



OSCAR RENDA

C O N T R A C T I N G

Safety, Health and Environment Plan

The revised sections shall be provided with the Safety, Health, and Environment Plan Reviewed: July 2018.

PRESIDENT'S COMMITMENT

OSCAR RENDA CONTRACTING (ORC) owes its success to the dedication, effort, and skill of its employees. Accordingly, we recognize a non-negotiable duty and moral responsibility to employ the best available resources to ensure our worker's protection to the highest degree feasible from dangers inherent to construction worksites. This duty is first and foremost amongst the principles on which we are founded. Our objective is that each employee arrives home safely and is able to share the success of ORC with their loved ones as well as with the community at large. In order to achieve this goal, we have implemented The Project Safety, Health, and Environmental Program which provides an administrative structure within which we and our Contractors may realize a record of **Zero Incidents and Accidents**. The Program provides for the safety and health of our employees, other individuals affected by their activities, and for the protection of property and the environment. Additionally, the Program provides for coordination among the various Contractors' individual programs, monitoring of Contractors' conformance with their individual programs, and initiation of corrective actions when non-conformance is identified. Administration and reporting will reveal the effectiveness of the Program. Key elements of the Program include:

Safety Orientation and Training
Pre-Project / Pre-Task Planning
Alcohol and Substance Abuse Program
Accident / Incident Investigations
Safety Incentive Program

Our philosophy is simple: Safety performance is a function of education, commitment, and enforcement.

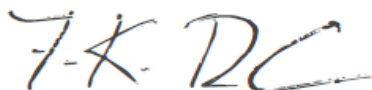
The key to our success is the talent and dedication of our Team Members. We believe in and promote excellence through continuous improvement and innovation. Each member of our team will be offered the opportunity to obtain and improve necessary skills, using the latest technology, to accomplish both professional and personal goals. Not only does this empower the individuals, but it also ensures that each team working is trained in state-of-the-art techniques, which will enhance our projects and create safe work environments.

Weekly Toolbox Safety Meetings and Daily Job Hazard Analysis (JHA) reinforce this philosophy. All team members, management, and craftsmen are held accountable for safety through effective performance evaluations. This assessment process encompasses project incentives, bonus opportunities and the potential for promotion and advancement. As a result, we have consistently realized hundreds of thousands of accident-free employee-hours. This commitment, paired with our efforts in education, has clearly demonstrated the effectiveness of our devotion to keeping ORC employees and work-sites safe.

It is our policy to provide a work environment that minimizes the accident risks inherent to construction site employment. With this policy in mind, our company has employed a full-time Safety Director since 1964. The training of supervisory personnel, the safety of equipment on site, personnel safety attire, project safety plans, and weekly toolbox meetings have all contributed to improving employee safety awareness and to the achievement of superior ratings for employee accident prevention on our projects.

The Safety Department of ORC stands ready to assist field management at all times to arrive at mutually acceptable procedures which will provide a safe workplace for our employees. We recognize that a well-managed project is one where safety is a significant factor in successful, on-time, within-budget completion.

ORC management teams shall strictly enforce project safety and health programs and all federal, state, and local safety laws.



Frank Renda
President

SECTION 3

HAZARD COMMUNICATION PLAN: General

POLICY

ORC has implemented this program to ensure employees are informed of any chemical hazards and hazardous or toxic substances in their workplace.

ORC will develop, implement, and maintain at each workplace a written hazard communication program that describes how labels and other forms of warning, safety data sheets, and employee information will be accomplished.

A copy of the Company's Hazard Communication Program is available to all employees and will be kept at each jobsite by the Superintendent in charge, or in the office. Translations of the hazard communication program are available to non-English speaking employees upon request from the Project Safety Supervisor.

Employees will be notified of any hazardous substances used by any company other than ORC in the workplace and make safety data sheets available to employees.

A list of all chemicals known to be used at the workplace by company employees will be available for review at the jobsite and in the office. Safety Data Sheets (SDS) for all chemicals used in the workplace by ORC are available to employees at the worksite from the Superintendent or in the office.

Changes of job assignments, changes in materials used, or any non-routine tasks involving hazardous substances or conditions will require notification and/or retraining of effected employees. The project Safety Supervisor will inform or retrain employees of any new or additional hazards, detail methods of hazard abatement or elimination, and provide proper personal protective equipment or engineering controls necessary for the job. Notifications and retraining will be documented as to name of employee, date, description of action taken, and verification by the company Safety Supervisor.

CONTAINER LABELING

The Project Safety Supervisor, or designated employee, will ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the following information:

- Identity of the hazardous chemical(s)
- Pictograms
- A signal word
- Hazard and precautionary statements
- The product identifier
- Supplier identification

The Project Safety Supervisor, or designated employee, will ensure labels or other, written warning forms, are legible and prominently displayed on the container, or readily available in the work area throughout each work shift.

No container will be released for use until this information is verified. The Project Safety Supervisor, or designated employee, will ensure that all containers are labeled with a copy of the original manufacturer's label or a label that has the appropriate identification and hazard warning.

SAFETY DATA SHEETS (SDS)

An SDS will be gathered and made available for every hazardous material at the worksite.

