

THE UNIVERSITY OF MICHIGAN
ARCHITECTURE, ENGINEERING AND CONSTRUCTION
OCCUPATIONAL SAFETY & ENVIRONMENTAL HEALTH

CONSTRUCTION SAFETY REQUIREMENTS



Contents

I. DEFINITIONS	3
II. INTRODUCTION.....	4
III. SAFETY MANAGEMENT SYSTEM	5
A. Contractor Prequalification	5
B. Contractor Safety Representatives	6
C. Monthly Safety Reports.....	7
D. Communication	7
E. Job Safety Board	8
F. Project-Specific Safety Plan Overview	8
IV. UNIVERSITY ADDITIONS FOR PROJECT-SPECIFIC SAFETY PLAN.....	10
A. Accountability Plan	10
B. Audits/Inspections	10
C. Cell Phone Usage	10
D. Crane Safety and Rigging.....	10
E. Electric – Temporary.....	12
F. Emergency Action Plan.....	12
G. Environmental Health and Safety.....	13
H. Equipment Safety	15
I. Fall Protection	15
J. Fire Prevention and Protection	16
K. Housekeeping	17
L. Job Hazard Analysis (JHA).....	18
M. Personal Protective Equipment (PPE).....	18
N. Potentially hazardous exhaust systems.....	19
O. Protection of the Public	19
P. Recordkeeping and Incident Reporting.....	19
Q. Rooftop Access.....	20
R. Smoking.....	20
S. Substance Abuse Policy	20
T. Temporary Elevators	21
U. Utility Tunnel Safety.....	21
V. Visitors	21
V. Summary of revisions incorporated into this January 2010 issue (Rev. 1/3/12).....	22
VI. APPENDICES	
Appendix A: Monthly Safety Report	23
Appendix B: Safety Plan Certification Form.....	25
Appendix C: Crane - Job Safety Analysis Form.....	26
Appendix D: Hot Work Permit	31
Appendix E: Initial Incident Report	32

I. DEFINITIONS

General Contractor/Construction Manager: The party named in the contract agreement who will execute the Work and who shall be responsible for the proper completion of the Project.

DART: Days Away from Work, Restriction of duty, or Transfer. This term is used by MIOSHA and the Bureau of Labor Statistics for tracking and reporting of these types of injuries.

Document: University of Michigan Construction Safety Requirements.

EMR: Worker's Compensation Experience Modification Rate.

Hazardous Materials: Any pollutant, hazardous or toxic substance, waste or material, including oil products, mold, asbestos, asbestos-containing materials, lead, lead-containing materials, urea formaldehyde foam insulation, transformers or other equipment which contains dielectric fluid-containing polychlorinated biphenyls, flammable explosives, radioactive materials or other material or substance designated or regulated as hazardous or as a toxic substance or waste, pollutant or contaminant under Regulations.

Job Hazard Analysis (JHA): A safety analysis to be submitted by subcontractors/trade contractors prior to the commencement of work on a Project. Also known as Job Safety Analysis or Pre-task Analysis.

MIOSHA: Michigan Occupational Safety and Health Administration.

OSEH: The University of Michigan Occupational Safety and Environmental Health Department.

Owner: The Regents of The University of Michigan, a Constitutional Corporation having its principal offices in Ann Arbor, Michigan, represented on the Project by the Owner's Representative.

Owner's Representative: The individual designated in writing by the Owner to receive all communication under the Contract Documents and with the authority to bind the Owner with respect to decisions made and actions taken pursuant to the Contract Documents.

Plan/Contractor's Project-Specific Safety Plan: The Plan created by the Contractor pursuant to the requirements of its Contract with U-M outlining how the Contractor intends to address safety on the Project, and meet the Contractor's responsibilities to provide a safe work environment and to aid in developing a program to eliminate accidents, injuries and property damage. It is the Contractor's responsibility to ensure compliance with all applicable MIOSHA standards.

Project: The building or facility, improvement, alteration, addition or repair, the construction for which is contemplated under the Contract Documents.

Project Site: Those areas indicated in the Contract Documents where the Work is to be performed. This includes premises owned by U-M as described in the Contract between U-M and Contractor and/or areas contiguous thereto, including any Project Site set up by U-M for use exclusively for storage of material or equipment or for on-Project Site fabrication of material to be used on the Project Site, including temporary locations.

Project Team: The Owner’s Representative, Architect and Contractor, together with such other persons or entities selected by the Project Team and whose management, responsibility and collaboration are required for the Project’s success.

Subcontractor/Trade Contractor: Where “subcontractor/trade contractors” is referenced, include all trade contractors, subcontractors and lower tier subcontractors engaged to perform work on the Project.

University of Michigan: References in this Document to “University of Michigan”, “U-M”, or the “campus” all include the entire Ann Arbor Campus, Flint Campus and Dearborn Campus, and other properties owned or controlled by University of Michigan.

Work: The construction required by the Contract Documents whether completed or partially completed, performed by the General Contractor/Construction Manager, Subcontractor/Trade Contractor, or other lower tiered subcontractors. Work refers to the furnishing of labor, furnishing and incorporating materials and equipment into the construction and providing any service required by the Contract Documents to fulfill the General Contractor’s/Construction Manager’s obligation to complete the Project.

II. INTRODUCTION

The University of Michigan endeavors to maintain safe working conditions for its staff and a safe and healthy environment for its students and visitors. This also includes our construction contractors and their respective workforces. Safety is an essential component of construction work at the University of Michigan. It is a key contractual responsibility for those managing and performing such work and an important determinant of overall Project success. The University of Michigan believes that effective contractor safety programs enhance projects by assisting contractors to systematically identify and evaluate anticipated hazards and establish controls in advance of actual work. While the obvious purpose of a contractor safety program is to reduce on-the-job injuries and illnesses to the greatest extent possible and to ensure compliance with all workplace safety standards, the interactions developed through these programs can also bring collateral benefits in the form of improved communication, documentation, and cost savings.

University of Michigan Construction Safety Goal

University of Michigan’s immediate goal is for contractors to work injury and illness free on each of the projects they perform at U-M. Our goal is zero accidents on construction projects.

Scope of Document

The contractor is responsible for the safety of its employees, and the University of Michigan is committed to helping the Contractor meet its goals of a safe, healthy and productive work site. The University provides this document to help contractors provide a safe environment for their employees and everyone else who visits the project site. The applicability of this document is for all construction projects administered through U-M Architecture, Engineering and Construction (AEC). The contractor nevertheless remains solely responsible for the safety of all persons and property, and must take whatever steps may be necessary or appropriate to assure that safety. The contractor is solely responsible for the development and implementation of their own safety program. This document provides contractors with U-M’s specific requirements for incorporation into their safety programs implemented pursuant to their contracts for work to be performed at U-M. This document is not

designed to address every possible environmental, safety, or health issue. No specific requirements given herein are intended to limit, replace or supersede applicable provisions of federal, state, and municipal safety laws. The requirements in this document apply to all new construction, renovation, alteration, and demolition projects conducted by general contractors/construction managers, subcontractor/trade contractors and their respective employees.

The contractor shall comply with applicable provisions of federal, state, and municipal safety laws and building codes. This document outlines contractual requirements as well as suggests the roles and responsibilities various parties have for construction safety, identifies key facility resources, outlines minimum safe work requirements, and provides guidelines for responding to potential emergencies. This document, however, does not relieve any contractor of its obligations to (1) control the means and methods by which it and its employees, subcontractor/trade contractors and agents perform work or services at U-M; (2) independently ascertain what health and safety practices are appropriate and necessary for the performance of such Work; and (3) develop, implement and enforce a comprehensive health and safety program appropriate for the Work or services performed that complies with all rules, regulations and industry standards, including permits, governing the contractor and the Project.

