed by a competent person.

b. Trenches more than 5 feet deep require shoring or sloping.

c. Substantial barricades to prevent persons from falling into an open trench shall be maintained around the perimeter of trenches. This is especially important at the end of the workday for trenches that must remain open overnight. A plastic ribbon is not substantial for this purpose.

d. Ladders will be provided at least every 25 feet for access to trenches over 4 feet deep.

7. Electrical Hazards

a. It is very important that each contractor establish and maintain an effective electrical safety-related work practices program. References for such a

program include OSHA standards 29 CFR 1910.331 to 1910333 – Electrical Safety-Related Work practices and CFR 1926 Subpart K Electrical.

b. Training shall be documented for all employees who face a risk of electric shock from working on, near, or with electrical circuits which are not reduced to a safe level by electrical insulation.

8. Lockout/ Tagout

a. The lockout/ tagout standard (the control of hazardous energy standard) in 29 CFR 1926.417 and 1910.147 will be followed by all contractors on all job sites. Marquette's lockout procedure requires at a minimum:
   - Marquette University does not recognize the use of tags as an adequate means of energy isolation.
   - Individual keyed locks must be used on energy isolating devices.
   - Special lockout procedures for jobs requiring multiple lockout devices.
   - Contractors must provide their own lockout equipment.
   - All contractor employees, (authorized, affected, and other employees), must be trained by the contractor (or another acceptable training source) concerning lockout/ tagout procedures.
   - An annual inspection shall be conducted by an authorized employee of the contractor to evaluate the implementation and efficacy of lockout/ tagout procedures.
   - Locks must not be removed by anyone other than the employee applying them except under a special, approved permit.
   - Testing or positioning of machines or equipment will be performed only under special procedures per OSHA 29 CFR 1910.147(f).

b. **Procedures** - All contractors will have a general lockout/ tagout program prior to performing work at Marquette. A written form will be required for lockout/ tagout procedures for machinery on equipment which require more than one energy isolating device to be locked.

c. **Training** - All contractor employees will be trained by the contractor (or another acceptable training source) concerning the lockout/ tagout procedures prior to beginning work at the site. A record will be kept of all employees trained and verification (by exam or other written means) that they understood the training they received. The training will include the disciplinary actions which will be taken if lockout/ tagout procedures are not followed.

d. **Inspections** – Audits and inspections of the lockout/ tagout procedures will be conducted routinely by contractor's foreman, supervisor, or on-site safety personnel. A record will be kept of the inspections and the follow-up action taken.

9. Confined Space Entry Program

a. A confined space is a space that:
   - Is large enough for a person to enter and perform work;
   - Has limited, or restricted, means for entry or exit; and
   - Is not designed for continuous occupancy.

b. A permit-required confined space at Marquette is one that meets the definition of a confined space and has one or more of these characteristics;
   - Contains or has the potential to contain a hazardous atmosphere;
   - Contains a material that has the potential for engulfing the entrant;
   - Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section, and/or
   - Contains any other recognized serious safety or health hazards.

   Confined spaces present serious potential hazards to employees entering them. Each contractor must establish and maintain an effective confined space entry program that complies with OSHA standard 29 CFR 1910.146 when applicable.

c. Prior to beginning work at a site, the contractor must meet with the Project Manager/Construction Coordinator to complete a Confined Space Entry – Contractor Notification form.

- Contractors must obtain any available information regarding permit space hazards and entry operation from the Project Manager/Construction Coordinator.

d. For those contractors performing work in areas with confined spaces, a copy of your confined space entry procedures must be submitted to the Project Manager/ Construction Coordinator prior to beginning work at the site.
e. Any contractor worker entering a confined space is obligated to maintain and effectively use their own Confined Space Entry Program that complies with all regulatory (OSHA 1910.146 standard) standards. All work inside confined spaces shall be performed in accordance with all applicable laws and regulations.
f. All contractors who enter into confined spaces and/or supervise entries shall be effectively trained in accordance with all regulatory (OSHA 1910.146 standard) standards.
    - Copies of training certificates for each contractor worker shall be provided to Marquette upon request.
    - If the contractor worker does not have proof of training, they **will not** be allowed to enter a confined space or supervise a confined space entry.

g. Contractors are responsible for providing or identify their own rescue services designated to rescue contractor employees from permit required confined spaces during emergency situations.
    - Contractors must provide all equipment required for safe entry, including special rescue and air monitoring equipment.

