

BREAK A LEG SAFELY

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Break a leg! How many times have you said or heard this universal good luck wish in the theatre?

Everytime I hear it, I am reminded that for audiences, the theatre is a place of entertainment and magic. For actors, stage crew and technical people, the theatre is really a work site. And whether paid or volunteer, theatre people in that work place are subject to a wide range of hazards.

Think about it. Above the stage hang lights, curtains, scenery and wires. People working on stage or building scenery routinely use ladders, power and hand tools, and electrical equipment - the same kind of equipment that contractors and construction workers use. Just because they're participating for pleasure doesn't diminish the hazard. In fact, people having fun tend to overlook or minimize workplace dangers, something which professionals in those trades cannot afford to do.

An accident quickly takes the fun out of theatre. Even worse, an accident can lead to serious, even fatal injury. No theatre group wants or can afford this problem and the litigation, bad publicity or adverse community reaction that may result.

So, from start to finish, safety must be a major priority.

Normally the technical director is responsible for setting and maintaining safety standards. Some of this responsibility is delegated to the stage managers, chief carpenter, and master electrician. In community theatre, many of these jobs are performed by the same person. Because no one is directly responsible for safety, everyone becomes responsible.

Let's start with the major hazard on stage -- the ladder. An a-frame ladder is the most common tool found in the theatre and one used most frequently. And it is a tool, whose use requires as much caution and awareness as a power saw. Most stages provide at least 15 feet of headroom from floor to grid. I have worked on many stages where that height is twenty or even thirty feet. At the front of the house, the distance from the floor to the lighting truss may be greater. A fall from those heights could be fatal. A wrench dropped from a ladder becomes a missile. A falling lighting fixture hits the floor with enormous momentum and a shower of glass. Only politicians should have to worry about falls from high places.

OSHA, the agency of the federal government that establishes and enforces workplace safety standards, rates ladders for load capacity and use. The highest grades are Type I and IA, which are industrial strength. Type II ladders are rated for commercial use. Each ladder bears a sticker showing its rating and the maximum safe working height. To achieve a 15' safe working height, better buy a 20' ladder. It will provide safe support without stretching or over-reaching. Plan on paying \$600 to \$1000 for a Type I or IA 20' ladder. Price a little steep? Not compared to the cost of an injury.

Check your ladders. Retire homeowner grade ladders now; they don't provide the endurance or stability for stage use. I prefer fiberglass ladders to aluminum or wood because aluminum conducts electricity and a wooden ladder hides defects such as cracks, separation of joints, or rot.

The best type of ladder for stage work has holes on the top step handy for placing wrenches or other tools. If you accidentally leave them when moving the ladder, they won't fall off. A tool belt is still the safest way to stow tools until needed. Plan to take up everything the job requires.

No one should ever work on a ladder alone. At least have one person on the ground to steady the ladder and pass tools and gear upward by means of a bucket and rope.

When hanging lighting instruments, a rope hung over a batten in the grid is the safest way to hoist the light and support it until the c-clamp is tightened. This way the person on the ladder does not have to balance a heavy and often unwieldy light while climbing. If you are fortunate enough to work in a theatre with fly gallery, lower the electric pipe and hang the lights from stage level without a ladder. They can be gelled and even rough focused from the ground, although the final adjustments will have to be made in the sky.

Anything that hangs must have at least one safety cable or chain securing it. I buy my safety cables used from a lighting rental house for about \$5 each. They can be reused indefinitely and are literally life savers. Heavy-duty black plastic cable ties, available at any home center or electrical supply store, are an inexpensive substitute for the steel cable although removal requires cutting. For most lighting instruments, #3 steel chain, rated at 90 lbs., is also OK.

Chains used for permanent or temporary rigging, such as hanging border lights, should be chosen based on their capacity ratings. Don't guess. Category 2/0 is easy to cut and supports 255 lbs. Double it up to double the load rating. To be sure the chain will support the weight, divide the total weight by the number of supports. That number is the total load on each support. For example, if you hang 16' of border lights whose total weight is 400 lbs., and use five support chains four feet apart, the load is divided into 80 lbs. per support. Since Category 2/0 supports 255 lbs., in signal length, and 510 lbs. in

double length, your safety margin is 6:1. Just be sure the weight is evenly distributed. Overkill is no crime. For heavier weights use heavier chain or add more supports. Quarter inch chain is rated for 1300 lbs. Stagecraft, like any other specialty, has it specialty hardware suppliers. Why improvise when someone has already invented what you need?

Sometimes temporary battens or booms must be rigged to hang scenery or lights. The industry standard is 1 1/2" black steel pipe. It doesn't sag or bend and is readily available in standard 10 foot lengths. Couple as many lengths as you need with standard pipe fittings, then erect towers at stage left and stage right to support the pipe. The towers are also made from 1 1/2" pipe, screwed into 50 lb. stage bases on the floor. Cheeseborough clamps, standard in the scaffolding and construction trades, join the vertical and horizontal pipes. These clamps are safer, easier to use and more secure than automotive u-bolts for joining pipe. Mount the vertical side of the clamp first and securely tighten with a 7/8" socket. Then the horizontal pipe can slip through the joint and rest securely until it can be positioned and tightened. The pipe must be supported by chains or hangers firmly secured to the grid or ceiling beams every six or eight feet. Plumbing supply stores stock the hangers that screw onto I-beams. To finish the job place 50 lb. sandbags or stage bricks on the base of each tower to keep it stable. Or screw the stage bases into the floor.

Because the pipe and clamps are standard items, they can be quickly and safely used to erect almost any kind of structure. Next time you're at a concert or a touring production look for the towers made from clamps and pipe. Anything you see you can make yourself out of standard components. Traveling shows have to meet strict building, fire, safety and electrical codes at every stop so their standards are high. Incorporate those practices into your own work. The reward for safety planning is a big nothing -- no accidents, no injuries, no lawsuits -- the ultimate payoff for prevention.