SDS are readily available for review to all ORC employees, and cover all hazardous chemicals used in the workplace. SDS are kept with the hazard communication plan at the project location. The SDS are updated and managed by project supervision and reviewed by the Project Safety Supervisor. If the SDS is not

available for a hazardous chemical, before use, notify the Project Safety Supervisor, and a SDS will be obtained for the chemical used.

TRAINING

Required Hazard Communication Training

If employees can be exposed to hazardous chemicals, project supervision must inform employees about the chemical and train them when they are hired and whenever they are exposed to a new chemical hazard or a process change. Required employee training includes:

- The written hazard-communication plan, and where it may be reviewed
- Hazardous chemicals present on the job site
- The operations where hazardous chemicals are used
- Physical and health effects of the hazardous chemicals
- Methods used to determine the presence or release of hazardous chemicals in the work area
- How to reduce or prevent exposure to these hazardous chemicals through use of control/work practices and personal protective equipment
- Where to find and how to read the hazard-communication plan, the list of hazardous chemicals, and SDS
- The meaning of warning labels on hazardous-chemical container
- Emergency procedures to follow if an employee is exposed to these chemicals
- How to use personal protective equipment

Label Elements Training

ORC will ensure all employees know the following elements of the labels: product identifier, signal word, pictogram, hazard statement, precautionary statement.

Employees will also be trained on how to use labels, to ensure proper storage and quickly locate first aid information.

They also need to know how the elements work together on a label.

- The different pictograms to indicate multiple hazards
- Where there are similar precautions, the one with the most protective information will be on the label

SDS Training

Employees will be trained on the standardized 16-section format and the type of information found in each one.

Training will also explain how the SDS information is related to the label information.

After attending the training, each employee will sign a company training form verifying they understand the above topics and how the topics are related to our hazard communication plan.

GENERAL SAFETY CONSIDERATIONS

Projects that produce, use, or store hazardous chemicals at the site in such a way that the employees may be exposed will additionally ensure that the hazard communication program developed and implemented include the following: methods project will use to provide the other employer(s) on-site access to safety data sheets, precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies, the labeling system used in the workplace.

ORC may not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

HAZARDOUS CHEMICALS in PIPES, CLOSED, or HIDDEN SYSTEMS

Before working in areas where hazardous chemicals are transferred through pipes or where pipes are insulated with asbestos-containing material, employees will contact the Project Safety Manager for the following information: the chemicals in the pipes; the physical or health effects of the chemicals or the asbestos insulation; the safe work practices to prevent exposure.

NOTIFICATION of CONTRACTORS

It is the responsibility of the project Superintendent, project Safety Manager, or designated person to provide any workplace-associated contractors and their employees with the following information, if they may be exposed to hazardous chemicals on the project:

- The identity of the chemicals, how to review safety data sheets, and an explanation of the container and pipe labeling system
- Safe work practices to prevent exposure

The Superintendent, project Safety Manager, or designated person will also obtain a safety data sheet for any hazardous chemical a subcontractor brings into the workplace to which an employee of 2 may be exposed.

HAZARD COMMUNICATION in the WORKPLACE

The essence of hazard communication is a warning. We use thousands of chemical products throughout our lives, at home and at work. However, most of us would be hard-pressed to distinguish safe products from hazardous ones without warning (the familiar skull-and-crossbones, for example). The warning tells us the product is hazardous, that it can harm us if we use it improperly.

In the workplace, hazard communication ensures our employees who may be exposed to hazardous chemicals know about the chemicals' hazards and understand how to protect themselves from exposure.

The HAZARD COMMUNICATION PROCESS

Hazard communication begins when chemical manufacturers and importers evaluate their products to determine each product's chemical hazards. Next, they prepare a Safety Data Sheet (SDS) for each product. An SDS includes detailed information about the product's hazards. Manufacturers and importers must include an SDS and a warning label with each container of product they ship to a customer.

The part of the process that affects the project is the "Written Hazard Communication Plan." The plan identifies hazardous chemicals at your workplace and describes how you will use safety data sheets, warning labels, and training to protect employees and keep informed about the product's chemical hazards.

The labeling system, location of SDS, routine precautions and emergency procedures will be provided to other employers and employees who may be affected by hazardous chemicals produced, used, or stored at the worksite.

Definition of a Hazardous Chemical

OSHA's hazard-communication rule, 1910.1200, defines a hazardous chemical as "any element, chemical compound, or mixture that is a physical hazard or a health hazard."

Chemicals that are Physical Hazards

Chemicals that are physical hazards are unstable and, when handled improperly, can cause fires or explosions. A chemical that is a physical hazard has one of the following characteristics:

- Is a combustible liquid
- Is a compressed gas
- Is explosive
- Is flammable
- Is water-reactive
- Starts or promotes combustion in other materials
- Can ignite spontaneously in air

Chemicals that are Health Hazards

Chemicals that are health hazards can damage an exposed person's tissue, vital organs, or internal systems. Generally, the higher the chemical's toxicity, the lower the amount or dose necessary for it to have harmful effects. The effects vary from person to person, ranging from temporary discomfort to permanent damage, depending on the dose, the toxicity, and the duration of exposure to the chemical.