In various places, this document requires contractors to develop and administer plans for safety, fire prevention and other environmental, health and safety issues on a Project. The U-M shall have the right, but not the obligation, to review and comment on any such plan and any amendments to it. The contractor shall carefully consider all U-M comments on the Plan, but the contractor bears final responsibility for scope, detail, implementation, enforcement and administration of all such plans. Neither any comments offered by U-M nor the failure of U-M to offer any comments shall in any way reduce the contractor's responsibility for safety.

The provisions set forth in this document are intended to either be in addition to or clarify the requirements of the contract documents. This document shall never be interpreted as lessening or superseding any requirement set forth in the contract documents. Additional site-specific safety requirements may be mandated under the contract "Special Conditions".

III. SAFETY MANAGEMENT SYSTEM

Each project shall have a safety management system in place that outlines the policies, processes, instruction, and documentation that will serve to establish the culture of safety and understanding for all tiers involved on the project. The following components shall be part of the systematic approach:

A. Contractor Prequalification

U-M has established requirements pertaining to contractor safety. U-M requires an EMR of 1.0 or less and also evaluates other safety performance criteria. Information and prequalification forms can be found at <http://www.aec.bf.umich.edu/>. The contractor is responsible to prequalify all subcontractors/trade contractors engaged on a project per their own written prequalification process.

B. Contractor Safety Representatives

For all projects, a designated *project safety representative* or *project safety manager* shall be on site at all times while work is being performed. The minimum qualifications for the *project safety representative* and *project safety manager* are as follows:

Project Safety Representative

The designated project safety representative shall have completed an authorized 30 hour OSHA Construction Safety Course and have current CPR/First Aid Training from a nationally recognized program. Except in instances where the contract calls for a dedicated project safety manager (see below), this employee may also function as a superintendent, foreman or crew leader on the Project.

The general contractor/construction manager must identify their onsite project safety representative prior to the commencement of any work and provide evidence to U-M this employee meets the minimum requirement listed above. No work is to be performed on site when a project safety representative is not present. The general contractor/construction manager shall provide notification to U-M of any changes in the designation of a project safety representative.

In addition to the general contractor's/construction manager's project safety representative, a project safety representative shall be assigned to each subcontractor/trade contractor crew requiring the supervision of a foreman or crew leader. This project safety representative will typically be an employee of the subcontractor/trade contractor. This employee may also function as the subcontractor/trade contractor's superintendent, foreman, or crew leader, on the project.

Project Safety Manager

A dedicated, full-time project safety manager may be a contractual requirement on large projects or projects deemed by U-M to be particularly high risk. This would be in lieu of a general contractor/construction manager's project safety representative. This person shall not have any other assigned duties. The following are the minimum qualifications and selection criteria for the project safety manager:

- Training Requirements of:
 - Certified Safety Professional (CSP), Certified Industrial Hygienist (CIH), or
 - Have completed an authorized 30 hour OSHA Construction Safety Course and possess the additional training, years of experience, and skills necessary to thoroughly understand the health and safety hazards and controls for large construction projects, including the full scope of the specific Work;
- Have a successful interview with the Owner's Representative, Occupational Safety and Environmental Health (OSEH), and/or other member(s) of the project team.

A detailed job description that outlines the responsibilities and authority for the *project safety representative and/or project safety manager* shall be made available upon request. The job description should include the following items, as applicable: Enforce compliance with project-specific safety plan, project-specific orientation, job hazard analyses (JHA's), accident investigation, attendance at progress meetings, documented safety inspections. The University of Michigan reserves the right to request that the general contractor/construction manager replace *any* safety representative at any time during the project.

C. Monthly Safety Reports

The general contractor/construction manager shall prepare and submit a project-specific [monthly safety report](#) to the Owner's Representative by the 15th of each month (Appendix A). The form should be signed by the contractor project director/manager and contractor superintendent. This is in addition to the normal reporting and recordkeeping requirements on the Project listed in Section IV. The monthly safety report shall report current month data, year-to-date data, and project to-date data for the following items:

- Number of cases and rates for OSHA Recordable incidents, DART incidents and near misses. Near misses are defined as safety incidents with the potential for serious injury or fatality.
- Average daily number of employees and total hours worked by employees.
- Project safety activity counts for orientations completed, safety huddles/talks, safety inspections, disciplinary actions, and fire, spill or other emergencies.
- Number of OSHA recordable injuries as they fall into the category of falls, electrical, struck by, or struck against and the number of illnesses. More detail regarding the recordable incidents is also requested in a summary paragraph form.
- Number of MIOSHA Citations received on the project broken down by serious, repeat and willful. Near misses are defined as safety incidents with the potential for serious injury or fatality.

D. Communication

Orientation

The general contractor/construction manager is required to develop a project-specific safety orientation for all workers, including subcontractors/trade contractors and other individuals performing work at the site. Orientation training shall address all components identified in the project-specific plan. The orientation must be completed prior to allowing workers to start on-site. On University of Michigan Health Systems (UMHS) projects, personnel may also be required to attend a UMHS orientation. U-M employees who have a direct role in the execution of the project or need access to the project area to perform work incidental to the project, must wear required PPE and receive a limited orientation covering only information that they need to know specific to the project.

Pre-Construction Safety Meeting

Prior to starting Work on any U-M project, the general contractor/construction manager must lead a pre-construction safety meeting. The meeting shall include as attendees the general contractor/construction manager's field supervisory staff that will be primarily responsible for management of workers and crafts, supervisory personnel from major subcontractors/trade contractors, and the owner's representative and the U-M OSEH Department. The primary purpose of this meeting is to introduce the general contractor's/construction manager's supervisory personnel, subcontractors/trade contractors and owner's representative to the general contractor's/construction manager's project-specific safety plan and to have the general contractor/construction manager demonstrate an understanding of the project conditions and safety requirements.

A schedule for regular progress meetings shall be established at this meeting. Since safety is a critical part of this meeting, the project safety representative or project safety manager shall attend these meetings.

Project Safety Communication

The general contractor/construction manager is required to implement a policy for ongoing safety

communication during the Project. It is essential to keep safety in the forefront by communicating the importance of safety on a regular basis. This may be accomplished through the use of daily safety huddles, toolbox meetings, and/or other such initiatives.

All personnel shall be informed of the U-M Construction Safety Tipline as an avenue to anonymously report non-emergency safety related issues. The number for the Tipline is 800-863-1355 or 734-763-9180 or text messages can be sent to 37791. Issues will be followed up by the U-M OSEH department during normal business hours.

University of Michigan Community Meeting(s)

At the request of the owner's representative, the general contractor/construction manager may be required to participate in various meetings with representatives of the larger U-M community or other interested parties in order to address sensitive populations or areas on campus. Any such meetings will be led by the owner's representative and may also involve other affiliated university departments. At such meetings, the general contractor/construction manager may be asked to respond to safety and operational issues that arise on projects and may be expected to (1) provide brief descriptions of their planned work; and (2) provide other information as may be appropriate to the project.

E. Job Safety Board

The general contractor/construction manager shall post and maintain a job safety board at the project site in a conspicuous location that is accessible to the subcontractors/trade contractors, workers and other personnel arriving at or entering the project site. The general contractor/construction manager shall notify all persons working on the project site of the location of the job safety board. At a minimum, the Board shall provide the following information and items:

- Basic project information
- MIOSHA poster
- General contractor/construction manager names and contact numbers for key personnel and subcontractors/trade contractors
- Emergency procedures and contact numbers
- Location where project-specific plan can be found
- Location of project-related material safety data sheets
- Shutdown notices and posting of other activities requiring coordination
- Notices for upcoming job and safety meetings
- Location of accident report forms
- Monthly summary of recordable injuries/illnesses, lost-time and total recordable rates, near miss incidents
- Hot Work permit kit
- Location of first aid station

F. Project-Specific Safety Plan Overview

General contractors/construction managers must develop, communicate, and implement a written project-specific safety plan ("Plan"). The goal of the Plan is to assist general contractors/construction managers in meeting their responsibilities to provide a safe work environment and to aid in developing a program to eliminate accidents, injuries, and property damage.

