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# Rigging Safety

What school administration, teachers, and staff need to know.

TOM YOUNG

**T**he curtains open, a set piece descends into place from above, and another play begins on a stage in a school auditorium in any town or city across the country. Parents watch from the audience as their children perform onstage, trusting that the scenery hung above their children's heads is secure and that the operators who raise and lower the scenery have been trained to do so in the safest and most responsible manner.

When drama teachers produce plays in their schools, they make an implicit compact with the students who use the technical equipment and perform on that stage: Teachers and school management will provide a safe, secure environment in which their students can benefit from the rich experience of mounting a theatrical production from the first rehearsal to the last echo of applause.

Rigging equipment is an essential part of most stages, from the middle school to major performing arts centers.

Its purpose is simple: Rigging allows scenery and equipment used on the stage to be raised and lowered.

Students and instructors use stage rigging to raise and lower stage lighting when they hang and adjust lighting instruments, and when they change bulbs (lamps) and gel (the colored filters used on stage lights). Without rigging, students would have to climb high on ladders to change lamps and gel or to hang lights. It is far safer for students to perform these tasks with both feet on the ground, so rigging provides the best solution.

In most theatres, the primary use of stage lighting is to move scenery for dramatic effect. A well-designed rigging system in good repair allows for simple, easy scene changes — and many shows require that scenery move in front of the audience. This adds drama and can be a key part of any production.

In addition, rigging is used to raise and lower curtains

— both the grand drape (the main house curtain) or the “legs” used to mask scenery and backstage activity from view. In many cases, the height of the masking curtains needs to change to meet the requirements of specific productions. Once again, the ability to use rigging to raise and lower curtains eliminates the need for students to climb ladders to tie curtains to battens (the pipes on which scenery and curtains hang) or to change the height of a curtain.

As with any type of machinery, rigging poses risks if it is not used correctly. Counterweight rigging — used in schools for more than 80 years — must be properly balanced or the heavier load could make an uncontrolled descent. The greater the imbalance, the more rapid the descent will be, and accidents may occur.

Just as the power tools in the school’s technology lab or the athletic equipment on the field require maintenance and training for proper use, so does theatre rigging — but because drama is considered a “softer” area of study, its systems may not be taken as seriously as those used in contact sports or industrial arts. If there’s a rigging accident but no one gets hurt, the system could continue to function with sustained damage until the day when it finally becomes inoperable.

Teachers and others responsible for technical theatre systems can keep their students safe by following some basic guidelines for the use of this rigging — training, identifying hazards, and annual inspection and maintenance. It’s up to teachers and school administration, then, to be absolutely certain that the counterweight or automated rigging in use in their auditoriums is in the best possible repair, and that students and other operators have been taught to use it correctly.

Let’s look first at the most common rigging systems found in schools today. Counterweight rigging — the hand and lift lines, rope locks, battens, and

25-lb. stage weights found backstage in most high school theatres — looks deceptively simple and low-tech to the untrained eye, but its proper use requires training and a knowledge of how and why the system works. Equally important, users need to know how to tell when something in the rigging has gone wrong.

### **Safe When Used Properly, Risky in the Wrong Hands**

A host of challenges face many schools with aging rigging systems. Students run most stage rigging in schools, and many of these students have never been instructed in the proper way to use a counterweight system. Older systems may have sustained damage months, years, or even decades ago, with no repair date in sight... and because school budgets are usually tight, some systems were installed “on the cheap,” without the necessary elements — like the loading bridge for putting stage weights on arbors — that make rigging safer for use.

### **Lack of Knowledge, Minimal Training**

Most theatre teachers are not familiar enough with the rigging their students use to recognize an out-of-balance line set or a structural issue.

Faculty turnover can mean that every few years, a new teacher is in charge of the school’s drama program — and the new teacher may not have a working knowledge of the systems backstage. A custodian may have been in charge of the systems backstage when they were installed, but when that person moved on to a new job, his skills and familiarity with the system left with him.

Manuals that were available when the rigging system was installed may be filed in places that theatre teachers would never suspect. Manuals may get set aside or even thrown away, or

construction paperwork may mandate that the manuals go to the architect or contractor, or even to the district’s financial office. In all too many cases, manuals never make it to the school, let alone to the drama teacher.

With no manuals at hand and no institutional knowledge of the counterweight rigging, how does a teacher learn to use the system?

Training seminars are a good option through which to gain a hands-on understanding of the system. Bill Sapsis, president of Sapsis Rigging and one of the nation’s top authorities on theatre rigging safety, teaches classes with his counterpart in stage rigging, Jay O. Glerum, in major cities throughout the spring, summer, and fall each year through Rigging Seminars (see [www.riggingseminars.com](http://www.riggingseminars.com) or Sapsis Rigging ([www.sapsis-rigging.com/seminars.html](http://www.sapsis-rigging.com/seminars.html)) for a complete schedule). In addition, rigging classes and seminars are offered periodically at the United States Institute for Theatre Technology (USITT) conference, which takes place annually in March.