10. Fall Protection

a. Reasonable fall protection shall be provided to protect personnel from accidental falls associated with floors, platforms, scaffolds, guardrails, physical barriers, and elevated work locations. Standard guardrails must be provided for work locations 6 feet or more above the adjacent level per OSHA standard 29 CFR 1926.500.

b. All employees working at unguarded locations above 4 feet general industry, 6 feet in construction (10 feet on scaffolds) must be protected by properly wearing approved fall protection equipment including safety harnesses and life lines as specified by supervision. All employees required to wear

approved fall protection devices must be properly trained concerning the need for and purpose of the protection. Also, they must be instructed in the proper use of the equipment and shall demonstrate that they know, understand, and can use the fall protection devices properly.

c. Supervisors shall ensure the use of fall protection devices as required.

11. Window Washing Anchor Certification

a. Contractors shall comply with OSHA Standard 29 CFR 1910.27. The contractor shall obtain in writing from the Project Manager/Construction Coordinator verification that any anchorage used has been identified, tested, certified and maintained as required by the standard.

12. Scaffolds

a. Contractors shall comply with OSHA Standards 29 CFR 1926, Subpart L on Scaffolding and 29 CFR 1910.28.

b. Access to scaffolds shall be limited to authorized personnel only, especially after working hours.

13. Aerial lifts

a. Contractors shall comply with Marquette's program requirements of wearing a full body harness secured to the manufacturers' approved anchorage point with a self-retracting lifeline. Hardhat protection is also required.

IV. SAFETY POLICIES

1. **FACILITIES, EQUIPMENT, TOOLS AND VEHICLES:** All workplace facilities equipment, tools and vehicles must be properly designed and maintained from a safety standpoint. All workplace facilities, equipment, and activities must comply with the applicable governmental regulations including OSHA and EPA. Proper stairs, ladders, platforms, and guardrails must be provided to ensure employee safety and compliance with OSHA regulations. All equipment tools and vehicles used must be used in accordance with manufacturers operating instructions.

2. **EDUCATION AND TRAINING:** All managers, supervisors, and employees must be properly trained to recognize, evaluate, and control workplace safety and health hazards. No employee is allowed to perform a job until he or she has been properly trained to perform the job safely. Specific training must be provided concerning the safety rules and procedures pertaining to the jobs being performed. Safety and health training is to be conducted initially upon employment and at least annually thereafter. Frequent refresher training such as tool box safety talks should also be part of the training program.

3. **INSPECTIONS:** Contractors should perform frequent and regular safety inspections, normally at least weekly.

4. **EMERGENCY PROCEDURES:** All employees must know, understand, and be able to follow all workplace emergency procedures pertaining to their assignment. Call 8-1911 from a Marquette phone (or 414-288-1911 from a cellular phone) to contact Marquette University Police. Periodic tests, drills, audits, etc. must be conducted to verify employee knowledge and understanding of all emergency procedures.

5. **ACCIDENTS:** All accidents, incidents, injuries and illnesses must be reported to supervision immediately so they can be properly investigated and employees properly protected. Injuries and illnesses requiring an “Employers’ first Report of Accident” will be reported to the contract administrator/ Project Manager.

6. **MANUAL MATERIALS HANDLING:** Manual materials handling and other physical activities must be performed only by those employees physically able to do so.

7. **ENFORCEMENT:** Contractors should consider disciplinary action for unsafe acts.

V. GENERAL SAFETY PROCEDURES

The following General Safety Procedures apply to the entire workplace and should be followed by managers, supervisors and employees.