Health effects range from short-duration symptoms that often appear immediately (acute effects) to persistent symptoms that may appear after longer exposures (chronic effects). Health effects can be classified by how they affect tissue, vital organs, or internal systems:

- Agents that damage the lungs, skin, eyes, or mucous membranes
- Carcinogens cause cancer
- Corrosives damage living tissue
- Hematopoietic agents affect the blood system hepatotoxins cause liver damage
- Sensitizers cause allergic reactions and irritants cause inflammation of living tissue
- Nephrotoxins damage cells or tissues of the kidneys
- Neurotoxins damage tissues of the nervous system
- Reproductive toxins damage reproductive systems, endocrine systems, or a developing fetus

How to Determine Whether a Chemical is Hazardous

A chemical is hazardous if it is listed in any of the following documents:

- OSHA Division 2, Subdivision Z safety and health rules, Toxic and Hazardous Substances; Division 3, Subdivision Z, Toxic and Hazardous Substances (Construction); Division 4, Subdivision Z, Chemical/Toxins (Agriculture)
- Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment (latest edition). Published by the American Conference of Industrial Hygienists (ACGIH)
- The Registry of Toxic Effects of Chemical Substances, published by the National Institute for Occupational Safety and Health (NIOSH)
- The container label of the product will issue a warning of hazardous effects

Using Safety Data Sheets

An SDS contains detailed information about a hazardous chemical product's health effects, physical and chemical characteristics, and safe practices for using it.

Responsibilities of Chemical Manufacturers, Importers, and Distributors

Chemical manufacturers and importers must prepare an SDS for each hazardous chemical product they produce. Distributors are responsible for ensuring that you have an SDS for each hazardous chemical product they sell to the company.

What to do if You Use Hazardous Chemical Products on Your Project

The project must have a current SDS for each product. Employees must be able to review the SDS in their work area at any time. Employees must be able to review the SDS in their work area at any time. The project Safety Manager or designated employee will be responsible for managing all the SDS at the project. The project Safety Manager or designated employee will ensure the list of hazardous chemicals is current, that the identity of each chemical on the list matches its identity on its SDS, and that incoming hazardous chemical container have an SDS

Information required on Safety Data Sheets

Chemical manufacturers and importers must prepare an SDS for each hazardous chemical product they ship to the project. The following information must appear on each sheet.

- Section 1, Identification includes product identifier, manufacturer or distributor name, address, phone number, emergency phone number, recommended use, restrictions on use.
- Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.
- Section 3, Compositions/information on ingredients includes information on chemical ingredients; trade secret claims.
- Section 4, First-aid measures includes important symptoms/effects, acute, delayed; required treatment.
- Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.
- Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.
- Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.
- Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
- Section 9, Physical and chemical properties lists the chemical's characteristics.
- Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.
- Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
- Section 12, Ecological information*
- Section 13, Disposal considerations
- Section 14, Transport information
- Section 15, Regulatory information
- Section 16, Other information, includes the date of preparation or last revision.

Using Container Warning Labels

The purpose of a container warning label is to warn employees about the container's contents and to refer employees to an appropriate SDS for more information about the chemical's physical and health hazards. Manufacturers, importers, and distributors must ensure that each hazardous chemical product sold has a label that includes the chemical's identity, a hazard warning, and a name and address for additional information about the product. If the project uses a hazardous chemical on the project, the project must ensure that each hazardous chemical container has a legible label, in English, that identifies the chemical and warns of its hazards.

Containers that must be Labeled

Original containers of hazardous chemicals from a manufacturer, importer, or distributor must have warning labels. Do not remove or deface them. If the hazardous chemical is transferred to a new container that new container must be labeled.



Contents of a Warning Label

A warning label must identify the chemical – a common chemical name or a code name is acceptable – and display a hazard warning such as DANGER or the familiar skull and crossbones.

- The identify of the chemical on the label, on its SDS, and on the project hazardous chemical list must match
- If not sure a hazardous chemical container is properly labeled, contact the manufacturer or supplier
- Designate project personnel to ensure all hazardous-chemical containers are properly labeled

ORC projects will ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available on the project throughout each work shift. If a project has employees who speak other languages, the company may add the information in their language to the material presented, if the information is presented in English as well.

Example of Original Container GHS Label

SAMPLE LABEL	
CODE _____ Product Name _____	Product Identifier
Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	Supplier Identification
Hazard Pictograms  	
Signal Word Danger	
Precautionary Statements Keep container tightly closed. Store in a cool, well-ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified. In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO ₂) fire extinguisher to extinguish. First Aid If exposed call Poison Center. If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.	Hazard Statements Highly flammable liquid and vapor. May cause liver and kidney damage.
Supplemental Information Directions for Use _____ _____ _____ Fill weight: _____ Lot Number: _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____	

Secondary/Portable Containers

Secondary containers are used to hold material transferred from the manufacturer's original container. These are required to be labelled if:

- Is not used within the work shift by the individual who makes the transfer
- The employee who made the transfer leaves the work area
- The container is moved to another work area and is no longer in the possession of the person who filled the container






Labels for secondary containers must include:

- The identity of the chemical and appropriate hazard warning must be shown on the label.
- The hazard warning that provides users with an immediate understanding of the primary health and/or physical hazard(s) of the chemical through the use of words, pictures, symbols, or any combination of these elements.
- The name and address of the manufacturer, importer, or other responsible party

The hazard label message must be legible, permanently displayed and written in English.