A lost manual can be replaced easily and free of charge by visiting [www.rigging-safety.com](http://www.rigging-safety.com), a Website sponsored by J.R. Clancy to provide safety information to rigging users. The site provides a generic operations manual for rigging systems.

If sending a teacher to a seminar is outside of a school’s drama budget, there may be a theatrical equipment dealer in the region who has someone on staff with strong rigging expertise. Most dealers will provide an expert who can come to the school and train students in the use of the rigging system.

### **Prevent Injuries With Annual Inspections**

The best way to keep major problems from causing accidents and spoiling productions is the one most schools neglect the most. Annual inspections can reveal issues before they

become problems and shut down your theatre.

In most schools, theatre rigging is last on the list for periodic inspections for one important reason: No building codes, standards, or regulations exist that require the system to be checked on a regular basis. The Entertainment Services and Technology Association (ESTA) is in the process of completing standards for counterweight rigging, with the expectation that they will publish the standards in 2009. Standards for motorized rigging are still in progress.

The Occupational Safety and Health Administration (OSHA) does publish a standard for the use of industrial winch and hoist machinery. While this does not specifically mention stage rigging in schools, OSHA "29 CFR 1926.550 Cranes and derricks," paragraph (a)(6), does state that "A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment."

What does this mean for teachers and schools? Today, there's no governing body to tell schools that they must have their rigging professionally inspected — but without inspections and preventative maintenance, the school can be held liable if a student is injured by a damaged or improperly-used rigging system on school property.

It's up to the schools, then, to be sure that theatre rigging is in top working order, both to protect the students and to shield themselves from potential lawsuits. The best rule of thumb is "If it doesn't feel right or sound right, get a theatre rigging specialist to look at it," and regardless of the condition of the rigging, be sure to have it inspected by a professional at least once a year.

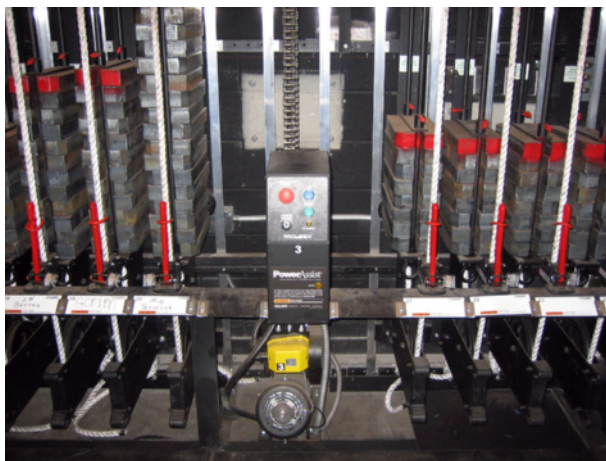
When you have your annual inspection, also ask that the inspector provide a refresher class on rigging operation and safety for all of the system's users — teachers, staff, and students. This is the best way to be sure that all operators are up to speed on the system's use, while re-emphasizing the proper instructions for safety.

## Automated Rigging

For schools undergoing major renovation or new construction, school boards may choose automated rigging

systems over counterweights, both to increase the system's functionality and to improve safety conditions for student operators.

Automated systems certainly present many advantages. The most obvious difference is that there are no counterweights, so students do not handle heavy weights that may be beyond their strength to lift and move safely. Computer-controlled systems eliminate the need to counterbalance a load, so the guesswork is removed from the system's use. Setting cues on a control console and pressing one button to execute the cues certainly is easier than opening rope locks, pulling ropes, and re-locking each line once the set has been moved into place.



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This simplicity of usage masks the most important point about all rigging, whether it's a basic hemp system or the most advanced computerized system in the world: The rigging still hangs heavy loads over people's heads. In the end, the same safety precautions must apply.

Training doesn't take long, and it's up to the installer or the manufacturer to provide training to the teacher and students. Be sure to ask for owner's manuals — multiple copies should be available from the manufacturer — and keep them near the control system so that students and

other operators can refer to them regularly. When inspectors come for their annual review of the system, they can refresh teachers' skills and answer questions about operations. In addition, manufacturers often send software updates for the console, signaling the perfect opportunity to review proper system operation with students and teachers.

Using a rigging system should be entirely safe for every responsible student and conscientious teacher. By following a few simple rules and getting annual inspections, students, parents, teachers, and administrators can be sure that every child is safe onstage with heavy scenery balanced above. **ETA**

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