1. OSHA General Duty Clause

Hazardous conditions or practices not covered in an OSHA standard may be covered under Section 5(a)(1) of the Occupational Safety and Health Act of 1970 which states: “Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”

2. General Inspections and Training

a. Contractors should designate a competent site-safety coordinator for each job site. The contractor’s site-safety coordinator should be identified to the Project Manager/ Construction Coordinator in the event that safety concerns regarding the worksite arise.

b. Contractors should initiate and maintain an inspection program to provide for frequent and regular self-inspections of the job site, materials, and equipment.

c. Contractors should instruct each employee in the recognition and avoidance of unsafe conditions and in the regulations applicable to his or her work environment and to control or eliminate any hazards or other exposure to illness or injury.

d. The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirements of OSHA standards is prohibited.

3. Medical Services and First Aid

a. A person trained to render first aid is to be available at the worksite.

b. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

4. Hand and Power Tools

a. Electric power operated tools shall either be approved double-insulated, or be properly grounded, and used with ground fault circuit interrupters when used in damp or wet areas.

b. Only authorized and properly trained employees shall use power tools.

c. Powder actuated tools require certified operators and warning signs posted in all areas affected by the noise of the nail gun.

d. Wrenches shall not be used when the jaws are sprung to the point that slippage occurs.

e. Impact tools shall be kept free of mushroomed heads.

f. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

5. Personal Protective Equipment (PPE)

Appropriate personal protective equipment shall be worn in all operations where there is an exposure to hazardous conditions or where the need is indicated for using such equipment to reduce the hazard to the employees.

6. Eye and Face Protection

a. Eye and face protection shall be provided when machines or operations present potential eye or face injury.

b. Eye and face protective equipment shall meet the requirements of ANSI Z87.1-1991, “Practice for Occupational and Educational Eye and Face Protection.”

c. Employees involved in welding operations shall be furnished with filter lenses or plates of at least the proper shade number.

d. Employees exposed to laser beams shall be furnished suitable laser safety goggles that will protect for the specific wavelength of the laser and be optical density adequate for laser involved.

7. Head Protection

Head protective equipment (hard hats/ helmets) shall be worn in areas where there is a possible danger of head injuries from impact, flying or falling objects, or electrical shock and burns. Hard hats/ helmets shall meet the performance requirements of ANSI Z89.1, “Standard for Industrial Protective Helmets.”

8. Hearing Protection

a. Feasible engineering or administrative controls shall be utilized to protect employees against sound levels in excess of those shown in Table D-2, OSHA Standard 1926.52.

b. When engineering or administrative controls fail to reduce sound levels within the limits of Table D-2, hearing protective devices shall be provided and used.

c. Hearing protection is required at constant noise above 85 decibels or impact noise above 140 decibels.

d. In all cases where the sound levels exceed the values shown in safety and health regulations, a hearing conservation program shall be administered.

e. Plain cotton ear plugs are not acceptable for hearing protection.

9. Respiratory Protection

a. When engineering or administrative controls are not effective in controlling toxic substances, appropriate respiratory protective equipment will be provided and shall be used.

b. Respiratory protective devices approved by the Mine Safety and Health Administration/ National Institute for Occupational Safety and Health for the specific contaminant to which the employee is exposed shall be used.

c. Respiratory protective devices provided by supervisors shall be appropriate for the hazardous material involved and the extent and nature of the work requirements and conditions.

d. Employees required to use respiratory protective devices shall be thoroughly trained in their use.

e. Contractors should have a written respirator protection program that includes respirator training, fit-testing and medical qualification documentation.

10. Gases, Vapors, Fumes, Dusts and Mists

a. Exposure to toxic gases, vapors, fumes, dusts, and mists at a concentration above those specified in the most recent “Threshold Limit Values of Airborne Contaminants” of the ACGIH, shall be avoided.

b. Administrative or engineering controls must be implemented whenever feasible to comply with TLV’s.

c. When engineering and administrative controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed. Any equipment and technical measures used for this purpose must first be approved for each particular use by an industrial hygienist or other technically qualified person.

