

SAFETY MANUAL





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1.0 | OBJECTIVE

UNIMAC is dedicated to ensure that its employees and others are provided a safe and healthy place to work on each of its projects. The Company shall be directly responsible for initiating and maintaining a positive Health, Safety & Environment program to prevent its employees from working under conditions which are unsafe, unhealthy or unsanitary. UNIMAC places all efforts and focus on the protection of our employees, and the general public.

2.0 | SCOPE

The HSE program at UNIMAC has been prepared to ensure the highest standard for each employee, as well as all that of the general public when it comes to Health, Safety & Environment. It satisfies a moral, contractual and legal aspect of accident prevention, in such a manner that it maintains a safe and efficient operation for each and every project. It incorporates the Health, Safety & Environment requirements and Client Safe Work Practices and Client HSE guidelines.

The Company's designated HSE personnel shall see that there is an adequate Health, Safety & Environment procedure for all projects and specific jobs, and that all procedures are well understood and followed. The Company's HSE personnel shall be responsible for placing Health, Safety & Environment signs, posters and banners at work areas promoting Health, Safety & Environment and informing workers of dangers and hazards associated with the work.

UNIMAC considers safety unequivocally important, as it is our duty not only to protect the lives of our employees, but also those of our affiliates, and of course, the general public.

3.0 | SAFETY RESPONSIBILITIES

Management/ Manager

- Establish and communicate safety rules and standards to all employees and contractors.
- Give directions to the organization which is in line with safety policies and regulations.
- Provide appropriate resources such as personal protective equipment (PPE), tools and training.
- Communicate safety policies through meetings.
- Conduct safety inspections to verify the effectiveness of the implemented safety policies and rules.
- Maintain facility emergency plans and conduct emergency drills as per plan intervals.
- Investigate the root cause of injuries and conduct analysis to prevent its recurrence.
- Provide corrective and preventive actions.
- Review health and safety performances.

Safety Engineer/ Supervisor/ Safety Officer

- Performs a variety of routine and complex administrative, technical, and professional work in analyzing and administering various components of the environmental, health and safety programs.
- Knows the requirements of Saudi Arabia Government's Safety Regulations and UNIMAC's safety manual.
- Supervises other employees within the working area (on-site) and ensuring that the suitable Personal Protective Equipments were available at the point of use and strictly used by all employees.
- Develops and maintains environmental, health, and safety policies and programs.
- Provides precise safety instructions to executives in order to correct working methods.
- Conducts audits on-site periodically by conducting environmental, health, and safety inspections, ensuring the fulfillment of the requirements and the minimization of accidents, damages and loss of control.
- Plans and promotes safety programs.
- Maintains the knowledge of all applicable HSE standards and all updates.
- Works with environmental, health and safety advisory committees to promote and provide safety expertise in the development and the presentation of safety training materials.
- Performs or assists in accident investigations, if needed. Ensures that executives take the necessary corrective actions to prevent future incidents and communicates recommendations to all the concerned parties.
- Designs, develops and conducts safety and environmental training programs.
- Coordinates and conducts working areas assessments, surveys, and program evaluations to determine the presence of hazardous conditions, such as noise exposure, chemical exposure, dust control, light levels, etc... And assists departments with the specific training requirements.
- Ensuring that all the equipment are maintained and in a good working condition.
- Implements and manages environmental management system. This includes administering the waste management contract, and coordinating hazardous waste management activities.
- Works with workers' administration compensation program to determine areas that need increased training to emphasis on accident prevention.
- Provides statistical and fiscal data of workers' injuries compensation to maintain complete and accurate records as required.
- Prepares various reports, including charts and graphs, to determine trends and needs.
- Collects, analyzes and maintains essential data for effective safety and environmental programs.
- Evaluates hazardous conditions and recommends engineering controls, administrative controls, and/or personal protective equipment.
- Develops fire prevention program, including building/site evacuation procedures/plan.

- Cooperates with the fire department by acting on their recommendation.
- Conducts periodic inspections on sites to assist managers and supervisors in environmental, health, and safety compliance.
- Responsible for keeping records of all safety matters.
- Maintains training records and injured workers data.
- Collects data for maintenance and filing of HSE reports.
- Coordinates with sub-contractors and with other contractors on-site to avoid any confusion about areas of responsibility.
- Attend Job Progress Meeting concerning safety issues.
- Communicates information about updates to HSE through emails or meetings.
- Conduct safety meetings at least once per week regarding HSE.

Employees

- Follow safety rules, standards, and safe work practices.
- Maintain knowledge of safety requirements, including emergency response actions.
- Attend and participate in all safety programs and meetings.
- Report injuries, spills, unsafe conditions and incidents.
- Assist in incident investigations.

Contractor

- Comply with UNIMAC's safety documentation requirements.
- Comply with UNIMAC's safety rules and regulations.
- Attend and participate in safety meetings and updates.
- Report incidents in a timely manner.

4.0 | EMERGENCY ROAWDAY SAFETY

4.1 Type of Emergency

- A worker is seriously injured or killed.
- Contact with gas line or electrical line.
- Trench collapse.
- Traffic entering the working Zone.
- Toxic Chemical Spill.



4.2 Emergency Steps

- Contact near hospital and get a medical help as soon as it's possible.
- Contact On-Site first aid/ CPR.
- Shut off any equipment and evacuate the area in case of any potential exposure or explosion.
- On-site emergency coordinator must contact the fire department/emergency response team.
- On-site emergency coordinator must contact the utility company if applicable.

4.3 Emergency Planning

- Warning system and signal to alert the workers for evacuation.
- Everyone must know where emergency phone numbers of hospital, fire fighter, utilities, etc are posted.
- Everyone must know the identity of the emergency coordinator is and who is trained in first aid and CPR.
- Everyone must be trained in emergency plan and participates in regular drills.

4.4 Emergency Contact Numbers

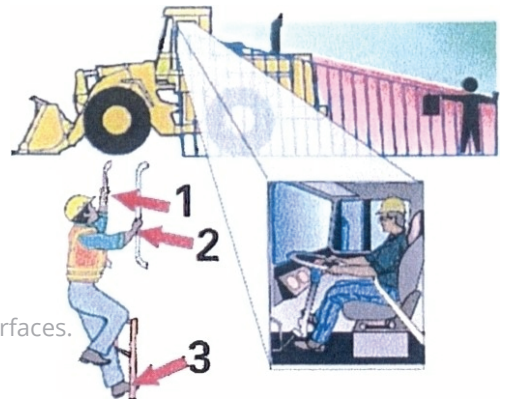
- ① Police Assistance: 999/911
- ① Public Ambulance Service: 997
- ① Fire Emergency Response: 998
- ① Traffic Police: 993
- ① Natural Disasters: 966



5.0 | OPERATOR'S ROADWAY SAFETY

5.1 Equipments Operations

- Before starting any equipment, do a walk around the inspection.
- Test back up alarms and other safety devices.
- Locate and test all controls.
- Know equipment blind spots, and swing radius.
- Use the equipment seat belts.



5.2 Entering and Exiting Equipment

- Use 3 points of contact to prevent falls.
- Look for other moving equipments and vehicles.
- Wipe up all grease and fluids on equipment walking/ working surfaces.

