Rigging – Counterweight Fly Systems

The rigging system is designed to support or move ("fly in and out") items that are associated with the production. The items flown may include scenery, lights, equipment, and people.

The combination of equipment and materials supported by the rigging system can weigh hundreds to thousands of pounds. Flown items are located above the stage and may be flown over the audience; therefore, the lives of cast, crew, and the public can be put at great risk if a component fails or there is a failure to operate the system correctly.

There are many variations and combinations of rigging systems including hemp, counterweight, and motorized. Each theater will have unique design features associated with the rigging system and in many cases, a combination of these systems will be used to meet the overall needs of a production. Individuals involved with operating the rigging system must be trained regarding their specific roles and responsibilities. The following guidelines are a general overview of those roles, responsibilities, and safe practices. These guidelines are designed to be used in conjunction with hands on facility training. NEVER use these guidelines in place of formal hands-on rigging training. Ensure rigging training is specific to the individual theater in which you are working and the installed rigging system used.

REMEMBER…lack of proper training and attention while operating a rigging system can be extremely dangerous and may result in death.

Crew Responsibilities

Flyman: The lead or head flyman is responsible for the supervision and oversight of the entire flying operation including directing the loading and unloading of counterweights, scenery, and equipment. The flyman also operates the rigging system during the performance and is responsible for maintaining the rigging system use log.

Loaders: The crew members who work on the bridge to load and remove counterweights from the rigging system. This work is conducted under the direction of the head flyman.

Stage Crew: The stage crew is directed by the technical director, or in some cases, the lead carpenter or lead electrician. They are responsible for loading and unloading lowered battens (pipes) with scenery, lights, and equipment. The head flyman gives direction to the stage crew regarding when to attach or remove scenery, lights, and equipment. The lead for the stage crew acts as spotter and is responsible for ensuring the stage area around a moving piece is clear and the piece being loaded or unloaded will not strike or interfere with other battens, scenery, curtains, lights, etc.

Performers: Some productions require the flying of performers. The performers have a responsibility to follow the

direction of the flyman, knowing how to use their fall protection, and conducting a personal inspection of their fall protection equipment.

General Safe Work Practices

1. Complete documented training for all individuals authorized to operate the rigging systems and rigging system components. Ensure the training includes their roles, their responsibilities, the rigging system they will work with, how to tie the required knots, their required personal protective equipment, and the fall protection systems they will be required to use.
2. Change counterweights and attach and remove scenery, lights, and other equipment only under the direction of trained and knowledgeable flyman, loaders, and stage crew.
3. Use the designated fall protection equipment associated with the loading bridge. This may include a passive guardrail and chain or an active fall restraint/arrest harness, connector, and anchorage point.
4. Maintain good housekeeping on the loading bridge area. Keep stacks of weights on the loading bridge below the height of the toe board.
5. Ensure all rigging personnel know how to recognize and report line sets that seem out of balance or difficult to move or when rigging systems make unusual noises during operation. These may all be indications of significant problems that need to be addressed immediately.
6. Conduct routine documented inspections of the fall prevention systems. Include the guardrails, as well as, the fall protection equipment.
7. Conduct documented rigging system inspections. Ensure in-house inspections are conducted by trained personnel at least annually. Ensure a documented inspection is conducted by an independent rigging professional every three to five years based on use or noted problems.
8. Create a rail log binder for the rigging system. Ensure the binder:
   a. Includes the equipment manufacturer, date of installation, and the installer.
   b. Lists problems, repairs, and component replacements for each line set.
   c. Documents all rigging system equipment inspections.
9. Develop communication systems, including warnings and work phrases, to be used by all individuals on-stage and on the overhead grid. Ensure cast and crew are trained regarding the communications.
10. Ensure all crew use the established warning system even if no one is visible on the stage or grid.
11. Post a sign on the loading bridge that provides information regarding the weight of various sized counterweights and maximum capacity of weight not to be exceeded on any given line set.
12. Post signs warning crew not to stack counterweights higher than the toe board.

Set Up

1. Reduce the noise during rigging construction to ensure communications between the flyman, loaders, and the stage crew can be heard.
2. Announce when weight changing has started and finished.
3. Position a spotter on the floor to keep people from walking in the vicinity of the counterweight arbors while weights are being loaded or unloaded above.
4. Shout a loud warning should a line set run free. Remove yourself from the area and take cover. Leave the stage area immediately and drop and cover if you are on the loading bridge. DO NOT try to stop the runaway line set.

5. Use spotters when test flying scenery and have them in place before unlocking the break or initiating the rigging system.
6. Use two people to load and unload counterweights on the loading bridge. Designate one individual to load/unload the weight and one individual to hand the weights to the other.
7. Only transfer weights from one person to another above the loading bridge; never hand off the weight over the open space above the arbors.
8. Load the batten first and the arbor second.
9. Identify each line set on the lock rail and document what is on each line.
10. Place spreader plates or spreader bars on the rods of the arbor every two feet between stacks of counterweights.
11. Always secure a lock plate on the top of a counterweight stack and tighten the thumbscrews.
12. Always lock the brake and apply the locking ring to a line set prior to leaving it.
13. Never lock an unbalanced line set.
14. Load one line set at a time.

During Rehearsals and Performances

1. Check to ensure the performer's fall protection system is properly assembled and secured.
2. Move line sets only on cue. Doing so too early or too late could cause severe injury to persons or damage property on stage.

Strike

1. Reduce the noise during the striking of the flown scenery, equipment, and other materials to ensure communications between the flyman, loaders, and the stage crew can be heard.
2. Unload the arbor first and the batten second.
3. Unload one line set at a time.
4. Lower the batten to the lowest position for unloading.

Talk to your supervisor if you have any questions about this information.