11. Electrical

a. All electrical work shall be in compliance with the most recent National Electrical Code or the NEC according to the construction documents.

b. Only qualified persons are permitted to work on or near energized conductors or parts and then only under special procedures that ensure proper employee protection.

c. Unqualified persons shall not be allowed to work within 10 feet of energized overhead power lines.

d. Equipment must not be operated closer than 10 feet to overhead energized power lines unless specific procedures are followed by qualified persons using appropriate protection equipment.

e. Extension cords used with portable electric tools shall be the 3-wire type, shall be protected from damage. Splices shall have soldered wire connections with insulation equal to the original. Worn or frayed cords shall not be used.

f. Bulbs on temporary lights shall be equipped with guards or deeply recessed in the reflector. Temporary lights shall not be suspended by their electric cords unless designed for suspension.

g. Receptacles for attachment plugs shall be of the approved concealed contact type. Where different voltages, frequencies, or types of current are supplied receptacles shall be of such designs that attachment plugs are not interchangeable.

h. Each disconnecting means of motors and appliances and each service feeder or branch circuit at the point where it originates shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident.

i. Cable passing through work areas shall be covered or elevated to protect it from damage which would create a hazard to employees.

j. Boxes for disconnecting means shall be securely and rigidly fastened to the surface upon which they are mounted and fitted with covers.

k. All extension cords and cord & plug connected equipment shall be protected by an assigned equipment grounding conductor program.

l. No employer shall permit an employee to work in proximity to any part of an electric power circuit that he may contact, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it by effective insulation or other means.

m. In work areas where the exact location of underground electric power lines is unknown, workers using jackhammers, bars, or other hand tools which may contact an energized line shall be provided with insulated protective gloves.

12. Fire Protection

a. Contractors must obtain Hot Work permits from the Project Manager/Construction Coordinator before performing welding, soldering or torch work.

b. Contractors must contact the Department of Facilities Planning & Management and Travelers before performing work on Fire Suppression and Fire Alarm systems.

c. Fire fighting equipment shall be conspicuously located, readily accessible at all times, shall be periodically inspected, and shall be maintained in operating condition.

d. Extinguishers are to be placed at least every 75 feet. Extinguishers are to be provided by contractor.

e. Each employee must know the alarm system at the worksite so they, and the local fire department, can be alerted during an emergency.

13. Flammable and Combustible Liquids

a. Flammable and combustible liquids shall only be stored in approved containers and in appropriate quantities for the job site use.

b. Conspicuous and legible signs prohibiting smoking shall be posted in service and refueling areas.

c. Flammable liquids shall be dispensed through grounded and bonded containers.

14. Welding, Cutting and Heating

a. No task that produces heat, sparks, or energy sufficient to serve as an ignition source may begin in any location that could potentially have ignitable materials or atmospheres until a Hot Work Permit has been completed.

b. Hot Work Permit should be obtained from the Project Manager/Construction Coordinator or Facilities Planning & Management.

c. All employees shall be instructed in the safe use of welding equipment prior to using this equipment.

d. Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch, etc.) for fire prevention shall be taken where welding or other “hot work” is being done. No welding, cutting or heating shall be done where the application of flammable paints, or the presence of any other flammable compounds, or heavy dust concentration creates a fire hazard.

e. Arc welding and cutting operations shall be shielded by noncombustible or flameproof shields to protect persons from direct arc rays. Visual barrier screens are required for arc-welding operations.

f. When electrode holders are to be left unattended, electrodes shall be removed and the holder shall be placed or protected so that it cannot make electrical contact with employees or conducting objects.

g. All arc welding and cutting cables shall be completely insulated and be capable of handling the maximum current requirements for the job. There shall be no repairs or splices within 10 feet of the electrode holder except where splices are insulated equal to the insulation of the cable. Defective cables shall be repaired or replaced.

h. Fuel gas and oxygen hoses shall be easily distinguishable and shall not be interchangeable. Hoses shall be inspected at the beginning of each shift and shall be repaired or replaced if defective.

i. General mechanical or local exhaust ventilation or air line respirators shall be provided, as required, when welding, cutting or heating:
   - zinc, lead, cadmium, mercury, or beryllium-bearing, materials in enclosed spaces.
   - stainless steel with inert-gas equipment.
   - in confined spaces.
   - where an unusual condition can cause an unsafe accumulation of contaminants.

j. Proper eye protective equipment shall be provided when appropriate.