Although the specific elements of each Plan will vary by the Work or services to be provided and project size, complexity, and location, at a minimum, **the Plan must adequately address the**

requirements in Section IV of this Document, if applicable to the general contractor's/construction manager's work. The Plan must also identify foreseeable project-specific hazards and list the general contractor's/construction manager's mitigation and control of such hazards. As the Plan is meant to be a living document, general contractors/construction managers are to amend the Plan to address any new hazards that were not addressed in the initial Plan but are later identified during the course of performing work at the U-M. This Plan is required to be followed by all subcontractor/trade contractors as well.

Each plan should be signed by a Corporate Safety Officer and the Site Safety Representative to certify that it fully complies with all University of Michigan Construction Safety Requirements as referenced in this document. The [Safety Plan Certification form](#) should be used and included in the site specific project manual (Appendix B).

The following list of elements of a project-specific safety plan is provided to assist the general contractor/construction manager. The Plan may include only elements that are necessary for the given project and do not need to comply with this particular format.

- Accountability
- Audits/Inspections
- Cell phone usage
- Communication
- Competent person
- Concrete/masonry
- Confined spaces
- Cranes and hoists
- Demolition
- Electrical safety
- Environmental and Occupational Health
- Equipment safety
- Excavation and trenching
- Fall protection
- Fire prevention and protection
- Hazard communication
- Housekeeping
- Incident management and prevention- emergency action plan
- Job hazard analysis (JHA)
- Ladders
- Material handling
- Moisture control and mold prevention
- Personal protective equipment (PPE)
- Pest management
- Public protection
- Recordkeeping and reporting
- Safety meetings
- Scaffolding
- Signs, signals and barricades
- Steel erection

- Substance abuse policy
- Temporary elevator usage
- Tool safety
- Training
- Visitor policy
- Welding/cutting

IV. UNIVERSITY ADDITIONS FOR PROJECT-SPECIFIC SAFETY PLAN

A. Accountability Plan

An accountability plan shall be developed, communicated, and implemented for the project. This plan shall include disciplinary procedures to be utilized for noncompliance with safety requirements. Violations may result in work stoppage and progressive enforcement action pursuant to the terms of the contractor's contract with U-M. If violations are severe or repetitive, the general contractor/construction manager or subcontractor/trade contractor may be prohibited from working at U-M in the future.

B. Audits/Inspections

The general contractor/construction manager shall conduct and document regular safety inspections (minimum of informal daily and formal weekly) of their work areas and practices, and those of their subcontractors/trade contractors. Documentation of inspections shall be readily available for review on the project site. The general contractor/construction manager will immediately correct any hazardous or otherwise noncompliant conditions identified and maintain documentation of the corrective action. In addition to the regular inspections indicated above, a documented audit conducted by corporate or regional safety representatives shall be done at least once per month.

C. Cell Phone Usage

The general contractor/construction manager shall have a cell phone policy with an objective of prohibiting jobsite cell phone usage except as necessary for the performance of work tasks. At a minimum, the policy shall address the following:

- Designated "safe zones" for general use of cell phones by workers
- A "No Walking While Talking" policy for work task related cell phone usage
- When a cell phone is part of an operation requiring a Job Hazard Analysis, the use of the cell phone shall be specifically detailed in the analysis.

The site cell phone policy shall be prominently posted on the Job Safety Board.

D. Crane Safety and Rigging

The general contractor/construction manager is responsible for identifying anticipated crane use in its Plan and reviewing planned work in advance with the owner's representative. The general contractor/construction manager shall maintain documentation of equipment inspection on the project site and make it available upon request. All repairs and adjustments noted on inspections shall be corrected prior to equipment use. This applies to all power-operated equipment used in construction for hoisting, lowering, and/or horizontally moving suspended loads. If the crane or its associated

rigging has sustained any damage, the crane and its associated rigging shall be fully re-inspected, and proof of the inspection and its results shall be maintained on the project site.

Daily and pre-shift inspections shall be performed and documented by the crane operator or other properly trained representative designated by the general contractor/construction manager in accordance with the manufacturer's recommendations. All cranes must have load charts in cabs.

All crane operators must possess certification from the National Commission for Certification of Crane Operators (NCCCO). Operators must be certified for the specific crane they are operating, in accordance with NCCCO. No employees will be under a suspended load or inside the angle of a hoist line. No employees will stand or work near a cable, chain, or rope under tension unless the nature of the work requires it. Underground utilities at the location shall be identified and considered as well as ground compaction.

Clear communication between the operator of the crane and the signal person shall be maintained at all times during hoisting operations. The method of communication should be detailed in the JHA for the hoisting operation. Only one signal person shall signal a crane at a time.

A properly trained representative appointed by the general contractor/construction manager shall inspect and document all rigging equipment prior to each work shift. Any rigging equipment found to be defective or damaged shall be immediately removed from use and the project site. Chain slings shall not be used for lifting operations unless specifically designed for a unique application and approved by a properly trained inspector or rigging specialist. Tag lines should be used on all hoisted loads to control the load, unless it is determined that the tag lines would pose a greater risk to the safety of the load.

It is important to check the weather conditions in your area several times a day. Establish a wind speed at which elevated work or crane operations are suspended; twenty-five mph is a commonly suggested limit.

A plan addressing the hazards of the operation should be in place for all crane lifts. This should be accomplished through the use of the JHA. In addition to the JHA, a critical lift plan ([Crane - Job Safety Analysis Form](#), Appendix C) will be required when any of the following conditions exist:

- The lift exceeds 50% of the rated capacity of the crane.
- The lift is in proximity of a high voltage line.
- The equipment being hoisted has a long-lead time, which would cause business interruption if damage occurred.
- Two cranes are to be used.

If a lift is to be performed over an occupied building, a registered structural engineer shall review and certify that the building can withstand the impact of the load being dropped on the building due to a crane or rigging failure. If the structural engineer cannot determine if the building can withstand the impact of a dropped load, or if the structural engineer determines that the building cannot withstand the impact of a dropped load, either the building areas that would be affected shall be evacuated during the lift, or the lift shall be scheduled when there will be no personnel in those areas of the building. The decision between evacuating the building or scheduling the lift for off-hours will be made by the owner's representative.

E. Electric – Temporary

The general contractor/construction manager can reduce the safety risks associated with the performance of electrical work by developing, implementing, and enforcing an effective safety program that requires electrical work to be performed in accordance with the pertinent provisions of the National Electrical Code (most current version), ANSI and MIOSHA Standards, and all other rules, regulations and includes the following:

- With the exception of temporary lighting, all 120 volt, single phase, 15 & 20 amp temporary power circuits shall have ground fault circuit interrupters.
- Portable electric lighting used in moist or other hazardous locations such as drums, tanks, vessels, bins, bunkers, meet rules, regulations and industry standards to qualify as non-explosive. Ordinary shop lighting and portable task lighting should have covers and guards installed.
- Extension cords should be heavy-duty 3-wire type, but shall not be flat. Whenever possible, extension cords should be fastened or suspended above the finished floor or work platform in accordance with best practices, industry standards, rules and regulations.
- Determine in advance if any energized equipment or electrical circuits in the work area pose a safety risk to those in the area. Electrical shutdowns with the potential to affect adjacent occupants, adjacent buildings or the U-M community must be reviewed and coordinated in advance with the owner's representative in order to make appropriate notifications and precautions. Equipment and conductor de-energization shall occur under Lockout/Tagout controls. If Lockout/Tagout cannot be implemented, work practices that conform to NFPA 70E should be followed.
- Any electrical tools, equipment, or extension cords found defective (e.g., missing or broken ground pins, exposed internal conductors) shall immediately be rendered inoperative by cutting off the plug end or be immediately removed from the project site.