5.3 Equipment Maintenance and Repair

- Report all repair needed to your supervisor.
- Always lockout and tag out equipments that cannot be safely operated.



5.4 General Safety

- Use Personal Protective Equipments (PPE) that are supplied and required by employer.
- Never use cell phones, AM/FM radios, or CD players while operating the equipments.
- Safely secure equipment before using employer-provided hand-held cell phones or bravo.
- Secure unattended equipments.
- Lockout and tag out before maintenance, set parking brake, chock wheels, and block dump truck bed.



6.5 Operator Special Responsibility

- Know the work zone and your position in it.
- Know the internal traffic control plan.
- Use designated equipment routes and areas.
- Identify rollover hazards such as unlevelled areas, embankments, unstable soil.
- If you must move cones or barricades, return them to their original positions as soon as it's possible.

5.6 Always keep other workers in mind (On the Worksite)

- Know the locations of other workers around you at all times.
- Set up means of communication with workers around you such as flaggers, grade checkers.
- Never allow other workers to ride on equipments.
- Where possible, provide barriers between workers and equipments.
- Avoid excessive speeds and dangers caused by hills, obstacles, and curves.



6.0 | FLAGGER ROADWAY SAFETY

6.1 Understand Flagging is Dangerous

- There is high speed traffic.
- There are angry or aggressive drivers.
- A motorist going 60 mph (or approximately 100km/h) needs almost 400 feet to stop.

6.2 Wearing Visibility Clothing

- Orange, yellow, or green vest.
- Reflective vests at night.



6.3 Wearing Personal Protective Equipments

- Long-sleeved shirts and pants.
- Hard hats.
- Appropriate clothes for expected weather (rain gear, warm coat).

6.4 Stay Alert and out of harm's way (keep your guard up)

- Stand alone on shoulder in clear view, not in open traffic lane.
- Plan an escape route for emergencies.
- Stay in communication with other flaggers.
- Stay alert, keep focused on work.
- Make sure your hand signals don't conflict with traffic signals.
- Treat motorists with respect and courtesy, don't pick fights or respond to anger, notify law enforcement when motorists do not obey to flaggers.

6.5 Avoid Dangerous Behavior

- Don't stand where you can be crushed.
- Don't stand in the shade, over the crest of a hill, or around a sharp curve.
- Don't leave your position until it's properly relieved.
- Don't stand near equipments.
- Don't stand in a group.
- Don't make unnecessary conversations.
- Don't read or daydream on duties.
- Don't listen to music or use earphones.
- Don't turn your back to the traffic.



7.0 | EXCAVATION-ROADWAY SAFETY

7.1 Understand Danger in Trenches

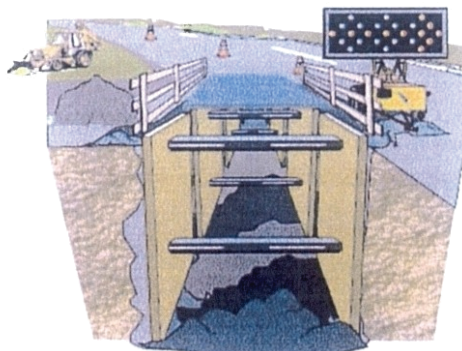
- Workers can be buried alive.
- Cave-ins can result from stresses in walls, nearby moving vehicles and equipments, or spoil piles.
- Water can collect in bottom.
- Flammable/ toxic gases can build up.
- Gas from nearby sewer or gas lines can seep into trenches.

7.2 Take Caution Before Digging

- Call electrical, gas, and communication utilities.
- Use extreme caution with equipments

7.3 Techniques When Excavating

- Sloping - Soil angled to increase stability.
- Benching - Steps in trench wall.
- Shoring - Support system made of posts, wales, struts, and sheeting or hydraulic shoring.
- Shielding - Protective frame or box, to protect workers after a cave-in.

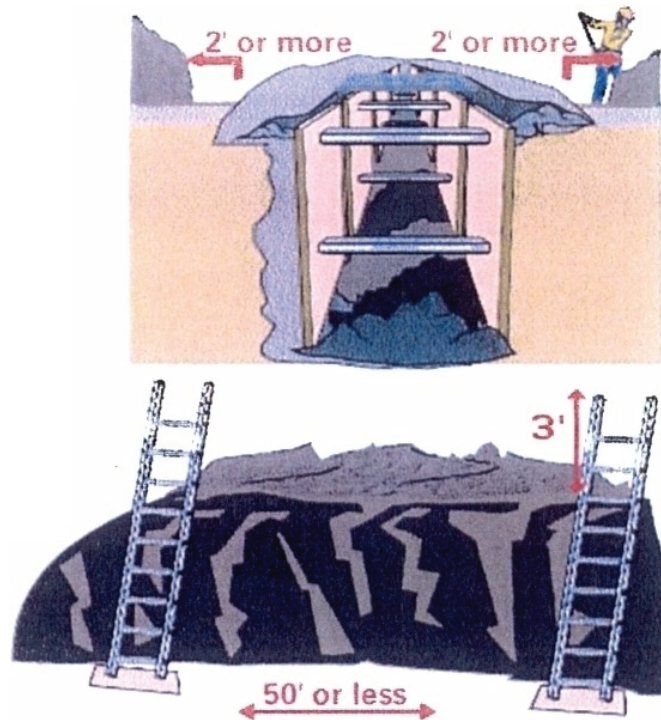


Trenches > 4' deep may be confined spaces

An excavation with formwork 15' or less from a sidewall is also a trench.

7.4 Inspection Requirement for Trenches

- Inspections should be conducted:
 - Daily and beginning of each shift.
 - After precipitation, a thaw, and other events that could increase hazard events.
 - For disturbed ground, water, taxis, and other hazards.
 - If walls sag or crack or if the bottom bulges.
 - To keep spoil at least two feet from trench edge.
 - If there are nearby vibration sources such as railroads or pile driving.
- No worker should be more than 25 feet away from an exit
- A competent person must work if a hazard exists.



8.0 | FALL HAZARD-ROADWAY SAFETY

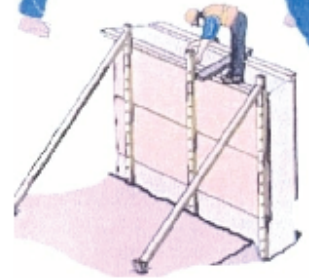
8.1 Falls on walking and working surfaces

- Tripping over materials or debris.
- Falling on hills or embankments.
- Stepping in holes or walking on irregular ground.
- Stumbling while carrying loads that block vision.
- Slips or trips in muddy, wet, or icy conditions.



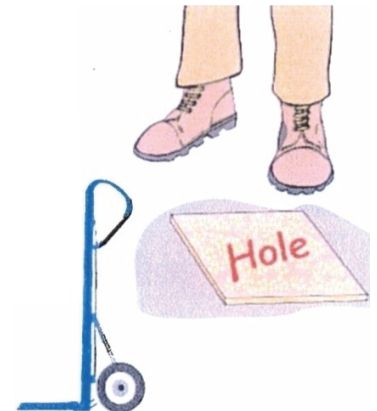
8.2 Falls from elevations

- Falls from equipments.
- Falls from bridges.
- Falls from formwork.
- Falls into excavations.