15. Liquefied Petroleum Gas (LP Gas)

a. Storage of LP Gas within buildings is prohibited.

b. Each system shall have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type.

c. All cylinders shall meet DOT specifications.

d. Every container and vaporizer shall be provided with one or more approved safety relief valves or devices.

e. Containers shall be placed upright on firm foundations or otherwise firmly secured.

f. Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas in the event of flame failure.

g. Storage locations shall have at least one approved portable fire extinguisher, rated not less than 20-B:C.

16. Housekeeping

a. Form and scrap lumber with protruding nails and all other debris shall be kept clear from all work areas.

b. Combustible scrap and debris shall be removed at regular intervals.

c. Containers shall be provided for collection and separation of all refuse. Covers shall be provided on containers used for flammable or harmful substances.

d. Wastes shall be disposed of at frequent intervals.

e. Lay down areas shall be orderly and free from tripping hazards.

17. Storage

a. All materials stored in tiers shall be secured to prevent sliding, falling, or collapse.

b. Aisles and passageways shall be kept clear and in good repair.

c. Storage of materials shall not obstruct exits.

d. Materials shall be stored with due regard to their fire characteristics.

18. Ladders

a. The use of ladders with broken or missing rungs or steps, broken or split side rails or with other faulty or defective construction is prohibited. When ladders with such defects are discovered they shall immediately be withdrawn from service.

b. Portable ladders shall be placed on substantial base at a 4 to 1 pitch, have clear access at top and bottom, extend a minimum of 36 inches above the landing, or where not practical, be provided with grab rails and be secured against movement while in use.

c. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.

d. Job-made ladders shall be constructed for their intended use. Cleats shall be inset into side rails ½ inch, or filler blocks used. Cleats shall be uniformly spaced, 12 inches, top-to-top.

e. Except where either permanent or temporary stairways or suitable ramps or runways are provided, ladders shall be used to give safe access to all elevations.

f. All users of ladders shall be properly trained and documented by the Contractor.

g. Ladders shall be inspected periodically by the Contractor.

19. Flag-persons

a. When signs, signals and barricades do not provide necessary protection on or adjacent to a highway or street, flag-persons or other appropriate traffic controls shall be provided.

b. Flag-persons shall be provided with and shall wear a red or orange warning garment while flagging. Warning garments worn at night shall be of reflective material.

20. Motor Vehicles and Mechanized Equipment

a. Observe posted speed limits, give pedestrians the right of way, and yield to emergency vehicles. Unless otherwise posted, there is a campus-wide speed limit of 5 miles per hour.

b. All vehicles in use shall be checked at the beginning of each shift to assure that all parts, equipment, and accessories that affect safe operation are in proper operating condition and free from defects. All defects will be corrected before the vehicle is placed in service.

c. No person shall use any motor vehicle, earth moving or compacting equipment having an obstructed view to the rear unless:
   - the vehicle has a reverse signal alarm distinguishable from surrounding noise level or
   - the vehicle is backed up only when an observer signals that it is safe to do so.

d. Heavy machinery, equipment, or parts thereof which are suspended or held aloft shall be substantially blocked to prevent falling or shifting before employees are permitted to work under or between them.

e. Park only in areas approved for contractor use.

