CRANE, HOIST, AND RIGGING SAFETY PROGRAM		
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Crane, Hoist, and Rigging Safety Program

29 CFR 1910.179 (Overhead and Gantry Cranes); 29 CFR 1910.184 (Slings); ASME B30.21 (Manually Lever Operated Hoists); ASME B30.11 (Monorails and Under-hung Cranes); ASME B30.16 (Overhead Hoists); ASME B30.17 (Overhead and Gantry Cranes); ASME B30.10 (Hooks); ASME30.20 (Below-the-Hook Lifting Devices); ASME B30.26 (Rigging Hardware); ANSI E1.47 (Entertainment Rigging); ANSI E1.22 (Fire Safety Curtains); 29 CFR 1926.1501(a)(6) (Annual Inspections)

Objective

- Cranes, hoists and slings pose a serious safety hazard, such as breaking, becoming unbalanced or falling due to excessive weight, if not used and maintained properly. It is the policy of Case Western Reserve University (CWRU) to ensure employees are trained on the hazards of using cranes, hoists and slings and also to make certain that such equipment is safely maintained. 29 CFR 1910.179 (Overhead and Gantry Cranes); 29 CFR 1910.184 (Slings); ASME B30.21 (Manually Lever Operated Hoists); ASME B30.11 (Monorails and Under-hung Cranes); ASME B30.16 (Overhead Hoists); ASME B30.17 (Overhead and Gantry Cranes); ASME B30.10 (Hooks); ASME30.20 (Below-the-Hook Lifting Devices); ASME B30.26 (Rigging Hardware); ANSI E1.47 (Entertainment Rigging)

  The Crane, Hoist and Rigging Safety Program's purpose is to:
  - guarantee the safe use of cranes, hoists and rigging materials.
  - ensure that work units understand and comply with safety standards and inspection procedures related to cranes, hoists and rigging.
  - assign responsibilities to personnel who are necessary for the successful implementation of this program.

This program applies to all employees at CWRU who work with or supervise those who handle cranes, hoists, slings and the following rigging systems: Motorized Systems, Counterweighted Systems, Dead Hung Systems and Hemp Systems.

This program covers the following types of slings used by CWRU: Alloy Steel chain, wire rope, metal mesh, natural and synthetic fiber rope, and synthetic webbing.

Table of Contents

Definitions……..4

Responsibilities…….....6

Budget Executives and Budget Administrators…….....6

Department of Environmental Health and Safety (EHS)……6

Supervisors | Faculty | Lab Managers | PI's……6

Employees……....7

General Requirements for Cranes, Hoists and Slings……....7

Training……..8

Inspections for Cranes, Hoists and Rigging……...9

Pre-Use Inspection…….9

Daily Inspections…….9

Monthly Inspections……9

Annual Inspections……10

Maintenance…….11

Recordkeeping…….11

Contractors……...12

Appendix A……...13

Appendix A Pre-Use Crane, Hoist and Sling Inspection Guidelines.....14

Appendix B……...15

Appendix C……...17

Appendix D……...20

Appendix E……...21

Appendix F……...22

Appendix G……..25

Appendix H……..26

1.0 Definitions

- *Authorized person (repair)*: Someone with training and experience pertaining to crane and hoist repair. There are specific considerations that are unique to cranes and hoists, thus the person must have training and experience in crane and hoist repair.

- *Batten*: A steel pipe used to support scenery, curtains, and lighting. Usually suspended from the grid or roof structure as a part of a rigging system. Typically, 1.5in schedule 40 pipe.

- *Bridge*: indicates that part of a crane consisting of girders, trucks, end ties, foot walks, and drive mechanism which carries the trolley or trolleys.

- *Bridge crane*: A load lifting system consisting of a hoist which moves laterally on a beam, girder or bridge which in turn moves longitudinally on a runway made of beams and rails. Loads can be moved to any point within a rectangle formed by the bridge span and runway length.

