

# Theatrical Fall Protection

**Strategies for Protecting Performers**

BY MONONA ROSSOL

It's almost impossible to reach adulthood without having been on stage. Perhaps your first experience was during a graduation ceremony, musical performance, or school play. You probably never gave a thought to the fall hazard at the edge of that stage. And neither did most regulators—even those in our entertainment capitol, California.

In recent years, agencies and regulatory bodies have paid more attention to fall hazards in theatrical productions, their interest spurred by a number of high-profile incidents. This article summarizes some of those incidents and discusses current rules, standards, and best practices for protecting performers from fall hazards.

### Cal-OSHA

As usual, Cal-OSHA was the first regulator to cite a theater for stage fall hazards. In 1999, Cal-OSHA cited the San Francisco Opera for a set that had unrailed stairs and an unguarded ramp that curved up to a platform from which performers could fall about 9 feet. The Opera appealed the citation, arguing that putting railings on a set designed by David Hockney would be like drawing a line through the Mona Lisa. The Board denied the Opera's appeal on Nov. 15, 2001, ruling that:

To find that the Opera has the right to imperil its choristers in order to avoid making any alteration to a David Hockney set would require the Board to find that an artistic work has more value than the safety of California's employees.

Besides, the Opera could certainly install temporary guardrails and handrails to the set for staging rehearsals. ...<sup>1</sup>

In 2002, the Opera petitioned for reconsideration. They should have accepted the first decision allowing the guardrails to be removed for rehearsals. Instead, the Administrative Law Judge, quoting California regulations, decided that the exception to guarding applied

only to "the auditorium side of a stage, raised platforms, and other raised floor areas such as runways, ramps, and side stages" while they are being used to present an opera or other entertainment to an audience it was intended and prepared to entertain.

The Opera continued to appeal until 2005, when the decision was upheld without option of appeal.<sup>2</sup> Today, such Cal-OSHA citations are common in California.

### OSHA's Rules

Unlike Cal-OSHA, federal OSHA waffled on this issue. A Jan. 28, 1997, letter of interpretation entitled "Fall protection for the entertainment industry under the OSHA Act of 1970" said:

OSHA is concerned with the safety and health of all workers in the entertainment industry. Although OSHA recognizes it is not appropriate to put guardrails at the edge of stages, theatrical employees need to be protected from all occupational safety and health hazards.

This letter says the appropriate standards are those for general industry in Subpart D of 29 CFR at 1910.21 through 1910.32 as well as the personal protective equipment standards Subpart I of 29 CFR at 1910.132 through 1910.138. OSHA backtracked on May 2, 2003, when it announced (68 Fed. Reg. 23527-23568) that it was reopening the rule-making record and public comment periods for 29 CFR 1910, *Walking and Working Surfaces; Personal Protective Equipment (Fall Protection Systems)*. On page 23538, they proposed rewording section 1910.21(a)(3) to exempt "fall hazards from the exposed perimeters of entertainment stage, rail station platforms." I submitted comments to the docket. Whether my comments had an

effect I do not know, but the change was not incorporated.

Then the 2010 OSHA *Field Operations Manual* (75 Fed. Reg. 28861-29175) also exempted stages. Two years later, this idea was firmly rejected by a judge in a contested OSHA citation case involving the death of a SeaWorld trainer (more on that below).

### OSHA Citations

In 2007, a federal OSHA inspector became interested in an accident at the Fox Theater in Atlanta, Ga., in which a 17-year-old high school student dancer in a production of *The Nutcracker* fell 12 feet into the orchestra pit and sustained serious spinal injuries. The dancer was not an employee, so OSHA could not act. Instead, the inspector attended a subsequent performance and recorded incidents in which employed dancers came closer than 6 feet to the edge of the stage, in violation of fall protection rules. OSHA cited the Atlanta Ballet and proposed a \$3,500 fine, which the Ballet contested.

A central issue for OSHA was that the Atlanta Ballet is a traveling company that has no authority to demand the installation of guardrails in the theaters where they work. I was retained by the U.S. Department of Labor to defend OSHA in this matter and was deposed in 2009, after which OSHA withdrew the fine pending compliance with a settlement stipulating that the Ballet would have a short written fall protection program in their dance book (a book of company rules).