F. Emergency Action Plan

The general contractor/construction manager shall develop reasonable preparations and contingencies for the various potential emergencies that can occur on the project site, including:

- Project site accidents and injuries;
- Smoke and fire conditions;
- Spills and releases of chemicals or other hazardous materials;
- Structural or equipment failure or collapse;
- Security threats, including public demonstrations, bomb threats, or the discovery of suspicious materials; and
- Severe weather conditions, including high winds.

Since many larger emergencies have potential impacts well beyond their immediate location, it is important for general contractors/construction managers to understand basic emergency response and evacuation procedures, local emergency resources, and follow-up actions. General contractor/construction managers are expected to devote significant efforts to ensuring that adequate preparations have been made for the range of foreseeable emergencies that might occur during their work at U-M.

The primary means to summon emergency response is by calling 911 on any U-M telephone or (734)763-1131 from a non-U-M phone. Instruct callers to identify that they are on the U-M campus, and then give the building/project location. Based upon the incident description, the 911 operator will dispatch police, fire, medical, or other assistance to the scene of the emergency.

The first notification should always be made to 911 (or from a non-U-M phone, 734-763-1131) to avoid any delays in response. Establish a communication plan in the event of an emergency situation to allow for immediate communication of the incident to the owner's representative after 911 has been notified.

G. Environmental Health and Safety

Building-Related Hazardous Materials

Several kinds of hazardous materials may be present in older existing buildings, including, but not limited to, asbestos-containing materials, lead-based paint, and mercury containing items or PCB-containing transformers and lamp ballasts. All fluorescent bulbs and ballasts are collected for recycling. Contact owner's representative for recycling containers.

To reduce the safety risks associated with such hazardous materials, the general contractor/construction manager shall assure that only appropriately trained and licensed contractors are permitted to abate, remediate, or otherwise handle or dispose of hazardous materials. In the event that any suspicious materials are identified during the course of work, the general contractor/construction manager must comply with the requirements of its contract with U-M that address the discovery of suspected hazardous materials and shall immediately stop work in the affected area and arrange for additional inspection or analysis by the U-M OSEH Department. The general contractor/construction manager shall immediately stop work and notify the owner's representative.

Contaminated Soil and Debris

Anyone encountering any suspicious soil or buried debris (unusual odors, sheen, and discoloration) during excavation or grounds clearing must immediately notify their supervisor and owner's representative. These materials must not be removed unless or until approved by the OSEH Department. OSEH staff will specify procedure including the proper containers to use, proper labeling, preparation for transportation, and proper disposal or recycling requirements. If soil piles exist on site, they shall be covered with tarps to prevent runoff to the storm drains.

Environmental Releases

The general contractor's/construction manager's responsibility for project site materials and operations extends to emergency response services and medical assistance for any project-related accidents, spills, releases, or over-exposures to chemical products. Regulations and U-M policies strictly prohibit the disposal of chemical products to the ground or into sink or floor drains, storm drains, or regular trash receptacles. The improper disposal of waste material by a worker or other personnel constitutes grounds for immediate and permanent dismissal of those persons from the project.

An environmental contingency spill plan that includes a spill kit on-site shall be developed to address any spills/leaks that may arise on the site. Furthermore, the responsible general contractor/construction manager will be billed for the costs of abatement or remediation of any environmental release. In the event of a release to the environment, the general contractor/construction manager must immediately notify the owner's representative and OSEH. If possible, without

endangering individuals, the general contractor/construction manager must take steps to contain spills or releases and protect any storm drains.

Paint wastes must be properly disposed. Wash water from latex paint can be disposed to the sanitary sewer. Excess latex paint shall be salvaged for reuse or solidified (dried or mixed with kitty litter) for disposal in regular trash. Empty oil based paints can be dried and disposed in regular trash. All oil based paints and solvents must be collected for proper disposal.

All wash water from any chemical or detergent cleaning application must be properly disposed. For exterior cleaning, the general contractor/construction manager must obtain approval from the Michigan Department of Environmental Quality (MDEQ) to discharge to the ground by 'authorization by notification' if appropriate, or collect all wash water and sample to determine proper disposal. Contact OSEH for more information on these requirements.

General contractor/construction manager must collect all liquid wastes from draining or flushing of chiller systems. Contact OSEH for waste sampling. OSEH or an OSEH approved waste disposal contractor must be used for disposal of wastes.

Contractors working on refrigeration systems, air-cooling units or any other CFC containing equipment (including scrapped equipment) will not vent CFCs to the atmosphere. If CFCs must be removed from the system during work, the contractor will follow the Project's specifications for recovering CFC gases for recycling in a proper CFC recovery unit and follow all pertinent state and federal requirements.

Safe Use of Chemical Products

The general contractor/construction manager is responsible for the safe and lawful receipt, handling, storage, transport, use, and disposal of all materials used in their work, including chemical products or hazardous wastes generated from the work. The general contractor/construction manager can reduce the safety risks associated with working with chemicals or chemical products by developing, implementing, and enforcing an effective safety program that complies with rules and regulations, including MIOSHA standards. Users shall provide copies of product material safety data sheets to the general contractor/construction manager for chemical products brought onto the project site and keep them immediately available for general contractor/construction manager's employees, workers, subcontractor/trade contractor, the owner's representative, other U-M officials, government inspectors, and emergency response personnel. The general contractor/construction manager and subcontractors/trade contractors responsible for these materials shall also ensure that they are appropriately and safely packaged, labeled, stored, and used. The general contractor/construction manager shall ensure that employees have training, personal protective equipment, and emergency response supplies appropriate to the materials and their use on site. The owner will in turn provide a list of hazardous chemicals/products and their locations within the construction area to the project manager upon request. Material safety data sheets will be available for review and inspection in a central location upon request.

Use of less hazardous chemicals should always be evaluated. All solvent-based products are prohibited from use on U-M projects unless specifically listed in the project's specifications or the general contractor/construction manager receives approval from AEC and OSEH to use a solvent-based product. In the event that such a product is allowed, ensure that proper safeguards or controls legally required or otherwise needed to protect those on the site as well as adjacent university occupants from injury are in place.

Storage of Chemicals and Oil

-Small Containers

Containers for oil and chemical storage (such as bottles, jugs, drums, vials, boxes) must be:

- In good condition (no cracks, leaks, rust)
- Placed in secondary containment
- Compatible with the chemical
- Labeled with the “Chemical Name” and hazard associated.
- Kept CLOSED unless actively removing chemicals. Funnels must be removed immediately after use and the container lid must be closed and sealed.
- Incompatible chemicals shall be segregated.
- All containers shall be protected from the elements.
- All containers shall be secured to prevent theft or vandalism.

-Bulk Containers

U-M follows the Spill Prevention Control and Countermeasure (SPCC) Plan and Michigan Part 5 Rules – Spillage of Oil and Polluting Materials to control chemical bulk storage. The general contractor/construction manager must follow these regulations.