- *Bumper*: A device for reducing impact when a moving crane or trolley reaches the end of its permitted travel, or when two moving cranes or trolleys come in contact with each other. This device may be attached to the bridge, trolley or runway stop.

- *Clew*: A device, typically a flat steel or aluminum plate with multiple holes used to connect several lift lines into a single line.

- *Competent trainer*: An employee who has demonstrated familiarity with the type of crane/hoist in their work unit; a contractor or equipment vendor who has experience or training in crane/hoist operation and is familiar with the equipment.

- *Competent evaluator*: An employee in the department/work unit who is experienced and competent with the crane. An employee must be familiar with the equipment and its safe operation. In order to be considered competent in regard to conducting the evaluation portion of the crane training, an employee must have successfully completed the classroom portion of crane/hoist training. This employee could be, but is not limited to, a certified operator, supervisor/manager or safety officer.

- *Counterweight system*: A device for flying scenery by the use of weights, pulleys, blocks, ropes, and arbors. It operates by using the weights to offset the weight of the scenery or drapery over the stage, allowing it to fly.

- *Crane*: A machine for lifting and lowering a load and moving it horizontally with the hoisting mechanism acting as an integral part of the machine. Cranes can be driven manually or by power.

- *Dead Hung*: Battens or similar equipment that is permanently supported from the grid

- *Drum*: The cylindrical member around which rope is wound for lifting or lowering the load.

- *Designated person (monthly inspections)*: A selected individual who has been assigned by the employer or the employer's representative as being qualified to perform specific duties.

- *End truck*: An assembly consisting of the frame and wheels which support the crane girder(s) and allow movement along the runway.

- *Floor operated crane*: A crane controlled by an operator on the floor or an independent platform using a pendant or non-conductive rope.

- *Gantry crane*: A crane that has a hoist in a trolley which runs horizontally along gantry rails, usually fitted underneath a beam spanning between uprights. The uprights have wheels so that the whole crane can move at right angles to the direction of the gantry rails.

- *Grid*: The structural framework of beams over a stage used to support the rigging system. Short for gridiron

- *Hoist*: A suspended machinery unit that is used for lifting or lowering a freely suspended (unguided) load.

- *Lift line*: Any fiber or wire rope reeved through block(s) and attached to a load. Lift lines operate singly, as spot lines, or in "sets" of several lift lines working together to support a load.

- *Line set*: A system of multiple lift lines, operated together to raise, lower, or suspend a load; all of the mechanical, component subsystems required for supporting, positioning, and operating those lift lines as a system.

- *Limit device*: A device that is operated by some part or motion of a power-driven hoist to limit motion.

- *Monorail*: A trolley suspension crane hoist whose trolley is suspended from a single rail. This type of crane hoist is used to move a load horizontally.

- *Overhead crane*: A crane with a movable bridge carrying a movable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

- *Reeving*: A system in which a rope or chain travels around drums, sheaves or sprockets.

- *Rope*: Refers to wire rope unless otherwise specified.

- *Sheave*: A grooved wheel or pulley used with a rope or chain to change direction and the point of application of a pulling force.

- *Trolley*: The unit which travels on the bridge rails and carries the hoisting mechanism.

- *Wall mounted jib crane*: A crane with a jib and with or without a trolley. The wall crane is supported from a side wall or columns of a building.

2.0 Responsibilities

- Budget executives and budget administrators

  - Ensure that responsibilities assigned within this program are carried out within their administrative work unit.

  - Designate individuals within each work unit who will be responsible for the implementation of this program.

  - Actively support this program as part of the work unit's overall safety effort.

  - Ensure adequate funding is available to reinforce this program.

- Department of Environmental Health and Safety (EHS)

  - Assist work units in implementing the provisions of this program

  - Periodically, review and update this written program.

  - Periodically, evaluate the overall effectiveness of this program.

  - Determine the applicability of this program to activities conducted within their work unit.

- Coordinate the implementation of this program within their work unit.
- Be knowledgeable of components of this program and ensure its compliance.
- Assist in the investigation of serious accidents related to cranes, etc.
- Actively support this program as part of the work unit's overall safety effort.