8.3 Preventing Falls on the same level

- If possible, avoid walking on muddy, wet, or icy surfaces.
- Use footwear with ankle support and soles that grip.
- Don't carry heavy loads, use hauling equipments.
- Practice good housekeeping.
- Fill in or mark hidden holes in ground.
- Clear walking/ working surfaces of tripping hazards.
- Include walking routes in site according to the safety plan.



8.4 Avoiding Falls from Elevations

- 100% fall protection program.
- Plan work for personal fall arrest anchor points or guardrail.
- Erect guardrails around large excavations.
- Seatbelts or restraints for riding in cars, trucks, personnel carriers.
- Use modular erection to avoid work at heights on forms.
- Use 3-point contact VTTV.



9.0 | STRUCK OR CRUSHED-ROADWAY SAFETY

9.1 Avoiding Tools and Material Hazards

- Struck by Tools
 - Use point of operation guarding on portable hand tools.
 - Use chain saw safety program.
 - Use PPE (Personal Protective Equipments).

- Struck or Crushed by Materials
 - Keep workers out of lifting areas, from beneath loads.
 - Use safe methods for rigging, hoisting, and setting.
 - Steel plates, manhole frames.
 - Jersey barriers, manhole covers.
 - Use PPE
 - Hard hats, footwear, eye protection.



9.2 Avoid being struck by any Equipment Part

- Lockout/ tag out/ hazardous energy control during maintenance, repair, cleaning, and inspection.

10.0 | RUN-OVERS/BACK-OVERS ROADWAY SAFETY

10.1 Road Safety for Near Equipment Traffic

- Remain alert at all times.
- Often Check surroundings, and listen for warnings.
- Keep a safe distance from traffic.
- Stay behind protective barriers whenever is possible.
- Look out for each other, warn coworkers.



10.2 Wear Personal Protective Equipment (PPE)

- Workers must wear personal protective equipments (PPE).

Provided by employers

- Proper class of safety vest at all times in the work zone.
- High-visibility of clothing and headgear.
- Bright-colored hard hats which are more visible.



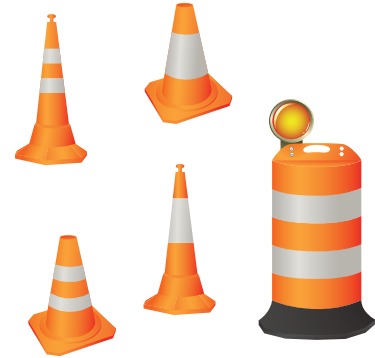
Protect yourself at all times!

10.3 Treat Equipments and Vehicles with Caution

- Stay out of "blind spots".
- Communicate with operators by radio signals and/ or by eye contact.
- Don't approach unless you communicate with the operator, and he/ she acknowledges you.
- Stay outside a "safety circle" around equipment.
- Stay clear to vehicles, and acknowledge the traffic control plan.
- Use spotters when you must work with your back turned to the equipments or to the traffic.

10.4 Used Traffic Control Devices for Safety (TCDs)

- Workers should wear a Class III vest to be easily seen.
- Place, relocate, or remove TCDs when traffic flow is light.
- When possible, work from vehicles' platform.
- Use seat, seatbelt, fall restraint, or guardrail and a handhold when guardrail must be removed.
- Stay in constant communication with the driver.
- Use shadow vehicles to warn drivers.



11.0 | NIGHT WORK-ROADWAY SAFETY

11.1 Night Operations on the Work Site (Hazards)

- Poor visibility for motorists.
- Poor visibility for workers.
- Communication between shifts.
- Impaired or drowsy drivers.

11.2 Physical and Social Disruptions

- Sleep disruption.
- Risk of injury from drowsiness.
- Impaired family or social relationships.



12.0 | SCAFFOLDS - SAFETY

12.1 Preventive Measures

- Ensures that scaffolds are assembled according to the manufacturer's recommendations. If locally built, they must be properly designed and engineered.
- Ensure that no extensions or auxiliary parts are added to scaffolds unless designed and approved by an engineer.
- Ensure that workers follow safe work practices when constructing scaffolds.
- Ensure that scaffold load limits given by the manufacturer, or by the engineer, are not exceeded.

12.2 Protect Yourself (scaffolds requirements)

- Scaffolds are supported usually by posts, beams and legs or suspended (by ropes).
- Power lines: keep scaffolds 10 feet or more from power lines (or 3 feet, if lines are less than 300 volts), unless you are sure the power lines are de-energized.
- Weather: Do not work on scaffold in high winds or in a storm, unless a competent person says it is safe.
- Use personal fall-arrest or a windscreen.
- Do not overload scaffolds.

Scaffold Inspection

Scaffolds Diagram and
Inspection Needed
Scaffold Inspection



12.3 Guidelines for Checking or Inspecting Scaffolds

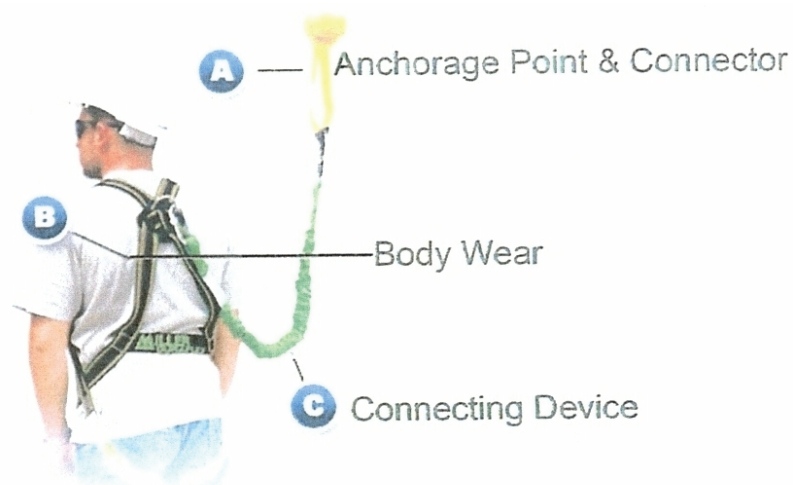
- If a scaffold is more than 2 feet above or below a level, there must be a way to get on or off—such as a ladder, ramp, or personnel hoist.
- The access must not be more than 14" from the scaffold.
- Put standing scaffold on a firm foundation (with base plates attached to feet).
- Uprights must be vertical and braced to prevent swaying.
- Platforms must be leveled.
- A scaffold that is more than 4 times higher than its base is wide and must be tied to supports.
- Most scaffold platforms and walkways must be 18" wide or more. If less than 18" wide, guardrails and/or individual fall-arrest must be used.
- Ten-foot planks must extend at least 6" past and end supports, but more than 12", no more than between, planks or between planks uprights.
- Wood planks must be unpainted, so any cracks will show.
- For supported scaffolds check at least these points:
 1. Completely planked platforms
 2. Proper Access
 3. Complete Guardrails
 4. Proper ties to buildings, whenever required.