Portable containers are intended for immediate use of a chemical by the person who makes the transfer. Labels on portable containers are not required if the worker who made the transfer uses all of the contents during the work shift, or the chemical is returned to a labelled primary or secondary container at the end of the shift, or when work is completed.

Examples of NFPA

 NFPA Rating Explanation Guide 					
RATING NUMBER	HEALTH HAZARD	FLAMMABILITY HAZARD	INSTABILITY HAZARD	RATING SYMBOL	SPECIAL HAZARD
4	Can be lethal	Will vaporize and readily burn at normal temperatures	May explode at normal temperatures and pressures	ALK	Alkaline
3	Can cause serious or permanent injury	Can be ignited under almost all ambient temperatures	May explode at high temperature or shock	ACID	Acidic
2	Can cause temporary incapacitation or residual injury	Must be heated or high ambient temperature to burn	Violent chemical change at high temperatures or pressures	COR	Corrosive
1	Can cause significant irritation	Must be preheated before ignition can occur	Normally stable. High temperatures make unstable	OX	Oxidizing
0	No hazard	Will not burn	Stable		Radioactive
					Reacts violently or explosively with water
				 OX	Reacts violently or explosively with water and oxidizing

Although the NFPA system is widely recognized throughout the US, it is not part of the GHS. It is included in this plan for information purposes. All new labels must use the GHS format which is summarized below.

6 LABEL ELEMENTS

#6 MANUFACTURER INFORMATION

Company name, address & telephone number.

(SDS Section 1)

#3 PRODUCT NAME OR IDENTIFIERS*

(SDS Section 1)

#4 HAZARD STATEMENTS

Phrases that describe the nature of hazardous products and associated risks if precautionary action is not taken.

(SDS Section 2)

#5 PRECAUTIONARY STATEMENTS

Phrases associated with each hazard statement, that describe general preventative, response, storage or disposal precautions.

(SDS Section 2)

#1 SIGNAL WORD

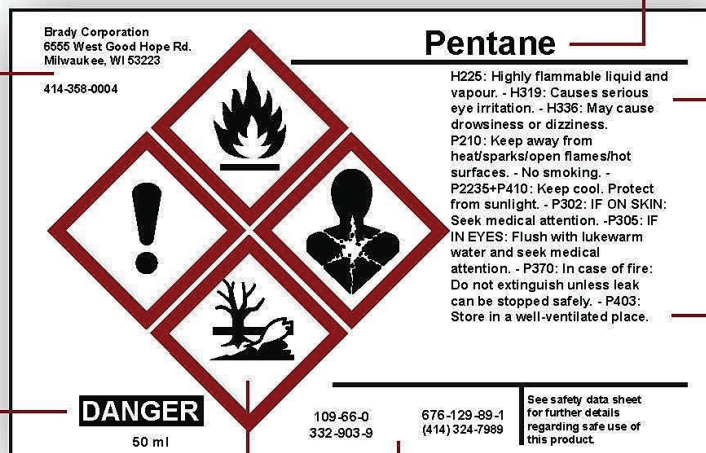
Indicates relative severity of hazard. "Danger" is used for most severe instances, while "Warning" is less severe.

(SDS Section 2)

#2 SYMBOLS (HAZARD PICTOGRAMS)











Convey health, physical and environmental hazard information with red diamond pictograms. May use a combination of one to five symbols.

(SDS Section 2)



* Additional Product Identifiers

PICTOGRAM GUIDE

CHEMICAL/ PHYSICAL RISK	HEALTH RISK	ENVIRONMENTAL RISK
EXPLODING BOMB Explosives, self-reactives, organic peroxides 	CORROSIVE Skin corrosion; eye damage 	ENVIRONMENT Aquatic toxicity (Not regulated by OSHA) 
FLAME Flammable gases, liquids, & solids; self-reactives; pyrophorics; self-heating 	SKULL AND CROSSBONES Acute toxicity (severe, fatal) 	
FLAME OVER CIRCLE Oxidizing gases, liquids and solids 	EXCLAMATION MARK Irritant, dermal sensitizer, acute toxicity (harmful) 	
GAS CYLINDER Compressed gases; liquefied gases; dissolved gases 	HEALTH HAZARD Carcinogens, respiratory sensitizers, reproductive toxicity, target organ toxicity, germ cell mutagens 	
CORROSION Corrosives to metals 		

EQUIPMENT OPERATION**CRITICAL LIFT WORKSHEET**

PROJECT: _____ DATE: _____ PREPARED BY: _____

1. CRANE DATA

- 1) Make & Model # _____
- 2) Unit # _____
- 3) Crane Type: _____
 _____ Crawler mounted lattice boom _____ Carrier mounted lattice boom
 _____ Grove telescope boom _____ Other _____ Boom Type _____
- 4) Lattice Boom Model & Type:
 _____ Angle Chord _____ Offset Tip
 _____ Tubular Chord _____ Tapered Tip
 _____ Hammerhead
- 5) Boom Length _____ ft.
- 6) Jib Model _____ Length _____
- 7) Counterweight _____ lbs. Offset _____
- 8) Is the Crane working on Trestle? _____ Yes _____ No
 If Yes has the Engineering Department been contacted? _____ Yes _____ No
 If No contact the Engineering Department to verify trestle is rate for Crane.