- Supervisors | Faculty | Lab and Facility Managers | PI's
  - Be thoroughly informed of the contents of this program and its application to their areas of responsibility and authority.
  - Ensure employees comply with all provisions of this program.
  - Ensure employees receive training appropriate to their assigned tasks and maintain documentation of such training.
  - Ensure employees are provided with and use appropriate protective equipment.
  - Take prompt corrective action when unsafe conditions or practices are observed.
  - Investigate injuries and incidents within various work units related to crane, hoist and sling usage.

- Employees
  - Follow the work practices described in this program, including the use of appropriate protective equipment.
  - Attend all training required by this program.
  - Immediately report any unsafe conditions or concerns related to cranes, hoists or slings to their supervisor.

3.0 General Requirements for Cranes, Hoists and Rigging

- The work unit must notify EHS when a crane or hoist is installed. This is required so that EHS can add the unit to annual inspection schedule.

- Only trained employees shall operate a crane, hoist, or rigging. If the need arises to operate crane or hoists not owned by CWRU, contact EHS for further guidance.

- Cranes, hoists and rigging shall go through pre-use, annual and 3rd party inspections.

- Slings shall go through pre-use and annual inspections.

- Any unsafe condition noted during an inspection shall be corrected before the equipment is used.

- Only qualified personnel shall perform repairs or make adjustments. Any replacement parts must meet the same specifications designated by the manufacturer

- Operators shall comply with the manufacturer's specifications and limitations applicable to the operation of the equipment.

- When manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded.

- Operators shall follow safe work practices when operating cranes, hoists and rigging. (Refer to Appendix F.)

4.0 Training

- Training must be completed prior to any use of a crane, hoist or rigging. Training operators at CWRU is a two-step process for the majority of cranes/hoists/rigging which consists of classroom instruction and hands-on training.

- A documented operator evaluation is required for operators of bridge cranes. (Refer to Appendix G.)

- Classroom instruction, hands-on training and operator evaluations can be conducted by either a competent trainer in the work unit, the equipment manager, a safety consultant and/or a vendor who specializes in crane/hoist training.

- Hands-on training and hands-on evaluation portions of the training can also be conducted by an employee in the department/work unit who is experienced and competent with the equipment. This person could be a trained operator, supervisor/manager or safety officer.

- Training must be specific to the type of equipment being used.
- Training shall include the following:
    - Characteristics of safe crane, hoist and rigging operation
    - Inspection procedures
    - An explanation of the criteria for components that can be used to determine if it passes or fails an inspection
    - Basic load handling considerations
    - Operator responsibilities
    - Communication used during crane and hoist operation
    - Hands-on equipment training
- Trainees must successfully complete hands-on training before being allowed to operate the equipment independently. Trainees will be given adequate supervision and time to learn basic operating skills.
- Refresher training in relevant topics will be provided to an operator when any of the following occur:
    - The operator has been observed to be using the equipment in an unsafe manner
    - The operator has been involved in an accident or a near miss incident
    - The operator is assigned to operate a different type of equipment
    - A condition in the workplace changes in a manner that could affect the safe operation of the equipment

5.0 Inspections for Cranes, Hoists and Rigging

- Pre-Use Inspection (Refer to Appendix A and Appendix H)
    - Prior to use, the operator shall visually inspect the crane, hoist or for defects.
    - The pre-use inspection will identify conditions that could affect the

safe use of the equipment. This inspection is not required to be documented.

- Operators must immediately report any unsafe crane conditions to their supervisor. The supervisor is then responsible for ensuring the necessary arrangements are made for repair.

- Only authorized personnel shall perform repairs and adjustments.

- All replacement parts shall be the same design as the original or an equivalent design as designated by the manufacturer.

- Daily Inspections

  - Daily inspections are to be supplemented with monthly and annual inspections.