The company's program requires that dancers rehearse for weeks, or even months for big productions, in a studio marked off to the exact dimensions of the stage on which they will perform. Floor tape also must mark positions of lights at the stage's edge and other features with which dancers can orient themselves.

The settlement also required the Ballet to investigate using additional LED lights at the lip of the stage to insure dancers were always aware in peripheral vision of the location of the edge. (Dancers cannot look down, and must be able to see platform edges peripherally.)

The next crucial OSHA action was in August 2010 after an investigation

of the death of a killer whale trainer at SeaWorld in Orlando, Fla. SeaWorld was cited for the conditions leading to the trainer's death and for failing to have stair rails on the bridges and stairs leading to the stage platform. There was a slight reduction in penalties for the whale-related citations, but the serious violation for exposing workers to a fall hazard on the bridges and stairs (1910.23(d)(1)(iii)) and the \$5,000 fine were upheld.

SeaWorld's lawyer argued that these guarding violations should be *de minimis* since OSHA proposed exempting entertainment stages from guardrail rules in their *Field Operations Manual* (75 Fed. Reg. 28861-29175, May 24, 2010). But on June 11, 2012, Ken S. Welsch, a federal administrative law judge for the Occupational Safety and Health Review Commission, ruled that the manual "creates no binding authority and holds no precedent for the Commission." He said further:

The gravity of the violation is high. Employees were required to go up and down the stairways on a regular basis while carrying up to 60 pounds of fish. If an employee slipped or stumbled, the employee did not have a stair railing to prevent a fall over the edge of the stairway. If the employee avoided landing in the water, he or she was at risk for serious injuries, including broken bones. Landing in the water could potentially expose the employee to a greater risk. In 1991 at Sealand of the Pacific, trainer K.B. slipped and fell into a sea pen in which three killer whales, including Tilikum [the same orca that killed SeaWorld's trainer], were kept. The killer whales prevented her from exiting the pool, resulting in her eventual death.

Another important citation was announced in December 2010. The agency had proposed \$51,000 in fines against the David H. Koch Theater in New York's Lincoln Center for several violations, including one for fall protection. OSHA said they "found that, due to a lack of guarding, theater employees were exposed to falls into the orchestra pit when the stage was raised above the pit, and to being struck or crushed by the stage when it descended into the pit."

"Spider-Man: Turn Off the Dark," produced by 8 Legged Productions, was cited in March 2011 for the conditions that led to four incidents involving falls. But there was also a citation of 1910.23(c)(1) for failure to guard floor openings and holes, which resulted in a \$4,500 fine.

That same year, on Oct. 25, 2011, at an "America's Got Talent" TV show in Las Vegas, a stagehand fell 12 feet into a stage pit, shattering his right leg and ankle. The producer, AEG Live, was cited for violation of 1910.23(c)(1) and fined \$5,760. Two years later (Nov. 19, 2012), another AEG Live stagehand working the Shania Twain show at Caesar's Palace fell 30 feet, sustaining serious injuries. This investigation is still ongoing.

A search of OSHA's web site by industry probably would turn up more. But it should be clear that changes in elevation on stages are not exempt.

### Fixing Falls

An ANSI standard is being developed by PLASA, the lead international membership body for the event, entertainment, and installation industries. Its working title is "Recommended Practice for the Prevention of Falls from Theatrical Stages and Raised Platforms." (I'm on the Working Committee.) But until it is available, we only have guidance from the two applicable OSHA regulations.

The construction industry standard for fall protection (1926.500-503) applies during activities such as set building and erecting, setting lights, rigging, and loading in or out. The rule requires employees to be protected from falls of 6 feet or more (except in California, where this distance is 7.5 feet). Usually this means either a temporary rail must be installed or workers must be in fall-arrest gear. Employers also can use other methods if these methods provide an equivalent level of protection. A written program is required (see 1926 Subpart M, Appendix E prototype).

The general industry standard for fall protection (1910.23) applies when construction is finished and performers and other regular employees are on stage or in the theater building. Under this standard, fall protection is needed at 4 feet.

Nonemployees such as volunteers, deliverymen, audiences, and fans are protected by building codes and strict liability practices. The Americans for Disabilities Act also assures us that some audience members are not able bodied. The ADA concentrates on access for these individuals, but safety professionals must consider fall and trip hazards for these patrons.