2. LOAD CAPACITY

Operating by the "seat of the pants" is very dangerous and will not be tolerated. Never use signs of tipping to determine if a load is within capacity. Either find out how much the load weighs and use the load chart or don't lift it at all.

- 9) Exact Load Weight _____
- 9) Size of Load _____

- 10) Calculate Net Capacity

Net Capacity = Gross Capacity - Capacity Deductions

_____ Lbs.	Gross Capacity at _____ ft. radius
_____ Lbs.	Rigging Weight (i.e., shackles, slings, picking beams)
_____ Lbs.	Main Block
_____ Lbs.	"Effective" Jib Weight
_____ Lbs.	Cable
_____ Lbs.	Headache Ball
_____ Lbs.	Others _____
_____ Lbs.	Net Capacity vs. _____ Lbs. Exact Load Weight

Net Capacity must be equal to or greater than exact load weight.

- 11) Maximum Load Radius ft.
- 12) Maximum Boom Angle °
- 13) Minimum Load Radius _____ ft.
- 14) Minimum Boom Angle _____ °

3. RIGGING

- 15) _____ Min. # parts of Hoist Line = Gross Capacity (*refer to load chart or calculate according to the formula on the back of page 1*)

- 16) Sling Construction: Dia. Inches _____ # Parts _____
Wire core/mechanical splice _____ Fiber core/hand splice _____
17) Number of Legs _____ 18) Sling Angle _____
19) Sling Capacity _____ lbs. (refer to charts on the back side)
20) Means of Fastening Sling or Hoist Hook to Load _____
21) The capacity of Fastener, i.e., Shackle, Picking Eye, etc. _____ lbs.

4. PRE-LIFT REQUIREMENTS (All must be answered YES.)

- 22) _____ Load chart utilized is for exact crane model, boom type, & length
23) _____ The competent person in charge of lift: Name _____ Title _____
24) _____ The competent signal person identified: Name _____ Title _____
25) _____ The competent rigging person identified: Name _____ Title _____
26) _____ Pre-pick meeting held with pick crew
27) _____ Written crane inspection completed within 14 days
28) _____ Swing path not over personnel
29) _____ Footing is sound
30) _____ Minimum clearances from power lines can and will be maintained
(Under 50 KV - 10' clearance --- Over 50 KV - See OSHA Standard)
31) _____ The load radius has been measured with a tape measure
32) _____ Wind speed does not exceed 30 mph. Some "sail" loads limited to 20 mph.
33) _____ A load will not touch boom in vertical lift
34) _____ For Dual Crane Lift, full compliance with "JB Dual Crane Lift Policy."
35) _____ If on a barge, the Project Manager has reviewed stability and potential list conditions
36) _____ Taglines are long enough, tied only to the load, and in good condition - loose end controlled by designated person
37) _____ Operating locations are far enough away from shoring, excavations, and trenches to eliminate the risk of collapse
38) _____ Application of hardwood mats has been carefully considered
39) _____ Outriggers or crawler tracks are fully extended, and wheels are clear of the ground
40) _____ Application of blocking under outrigger pads has been carefully considered
41) _____ Adequate swing clearance (minimum 2 feet) between the counterweight and any obstacles
42) _____ Boom composition is correct
43) _____ No added counterweight
44) _____ Crane is level and has been chocked with carpenter's level
45) _____ If the crane is not level within 1°, the blue load chart is applicable.
When using the blue chart, the crane must not exceed 3° off level.
46) _____ Also, if the blue chart is used, has maximum boom length been carefully considered
47) _____ The machine is rigged with an adequate number of Parts of Hoist Line (#15 above)

APPROVAL SIGNATURES

PROJECT MANAGER:

PROJECT SUPERINTENDENT

_____ Date: _____

_____ Date: _____

EMERGENCY PROGRAM

THUNDERSTORM, LIGHTNING & TORNADO STORM PROCEDURE

PURPOSE

To provide guidelines for protecting employees and equipment during thunder, lightning, and tornado storms.

SC-OPE

Applicable to all projects in all states.

RESPONSIBILITY

The Superintendent will monitor storms as they appear (using NOAA weather reports at weather.gov) and implement these procedures as necessary. The Superintendent, or in his absence, the Foreman, will also have the authority to suspend operations when lightning has been detected in a 10-mile radius of the project work activities. Work activities should be suspended for at least 30 minutes after hearing the last sound of thunder or it has been determined the storm(s) has passed.

DEFINITIONS

Weather Watch – Issued when conditions are favorable for the formation of thunderstorms, lightning, and tornados.

Weather Warning – Issued when the storm has been sighted or located on radar.

Note: Storms can rush, and there may not be time for the formal issuing of a "Warning."