- Monthly Inspections

  - Monthly inspections can be conducted by qualified persons designated by the department. **Monthly inspections should be documented.** They should include all items described for the daily inspections, as well as the following:

    - Deformed, cracked or corroded members and braces or missing fasteners

    - Cracked or worn sheaves, drums, sprockets, clamping devices, bumpers, etc.

    - Frayed, kinked, or misaligned wire/rope

- Annual Inspections

  - Crane inspections are conducted and documented by a qualified outside contractor. CWRU's current contract can be found in the Crane inspection binder on file with the facilities safety manager at EHS. The facility safety manager is responsible for coordinating the inspections.
  - Rigging inspections are conducted and documented annually by a qualified person (theatre safety specialist). **Every other cycle** must be completed by a third party inspector and reports must be submitted to EHS. The facility safety manager is responsible for coordinating rigging system inspections.

  - Sling inspections shall be performed by a competent person or

trained third party.

- Any system not in regular use that has been idle for a period of one month or more shall be given a monthly inspection before being returned to service.

6.0 Maintenance

- Preventive maintenance shall be performed as prescribed by the manufacturer as detailed in the owner's manual.

7.0 Recordkeeping

- Each department is responsible for maintaining the following records in order to meet the requirements of this program:
  - A listing of all cranes and hoists and a record of installed rigging.
  - A record of training which includes: (Refer to Appendix E or equivalent)
    - Name of trainer
    - Name of operator
    - Date of training (classroom, hands-on training and hands-on evaluation)
  - Copies of all monthly inspection records for one year after completion
  - Copies of annual inspection records for at least four years
    - Annual rigging system inspections must be maintained for 4 years, so that 2 cycles of third party inspections are included.
  - Copies of repair records for the life of the equipment
  - Copies of load test results for the life of the equipment
- EHS is responsible for maintaining the following records in order to meet the requirements of this program:

- EHS will retain training records indefinitely for any training they have provided.

8.0 Contractors

- Contractors are required to follow all applicable OSHA regulations and manufacturer's instructions. Contractors are not permitted to use any crane, hoist or rigging owned by CWRU.

Appendix A

Pre-Use Crane, Hoist and Sling Inspection Guidelines

Item (Cranes and Hoists)	Yes	No	N/A
Load rating marked on each side of the crane			
Load rating of the hoist marked on the hoist or its load block and legible from the ground? (If the crane has more than one hoisting unit, each hoist shall have its rated load marked on it, or its loading block, and this marking shall be clearly legible from the ground.)			
At least three inches of overhead clearance and two inches laterally between crane and obstructions			
All controller functions labeled and legible			
All operational controls and functional operating mechanisms working properly, properly adjusted and no unusual sounds			
Upper limit switch operating properly; It shall be tested with no load on the hook. Extreme care shall be exercised. The block shall be "inched" into the limit device or run in at slow speed.			
Excessive wear of components on any functional operating mechanisms			
Deterioration or leakage in lines, tanks, valves, drain pumps and other parts of the air or hydraulic system			
Excessive dirt, grease or foreign matter			
Deformation and/or cracking of the hook, load block, drums and/or sheaves			
Safety latch on crane/hoist load block that automatically closes			

Appendix A - Pre-Use Crane, Hoist and Sling Inspection Guidelines

Item (Slings)	Yes	No	N/A
***Chain Slings*:**			
Nicks, cracks, breaks, stretches, distortions, twists, gouges, bends, heat damage, discoloration, worn or damaged links and components			
Lack of ability of the chain or components to hinge (articulate) freely			
Pitting, corrosion or weld splatter			
Missing or illegible sling identifications			
Other conditions that cause doubt as to the continued safe use of the sling			
***Wire Rope Slings*:**			
Broken wires			
Pitting or corrosion			
Localized wear (shiny worn spots), abrasion or scrapes			
Damage or displacement of end fittings, hooks, rings, links or collars			
Distortions, kinks, bird caging, crushing or other evidence of damage to wire rope structure			
Missing or illegible sling identifications			
Other conditions that cause doubt as to the continued safe use of the sling			
***Synthetic Fiber Rope / Synthetic Webbing Slings*:**			
Melting, charring or burning of any part of the surface			
Snags, punctures, tears, cuts, fraying, broken or worn stitches			
Change in diameter			
Discoloration			
Hard or stiff areas			
Wear or elongation exceeding the amount recommended by the manufacturer			
Distortion of fittings			
Missing or illegible sling identifications			
Other conditions that cause doubt as to the continued safe use of the sling			
***Metal Mesh Slings*:**			
Broken weld or brazed joints			
Broken wire in any part of the mesh			
Abrasion, corrosion, distortion, pitting, twisting, bending, cracking, gouging of any component			
Lack of flexibility			
Missing or illegible sling identifications			
Other conditions that cause doubt as to the continued safe use of the sling			