Secondary containment is required for all oil and chemical bulk storage containers and the containment system must hold 100% of the largest container or 10% of the total volume of all the containers in the system, whichever is larger. Catchment must be in place while unloading and loading from a tanker truck to an aboveground or underground storage tank. The catchment must hold the capacity of the largest inner single compartment of the delivery truck.

All oil containers 55 gallons or greater must be inspected monthly for leaks or spills.

H. Equipment Safety

Equipment Operator Certification

The general contractor/construction manager shall have a process in place for validating training and certification, if required, for all workers using construction equipment such as cranes, hoists, aerial lifts, mass climbing devices, scaffolding, mobile equipment and specialty equipment.

Tagging System

Establish the use of a tagging system for equipment required to be inspected on a daily basis (such as scaffolding, or cranes) to allow workers to verify that the equipment has been inspected and is approved or not approved for use.

I. Fall Protection

Protection against falls shall be implemented. Fall arresting systems including lifelines, body harnesses, and other like equipment can be used when fall hazards cannot be addressed by employing railings, temporary floors, nets, and other means. The general contractor/construction manager can reduce the safety risks associated with performance of elevated work by developing, implementing, and enforcing an effective fall protection safety program that complies with rules, regulations and industry standards addressing fall protection, and includes establishing a fall protection rule not to exceed six (6) feet for the project that includes roofing operations, scaffolding, and steel erection. Monitors are not acceptable in lieu of fall protection.

J. Fire Prevention and Protection

The general contractor/construction manager shall address all emergency fire issues in the emergency action plan. The following shall also be addressed in order to prevent a fire situation:

Project Site Fire Safety

- All flammable liquids shall be stored in FM Global Insurance approved containers/cabinets and all storage and labeling shall comply with rules and industry standards.
- Fuel may be stored indoors only if specific project approval by U-M fire marshal has been granted.
- All oily rags and oily cloths shall be taken off site at the end of each shift for proper disposal.
- Temporary membrane construction enclosures and partitions, which are susceptible to burning, shall be protected from fire and shall be made of fire retardant material.
- Smoking is prohibited in all U-M facilities. See smoking section for more detail.

Fire Protection/Fire Alarm Systems

- A water line shall be extended as required by code to supplement the fire extinguishers on site.
- A temporary fire department standpipe shall be installed as required by code.
- Fire alarm detection devices (smoke/heater detectors) and/or fire suppression equipment shall not be covered, removed, or otherwise impaired without prior approval and coordination from the appropriate department identified below:

Campus	Contacts	Phone Number
Ann Arbor	Fire Alarm Shop	734-647-2046
	University Hospitals	734-936-7521
	U-M fire marshal	734-615-6764
Dearborn	Facilities Management	313-493-5270
Flint	Facilities Management	810-762-3223

- Special consideration must be given when work activities generate excessive dust, particles, etc that could affect the reliability of existing systems and/or result in unnecessary system activations.
- For additional assistance regarding site specific (Ann Arbor Campus only) questions, evaluations, or concerns, contact the U-M fire marshal.

Hot Work

“Hot work” is defined as a process or procedure that could result in a fire if not properly controlled. Common examples of hot work include welding, burning, cutting, brazing, grinding, and soldering. Hot work equipment may produce high voltages or utilize compressed gases and requires special awareness training to be used safely. The general contractor/construction manager shall control the hazards associated with hot work by developing, implementing, and enforcing an effective safety program that follows rules, regulations and industry standards and follows and uses the [Hot Work permit](#) that addresses all requirements (see Appendix D). Permits are available from the owner’s representative.

All planned hot work shall be fully described during the permitting process, which shall be completed before hot work begins. The general contractor/construction manager shall keep a copy of that permit on the project site at all times. Dedicated fire extinguishers for hot work operations must be at the location of the hot work. These must be in addition to the required project site extinguishers.

Temporary Heat

- Temporary heating system plans and procedures should be submitted, in advance and in writing, to the owner's representative and U-M fire marshal, noting duration of planned use, fuel handling procedures, safety procedures, type of heating system, and other essential or critical aspects of the plans and procedures. The U-M fire marshal MUST approve the plan prior to implementation.
- Except during actual use, LPG cylinders shall not be stored within a U-M building.
- All fuel storage tanks must be kept at least 20 feet from any building or property line. All above ground fuel tanks shall be properly secured, grounded and labeled with contents. The tank shall also be placed in some type of containment which is capable of handling the liquid in the tank.
- Open fires and warming fires are prohibited on all U-M property.
- Temporary weather-tight enclosures shall be made of fire retarding materials.

K. Housekeeping

The general contractor/construction manager and all his subcontractors/trade contractors at all times shall keep the premises free from accumulation of waste materials or rubbish caused by their operations, keep the premises clean and free from fire hazards, and maintain the work and materials stockpiles neat and orderly throughout the construction period to permit safe and convenient access and movement of workers and materials throughout the building and site and to prevent the spread of debris, dust or other contaminants into the air or surrounding areas at all times.

The general contractor/construction manager shall conduct operations in such a manner which will control blowing dust. The amount of dust resulting from the general contractor/construction manager's operations shall be controlled to prevent the spread of dust to adjacent public and private properties and to avoid creation of a nuisance in the surrounding area. Temporary methods consisting of sprinkling or similar methods will be permitted to control dust. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding and pollution. Dust control shall be performed as the work proceeds and whenever a dust or nuisance or hazard occurs.

Construction debris and rubbish as generated by the general contractor/construction manager's activity shall be removed by the general contractor/construction manager from the point of origin daily and not allowed to accumulate. It shall be deposited in a trash container provided by the general contractor/construction manager on the site until hauled away. Scrap materials for reuse in temporary work shall be segregated and properly stored, protected and covered as for new materials. The result of the above shall be the maintenance of a clean project, in keeping with the proximity of a University facility and with a minimum of fire hazards. The owner's representative shall have the right to establish a clean-up routine with the full participation of the general contractor/construction manager(s).

Construction debris removed from the upper levels of the site shall be deposited directly into a dumpster via an enclosed chute constructed and provided by the general contractor/construction manager.

If the general contractor/construction manager fails to keep the premises clean and orderly, to the satisfaction of the Owner's representative, the owner's representative may, after 24 hours written notice to the general contractor/construction manager, cause the premises to be cleaned and organized. In such case, the general contractor/construction manager will be charged 130 percent of the owner's cost expended in the clean-up.

The general contractor/construction manager and all subcontractors/trade contractors shall cooperate with each other and shall use reasonable diligence and shall make every effort, in connection with their work, to avoid excessive dirt, rubbish and general refuse and to minimize the extent of cleaning and removal thereof required hereunder of the general contractor/construction manager.

The general contractor/construction manager shall remove from the premises and site, all project signs, tools, scaffolding, surplus materials and temporary work and structures upon completion of the work and shall leave the work and the premises clean and acceptable to the owner.

All carts, buggies or containers containing debris shall be covered when leaving the project site or the building.

L. Job Hazard Analysis (JHA)

For Work that is potentially hazardous in nature, such as work from heights, scaffold use, trenching operations, steel erection, electrical, crane operations, the general contractor/construction manager shall review and approve each JHA before permitting the work to begin. The JHA shall be a comprehensive evaluation of the work activity broken down into basic job steps, hazards identified for each step and contain hazard controls measures for each hazard identified. The general contractor/construction manager shall keep all JHAs in a bound notebook in an easily accessible location for the length of the Project. JHA's shall be updated as necessary as the Work progresses throughout the project and conditions change. JHA's must be reviewed with applicable employees prior to the start of work at each occurrence and when updates are made and this training shall be documented.