12.4 Suspended Scaffolds

- Supporting outrigger beams must be able to support at least 4 times the intended load to keep the scaffold from falling to the ground.
- It must be attached to the roof, tied to a secure anchorage, or secured with counterweights.
- The suspension ropes and ringing must support at least 6 times the intended load.
- Counterweights must be attached to secure and strengthen places of a building so they won't move.
- Do not use bags of sand or gravel, masonry blocks, or roofing materials that can flow or move.
- Do not use gas-powered equipment or hoist. Hoist must have automatic brakes for emergencies.
- A 1-point or 2-point suspended scaffold must be tied or secured to prevent swaying.

12.5 Fall Protection

- Wear your Fall Protection gear
- A skilled person must decide if falling protection is feasible when you assemble a scaffold to take it apart.
- On most scaffolds, guardrails must be on all open sides and ends. On supported scaffolds and on some other scaffolds, guardrails of individuals falling protection is enough.
- Use a harness, not body belt for personal fall protection.
- Do not use a guard rail on the working side when the platform is less than 14" from the work (18" for plastering and lathing).
- The open side of an outrigger must never be more than 3" from the face of the building.
- The top rail must be 38" to 45" above the platform. A top rail must be strong enough to hold 200lb (or 100lb on single-point and two-point suspension scaffolds).
- A mid-rail must be about halfway between the platform and the top rail; most mid rails must be able to hold 150 pounds. If mesh, screen, or panels are used, a top rail is needed (unless mesh was designed and installed to meet guardrail requirements)
- Scaffold walkways must have more than a 9.5" gap between planks and a guardrail.
- Don't let junk collect on the scaffold. You may trip and fall.



12.6 Protection for People below Scaffold

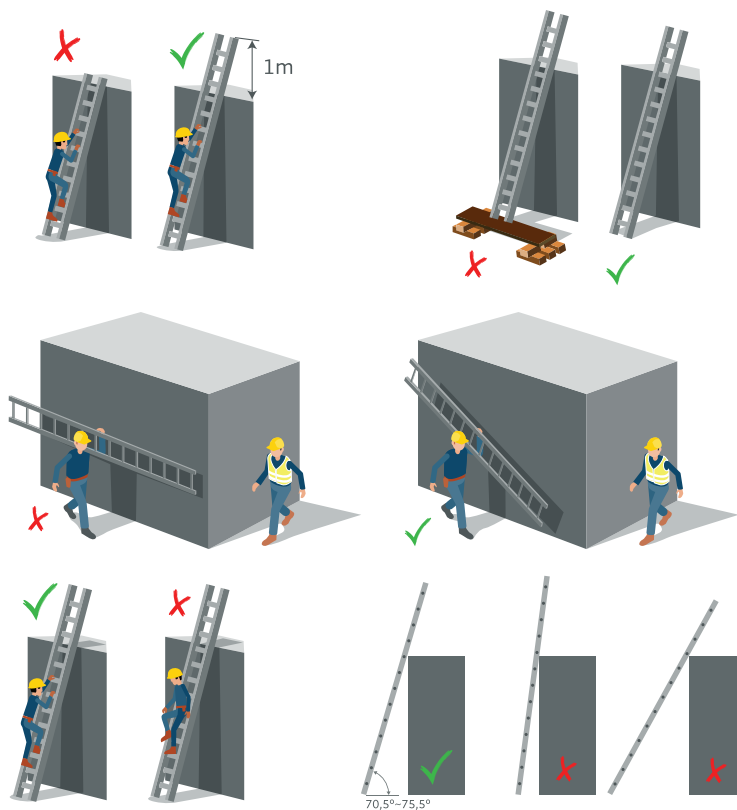
- There must be a 3 ½" high toe board to prevent things falling off a scaffold. If things on the scaffold are taller than 3 ½" - above the toeboard- other systems, like debris nets, can be used to catch falling tools or materials. If things can fall off a scaffold, people must be prevented from walking under or near the scaffold.



13.0 | LADDER - SAFETY

13.1 Proper Usage and Inspection of Ladder

- Inspect the ladder before each use to detect any cracked or broken parts.
- A broken ladder should be taken out of service and clearly marked as being unsafe.
- Do not place more weight on the ladder than what it was designed to hold.
- Secure the top of the ladder to a rigid support.
- The ladder should extend 3 feet above the landing you are accessing.
- Ensure the feet of the ladder are securely placed and will not slip out under you.
- Ladder made on site must be able to safely hold the weight of the worker and his tools.
- Used Metal or timber ladder.
- Wear safety boots with slip resistant soles.
- Clean up any liquid spills right away.
- Take your time and pay attention to your destination.
- Ensure things you are carrying do not prevent you from seeing the obstructions or the spills.



14.0 | CRANE AND RIGGING EQUIPMENT-SAFETY

14.1 Preventing Injuries and Deaths from Mobile Crane

- Always use the manufacturers' crane.
- Load chart provided for each crane.
- Be sure you know or can calculate the weight of each load.
- Never use visual signs of tipping as an indicator of lift capacity.
- Before beginning a lift ensure that:
 1. Follow the manufacturer's procedures for proper outrigger deployment, in order to ensure that cranes are properly set up and leveled.
 2. Make sure outrigger pads are supported on firm, stable surfaces before beginning a lift.
- When multiple lifts are made from one location such as during duty cycle operations, check the condition of the ground and blocking materials regularly and as often as possible to ensure that the crane remains on firm, stable ground.
- Avoid hoisting or moving suspended loads over workers, others within the crane's swing radius.
- Barricade the swing radius to keep unauthorized individuals from entering areas of pinch points.
- Follow a written engineered lift plan for all critical lifts.
- If you are under the age of 18 years old, do not operate a crane or assist in any task being performed on cranes such as repairing, servicing, assembling, and disassembling the machine.



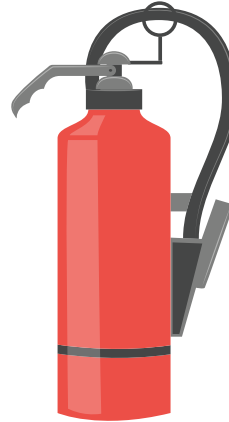
14.2 Rigger and Ground Workers (Safety while working around the Mobile Crane)

- Never work directly under a suspended load.
- Watch for signs of problems during each lift.
- Always check for overhead power lines and other obstructions. Comply with OSHA regulations for safe working distances around power lines.
- Barricade the swing radius to keep unauthorized individuals from entering areas of pinch points.
- Follow written engineered lift plan for all critical lifts.
- Follow the correct procedures when setting up or dismantling a crane. Make sure boom sections are blocked or supported before removing pins. Stay out from under the boom at all times if possible.
- If you are of an age of 16 years old, do not perform any type of construction or any manufacturing work.
- If you are under the age of 18 years old, do not operate a crane or assist in tasks being performed on cranes such as repairing, servicing, assembling and disassembling the machine.

15.0 | FIRE PROTECTION

15.1 Identifying Fire Extinguisher

- Identify 3 common classes of fires.
- Select the proper type of extinguishers.
- Evaluate when it is safe to fight an "early-stage" fire.
- Apply the P.A.S.S method to operate a portable extinguisher.