Appendix B

Crane & Hoist Monthly Inspection Checklist

	Inspection Item	Yes	No	N/A
1	Conduct pre-use inspection of equipment. Does it pass the pre-use inspection? (Refer to Appendix A)			
2	Any deformed, cracked, or corroded members?			
3	Are there worn, cracked, or distorted parts such as pins, bearings, wheels, shafts, gears, rollers, locking and clamping devices, bumpers, and stops?			
4	Is there excessive wear or improper operation of the brake system parts, linings, pawls, chain sprockets or ratchets?			
5	Any cracked or worn sheaves and drums?			
6	Are there loose or missing bolts, nuts, pins or rivets?			
7	Is there any signs of pitting or deterioration of controllers, master switches, contacts, limit switches, and push button stations?			
8	Are load, wind, and other indicators properly operating?			
9	Are gasoline, diesel, electric, or other power plants performing properly?			
10	Are stops provided at the limit of travel of the trolley?			
11	Corroded, cracked, bent, worn, or improperly applied end connections?			
12	Load chain reeving for compliance with hoist manufacturer's recommendation?			
	Hook			
13	Is there any gouges, nicks, weld spatter, corrosion, deformation, cracks?			
14	Has the hook throat opening increased 5%, not to exceed ¼ inch (6 mm), more than the normal throat opening measured at the narrowest point?			
15	Is there any bend or twist from the plane of the unbent hook?			

	Chain			
16	Is there excessive drive chain stretch?			
17	Test the hoist under load in lifting and lowering directions and observe the operation of the chain and sprockets. Does the chain feed smoothly into and away from the sprockets?			
18	Does the chain bind, jump, or is noisy? If so, clean chain. If trouble continues inspect the chain and mating parts for wear, distortion, or other damage.			
19	Slacken the chain and move the adjacent links to one side to inspect for wear at the contact points. Is wear observed? Is stretching suspected?			

Refer to owner's manual for any additional inspection items:

Comments:

Crane ID number or identifier_____

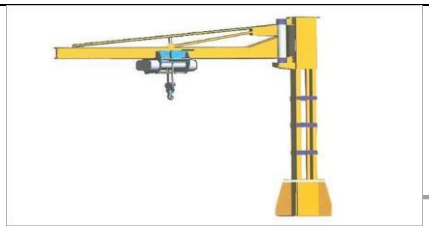
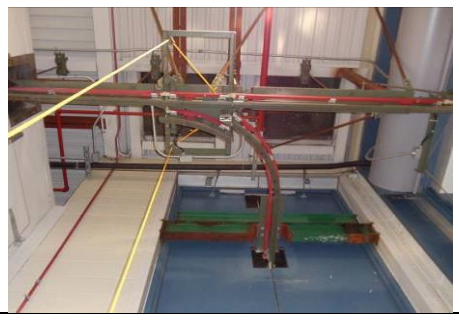
Inspector (Print) _____