M. Personal Protective Equipment (PPE)

Personal protective equipment (PPE) increases safety for individuals performing potentially hazardous tasks. All workers and other personnel entering the project site shall be appropriately attired for work. The minimum required PPE on a project site is hard hat, safety glasses with side-shields meeting ANSI Z87.1 standards and the use of sturdy work shoes or boots with steel toes, as necessary. No short pants, skirts, sleeveless shirts, open toe shoes, nor tennis shoes shall be allowed.

The general contractor/construction manager shall ensure that the proper types of PPE (i.e., safety glasses, hard hats, gloves, respirators, hearing protection, or any equipment or clothing used to protect against injury or illness) are available for use by its workers and shall prohibit Subcontractors/Trade Contractors, their workers or other personnel including U-M personnel and visitors from entering the project site unless they are wearing appropriate PPE.

N. Potentially hazardous exhaust systems

The owner's representative and building contact will coordinate to determine if the work involves the interior of a potentially hazardous exhaust system using the same process as described under Rooftop Access in this section. Specific site investigations for most potentially hazardous exhaust systems are not necessary unless unusual circumstances exist. All personnel working on any potentially hazardous exhaust system shall wear personal protective equipment. The project manager shall arrange with OSEH to perform a site investigation under the following conditions: radioactive materials are used in the affected fume hoods or exhaust system, perchloric acid fume hood systems are involved, unusual circumstances or hazards were identified.

O. Protection of the Public

The general contractor/construction manager should take all necessary precautions to prevent injury to the U-M community and the general public. For example, the entire project site should be secured against unauthorized access and provided with appropriate warning signage. Where roadways or walkways must be encroached or closed due to work, adequate barriers shall be installed to safely redirect the flow of vehicles and pedestrians and protect them from construction activities.

Whenever it is necessary to maintain public use of work areas (such as sidewalks, ramps, entrances to buildings, lobbies, corridors, or stairways), the public shall be protected with appropriate guardrails, barricades, temporary fences, overhead protection, or temporary partitions. The public must also be adequately protected from any work created hazards, such as excavation. Appropriate warnings, signs, warning lights and instructional safety signs shall be conspicuously posted and placed where necessary.

The public must also be protected from falling debris and objects from the project site. Overhead protection shall be provided that will fully protect the public and be capable of withstanding the maximum forces that could be applied from potential falling objects. Special attention shall also be given to developing adequate means to protect against wind-blown debris and construction-related materials. A common problem in this area involves masonry cutting and repointing, which generates large amounts of fine dust that must be controlled at their source through the application of local exhaust ventilation capture, use of appropriate work methods, or other controls, with a special emphasis on protecting occupants, pedestrians, and workers from the hazards of silica and other fine dusts.

P. Recordkeeping and Incident Reporting

If emergency assistance is summoned to the project site, the general contractor/construction manager is responsible for immediately notifying the owner's representative. The same immediate notification is also required for any fire, medical, environmental, and other emergencies. The General Contractor/Construction Manager is responsible for directly notifying any regulatory agencies as required as well as arranging for any necessary follow-up repairs, abatement, or other corrective actions.

In addition to the monthly reporting requirements, additional reporting for recordable incidents, MIOSHA citations, and fire, medical, environmental, and other emergencies is required to be submitted within 24 hours to OSEH. The U-M Incident Form shall be used to document these incidents (see Appendix E). The chart below summarizes reporting requirements.

	Monthly Report	Incident Report within 24 hours
Near Misses	✓	–
Recordable Incidents	✓	✓
MIOSHA Citations	✓	✓
Fire, medical, environmental, and other emergencies	✓	✓

Q. Rooftop Access

Prior to doing work on roofs, steps shall be taken per the OSEH Guideline *Roof Access for Buildings with Potentially Hazardous Exhaust* to ensure that personnel are not exposed to chemical, biological or radiological materials. Workers are advised to remain a fixed distance (20 feet) from any Solid Red labeled exhaust. Notify the Owner's Representative and building contact to determine if the project site has a potentially hazardous exhaust system. If the project site is listed as having potentially hazardous exhaust, the Project Manager shall refer to the Roof Safety Plan, available through Plant Engineering, to determine if the project site is in an area of the roof which will require fume hoods or other potentially hazardous exhaust systems to be shutdown. Work that is not within 20 feet of a Solid Red Labeled exhaust system and does not require workers to pass through a 20 foot radius of one may proceed with proper notification of the Building or Department Contact. If work is required within 20 feet of a Solid Red labeled exhaust or if workers must pass through a 20 foot radius of a Solid Red labeled exhaust as shown on the Roof Safety Plan, the Project Manager shall notify the Plant Operations Shutdown Coordinator and schedule a shutdown <http://www.plant.bf.umich.edu/workcontrol/shutdown.html>.

R. Smoking

Smoking is prohibited on all construction sites and U-M buildings. Smoking is also prohibited in the outdoor areas of all UMHS and School of Nursing buildings. As of July 1, 2011, smoking will be prohibited on all U-M grounds.

S. Substance Abuse Policy

Provide evidence of participation in a drug and alcohol screening program which utilizes an independent forensic laboratory for testing of all workers engaged in work on Owner's project site.

The program shall include the following elements:

- Nine (9) panel minimum drug screening for presence of amphetamines, barbiturates, benzodiazepine, cannabinoids, cocaine, methadone, opiates, phencyclidine and propoxyphene.
- Clear pass/fail criteria
- Alcohol detection by a breathalyzer or Blood Alcohol testing with clear pass/fail criteria
- Provides for initial, annual, for cause, and post-accident screening
- Designated medical reviewer
- Card or internet based verification of worker compliance with program by third party

Example of programs with acceptable substance abuse programs includes American Contractors Insurance Group - Safety Management Division, M.U.S.T. or equivalent.

T. Temporary Elevators

A temporary elevator shall always be parked at GROUND LEVEL when not in use. Additionally, when not in operation, the car door will be left in the open position and the landing doors will be closed. The car shall be locked out of service by use of the stop switch in car panel and the stop switch in the Fireman's control cabinet. All car lights, pit lights, and car top lights will be left on at all times.

Prior to start up on an elevator, the door sills shall be inspected for any obstructions or debris and cleaned/removed as necessary. Reset stop switch in Fireman's control cabinet, then reset stop switch in car operating panel. Test doors for proper operation at ground floor and at all remaining floors while also checking the other floors for obstruction or debris. When the inspection is complete, the car can be placed into normal operation.

For shut-down, park car at GROUND LEVEL with car door open and hoistway door closed. Activate the stop switch in the car panel, and then activate the stop switch in the Fireman's control panel. Leave all lights in the on position.

U. Utility Tunnel Safety

The University's tunnel system is alarmed at certain locations. If work requires entry into the tunnel system, advance notification of at least 24 hours is required to Department of Public Safety (DPS) at 734-763-1131. Required information would include the work locations by Point of Reference (POR), the names of the workers, length of time expected to be in the tunnel, tunnel entry and exit locations, and the work to be performed in the tunnel. Once DPS has been notified, tunnel authorization must be obtained from the Tunnel Shop which can be accessed through (734)647-2509. A minimum of two workers must be present in the tunnel at all times.

V. Visitors

"Visitors" are individuals who do not have a direct role in the execution of the project work. Visitors require pre-approval from the AEC Executive Director for entry into the project site, and this entry will be defined as a "tour." Anyone without a direct role in the execution of the project work that does not have preapproval shall be denied access to the project site.

Tour participants must be limited to those deemed to have a strategic purpose for entering the project site. Tour times will generally be limited to periods of no or low construction activity. Preplanning is required to identify and mitigate site hazards and designated tour areas. The AEC project manager will brief all tour participants on required PPE. Visitors need to abide by all project-specific requirements and must stay with the designated tour leader.

