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MAKING SAFETY A PRIORITY FOR YOUR THEATRICAL RIGGING

Getting serious about safety can decrease dangerous equipment malfunctions and prevent serious or deadly accidents in your facility

BY BRENT MCWILLIAMS

FROM A FALLING CRESCENT WRENCH LEFT ON A SHEET METAL RACEWAY TO substituting rock climbing equipment for staging flying effects, theatres have not always put safety as a top priority when creating an eye-popping visual treat for an audience. Regardless of whether your crew is pushing and pulling by hand or your rigging system is computer-controlled, training, inspections, proper documentation and ongoing maintenance needs to be adopted as part of your normal operations.

Ted Paget, regional sales manager, Vortek Rigging Division - Daktronics, Inc., recounts the number of times he's walked onto a stage to see a large scenery rear wall made from skin-

ply and 2X4s suspended from the top plate and held together with nails. "Oh," says Paget, "and it flies in and out during the show too. And it's rigged in a totally improper and unsafe manner."

Upon quick examination, rigging equipment is relatively simple machinery—especially if it is manual. Why do theatres not pay as much attention to the safe operation of it? By nature, we're not necessarily a "rule-following" crew and that's why we're in theatre. As Craig Austin, president, Stage Services Company, a division of Stagecraft, points out that many a drama teacher would prefer the safety or maintenance people stay away. Having them present seems to open a Pandora's Box of other safety issues.

"The key thing I see time and time again, is maintenance departments, for whatever reasons, don't pay attention, have a lack of understanding and/or lack the familiarity they need to deal with the rigging equipment," explains Austin. "People also tend to bury stage rigging accidents rather than report them so the damaged equipment is left in service."

Paget feels the major factors contributing to rigging accidents tend to be either: a.) untrained or poorly trained rigging crews trying to do a mentally and physically demanding task; b.) poor communications among the rigging crew, usually caused by distractions (Boom boxes or sound checks are the worst.), or simple lack of attention; c.) improperly maintained (or poorly installed/manufactured) stage rigging equipment; or a combination of the factors noted above.

ADOPTING A SAFETY PHILOSOPHY

All interviewed for this story unanimously agreed that accidents are preventable with proper selection and installation of equipment and signage, training and allowing only authorized users to operate equipment.

"There is no magic to stage rigging safety. Well-trained crews that are properly supervised, including a directive to not introduce other noises or activities during loading/unloading activities, tend to have few

This poorly installed concrete anchor (technically a lag shield), turned screw eye and an S-hook were installed above the audience seating area supporting a loaded lighting batten. None of these items should be used for overhead support

or no accidents,” explains Paget. “At the same time, planned and ongoing inspection and maintenance of stage rigging equipment is critical to the prevention of rigging accidents.”

Making safety a priority for any rigging operation needs to be a top priority for drama teachers on up to theatre owners. Austin recounts a statement made by the director of the Washington State Risk Management Pool stating that ‘10 years of prevention is worth one serious injury claim.’ Austin also adds, “If you add a fatality to that it is even harder to put a preceding number on that, so it just makes good business sense to adopt safety policies and change your behaviors. The implementation of these policies need to be based in sound practices and can be done internally at almost no cost.”

INSPECTIONS

For peace of mind, rigging inspections are best done by third-party professionals with the proper credentials. The Occupational

Safety and Health Administration (OSHA) sets the standards which among them requires that your rigging be inspected annually, however safety conscious theatres may need to adopt more stringent guidelines based on the usage at their facility.

Mark Black of InterAmerica Stage, Inc., encourages starting with the identification of everything that needs to be inspected by creating an inventory of stage equipment. “Make sure you have all available documentation for the equipment; manufacturers data sheets, shop drawings, operation manuals and any previous inspection records,” says Black. “Then precede systematically one system at a time, run each through its paces while visually inspecting each major component and observe for any misalignment. If it was installed correctly in the first place and load tested, this may be all that is required.”

Black goes on to explain that most inspections are more in depth especially if the original installation was not 100%

validated with a fairly comprehensive installation checklist with items such as load test, nut and bolt torque stripping, etc.

“The equipment inspection frequency really depends on the duty cycle of the equipment,” says Black. “In general, a typical fly tower with counterweight rigging, maybe a fire curtain and a few electrical sets, should be done at a minimum once a year. Other venues that have a higher turnaround with unique productions and duty cycles should be inspected prior to every major show.”

Tom Young, vice president, marketing at J. R. Clancy states that ideally you should use an outside firm that specializes in theatrical rigging inspections to do the annual inspection in your theatre. “If you have motorized equipment, OSHA requires a yearly inspection by a competent person,” notes Young.