PROCEDURES

1. Prior to beginning outdoor work supervisor should check NOAA weather reports (weather.gov) and forecasts for weather hazards.
 - a. Ensure workers understand what actions to take after hearing thunder, seeing lightning, or perceiving any other warning signs.
 - b. Ensure employees know the locations and requirements for safe shelter.
 - c. Indicate response times for all employees to reach safe shelters.
 - d. Account for the time required to evacuate to reach safety.
2. Stay informed – A Thunderstorm (Cumulonimbus Cloud) is an individual weather factory and has four (4) distinct characteristics: anvil top, main body, roll cloud, and dark area extend from base of cloud to the earth.
3. If storms develop pay close attention to local television, radio, and internet weather reports, forecasts and emergency notifications regarding thunderstorm activity and severe weather.
4. Seek shelter (see section 9.2 (A) for refuge/protection for storm(s)).
5. Remain in shelter for at least 30 minutes after hearing the last sound of thunder or it has been determined the storm(s) has passed.

These storms move at approximately 25 miles per hour and usually travel from the southwest to the northeast, typically in an east-northeast direction. However, there is no guarantee to this. *The above is intended as a guide to what physical characteristics might be seen in a thunderstorm (Cumulonimbus Cloud).*

Tornadoes are closely associated with Cumulonimbus Clouds for these clouds are their spawning ground. (Tornadoes occur most frequently in the spring)

6. Watch and respond to cloud/weather formations
7. Listen to local weather advisories

If within declared **WATCH** area begin evaluating ways to protect employees and equipment so if a **WARNING** is issued or severe weather is imminent the following guidelines can be implemented:

A. THUNDER AND LIGHTNING STORMS

- | <u>Exposure</u> | <u>Refuge/Protection</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Employee | Under a bridge or other structure; inside office, tool van, vehicle; move away from open areas; stay away from natural lightning rods (poles, cranes, trees, etc.) |
| 2. Land Crane | Where possible boom down; operator stay in Enclosed cab; other employees stay away from the crane. |
| 3. Barged Crane | Where possible boom down; operator stay in enclosed cab; deckhands evacuate barge or into container/tool van; if crane not tied down, lower headache ball onto the deck or into the water to bypass mats to ground. |
| 4. Misc. Equipment | Avoid open areas; operator stay in the cab (only with metal top). |
| 1. <u>General Precautions</u> | |
| a. Discontinue the use of electrical tools during lightning storms. | |
| b. Hand tools, crowbars, etc., over 9 inches long could act as an antenna for lightning discharge. | |
| c. In open areas, be a small target. Squat low to the ground – do not lay on the ground. | |
| d. Get off and away from open water. | |
| e. Stay away from metal parts that could carry a current. | |
| f. Get off elevated structures (pier caps, bridge decks, structural steel, roofs, JLG's, etc.). | |
| g. Do not go to a tree for shelter if in a wooded area; stay away from the more massive trees. | |
| h. First aid for lightning; Call for help – Check breathing (CPR if needed) – Check for burns – Get medical attention. | |
| i. After the storm, watch out for downed powerlines and snakes. | |
| j. If a piece of equipment has been struck by lightning, be sure to have it checked out thoroughly before putting it back into service. | |

B. TORNADOES

- | <u>Exposure</u> | <u>Refuge/Protection</u> |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Employees | Seek stable refuge (bridge abutment, lower level of the building). If an open area, lie flat in a ditch. <u>Do not</u> seek shelter in vans, trailers, or equipment. |
| 2. Cranes and Equipment | Boom-down, lock house rotation, barricade windows, operator evacuated. |
| 3. Materials | Bundle, weight down, blockade as much as possible. Secure bridge deck overhangs. |
| 1. <u>General Precautions</u> | |
| a. Never seek shelter in anything portable, i.e., trailers, tool vans, container, vehicles, equipment. | |
| b. Do not try to outrun a tornado in a vehicle. | |
| c. Low lying area is the only refuge, lie flat and beware of flooding potential and protect the head. | |
| d. Watch out for damaged/downed powerlines and snakes after the storm has passed. | |

NOTE: Refer to Oscar Renda Hurricane Protection Procedures for hurricane information.

SAFE WORK PRACTICES

HEAT RELATED ILLNESS (SIGNS AND PREVENTION)

PURPOSE

The purpose of this section is to provide ORC employees with the signs, symptoms, and ways to prevent heat related illnesses.

SCOPE

This program applies to all ORC employees, temporary employees and subcontractors.