Sign_____

Date_____

Appendix C

Examples of Cranes and Hoists

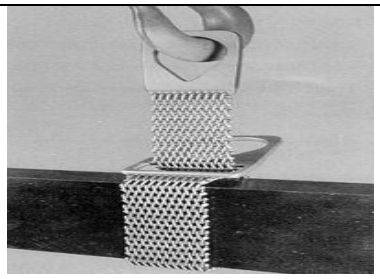
	A type of crane where a horizontal member (*jib* or *boom*), supporting a moveable hoist, is fixed to a wall or to a floor-mounted pillar. **Jib Crane**
	**Wall Crane**
	A type of crane has a hoist which typically runs horizontally along rail/s. **Gantry Crane**
	**Semi Gantry Crane**
	**Monorail**
	**Switching Monorail**

	A load lifting system consisting of a hoist which moves laterally on a beam, girder or bridge which in turn moves longitudinally on a runway made of beams and rails. Loads can be moved to any point within a rectangle formed by the bridge span and runway length. **Bridge Crane**
	***Mobile Cranes*** ***ARE NOT COVERED IN THIS PROGRAM***
	***Winches*** ***ARE NOT COVERED IN THIS PROGRAM*** ***Follow the manufacturer's recommendations.***
	**Electric Chain Hoist**
	**Manually operated hoists** **Lever Hoist** **Chain Fall Hoist** **Come Along Hoist**

	**<u>Pneumatic Chain Hoist</u>**
	**<u>Electric Wire Rope Hoist</u>**
	**<u>Pneumatic Wire Rope Hoist</u>**
	***<u>Engine Hoists</u>*** ***<u>ARE NOT COVERED IN THIS PROGRAM</u>*** **Follow the manufacturer's recommendations.**

Appendix D

Examples of Rigging Materials (add shackles etc)

	**Alloy Steel Chain**
	**Wire Rope**
	**Metal Mesh**
	**Natural and Synthetic Fiber Rope**
	**Synthetic Web**

Appendix E

Crane and Hoist Training Certification Form

Name of Trainer (Print) _____

(Signature) _____

Name (Print)	Date of classroom training	Date of hands-on training	Date of Evaluation (if required)	Signature

Appendix F

Safe Work Practices of Cranes, Hoists and Slings

Cranes and Hoists

General

- A personal protective equipment (PPE) hazard assessment must be performed for the task. PPE considerations should include a hardhat, safety glasses and safety shoes.
- Rated load capacities, recommended operating speeds, special hazard warnings and/or instructions shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to operators while they are at their control stations.
- Do not exceed the rated load capacity of the crane, hoist, slings or other components. Keep in mind that the hoist may be higher rated than the rail/beam or vice versa.
- Persons operating a crane, hoist or sling shall inspect all machinery and equipment prior to each use to make sure it is in safe operating condition. (Refer to Appendix A)
- Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains or other reciprocating, rotating and other moving parts or equipment shall be guarded if such parts are exposed to contact by employees. Otherwise, they may create a hazard.
- No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation and maintenance instruction plates, tags or decals shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.
- Disconnect power to a hoist or crane that is unsafe or in need of repair. Arrange to have the equipment locked out and tagged out.
- Never operate a hoist or crane that, in your opinion, is UNSAFE TO OPERATE.

Engaging the Load

- The sling or other device shall be properly seated and secured in the base of the hook.
- The load shall not be applied to the point of the hook or the hook latch.
- Before moving the load, the operator shall be sure chains and wire rope are not kinked or twisted and that multiple part chains or ropes are not twisted around each other.
- The rope or chain must be properly seated on the drum, sheaves or sprockets before the lift takes place.
- Remove slack from the sling, chain or cable before lifting a load.

- The hoist must be centered over the load.
- The operator shall not pick up a load in excess of the rated load of the hoist or crane.
- Specific attention should be given to the balancing of the load to prevent slipping.