Young also recommends some alternatives if you are unable to bring in a professional. “You might want to get a flyman from another theatre to go through



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your system with you so that you have another set of eyes,” advises Young. “There are also checklists in reference books like Jay O. Glerum’s ‘Stage Rigging Handbook’ that will help you make an inspection.”

Paget also recommends the “Stage Rigging Handbook” along with the manufacturer’s resources and documentation to make the inspection equipment specific. “With the adoption of the E1.4 ESTA/ANSI Manual Rigging Standard and the development of other rigging standards for fire curtains and motorized rigging equipment, we are beginning to see more commonality at least among the parts of rigging systems that need to be inspected and the frequency of such inspections,” explains Paget.

Austin also offers some practical advice when it comes to inspections, “Be sure to make sure that everything is in good working order.” In their training courses, they ask attendees how they know their equipment is in good working order to which attendees can quickly respond that the equipment is brand new, inspected and has been maintained. “Make sure your inspector has placed a sticker at eye level to note the inspection date and by whom. Insurance underwriters, fire marshals and risk management people all check for that sticker.”

“And remember,” says Austin, “rigging systems are designed to last 25 – 30 years. So even if the inspection shows everything in good working order as you near that 15 year mark, you may want to start planning ahead and earmark dollars to pay for an equipment changeover.”

THE RIGHT CREDENTIALS

Fortunately for theatre professionals we have associations like the Entertainment Services and Technology Association (ESTA), who along with subject matter experts created the Entertainment Technician Certification Programs (ETCP) to focus on the health and safety of crews, performers and audiences. Currently, they offer three certifications: Rigger – Arena; Rigger – Theatre and Entertainment Electrician.

Bill Sapsis, president Sapsis Rigging, Inc., co-chair Rigging Working Group ESTA Technical Standards Program and ETCP council member, explains the role of ETCP in the following way, “The ETCP provides

the mechanism for becoming certified, namely, the exam. Training is available through individuals and organizations that are listed on the ETCP website. The ESTA Foundation also provides training through a series of regional workshops.”

At this point, OSHA oversees the operational standards, and will get involved in the case of accidents, but the operational oversight of rigging is still largely voluntary which is why ETCP certification is so important. Certified individuals are granted recognition for demonstrating certain skills, abilities and knowledge. Theatres, in turn, who hire certified professionals can be confident that they understand the mechanics and rigging principles to install, inspect, train and operate rigging equipment. This certification along with working knowledge of the manufacturer’s equipment should be at the top of your requirements list.

Sapsis points out, “Being an ETCP Theatre Rigger means you are identified as having a high level of knowledge and experience in the field and have demonstrated your skill level by passing the Certification exam. The benefits to theatres and other venues that hire ETCP Certified riggers is that the theatres get an individual who has an identifiable skill level.”

TRAINING

An ongoing training program can be one of your best defenses against accidents. Ted Paget of Vortek suggest that a good training program must start from the principal that ‘This stuff can hurt you’ and communicate an understanding that common sense and attention to the activity are the main safeguards for both crew and civilian safety.

Reid Neslage of H & H Specialties, Inc., feels that common sense and thorough training in the safe operation of equipment and maintenance applies no matter whether the equipment is a manually operated counterweight set or a motorized set. In addition, Neslage says educational facilities should look toward the outfitting of rigging in a facility as a teaching tool as well as a way to raise and lower scenery or other suspended elements.

“If a student is only exposed to manual counterweight rigging, or on the other hand only motorized rigging there is an opportunity lost in the training of future stagehands, technicians, technical directors

and theatre managers,” explains Neslage. “Not every facility in North America is able to afford the fully motorized rigging systems that have become available over the past few years. A combination of rigging system types will enable an educational facility to prepare future theatre technicians.”

Paget advocates that technicians become members of entertainment trade organizations such as ESTA and USITT, explaining, “This will allow her/him to network with peers and vendors who may have more current information about training practices/opportunities and recommended changes to the way the rigging equipment (and the lighting/scenery/props attached to it) should be used.”

Tom Young of J. R. Clancy, recommends that your training include a walkthrough of the entire backstage area, so that everyone knows where things are, how they are operated, and trouble items to look for. He also notes that operators need to be trained specifically for the equipment they are using and authorized to use the equipment. “I may be a well-trained rigging operator, but I should not use your system without your authorization,” says Young. “This seems like common sense, but we see untrained people using equipment they do not have permission to use. This is a real safety problem.”