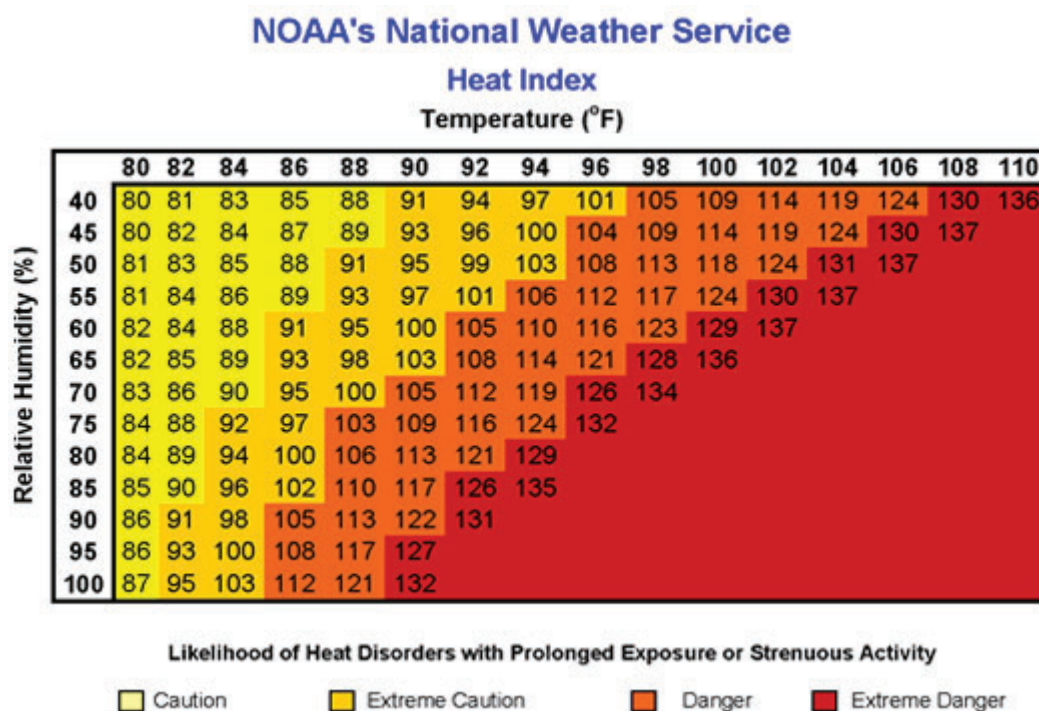
INTRODUCTION

ORC employees who are exposed to hot and humid conditions are at risk of heat-related illness. The risk of heat-related illness becomes greater as the weather gets hotter and more humid. This situation is particularly serious when hot weather arrives suddenly early in the season, before workers have had a chance to adapt to warm weather.

For people working outdoors in hot weather, both air temperature and humidity affect how hot they feel. The "**heat index**" is a single value that takes both temperature and humidity into account. The higher the heat index, the hotter the weather feels, since sweat does not readily evaporate and cool the skin. The heat index is a better measure than air temperature alone for estimating the risk to workers from environmental heat sources.

ABOUT the HEAT INDEX

The U.S. National Oceanographic and Atmospheric Administration (NOAA) developed the heat index system. The heat index combines both air temperature and relative humidity into a single value that indicates the apparent temperature in degrees Fahrenheit, or how hot the weather will feel. The higher the heat index, the hotter the weather will feel, and the greater the risk that outdoor workers will experience heat-related illness. NOAA issues heat advisories as the heat index rises.



Why humidity matters: Relative humidity is a measure of the amount of moisture in the air. Sweat does not evaporate as quickly when the air is moist, as it does in a dry climate. Since evaporation of sweat from the skin is one of the ways the human body cools itself on a hot day, high humidity reduces our natural cooling potential and we feel hotter. Low humidity can also be a problem for outdoor workers in hot, desert-like climates. Sweat evaporates very rapidly in low humidity, which can lead to severe dehydration if a person does not drink enough water throughout the day.

IMPORTANT NOTE: The heat index values were devised for shady, light wind conditions, **and exposure to full sunshine can increase heat index values by up to 15° Fahrenheit.** To account for solar load, added precautions are recommended.

NOAA issues extreme heat advisories to indicate when excessive, extended heat will occur. The advisories are based mainly on predicted heat index values:

- **Excessive Heat Outlook:** issued when the potential exists for extended excessive heat (heat index of 105-110°F) **over the next 3-7 days.** This is a good time to check on supplies, such as extra water coolers, and refresh worker training.
- **Excessive Heat Watch:** issued when excessive heat could occur within the **next 24 to 72 hours**, but the timing is uncertain.
- **Excessive Heat Warning:** issued when the heat index will be high enough to be **life threatening in the next 24 hours.** This warning indicates that the **excessive heat is imminent or has a very high probability of occurring.**
- **Excessive Heat Advisory:** like an Excessive Heat Warning, but less serious. This is issued when the heat index could be **uncomfortable or inconvenient but is not life threatening if precautions are taken.**

USING the HEAT INDEX to PROTECT WORKERS

The heat index can be used to help determine the risk of heat-related illness for outdoor workers, what actions are needed to protect workers, and when those actions are triggered. Depending on the heat index value, the risk for heat-related illness can range from lower to very high to extreme. As the heat index value goes up, more preventive measures are needed to protect workers. Heat index values are divided into four bands associated with four risk levels. These bands differ from those appearing in the NOAA Heat Index chart, which was developed for the public. The NOAA bands have been modified for use at worksites:

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

Important consideration: NOAA devised the heat index values for shaded conditions and light winds. **Full sunshine can increase heat index values by up to 15° Fahrenheit.** Strenuous work and the use of heavy or specialized protective clothing also have an additive effect. As a result, the risk at a specific heat index could be higher than that listed in the table above if the work is in direct sunlight without a light breeze, or if work involves strenuous tasks or the use of heavy or specialized protective clothing. Extra measures, including implementing precautions at the next risk level, are necessary under these circumstances.