Moving the Load

- The operator shall not engage in any activity that will divert his/her attention from the task.
- The operator shall respond to signals from a designated person only. However, the operator shall obey a stop signal at all times, no matter who gives it.
- The operator shall make sure the load and hoist will clear all obstacles before moving or rotating the load.
- A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.
- The operator shall inch powered hoists and cranes slowly in engagement with a load, but should avoid unnecessary inching and quick reversals of direction.
- A load shall not be lifted more than a few inches until it is well balanced in the sling or lifting device.
- When lifting loads that are at or near capacity brake, action shall be tested by lifting the load a few inches off the surface to verify that the brakes are holding.
- On rope hoists, the load shall not be lowered below the point where less than two wraps of rope remain on each anchorage of the hoist drum unless a lower limit device is provided. In this case, no less than one wrap may remain on each anchorage of the hoist drum.
- Loads shall not be suspended over personnel.
- All employees shall be kept clear of loads about to be lifted and of suspended loads.
- Under no circumstances may anyone ride the hook or load.
- Directional movement should be made smoothly and deliberately to avoid swing.
- Never pull a hoist by the controller cable.
- Contact between trolleys (on two trolley cranes) or between trolleys and stops should be avoided.

- The operator shall not use the upper (or lower, if provided) limit device(s) as a normal means of stopping the hoist. These are emergency devices only.

Placing the Load

- Never leave the controls unattended while a load is suspended. If it becomes necessary to leave the controls, lower the load to the floor.
- The load block should be positioned above head level when the hoist is not in use.
- Care shall be exercised when removing a sling from under a landed and blocked load.

Slings

- Slings shall be inspected prior to each use to make sure they are in safe operating condition. (Refer to Appendix A)
- Slings that are damaged or defective shall not be used.
- Slings shall not be shortened with knots or bolts or other makeshift devices.
- Sling legs shall not be loaded in excess of their rated capacities.
- Slings used in a basket hitch shall have the loads balanced to prevent slippage.
- Slings shall be securely attached to their loads.
- Slings shall be padded or protected from sharp edges of their loads.
- Suspended loads shall be kept clear of all obstructions.
- Hands and fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
- Shock loading (abrupt starting or stopping of the load) is prohibited.
- A sling shall not be pulled from under a load when the load is resting on the sling.
- Slings shall be properly stored when not in use so that they are not subject to mechanical damage, moisture, corrosives, extreme temperature or kinking.

Appendix G

Bridge Crane Operator Evaluation Form

Trainee Name	Work Unit
Evaluator Name	Department
Crane location	Date

NOTE: Operators must be evaluated on each type of bridge crane.

Step	Evaluation	N/A	Pass	Fail
1. Pre-use equipment inspection	Did operator utilize Appendix A of this document (Pre-Use Hoist, Crane and Sling Inspection Guidelines)? If not, was the operator able to explain all of the items they were looking for? Was the owner's manual referenced for any additional items to be checked?			
2. Load inspection	Was the weight of the load identified as not to exceed the rated capacity?			
	Was the load properly secured, balanced and stable?			
3. Move plan	Was a destination identified?			
4. Control operation	Was operator familiar with all controls?			
	Was load speed and control satisfactory? (e.g., no sudden stops or acceleration)			
5. Worksite Inspection	Was operator aware of activities in the vicinity including personnel and equipment?			
6. Post move	Was hoist/crane properly stowed? (Hook near bottom of the hoist)			
	Were slings properly stored? (not subject to mechanical damage, moisture, corrosives, extreme temperature or kinking)			
7. Comments	*Must be included for all "failed" tasks. If a task is failed, the evaluator must explain what was done incorrectly and have the trainee repeat the task until it is completed correctly.*			
***Trainee Signature*:**				
***Evaluator Signature*:**				

Appendix H

Entertainment Rigging Operation and Inspection

Inspect each component for pass or fail. If a component fails, indicate why in the notes section.

Facility Name:				***Inspected by:***					***Date:***		
Description	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**	**Lineset #**
Spreader Plate											
Lead Line											
Hand Line											
Purchase Line											
Locking Rail											
Rope Lock											
Head Block											
Loft Block											
Floor Block											
Mule Blocks											
Tension Sheave											
Arbor											
Arbor Termination											
Batten											
Term. at Batten											
Cables											
Pin Rail											
Limit Switches											
Smooth and Quiet											

Note:

1) **Deficiency -**
2) **Corrective Action –**
3) **Date Corrective Action completed -**