



# Eliminate the danger zone

BY JERROLD S. GORRELL

## Instructions for evaluation and development of a safety program

DO YOU HAVE A THOROUGH SAFETY PROGRAM at your place of business and how effective is it?

Let's review what you have:

- Do you have a work place culture that supports working safely?
- Do you have a safety program?
- Do you have an emergency evacuation plan?
- Are employees encouraged to report injuries and are the OSHA 300 records current?
- Are employees encouraged to report hazards?
- Is the facility and equipment periodically inspected for hazards?
- Are all physical hazards promptly corrected?
- Did you review all jobs for hazards? (Job Hazard Analysis)
- Is the job hazard analysis periodically reviewed to see if anything has changed?
- Where possible have physical changes been made to remove or abate the hazard? (Engineering Controls)
- If engineering controls were not possible, have procedures and policies been implemented to remove the hazard? (Administrative Controls)
- If neither the engineering or administrative controls will be effective protection, have Personal Protective Equipment (PPE) and the required training, been provided?
- Do you have a safety program and is it in writing?
- Are all personnel aware of and trained on the program?
- Are there records of the training?
- Are there periodic refreshers on various safety issues?
- If there are operations away from the primary place of business, is there a plan for that?

If the answer to any of these questions is no, then your safety plan needs work.

One thing not often realized is that the same level of safety, safety planning, and safety training is required for personnel at **all** work sites. In some cases, employers are required to coordinate work with other employers. For example, *NFPA 70E-2004*, section 110.4 requires multi-employer coordination in certain circumstances.

## Creating a safety program

The first step is to inspect the buildings, grounds, systems, and equipment for defects, poor maintenance, and other hazards.

Identified problems should be corrected as rapidly as possible.

Defective equipment should be removed from service until repaired.

Personnel should be protected from building, electrical, and similar hazards until the hazards are corrected. A fresh pair of eyes is useful for this because hazards become invisible to people that see them every day.

After the inspection is complete make a list of all hazards that require notice to employees, administrative controls, or PPE.

## Job hazard analysis

The second step is to evaluate each job for hazards and document the hazards. A Job Hazard Analysis examines the job tasks to identify potential hazards. It focuses on the relationship between the worker, the task, the tools, and the work environment.

The process is really very simple. Have the worker perform each step of the job while management evaluates each step for a hazard. You are not looking for how well the work is performed, just the process.

The goal for each job is to determine the following:

- What can go wrong?
- What are the consequences?
- How could it happen?
- What are the contributing factors?
- How likely is it that the hazard will occur?

*OSHA publication 3071* has information on doing a job hazard analysis and a form useful in directing and documenting the process. By the way, do not ignore the office staff.

Keep in mind that rarely is a hazard a simple case of one single cause resulting in one single effect. More frequently, many factors contribute to create the hazard.

## Safety manual

You now have two lists. Using these lists you should create a safety manual and a training program. The core of the safety manual is the hazards and the policies and procedures to be followed to avoid each hazard. The safety manual should include general information on the safe use of various types of equipment, such as ladders, hand tools, hard hats, etc. The safety manual and training program should identify the training required to perform a particular task and operate a particular system or piece of equipment. The program should also identify who is authorized to operate the system or equipment. For example: "Only authorized persons who have been trained in the proper use of the theatre rigging system shall be allowed to operate it." The safety manual, including the policies and procedures it contains, should be kept as short and as simple as possible. Most things, except extremely technical ones like respirators or fall-arrest systems, can be covered in one or two pages.

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The goal of a safety manual is to present information, to communicate the facility's safety policy, to meet legal and procedural requirements, and to save time. The safety manual should be specific and provide the necessary detailed information, but should not be so lengthy that no one reads it. In general, the safety manual should be no larger than the size of a notebook. If safety information changes frequently, the safety manual should contain only general statements and should identify the location of current information. Every safety manual should include information about how frequently and by what method the program is to be updated. If something is specifically prohibited in your facility, that prohibition should be included. An example might be: "Open flame shall not be permitted at any time on the stage." Most importantly, the manual should demonstrate the facility's commitment to safety. For suggestions on specific information to include in a safety manual, see page 49 at the conclusion of this article, *Topics to include in a Safety Manual*.

## Training program

The second document is the training program. The safety training program lists each area requiring training. A list or outline of training topics can be created from the safety program and hazard

## Entertainment Industry Hazards

Every facility has its unique conditions but these are examples of common hazards found in the entertainment industry:

- Falls
- Ladders and aerial lifts
- Hand tools
- Falling tools and other objects
- Electricity
- Compressed gasses
- Fires
- Pyrotechnics
- Open orchestra pits and traps
- Lasers
- Loud noise
- Toxic materials from solvents, paints, adhesives, and fumes
- Atmospheric effects
- Burns
- Work locations with poor or nonexistent access
- Poor facility and equipment maintenance
- Poorly maintained work surfaces
- Poorly maintained stairs, ladders (fixed or portable)
- Poorly or improperly maintained, or modified equipment
- Improperly designed, installed, or maintained systems
- Poorly designed, installed, and maintained, or improper scaffolds
- Equipment being used for a purpose for which it was not intended or designed
- Improper use of tools and equipment
- Tool guards not used or missing
- Lack of proper equipment to perform the task at hand (i.e. not having a ladder of sufficient height)
- Lack of a health and safety program
- Lack of appreciation of safety requirements and procedures
- Incomplete or no training on the tasks or equipment such as aerial lifts, forklifts, personnel lifts, hand tools, rigging, ladders
- Lack of proper safety equipment and related training
- Lack of sufficient rest or sleep
- Stress
- Shift work (irregular hours and shifts)
- Inadequate time to accomplish the task at hand
- Lack of sufficient personnel to accomplish the task at hand
- Weather (lightning, rain, snow, wind)
- Driving/road hazards
- Co-workers working improperly
- Facility security

## Facility Inspection

Managers can use the following suggestions to develop an inspection program for their facility. Inspections should be done by persons able to identify hazards of the area being inspected. For example, a qualified electrician or someone knowledgeable in electrical safety should do electrical inspections.