The steps each ORC project should take in response to an elevated heat index are the same type of steps that the project would follow to address other hazards in the workplace:

- Develop an illness prevention plan for outdoor work based on the heat index
- Train employees how to recognize and prevent heat-related illness
- Track the worksite heat index daily; communicate it and the required precautions to workers
- Implement the project plan; review and revise it throughout the summer

STEP 1: Develop a heat-related illness prevention plan before heat index levels rise.

Use the Protective Measures to Take at Each Risk Level to inform your planning. The plan should address:

Plan Element	Heat Index Risk Level			
	Lower (Caution)	Moderate	High	Very High/Extreme
Supplies (ensuring adequate water, provisions for rest areas, and other supplies)	✓	✓	✓	✓
<u>Emergency planning and response</u> (preparing supervisors and crews for emergencies)	✓	✓	✓	✓
<u>Worker acclimatization</u> (gradually increasing workloads; allowing more frequent breaks as workers adapt to the heat)	✓	✓	✓	✓
<u>Modified work schedules</u> (establishing systems to enable adjustments to work schedules)		✓	✓	✓
<u>Training</u> (preparing workers to recognize heat-related illness and preventive measures)	✓	✓	✓	✓
<u>Physiological</u> , visual, and verbal monitoring (using direct observation and physiological monitoring to check for signs of heat-related illness)		✓	✓	✓

Protective Measures to Take at Each Risk Level

Drinking Water

Water should have a palatable (pleasant and odor-free) taste and water temperature should be 50° F to 60°F, if possible.

Other Drinks

Encourage employees to choose water over soda and other drinks containing caffeine and high sugar content. These drinks may lead to dehydration. Drinks with some flavoring added may be more palatable to workers and thereby improve hydration. Encourage employees to avoid drinking alcohol after work shifts, during hot weather events.

Use protective measures described for each risk level to help plan, and schedule and train employees so that everyone is prepared to work safely as the heat index rises.

Summary of Risk Levels and Associated Protective Measures

The most critical actions ORC Project staff should take to help prevent heat-related illness at each level:

Heat Index	Risk Level	Protective Measures
<91°F	<u>Lower</u> (Caution)	<ul style="list-style-type: none">▪ Provide drinking water▪ Ensure that adequate medical services are available▪ Plan for times when heat index is higher, including worker heat safety training▪ Encourage workers to wear sunscreen▪ Acclimatize workers If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.*
91°F to 103°F	<u>Moderate</u>	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none">▪ Remind workers to drink water often (about 4 cups/hour)**▪ Review heat-related illness topics with workers: how to recognize heat-related illness, how to prevent it, and what to do if someone gets sick▪ Schedule frequent breaks in a cool, shaded area▪ Acclimatize workers▪ Set up buddy system/instruct supervisors to watch workers for signs of heat-related illness If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.* <ul style="list-style-type: none">▪ Schedule activities at a time when the heat index is lower▪ Develop work/rest schedules▪ Monitor workers closely

103°F to 115°F	<u>High</u>	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none"> ▪ Alert workers of high-risk conditions ▪ Actively encourage workers to drink plenty of water (about 4 cups/hour)** ▪ Limit physical exertion (e.g. use mechanical lifts) ▪ Have a knowledgeable person at the worksite who is well-informed about heat-related illness and able to determine appropriate work/rest schedules ▪ Establish and enforce work/rest schedules ▪ Adjust work activities (e.g., reschedule work, pace/rotate jobs) ▪ Use cooling techniques ▪ always Watch/communicate with workers <p>When possible, reschedule activities to a time when heat index is lower</p>
>115°F	<u>Very High to Extreme</u>	<p>Reschedule non-essential activity for days with a reduced heat index or to a time when the heat index is lower</p> <p>Move essential work tasks to the coolest part of the work shift; consider earlier start times, split shifts, or evening and night shifts.</p> <p>Strenuous work tasks and those requiring the use of heavy or non-breathable clothing or impermeable chemical protective clothing should not be conducted when the heat index is at or above 115°F.</p> <p>If essential work must be done, in addition to the steps listed above:</p> <ul style="list-style-type: none"> ▪ Alert workers of extreme heat hazards ▪ Establish water drinking schedule (about 4 cups/hour)** ▪ Develop and enforce protective work/rest schedules ▪ Conduct physiological monitoring (e.g., pulse, temperature, etc.) ▪ Stop work if essential control methods are inadequate or unavailable.

*The heat index is a simple tool and a useful guide for Project Staff making decisions about protecting employees in hot weather. It does not account for certain conditions that contribute additional risk, such as physical exertion. Consider taking the steps at the next highest risk level to protect workers from the added risks posed by:

- Working in the direct sun (can add up to 15°F to the heat index value)
- Wearing heavy clothing or protective gear

**Under most circumstances, fluid intake should not exceed 6 cups per hour or 12 quarts per day. This makes it particularly important to reduce work rates, reschedule work, or enforce work/rest schedules.