21. Railings

a. A standard railing used to protect personnel from falls shall consist of top rail, intermediate rail, toeboard, and posts, and have a vertical height of approximately 42 inches from upper surface of top rail to the floor, platform, etc.

b. The top rail of railing shall be smooth-surfaced, with a strength to withstand at least 200 pounds. The intermediate rail shall be approximately halfway between the top rail and floor.

c. A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches, nor less than 30 inches from upper surface of top rail to surface of tread in line with face or riser at forward edge of tread.

22. Scaffolds

a. Scaffolds shall be erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement.

b. Scaffolds and their components shall be capable of supporting without failure, at least 4 times the maximum intended load.

c. Guardrails and toeboards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor, except needle beam scaffolds and floats. Scaffolds 4 feet to 10 feet in height, having a minimum dimension in either direction of less than 45 inches, shall have standard guardrails installed on all open sides and ends of platform.

d. There shall be a screen with maximum 1/2 –inch openings between the toeboard and the guardrail, where the persons are required to work or pass under the scaffold.

e. All planking shall be Scaffold Grade or equivalent. The maximum permissible span for 1 ¼ x 9 inch or wider plank of full thickness is 4 feet, with medium loading of 50 p.s.f.

f. Scaffolding planking shall be overlapped a minimum of 12 inches or secured from movement.

g. Scaffold planks shall extend over their end supports not less than 6 inches nor more than 12 inches.

h. All scaffolding and accessories shall have any defective parts immediately replaced or repaired.

i. An access ladder or equivalent safe access shall be provided.

j. Also see the scaffold requirements in Section IV, special procedures.

23. Air Tools

a. Pneumatic power tools shall be secured to the hose or whip in positive manner to prevent accidental disconnection.

b. Safety clips or retainers shall be securely installed and maintained on pneumatic impact tools to prevent attachments from being accidentally expelled.

c. The manufacturer's safe operating pressure for all fittings shall not be exceeded.

d. All hoses exceeding ½-inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

24. Compressed Air

a. Compressed air used for cleaning purposes shall not exceed 30 psi.

b. Compressed air for cleaning will only be used with effective chip guarding and personal protective equipment. This requirement does not apply to concrete form, mill scale, and similar cleaning operations.

25. Compressed Gas Cylinders

a. Valve protection caps shall be in place when compressed gas cylinders are transported, moved, or stored.

b. Cylinder valves shall be closed when work is finished and when cylinders are empty or moved.

c. Compressed gas cylinders shall be secured in an upright position at all times, except if necessary for short periods of time when cylinders are actually being hoisted or carried.

d. Cylinders shall be kept at safe distances or shielded from welding or cutting operations. Cylinders shall be placed where they cannot become part of an electrical circuit.

e. Oxygen and fuel gas regulators shall be in proper working order while in use.

f. Applicable technical portions of American National Standards Institute, Z49.1, Safety in Welding and Cutting, shall be followed.

26. Hoists and Cranes

a. Comply with the manufacturer's specifications and limitations for hoists.

b. Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be posted on cars and platforms.

c. Never move suspended loads directly over personnel.

27. Accident Record Keeping and Reporting Requirements

a. Employers must report the following to OSHA:

- All work-related fatalities (Within 8 hours after finding out about them. Employers only have to report fatalities that occurred within 30 days of a work-related incident.)
- All work-related inpatient hospitalization of one or more employees
- All work-related amputations
- All work-related losses of an eye

b. Employers have three options for reporting the event;
- By telephone to the nearest OSHA Area Office during normal business hours.
- By telephone to the 24-hour OSHA hotline at 1-800-321-OSHA (6742)
- OSHA is developing a new means of reporting events electronically, which will be available soon at www.osha.gov

c. All injuries requiring a first report of injury will be reported to the Project Manager/Constrution Coordinator.

Marquette University

Contractor Safety, Health and Environmental Guidebook

I hereby acknowledge that I have received a copy of the Marquette University Contractor Safety, Health and Environmental Guidebook.

Name: _____

Title: _____

Company: _____

Signed: _____

Date: _____

Return to: Marquette University
Department of Facilities Planning & Management
P.O. Box 1881
Milwaukee, Wisconsin 53201-1881