15.2 Common Fire Classification

- "Ordinary" combustibles paper, wood, rubber, plastics and textiles.
- "Flammable liquids", oil, gasoline, solvents.
- "Energized circuits".
- Electrical equipment and computers



15.3 How they Work

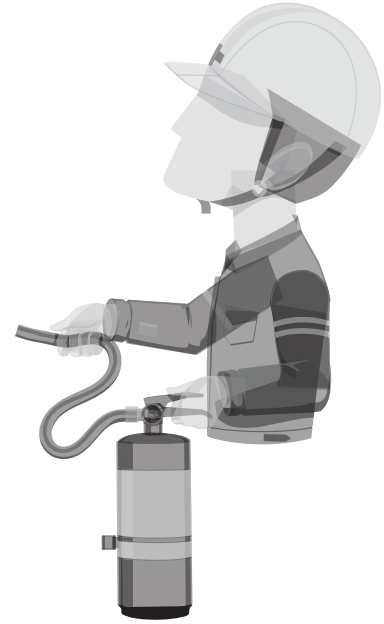
- Class (A) Works by cooling.
- Numerical rating indicates amount of agent, duration, and range of discharge on test fires.



- Class (B) Works by blanketing the fuel.
- Interrupts chemical reaction at fuel surface.



- Class "C" units have no numerical rating.
- A Class "C" rating doesn't imply any capacity.
- Only indicates that the extinguishing agent is non-conductive, safe on energized equipments.
- Works by displacing oxygen, smothering fire.



15.4 Proper Usage of Fire Extinguishers

- Keep your back to a clear escape route,
- Stand back 6 to 8 feet from the fire,
- Then pull the pin,
- Aim low at the base of the fire,
- Squeeze the lever,
- Sweep from Side to Side,
- Conduct inspection on a monthly basis.



PULL THE PIN



AIM THE NOZZLE AT THE FIRE



PRESS THE LEVER DOWN



SWEEP SIDE TO SIDE

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16.0 | Hot Work or Heat Stress

16.1 Signs or Symptoms if your Body is too hot

- Tired and less mentally alert, this increase the danger of accident.
- You may sweat. The body produces sweat so the evaporation will cool you off.
- Heat Rash is possible.
- You get sun burn.
- Heat cramps. You can get muscles cramps from the heat even after you leave the work.
- Heat exhaustion. You feel tired, nauseous, headachy, and giddy (dizzy and silly). Your skin is damp and looks muddy or flushed. You may faint.
- Heat stroke. You may have hot dry skin and high temperature or you may feel confused. You may have convulsions or become unconscious. Heat stroke can kill you unless you get emergent medical help.

16.2 The Risk of Heat Stress

- Your physical condition.
- The weather (temperature humidity).
- How much clothing you have on.
- How fast you must move or how much weight you must lift.
- If you are near a fan or exposed to a breeze.
- If you are in the sun

16.3 Protect Yourself

- Drink when you are thirsty.
- Keep taking rest breaks. Rest in a cool, shady spot, use fans.
- Wear light-colored clothing made of cotton.
- Do the heaviest work in the coolest time of the day.
- Work in the shade.
- For heavy work in hot areas, take turns with other workers, so some can rest.
- If you work in protective clothing, you need more rest breaks. You may also need to check your temperature and your heart rate.
- If you think someone has a heat stroke, call emergency (997). Immediately move the victim to the shade area.
- Loosen his clothes, wipe or spray his skin with cool water and fan him.

17.0 | COLD WORK

17.1 Effects of Cold in your Body

- Dehydration. You can get dehydrated from cold as easily as you can from heat
- Numbness. It's usually in your extremities-fingers-toes, ears, nose tip, and cheeks.
- Shivering. This is the body's way of trying to warm up.
- Frostbite. Parts of your body freeze, especially your extremities. The first warning sign may be a sharp, prickly sensation - but if the affected body parts are already numb, you won't feel anything so there won't be any warning. Your skin may turn colored (red, white, gray, purple, or black, depending on the harshness).
- Skin can also peel off. You can get permanent injury. Like loss of body part. Immersion foot (trench foot). This is a damage that you get if your skin is exposed to cold and to dampness for a long time.
- The skin doesn't actually freeze, but you can get swelling, tingling, itching, loss of skin, or skin ulcers.
- Hypothermia. This is the most serious effect of cold your body cannot maintain its normal temperature, violent shivering, slow or slurred speech, drowsiness, confusion, hallucinations, a weak and irregular pulse, or even unconsciousness. If not treated right away, you can die.

17.2 Treatment for Frostbite

- Cover the skin with warm hands until numbness stops and you start to feel pain.
- Place bare frostbitten fingers under your armpits, next to the skin.
- Place bare frostbitten feet under the clothing of a co-worker, next to the skin.
- Or wrap affected body parts in a warm, dry towel, cloth, or blanket.
- Never treat frostbite by:
 1. Vigorous massaging (It can bruise frozen skin).
 2. Exposing to flame or fire (It can soften frozen skin too quickly and cause burns).
 3. Rubbing with ice. (It can reduce skin temperature and make frostbite worst).

17.3 Action for Hypothermia

- Get medical help immediately.
- Call 997 to get a needed ambulance.
- Keep the person warm.
- Don't massage the person's extremities.
- Don't give the person a hot drink.

17.4 Kind of Clothing to protect you from cold

- Many layers of loose clothing are best.
- Wear only dry clothing. Change clothes if they get wet or sweaty.
- Don't wear waterproof shell if you're sweating. It won't let inner moisture evaporate. You'll soak in sweat.
- Wear full head covering. You can lose a lot of body heat through a bare head
- Wear mittens or gloves. Below 0° F, mittens are better. Machine controls in cold areas should be a type you can use with mittens on.
- Wear waterproof boots (or rubber over boots) if it's both cold and wet.

17.5 Treatment for Frostbite

- Drink warm fluids.
- Eat high calories diet to reserve energy.
- Cover all skin when extremely cold.
- Never touch cold metal with your bare skin.
- Stay physically fit.

18.0 | LOCKOUT/ TAG OUT SAFETY

18.1 Protect Yourself

• Lockout/ Tag out is a way to make sure electricity or other energy is turned on or released while someone is working on machineries. Turning on a power switch is not enough. You must de-energize (prevent equipment from starting or moving), lock it out, released stored energy (for instance, bleed air from a pneumatic hose) and test it to make sure the energy is off.

- The organization should:
 1. Setup written out program.
 2. Provide training to use the program.
- The program should cover:
 1. Planning and Identification
 - Energy sources
 - Workers who can get hurt
 - Responsible person to de-energize equipments.
 2. Keeping track of all involved workers.
 3. Telling workers on the new shifts about the lockout/ tag out job.
 4. Ensure that the equipments are de-energized so they cannot be restarted.
 5. Setting and removing lockout/tag out devices.
 6. Coordinating with other jobs under way.
 7. Releasing stored energy (for instance, discharging capacitors).
 8. Returning equipment to service (including testing positioning of equipment).

18.2 Procedures Details

1. Notification. Tell equipment operators and supervisors that power is being disconnected or isolated.
2. Preparation. Check with your supervisor for a written procedure (or checklist) that tells how to shutdown and restart the equipment you are working on.
3. Shutdown. Turn off the equipment.
4. Isolation. Separate all energy using proper isolating devices-like manual circuit breakers or disconnect switches. Push buttons or selector switches cannot be the only way to de-energize. A lot of equipments have more than one type of energy that needs to be isolated.
5. Lockout/tag out application. Every worker who can be exposed to hazardous energy must be a part of the Lockout/ tag out process.
6. A lockout device is a key or a combination lock with a special tag with the worker's name. The lock must be attached to an isolating device, circuit breaker, and/or switch to prevent turning on the energy source or the equipment or releasing energy.