Young also recommends the documentation of authorized users stating, “When people are trained to use equipment there should be a log showing who has been trained and what they are authorized to do. You may want to require a number of hours of experience before a person is allowed to use the rigging system without supervision.”

Lastly, Young advocates that in addition to training new staff members, there should be a yearly refresher course for everyone. “This is a good time to review any problems in the previous year, new ideas, and airing of any concerns,” explains Young.

Austin also offers a cautionary word of advice to those working in schools where student turnover may affect the safe operations of rigging equipment. “First,” recommends Austin, “have a professional ETCP certified rigger come in and train the teacher or person(s) in charge. A competent person through the eyes of OSHA can be a teacher



PHOTOS COURTESY OF STAGECRAFT INDUSTRIES, INC.

Operator error caused this arbor to crash into and through the bottom stop, shearing off seven bolts

BELOW: This rope is in bad shape as visible by the “high-strand” condition often caused by a shock load

may be amiss. “It is best to honor your instincts beforehand. You can hear and feel when something is going wrong. That may be the one and only warning you may get.”

EXPERT ADVICE

Safe rigging starts with the manufacturer and authorized dealers. They will guide you not only on the installation, but the safety practices, training, signage and maintenance of your equipment.

When seeking expert advice, look to suppliers with membership in the entertainment trade associations like ESTA and USITT as well as potential contractors’ credentials, liability insurance coverage,

a minimum of 10 year in the business and financial standing.

Tyler Smith of InterStage America, Inc., notes that there are many levels of equipment. In this country, there are only a handful of qualified stage machinery contractors and installers who are qualified to provide structural and large mechanical systems.

“There are, however, many qualified stage rigging companies that can provide basic track, drapery and fly systems,” says Smith. “Be sure that any contractor has the proper insurance, ETCP certification and in more stringent cases, is a certified General Contractor and carries professional liability insurances.”

Paget states that while it may be desirable that a rigging contractor have at least a supervisor with ETCP certification for

who in turn will train students to be authorized users.”

“Second,” Austin continues, “treat this training like any other learning in the classroom complete with a written syllabus, testing and demonstration of competency to safely operate the equipment. This greatly reduces the incidents of accidents.”

“Lastly,” Austin concludes, “meet the minimum Fed OSHA requirements of posting signage. This is cheap insurance and a one time thing to be in compliance and reinforce the training.” Austin recommends posting two signs; “Warning: Authorized Users Only” placed by the rigging equipment and “How to Operate” signage that should be available through the manufacturer of your equipment or available for download from manufacturer’s Web sites.

WHEN ACCIDENTS HAPPEN

Nothing can rattle your crew more than an accident or near miss. Be sure you follow whatever accident reporting procedures already in place and after the chaos has settled, begin an investigation to better understand what happened so that you can prevent it in the future.

Young recommends eliminating the blame game and focusing on the root cause

of the accident. A good starting point may be ascertaining whether the person operating the equipment was authorized to do so and whether the appropriate documentation and signage were present.

Using a third party to assess the situation can also be helpful in determining what happened after an accident suggests Paget. Start with the following factors:

- a) Who are your crews and are they properly prepared to do this work?
- b) What are the rules when rigging is happening both during set-up/strike and during technical rehearsals and the run of the show?
- c) What is the quality of the rigging equipment installation (and scenery attachment hardware/systems) in your theatre and how regularly has the rigging been inspected and maintained?

Austin also advises understanding any equipment malfunctions by looking for warning signs or evidence that something




{ essentials }

theatrical (as opposed to arena) rigging may be helpful, at the end of the day it is most important to ask your peers whom they have worked with (particularly on more recent projects) and how satisfactory was the result.

“It is especially useful to learn how rigging contractors (and the manufacturers who provide their equipment) responded to problems with recent previous installations,” explains Paget. “Try also to learn which installers/supervisors to ask for from the firm(s) you’re considering for the project.

The actual person in the field can make a world of difference to the installation.”

Nelsage concurs and adds, “The experience level of the rigging supervisor is very important as the fit and finish of the completed project is dependent on their skill and expertise.” He also advises asking for at least five to 10 references for previous installations of similar scope and size including facility name, contact name, contact phone number, scope of project and date of completion.

And Paget thinks all parties are responsible for a safe environment, stating, “I would insist on common sense training of all technical supervisors and crews doing stage rigging and stage construction with the strongest emphasis on full crew attention and communication related to the rigging tasks.” 

For more resources on safe rigging practices, visit the DramaBiz Magazine Web site at www.dramabiz.com and click on “Yours for the Asking”