Performers also may not be able bodied or even adults. If child performers are used, union rules usually require professional "wranglers" to protect them when they are off stage. On stage, children must be carefully rehearsed and supervised to prevent falls.

### Strategies

One of the difficult issues in addressing fall protection is that hazards in theaters are numerous: at stage lips, balcony rails, lighting positions, stairs, rigging, pin rails, orchestra pits, traps, back stage elevators, and elsewhere. It's important to view all these areas from every perspective. For example, underneath the obvious fall hazard from the stage to the orchestra pit may lurk another fall hazard from the trap room into the hydraulic pit.

We also need to be familiar with an arsenal of guards and strategies. None of these are complete answers in themselves but must be part of the employer's written fall protection program, and all of these measures must be supported by appropriate training and enforcement. Included are:

**Permanent guardrails.** Standard 42-inch guardrails are one of the best solutions for all permanent changes in elevation in the theater proper or back stage where sight lines are not an issue. Guardrails can also be used in rigging and lighting if they cannot be seen by the audience. For example, most catwalks can be modified by lowering the light rail from the standard 55 inches to 42 inches and installing a removable chain midrail and toe board. That 55-inch rail was needed in the past, but lighting instruments today are smaller.

**Permanent stair rails.** Hand rails must be provided for every flight of stairs having four or more risers or any ramp of the

same height, including the stairs or ramps used to access the stage from the house.

**Drop-in or temporary guardrails and handrails** can be provided for most platforms, stairs and ramps. These rails must have the same dimensions and strength required for permanent rails and should be in place whenever the stage is not in use. Stages are accessed for many reasons by many types of people.

**Orchestra pit nets** can eliminate the need for rails at the lip. And when covered with a scrim, nets will block distracting music stand lights and help direct attention to the stage.

**Hard covers** over pits and traps, of course, will work. Workers must be trained in the removal and installation of these covers.

**Extension balcony rails** have top rails that can be raised to 42 inches from the 26 inches allowed by some building codes. A 26-inch balcony rail is allowed for audiences, but is not proper protection for employees who are ushering, cleaning, or setting lights. This special rail and others such as glass, drop-in, or flip-up rails can make this area OSHA-compliant.

**Standard fall arrest systems.** Most large theaters will have areas in which fall arrest systems must be used. In some theaters it is difficult to find anchorage locations for these.

**Belt restraint systems.** For certain unguarded platforms usually found in rigging and lighting areas, workers can be tied into a belt restraint system that keeps them from getting near the edge (see 1926.502(f) to (h)).

**Barriers.** A barrier six feet from the fall hazard is acceptable with training and enforcement.

**Special lighting.** Stage fall protection programs should include permanent LED lights, temporary LED light strips, and phosphorescent tapes that cannot be seen by audiences. Ghost lights in pits are also standard practice.

Spotters or attendants can be used during rehearsals to monitor performers who are to come near a fall hazard area. Some dance companies incorporate spotters in costume into their choreography.

The only option that is no longer acceptable is to do nothing. 🚫

#### References

1. Calif. Occup. Safety & Health Appeals Board, Docket Nos. 00-R1D1-3175 & 3176, 3/14/05, Marcy Saunders and Gerald O'Hara, Chairwoman Traeger dissenting.
2. "Appeals Board Opera Decision: A major win for employee safety," *Cal-OSHA Reporter*, April 22, 2005, Vol. 32, No.16, pp. 8421, 8424.

*Monona Rossol is president/founder of Arts, Crafts & Theater Safety (ACTS), a nonprofit dedicated to providing health and safety services to the arts. She can be reached at [actsnyc@cs.com](mailto:actsnyc@cs.com) or (212) 777-0062.*



ISO/IEC 17025:2005

## Responsible companies depend on reliable results

INDUSTRIAL HYGIENE

+++

ENVIRONMENTAL MICROBIOLOGY

+++

ENVIRONMENTAL LEAD

+++

FOOD & UNIQUE SCOPES



SIGNATORY OF ILAC-MRA

[aihaaccreditedlabs.org](http://aihaaccreditedlabs.org)