7. A tag out device is a tag and a way to attach it that it can withstand at least 50 pounds of force (some tags out devices are attached with wire). Use a tag out device only when you cannot lock out. The tag should have a label or sign that says no one can turn on the equipment or remove the energy-isolating device without permission.
- Each worker at risk should apply an individual Lockout/ tag out device to each source of hazardous energy - so there may be many locks or tags on each device. You must be the only one who has the key or the combination for a Lockout device that you install - except in a complex Lockout/ tag out (read below).
8. Individual qualified employee control. For minor servicing, maintenance or inspection of plug-and-cord equipment, you may work without attaching Lockout/ tag out devices if you unplug the equipment and you always work next to the power plug and you can control the plug.
9. Complex lockout/ tag out. A special written plan is needed when a job has more than one of any of these:
- Energy source
 - Crew
 - Craft
 - Location
 - Employer
 - Way to isolate energy, or
 - Work shift.

One crew member should be in charge of the whole lockout/ tag out. This person should be trained and identified by name in the written plan. Each worker should make sure all energy sources are locked out before starting the work.

11. Control of stored energy. Release energy by discharging capacitors, removing jacks or chock blocks, or draining hydraulic lines, for instance.
12. Verification. Use testing equipment (such as an electric circuit tester) to make sure equipment has been de-energized.
13. Removal of lockout/ tag out devices. Only the worker who puts on a lockout or tag out device should take it off and If someone else must take off the device, he/ she must be sure that the person who installed it is not on the site, and must warn that employee when he/she returns.
14. Return to service. When the work is done and lockout/ tag out devices are off, you must test and look to be sure that all tools, mechanical restraints, and electrical devices have been removed before you turn on the power. Before you re-energize, you must warn all workers who can operate the equipment and make sure no one else are near to it.
15. Temporary release. If the job requiring lockout/tag out is interrupted for testing or positioning equipment, the procedures must start all over again.

19.0 | CHEMICAL SAFETY

19.1 Emergency Action Plan Procedure

- Notify your supervisor.
- Notify co-workers and others in the area.
- Activate emergency alarms.
- Call 997 or 993 (or other emergency phone number) to get help.
- Don't try to rescue or help injured people unless you're sure you will be safe.
- Keep people out of the area.
- Leave the area if the spill cannot be readily contained, or if it presents an immediate danger to life or health.
- Follow the evacuation rules in the EAP. In general, evacuate upwind, not downwind.
- Don't try to clean up a spill by yourself except wherever it is permitted by site rules and the EAP. Leave the cleanup to the trained workforce, such as a Hazardous Materials (HAZMAT) team.
- On this job, emergency phone numbers (fire, police, medical) are posted.

19.2 Proper Handling

- Always provide or ask for MSDS Material Safety Data Sheet, to identify the chemical (s) involved in the spill.
- Use Material Safety Data Sheets (MSDSs) for the chemicals involved to find out the effects of exposure, what protective equipment is needed, and spill cleanup procedures. Since some chemical spills can lead to fires or to explosions, the MSDS may also give you firefighting instructions. The law requires the site to have MSDSs for all chemical products in use. Everyone working on the site has the right to see the MSDSs.

19.3 Emergency Preparation

- First Aid Kits Emergency showers.
- Fire Extinguisher Communications (radios, alarm, etc.).
- Fire Blankets, stretchers or baskets for moving injured people.
- Eye washes Confined Space rescue equipments.



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1910.39 Fire Prevention Plan

The following fire prevention plan is provided only as a guide to assist employers and employees in complying with the requirements of the Occupational Safety and Health Administration's (OSHA) Fire Prevention Plan Standard, 29 Code of Federal Regulations (CFR) 1910.39, as well as to provide other helpful information. It is not intended to supersede the requirements of the standard. An employer should review the standard for particular requirements that are applicable to their individual situation, and make adjustments to this program that are specific to their company. An employer will need to add information relevant to their particular facility in order to develop an effective, and a comprehensive program.



FIRE PREVENTION PLAN

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1910.39 Fire Prevention Plan Table of Contents

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FIRE PREVENTION PLAN

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I. OBJECTIVE

The purpose of this Fire Prevention Plan is to eliminate the causes of fire, prevent loss of life and property through fire, and to comply with the Occupational Safety and Health Administration's (OSHA) standard of fire prevention, 29 CFR 1910.39. It provides employees with information and guidelines that will assist them in recognizing, reporting, and controlling fire hazards.

II. BACKGROUND

UNIMAC is committed to minimizing the threat of fire to employees, visitors, and to property. UNIMAC complies with all applicable laws, regulations, codes, and good practices pertaining to fire prevention. UNIMAC separate Emergency Action Plan spells out the procedures for responding to fires. This Fire Prevention Plan serves to reduce the risk of fires at UNIMAC/ Riyadh & Jeddah in the following ways:

- A. identifies materials that are potential to fire hazards and their proper handling and storage procedures;
- B. distinguishes potential ignition sources and the proper control procedures of those materials;
- C. describes fire protection equipments and/ or systems used to control fire hazards;
- D. identifies persons responsible for maintaining the equipments and the systems installed to prevent or control ignition of fires;
- E. identifies the persons responsible for the control and the accumulation of flammable or combustible materials;
- F. describes good housekeeping procedures necessary to insure the control of accumulated flammable and combustible waste material and residues to avoid a fire emergency; and
- G. provides training to employees with regard to fire hazards to which they may be exposed.

III. ASSIGNMENT OF RESPONSIBILITY

Fire safety is everyone's responsibility. All employees should know how to prevent and respond to fires, and are responsible for adhering the company's policy regarding fire emergencies.

A. Management

Management determines the UNIMAC's fire prevention and protection policies. Management will provide adequate controls to provide a safe workplace, and will provide adequate resources and training to its employees to encourage fire prevention and the safest possible responses in case of a fire emergency.



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B. Plan Administrator

Safety Officer/ Engineer shall manage the Fire Prevention Plan for UNIMAC, and shall maintain all records pertaining to the plan. The Plan Administrator should also:

1. Develop and administer the fire prevention training program.
2. Ensure that fire control equipments and systems are properly maintained.
3. Control fuel source hazards.
4. Conduct fire risk surveys (see Appendix A) and make recommendations.

C. Supervisors

Supervisors are responsible for ensuring that employees receive appropriate fire safety training, and for notifying Safety Officer/ Engineer and Project Manager when changes in operation increase the risk of fire. Supervisors are also responsible for enforcing fire prevention and protection policies.

D. Employees

All employees shall:

1. Complete all required training before working without supervision.
2. Conduct operations safely to limit the risk of fire.
3. Report potential fire hazards to their supervisors.
4. Follow fire emergency procedures.