V. Summary of revisions incorporated into this January 2010 issue (Rev. 1/3/12)

Crossed-out text represents deleted information.

Section III: SAFETY MANAGEMENT SYSTEM

C. Monthly Safety Reports (*first bullet point*)

- Number of cases and rates for OSHA Recordable incidents, ~~lost work incidents,~~ DART incidents and near misses. Near misses are defined as safety incidents with the potential for serious injury or fatality.

F. Project-Specific Safety Plan Overview (*new paragraph added before the last paragraph*)

Each plan should be signed by a Corporate Safety Officer and the Site Safety Representative to certify that it fully complies with all University of Michigan Construction Safety Requirements as referenced in this document. The Safety Plan Certification form should be completed and included in the site specific project manual (Appendix B).

APPENDICES

The Monthly Safety Report and Initial Incident Reports were updated with the most current copies, and the new Safety Plan Certification form was added. Links to current versions of the forms are on each page.

The University of Michigan
Monthly Safety Report
 (Submit by the 15th of next month)



Project Name: _____ UM Project Number: _____
 Construction Start Date: _____ Construction End Date: _____
 Data for Month of: _____ Date Submitted: _____

Check here if in the construction phase but not yet mobilized. Data is not required; sign and submit to Project Manager.

INCIDENT TYPES	Number of Cases			U-M Project Goal	Rates		
	Current Month	Year to Date	Project to Date		National Average	Year to Date	Total Project
OSHA Recordable Incidents				0	4.0		
DART Incidents*				0	2.1		
Near Misses				0	2010 BLS Construction Data		
* DART Incidents: Recordable incidents that resulted in Days Away from Work <u>or</u> Restricted Work Activity/Transfer.							
OSHA RECORDABLE INCIDENTS: <i>Please classify below and also complete page 2 with details:</i>					Current Month	Year to Date	Project to Date
Fall (e.g., floors, platforms, roofs)							
Struck by (e.g., falling objects, vehicles)							
Caught in/between (e.g., cave-ins, unguarded machinery, equipment)							
Electrical (e.g., overhead power lines, power tools/cords, outlets, wiring)							
Other (e.g., cuts, burns, and other items not covered above)							
EMPLOYMENT INFORMATION <i>(includes contract workers)</i>							
Average Daily Number of Employees (FTE's)							
Total Hours Worked by Employees							

Incident Rate Calculation:

Total # of injuries and illnesses _____ x 200,000 ÷ _____ # of hours worked by all employees _____ = **Incident Rate**

PROJECT SAFETY ACTIVITIES							
Safety Orientations Completed							
Safety Huddles/Tool Box/Similar Activities Completed							
Documented Safety Inspections/Observations Completed							
Disciplinary Actions							
Medical, Fire and Other Emergencies							
MIOSHA Visits							
Other:							
MIOSHA CITATIONS							
Serious							
Repeat							
Willful							

Contractor Firm Name _____

Reviewed by U-M Project Manager _____ Date _____

Contractor Project Director/Manager _____ Date _____

Forms are periodically updated. It is recommended the current form be downloaded from:
<http://www.oseh.umich.edu/pdf/SafetyReport.pdf>

Contractor Superintendent _____ Date _____
 U-M Construction Safety Requirements

The University of Michigan
Monthly Safety Report
(Submit by the 15th of next month)

DETAILS OF RECORDABLE INJURIES OR ILLNESSES: For all injuries and illnesses listed on page 1, include the date of the injury/illness and a paragraph with details describing the injury/illness, including if the injury/illness resulted in Lost Time or Restricted Work Activity/Transfer.

Current Month:

To Date:



The University of Michigan

Safety Plan Certification

The individuals listed below certify that the attached site specific safety plan submitted for this project complies with all safety requirements as detailed in The University of Michigan **Construction Safety Requirements** which can be found at the following link: <http://www.oseh.umich.edu/pdf/ContractorSafetyRequirements.pdf>

Additionally, the site specific safety plan will be implemented on the job site as indicated in the plan.

Project Name: _____

Corporate Safety Officer:

Name of Organization: _____

Title: _____

Name: _____

By: _____
(Signature)

Dated this _____ day of _____, 20____

Site Safety Representative:

Name of Organization: _____

Title: _____

Name: _____

By: _____
(Signature)

Dated this _____ day of _____, 20____

Forms are periodically updated. It is recommended the current form be downloaded from:
<http://www.oseh.umich.edu/pdf/SafetyPlanCertification.pdf>

January 2012



LIFT EVALUATION FORM

1. Activity:		
Location of Lift:		Date:
2. Description of Load:	Load Weight:	
	Block Weight:	
	Spreader Weight:	
	Rigging Weight:	
	Jib Weight:	
	Jib Ball Weight:	
	Hoist Line Weight:	
	Total Load:	
3. Crane Manufacturer:		
Model Number:		Serial Number:
Maximum Load Radius:		On Outriggers:
Corresponding Boom Angle:		On Tires:
Corresponding Boom Length:		On Crawler-Extended Retracted:
Lift will Be: <input type="checkbox"/> On Boom <input type="checkbox"/> On Jib <input type="checkbox"/> Over Side <input type="checkbox"/> Over End		
Rated Capacity:		
Capacity Margin = (Total Load / Rated Capacity) x 100 =		
4. Are there Underground Hazards? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Soil Conditions:		
Will Blocking or Crane Mat be Used? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Are there Fire or Explosive Hazards Within Reach? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Are There Electrical Hazards Within Reach? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Has Permit Been Obtained? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Prepared by:		Date:



Job Safety Analysis (JSA) is an important accident prevention tool that works by finding hazards and eliminating or minimizing them before the job is performed and before they have a chance to become accidents. Use your JSA for job clarification and hazard awareness.

Sequence of Basic Job Steps	Potential Hazard	Recommended Action or Procedure
<p>Access from truck.</p> <p>Rig equipment for lift</p>	<ol style="list-style-type: none"> 1. Falls from truck 2. Struck by object 3. Pinch points 	<ol style="list-style-type: none"> 1. The riggers will access the truck bed by using a portable ladder or fixed ladder. No jumping. 2. All rigging will be inspected prior to use. The unit will be picked according to manufacturers recommendations. 3. Proper radio communication and rigging signals will be used. Pre-meeting with all parties will establish good communication and plan. 4. All employees will be clear of pinch point during initial lift off of truck. Rigging will be inspected again to ensure load is level and secure. 5. Load will be lifted by tower crane.
<p>Employees will access the roof and prepare for lift.</p> <p>Place unit through hatch</p>	<ol style="list-style-type: none"> 1. Fall hazards at hatch opening, or edge of roof. 2. Threat of material dropping on to roof. 3. Swinging load over crew and other personnel 	<ol style="list-style-type: none"> 1. Employees will be protected from a fall by using fall arresting equipment. Employees will wear full body harness and retractable lifeline within 15 feet of hatch.



		<ol style="list-style-type: none"> 2. The unit will be picked according to manufacturers recommendations. The weight of the unit and rigging will be approximately half of the overall capacity. 3. Good communication will be maintained with operator and crew by using two-way radios. 4. The personnel in the building will be moved as necessary. 5. The crew will not work under suspended load. Tag lines will be used to position load
<p>The unit will be set on dollies and wheeled in place.</p>	<ol style="list-style-type: none"> 1. Pinch points 2. Load shifting - moving 	<ol style="list-style-type: none"> 1. Employees will have to use caution regarding putting hands, fingers, and etc in pinch points. 2. Employees will access rigging by using a stepladder. The ladder will be inspected and used according to regulations and safe working practices.