IV. PLAN IMPLEMENTATION

A. Good Housekeeping

To limit the risk of fires, employees shall take the following precautions:

1. Minimize the storage of combustible materials.
2. Make sure that doors, hallways, stairs, and other exit routes are kept free of obstructions.
3. Dispose combustible waste in covered, airtight, metal containers.
4. Use and store flammable materials in well-ventilated areas away from ignition sources.
5. Use only nonflammable cleaning products.
6. Keep incompatible (i.e., chemically reactive) substances away from each other.
7. Perform "hot work" (i.e., welding or working with an open flame or other ignition sources) in controlled and well-ventilated areas.
8. Keep equipment in a good working order (i.e., inspect electrical wiring and appliances regularly and keep motors and machine tools free of dust and grease).
9. Ensure that heating units are safeguarded.
10. Report all gas leaks immediately. Safety Officer/ Maintenance Manager should ensure that all gas leaks are repaired immediately upon notification.
11. Repair and clean up flammable liquid leaks immediately.
12. Keep work areas free of dust, lint, sawdust, scraps, and similar materials.
13. Do not rely on extension cords if wiring improvements are needed, and take care not to overload circuits with multiple pieces of equipments.
14. Ensure that required hot work permits are obtained.
15. Turn off electrical equipments when not in use.





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B. Maintenance

Maintenance Manager will ensure that equipments are maintained according to manufacturers' specifications. UNIMAC will also comply with requirements of the National Fire Protection Association (NFPA) codes for specific equipments. Only properly trained individuals should perform maintenance work.

The following equipments are subject to the maintenance, inspection, and testing procedures:

1. Equipments installed to detect fuel leaks, control heating, and control pressurized systems; portable fire extinguishers, automatic sprinkler systems, and fixed extinguishing systems;
2. detection systems for smoke, heat, or flame; fire alarm systems; and emergency backup systems and the equipments they support.

V. TYPES OF HAZARDS

The following sections address the major workplace fire hazards at UNIMAC facilities and the procedures for controlling these hazards.

A. Electrical Fire Hazards

Electrical system failures and the misuse of electrical equipments are leading causes of workplace fires. Fires can result from the loss of ground connections, wiring with frayed insulation, or overloaded fuses, circuits, motors, or outlets.

To prevent electrical fires, employees should:

1. Make sure that worn wires are replaced.
2. Use only appropriately rated fuses.
3. Never use extension cords as substitutes for wiring improvements.
4. Use only approved extension cords [i.e., those with the Underwriters Laboratory (UL) or Factory Mutual (FM) label].
5. Check wiring in hazardous locations where the risk of fire is especially high.
6. Check electrical equipments to ensure that they are either properly grounded or double insulated.
7. Ensure adequate spacing while performing maintenance.

A. Portable Heaters

All portable heaters should be approved by Safety Officer, Project Manager. Portable electric heaters shall have tip-over protection that automatically shuts off the unit when it is tipped over. There shall be adequate clearance between the heater and the combustible furnishings or the other materials at all times.

C. Office Fire Hazards

Fire risks are not limited to UNIMAC industrial facilities. Fires in offices have become more possible because of the increased use of electrical equipments, such as computers and fax machines. To prevent office fires, employees should:

1. Avoid overloading circuits with office equipments.
2. Turn off nonessential electrical equipments at the end of each workday.
3. Keep storage areas clear of rubbish.
4. Ensure that extension cords are not placed under carpets.
5. Ensure that trash and papers are set aside for recycling and are not allowed to be accumulated.



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D. Cutting, Welding, and Open Flame Work

Site will ensure the following:

1. All necessary hot work permits have been obtained prior to work beginning.
2. Cutting and welding are done by authorized individuals in designated cutting and welding areas, whenever is possible.
3. Adequate ventilation is provided.
4. Torches, regulators, pressure-reducing valves, and manifolds are UL listed or FM approved.
5. Oxygen-fuel gas systems are equipped with listed and/or approved backflow valves and pressure-relief devices.
6. Cutters, welders, and helpers are wearing eye protection and protective clothing as appropriate.
7. Cutting or welding is prohibited in sprinkle red areas while sprinkler protection is out of service.
8. Cutting or welding is prohibited in areas where explosive atmospheres of gases, vapors, or dusts could develop from residues or accumulations in confined spaces.
9. Cutting or welding is prohibited on metal walls, ceilings, or roofs built of combustible sandwich-type panel construction or having combustible covering.
10. Confined spaces such as tanks are tested to ensure that the atmosphere is not over ten percent of the lower flammable limit before cutting or welding in or on the tank.
11. Small tanks, piping, or containers that cannot be entered are cleaned, purged, and tested before cutting or welding begins.
12. Fire watch has been established.

E. Flammable and Combustible Materials

Maintenance Manager shall regularly evaluate the presence of combustible materials at UNIMAC (see Appendix D). Certain types of substances can ignite at relatively low temperatures or pose a risk of catastrophic explosions if ignited. Such substances obviously require special care and handling.

Certain types of substances can ignite at relatively low temperatures or pose a risk of catastrophic explosion if ignited. Such substances obviously require special care and handling.

1. Class A combustibles.

These include common combustible materials (wood, paper, cloth, rubber, and plastics) that can act as fuel and are found in non-specialized areas such as offices.

To handle Class A combustibles safely:

- a. Dispose of waste daily.
- b. Keep trash in metal-lined receptacles with tight-fitting covers (metal wastebaskets that are emptied every day without being covered).
- c. Keep work areas clean and free of fuel paths which may allow fire to spread.
- d. Keep combustibles away from accidental ignition sources, such as hot plates, soldering irons, or other heat - or spark - producing devices.
- e. Store paper stock in metal cabinets.
- f. Store rags in metal bins with self-closing lids.
- g. Do not order excessive amounts of combustibles.
- h. Make frequent inspections to anticipate fires before they start.

Water, multi-purpose dry chemical (ABC), and halon 1211 are approved fire extinguishing agents for Class A combustibles.





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2. Class B combustibles.

These include flammable and combustible liquids (oils, greases, tars, oil-based paints, and lacquers), flammable gases, and flammable aerosols.

To handle Class B combustibles safely:

- a. Use only approved pumps, taking suction from the top, to dispense liquids from tanks, drums, barrels, or similar containers (or use approved self-closing valves or faucets).
- b. Do not dispense Class B flammable liquids into containers unless the nozzle and containers are electrically interconnected by contactors or by a bonding wires. Either the tank or container must be grounded.
- c. Store, handle, and use Class B combustibles only in approved locations where vapors are prevented from reaching ignition sources such as heating or electric equipments, open flames, or mechanical or electric sparks.
- d. Do not use a flammable liquid as a cleaning agent inside a building (the only exception is in a closed machine approved for cleaning with flammable liquids).
- e. Do not use, handle, or store Class B combustibles near exits, stairs, or any other areas normally used as exits.
- f. Do not weld, cut, grind, or use unsafe electrical appliances or equipments near Class B combustibles.
- g. Do not generate heat, allow an open flame, or smoke near Class B combustibles.
- h. Know the location of and how to use the nearest portable fire extinguisher rated for Class B fire.

Water should not be used to extinguish Class B fires caused by flammable liquids. Water can cause the burning liquid to spread, making the fire worse. To extinguish a fire caused by flammable liquids, exclude the air around the burning liquid. The following fire-extinguishing agents are approved for Class B combustibles: carbon dioxide, multi-purposes dry chemical (ABC), halon 1301, and halon 1211. (NOTE: Halon has been determined to be an ozone-depleting substance and is no longer being manufactured. Existing systems using halon can be kept in place.) Refer to training Manual.

F. Smoking

Smoking is prohibited in all UNIMAC buildings. Certain outdoor areas may also be designated as no smoking areas. The areas in which smoking is prohibited outdoors are identified by NO SMOKING signs.

VI. TRAINING

Training Officers should present basic fire prevention training to all employees upon employment, and shall maintain documentations of the training, which includes:

- A. review of 29 CFR 1910.38, including how it can be accessed;
- B. this Fire Prevention Plan, including how it can be accessed;
- C. good housekeeping practices;
- D. proper response and notification in the event of a fire;
- E. instruction on the use of portable fire extinguishers (as determined by the company policy in the Emergency Action Plan); and
- F. recognition of potential fire hazards.

Supervisors should train employees about the fire hazards associated with the specific materials and processes to which they are exposed, and will maintain documentation of the training. Employees will receive this training:

- A. at their initial assignment;
- B. annually; and
- C. when changes in work processes necessitate additional training.



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Appendix B United Maintenance and Contracting Co. General Fire Prevention Checklist

Use this checklist to ensure that fire prevention measures conform with the general fire prevention requirements found in OSHA standards.

- Yes No Is the local fire department acquainted with your facility, its location, and specific hazards?
- Yes No If you have a fire alarm system, is it tested at least annually?
- Yes No If you have interior stand pipes and valves, are they inspected regularly?
- Yes No If you have outside private fire hydrants, are they on a routine preventive maintenance schedule and are flushed at least once a year?
- Yes No Are fire doors and shutters in good operating condition?
- Yes No Are fire doors and shutters unobstructed and protected against obstructions, including their counterweights?
- Yes No Are automatic sprinkler water system control valves, air pressure, and water pressure checked weekly or periodically?
- Yes No Has responsibility for the maintenance of automatic sprinkler systems been assigned to an employee or to a contractor?
- Yes No Are sprinkler heads protected by metal guards?
- Yes No Is proper clearance maintained below sprinkler heads?
- Yes No Are portable fire extinguishers provided in an adequate number and type?*
- Yes No Are fire extinguishers mounted in readily accessible locations?*
- Yes No Are fire extinguishers recharged regularly with the recharge date noted on the inspection tag?*
- Yes No Are employees periodically instructed in the use of extinguishers and fire protection procedures?*

*(NOTE: Use of fire extinguishers is based on the company's policy regarding the employee fire fighting in your Emergency Action Plan and local fire code.)

Completed by: Date:



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Appendix C United Maintenance and Contracting Co. Exits Checklist

Use this checklist to evaluate UNIMAC's compliance with OSHA's standard on emergency exit routes.

- Yes No Is each exit marked with an exit sign and illuminated by a reliable light source?
- Yes No Are the directions to exits, when not immediately apparent, marked with visible signs?
- Yes No Are doors, passageways, or stairways that are neither exits nor access to exits, and which could be mistaken for exits, marked as "NOT AN EXIT" or with other appropriate marking?
- Yes No Are exit signs provided with the word "EXIT" in letters at least five inches high and with lettering at least one inch wide?
- Yes No Are exit doors side-hinged?
- Yes No Are all exits kept free of obstructions?
- Yes No Are there at least two exit routes provided from elevated platforms, pits, or rooms where the absence of a second exit would increase the risk of injury from hot, poisonous, corrosive, suffocating, flammable, or explosive substances?
- Yes No Is the number of exits from each floor of a building and from the building itself appropriate for the building occupancy?

(NOTE: Do not count revolving, sliding, or overhead doors when evaluating whether there are sufficient exits.)

- Yes No Are exit stairways that are required to be separated from other parts of a building enclosed by at least one-hour fire-resistant walls (or at least two-hour fire-resistant walls in buildings over than four floors high)?
- Yes No Are the slopes of ramps used as part of emergency building exits limited to one foot vertical and 12 feet horizontal?
- Yes No Are glass doors or storm doors fully tempered, and do they meet the safety requirements for human impact?
- Yes No Can exit doors be opened from the direction of exit travel without the use of a key or any special knowledge or effort?

Completed by: Date:



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Appendix C United Maintenance and Contracting Co. Exits Checklist

- Yes No Are doors on cold storage rooms provided with an inside release mechanism that will release the latch and open the door even if it's padlocked or otherwise locked on the outside?
- Yes No Where exit doors open directly onto any street, alley, or other area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees from stepping into the path of traffic?
- Yes No Are doors that swing in both directions and are located between rooms where there is frequent traffic equipped with glass viewing panels?

Completed by: Date:



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Appendix D United Maintenance and Contracting Co. Flammable and Combustible Material Checklist

Use this checklist to evaluate UNIMAC's compliance with OSHA's standards on flammable and combustible materials:

- Yes No Are combustible scrap, debris, and waste materials such as oily rags stored in covered metal receptacles and removed from the worksite promptly?
- Yes No Are approved containers and tanks used for the storage and handling of flammable and combustible liquids?
- Yes No Are all connections on drums and combustible liquid piping vapor and liquid tight?
- Yes No Are all flammable liquids kept in closed containers when not in use?
- Yes No Are metal drums of flammable liquids electrically grounded during dispensing?
- Yes No Do storage rooms for flammable and combustible liquids have appropriate ventilation systems?
- Yes No Are NO SMOKING signs posted on liquefied petroleum gas tanks?
- Yes No Are all solvent wastes and flammable liquids kept in fire-resistant covered containers until they are removed from the worksite?
- Yes No Is vacuuming used whenever possible rather than blowing or sweeping combustible dust?
- Yes No Are fuel gas cylinders and oxygen cylinders separated by distances or fire resistant barriers while in storage?
- Yes No Are fire extinguishers appropriate for the materials in the areas where they are mounted?*
- Yes No Are appropriate fire extinguishers mounted within 75 feet of outside areas containing flammable liquids and within 10 feet of any inside storage area for such materials?*
- Yes No Are extinguishers free from obstruction or blockage?*
- Yes No Are all extinguishers serviced, maintained, and tagged at least once per year?*
- Yes No Are all extinguishers fully charged and in their designated places?*



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Appendix D United Maintenance and Contracting Co. Exits Checklist

- Yes No Where sprinkler systems are permanently installed, are the nozzle heads directed or arranged so that water will not be sprayed into operating electrical switchboards and equipments?
- Yes No Are NO SMOKING signs posted in areas where flammable or combustible materials are used or stored?
- Yes No Are safety cans utilized for dispensing flammable or combustible liquids at the point of use?
- Yes No Are all spills of flammable or combustible liquids cleaned up promptly?
- Yes No Are storage tanks adequately vented to prevent the development of an excessive vacuum or pressure that could result from filling, emptying, or temperature changes?

*(NOTE: Use of fire extinguishers is based on the company's policy regarding employee fire fighting in your Emergency Action Plan and local fire code.)

Completed by: Date:

UNIMAC
يونيماك

Riyadh - Head Office
P.O. Box 7429- Riyadh 11462,
Kingdom of Saudi Arabia

Tel: +966 1 4774307
Fax: +966 1 47 82780

admin@unimacompany.com

www.unimacompany.com