Supervisor/Designee Signature: _____

The University of Michigan
Hot Work Permit



BEFORE INITIATING HOT WORK, CAN THIS JOB BE AVOIDED? IS THERE A SAFER WAY?

This Hot Work Permit is required for any temporary operation involving open flames or producing heat and/or sparks. In occupied tenant space. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch Applied Roofing and Welding.

**PART 1
 INSTRUCTIONS**

1. Fire safety Supervisor:
 - a. Verify precautions listed at right (or do not proceed with the work).
 - b. Complete and retain PART 1

HOT WORK BEING DONE BY:

- Employee
 Contractor _____

Date: _____

Job No. _____

Location/Building & Floor _____

Nature of Job _____

Name of Person Doing Hot Work _____

I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.

Signed: (Fire safety Supervisor) _____

Permit Expires:	Date	Time	AM
			PM

**NOTE EMERGENCY NOTIFICATION BELOW ON FORM.
 USE AS APPROPRIATE FOR YOUR FACILITY.**

Warning!

**HOT WORK IN PROGRESS
 WATCH FOR FIRE!**

IN CASE OF EMERGENCY:

CALL: _____

AT: _____

REQUIRED PRECAUTIONS CHECKLIST

- Available sprinklers, hose streams and extinguishers are in service/operable.
 Hot Work equipment in good repair.

Requirements within 35 ft. (11m) of work

- Flammable liquids, dust, lint and oily deposits removed.
 Explosive atmosphere in area eliminated.
 Floors swept clean.
 Combustible floors wet down, covered with damp sand or fire-resistive sheets.
 Remove other combustibles where possible. Otherwise protect with fire-resistive tarpaulins or metal shields.
 All wall and floor openings covered.
 Fire-resistive tarpaulins suspended beneath work.

Work on walls or ceilings

- Construction is noncombustible and without combustible covering or insulation.
 Combustibles on other side of walls moved away.

Work on enclosed equipment

- Enclosed equipment cleaned of all combustibles.
 Containers purged of flammable liquids/vapors.


Fire watch/Hot Work area monitoring

- Fire watch will be provided during and for 60 minutes after work, including any coffee or lunch breaks.
 Fire watch is supplied with suitable extinguishers, charged small hose.
 Fire watch is trained in use of this equipment and in sounding alarm.
 Fire watch may be required for adjoining areas, above, and below.
 Monitor Hot Work area for 3 hours after job is completed.

Other Precautions Taken

- _____

Forms are periodically updated. It is recommended the current form be downloaded from:
<http://www.oseh.umich.edu/pdf/Hot%20Work%20Permit.pdf>

 The University of Michigan Initial Incident Report	JOB #:		PROJECT NAME:		
	INCIDENT DATE:		INCIDENT TIME:		
INCIDENT CLASSIFICATION	INCIDENT (CHECK THE APPROPRIATE BOX)				
	<input type="checkbox"/> INJURY/ILLNESS <input type="checkbox"/> NEAR MISS <input type="checkbox"/> PROPERTY DAMAGE <input type="checkbox"/> FIRE				
INJURY CLASSIFICATION	(CHECK ALL THAT APPLY)				
	<input type="checkbox"/> FIRST AID <input type="checkbox"/> OSHA RECORDABLE <input type="checkbox"/> RESTRICTED/TRANSFERRED <input type="checkbox"/> LOST TIME				
	COMMENTS/CLARIFICATION:				
	EMPLOYEE TREATED: <input type="checkbox"/> ONSITE <input type="checkbox"/> OFFSITE (IF OFFSITE, PROVIDE):	TREATMENT LOCATION:	PHYSICIAN:		
EMPLOYEE INVOLVED	NAME:		SEX: <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE		
	JOB BEING PERFORMED AT TIME OF INCIDENT: <input type="checkbox"/> REGULAR <input type="checkbox"/> OTHER (IF OTHER, DESCRIBE)				
	HOUR WORK BEGAN: <input type="checkbox"/> AM <input type="checkbox"/> PM		CRAFT:		
	LENGTH OF EXPERIENCE: YEARS: MONTHS:		EMPLOYEE START DATE ON THIS JOB:		
	IS THIS THE EMPLOYEE'S FIRST UM PROJECT? <input type="checkbox"/> YES <input type="checkbox"/> NO (IF NO, HOW MANY PROJECTS?)				
CONTRACTOR INVOLVED	COMPANY:		CONTACT NUMBER:		
	SUPERVISOR:		CONTACT NUMBER:		
	IS THIS THE FIRST UM PROJECT? <input type="checkbox"/> YES <input type="checkbox"/> NO		INCIDENT LOCATION (SPECIFIC):		
INJURY/ILLNESS INFORMATION	INCIDENT TYPE (CHECK ONLY ONE)			INJURY/ILLNESS TYPE (CHECK ONLY ONE)	
	<input type="checkbox"/> 01 - STRUCK BY <input type="checkbox"/> 05 - SAME LEVEL FALL <input type="checkbox"/> 09 - INHALATION			<input type="checkbox"/> 01 - ABRASION <input type="checkbox"/> 05 - AMPUTATION	
	<input type="checkbox"/> 02 - STRUCK AGAINST <input type="checkbox"/> 06 - FALL TO BELOW <input type="checkbox"/> 10 - HEAT			<input type="checkbox"/> 02 - PUNCTURE <input type="checkbox"/> 06 - BURN	
	<input type="checkbox"/> 03 - CAUGHT IN/ON <input type="checkbox"/> 07 - OVER EXERTION <input type="checkbox"/> 11 - OTHER			<input type="checkbox"/> 03 - LACERATION <input type="checkbox"/> 07 - FRACTURE	
<input type="checkbox"/> 04 - CAUGHT BETWEEN <input type="checkbox"/> 08 - ELECTRICAL <input type="checkbox"/> 12 - NA			<input type="checkbox"/> 04 - CRUSHING <input type="checkbox"/> 08 - SPRAIN/STRAIN		
BODY PART AFFECTED (CHECK ONLY ONE)					
<input type="checkbox"/> 01 - HEAD <input type="checkbox"/> 05 - BACK <input type="checkbox"/> 09 - ARM <input type="checkbox"/> 13 - LEG					
<input type="checkbox"/> 02 - FACE <input type="checkbox"/> 06 - CHEST <input type="checkbox"/> 10 - HAND <input type="checkbox"/> 14 - KNEE					
<input type="checkbox"/> 03 - EYE <input type="checkbox"/> 07 - SHOULDER <input type="checkbox"/> 11 - FINGER <input type="checkbox"/> 15 - FOOT / ANKLE					
<input type="checkbox"/> 04 - NECK <input type="checkbox"/> 08 - ELBOW <input type="checkbox"/> 12 - GROIN / HERNIA <input type="checkbox"/> 16 - OTHER					
DESCRIPTION OF INCIDENT	INCIDENT DESCRIPTION:				
PRE-TASK ANALYSIS	1. Was a Pre-Task completed for this work procedure?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
	2. Did the Pre-Task cover the information causing the incident?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
	3. Did the employee(s) sign off on the Pre-Task?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
	4. Was the injury/incident a result of the Pre-Task not being followed?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
	5. Did the Pre-Task Analysis need to be modified?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
ROOT CAUSE ANALYSIS	WHY = ROOT CAUSE:				
	1.				
	2.				
	3.				
CORRECTIVE ACTIONS	PREVENTATIVE MEASURES:				
	✓				
	✓				
	✓				
	✓				
SIGNATURES**	INJURED EMPLOYEE:	DATE:	SUPERVISOR:	DATE:	
	SAFETY REP:	DATE:	PROJECT MANAGER:	DATE:	

** Submit Incident Report Containing ALL Signatures with the Monthly Safety Report**