Each item must be inspected for its existence, its condition or appropriateness, and to determine the existence of any hazards related it.

## Facility Safety Inspection Checklist

- Building and grounds conditions: floors, walls, ceilings, exits, stairs, walk ways, ramps, platforms, aisles, seats, driveways, landscaping (toxicity)
- Receiving, shipping, and storage: equipment, layout and heights, door loads, protection of materials from damage, materials-handling equipment, and methods
- Housekeeping program: waste disposal, leakage and spillage, control methods, schedules, work areas, remote areas, windows, ledges, and storage areas
- Emergency Action Plan: covers all expected emergencies, fires, explosions, damaging weather, etc.
- Electrical systems and equipment: switches, breakers, fuses, switchboards, junctions and junction boxes, special fixtures, circuit loads, insulation, extensions and extension cords, tools used, motors, grounding, and *National Electrical Code* and *NFPA 70E* compliance
- Area lighting: (Architectural type): intensity, coverage, controls, conditions, locations, diffusion, glare, and shadow control
- Heating, cooling, and ventilating: type, effectiveness, temperature, humidity controls, natural and artificial ventilation, exhausting
- Machinery: points of operation, guarding, flywheels, gears' shafts, pulleys, keyways, belts, couplings, sprockets, chains, controls, lighting, tools and equipment, brakes, exhausting of any fumes generated, feeding of material, oiling, adjusting, maintenance, grounding, how attached, work space, location
- Personnel: training, experience, methods of checking machines before use, type clothing, use of personal protective equipment, use of guards, tool storage, work practices, methods of cleaning, oiling, adjusting of machinery
- Portable hand and power tools: inspection, storage, repair, types, maintenance, grounding, use and handling
- Chemicals: hazard communication program, storage, handling, transportation, amounts used, warning signs, supervision, training, protective clothing and equipment
- Fire protection: extinguishers, personnel training, alarms, sprinkler system, smoking rules, exits, evacuation plan, personnel assigned, separation of flammable materials and dangerous operations, explosive-proof fixtures, waste disposal
- Maintenance: regularity, effectiveness, training of personnel, materials and equipment used, method of locking out machinery, general methods
- Personal Protective Equipment (PPE): types, sizes, maintenance, repair storage, assignment of responsibilities, standards observed, rules of use, methods of assignment, and training
- Safety Program: written, completeness, safety committee (employee, management other), safety training, personnel trained for their jobs, OSHA compliance

identification. Specific training programs for each area must be created, materials must be obtained, and training must take place. The training program should include how often retraining shall take place.

Training must be complete and ongoing. I have seen documents that purport to be training programs that are in reality nothing more than written tours of the facilities and a list of equipment. Telling people "Do not hurt yourself" or "Do not fall in the orchestra pit" is not a safety program or safety training. It obviously does no harm to remind people to be careful, but such reminders alone are not a safety program or safety training.

## Records

Written records should be kept recording everyone trained, what they were trained on, and when the training took place. Written records are the only way to know who was trained and what tasks they were trained to perform. The training program outline becomes part of the safety manual.

Testing is an important part of any training program. A test tells you if the trainees have learned the material and will help determine if the training is being understood. In many cases OSHA requires testing of some type. You should record the test results, and store the tests so they are available if any questions arise about the training.

## Implementation

The hard part—implementation—comes after the program is written and everyone is trained. A safety program is only as good as its enforcement. A safety program that is not followed protects no one. Implementation includes never permitting persons to do work for which they are not trained or otherwise qualified, and never allowing shortcuts.

A safety committee is a good way to encourage safety in an ongoing way, support implementation, and to get feedback from

the employees. (More on the subject of safety committees in a future article.)

Everyone must lead by example. If people see others being allowed to take risks and shortcuts, they will do the same. If the supervisor does not take safety seriously and encourages short cuts, why should workers take safety seriously?

## Summary

- Inspect facility and equipment.
- Correct hazards found during inspection.
- Study and document jobs for hazards.
- Provide protection from hazards identified in the inspection and job hazard analysis.
- Create a Safety Program that defines policies and procedures and provides the information necessary for employees to work safely. Do not forget the emergency plan.
- Create a safety manual to document plan and inform employees of the elements of the plan.
- Develop a training program.
- Train employees and document training. This includes the required frequency of retraining.
- Have regular refresher sessions (tailgate meetings).
- Have on-going enforcement of the safety training and the requirements of the program.
- Regularly review the safety plan. This includes periodic inspection of facilities.
- Document, document, document.

OSHA provides reference publications on many safety subjects and most can be downloaded for free. The list can be found at: <http://www.osha.gov/pls/publications/pubindex.list>. ■

**Jerry Gorrell** is a retired technical director and facility manager with 40 years of industry experience. He is principal of Theater Safety Programs, in Fountain Hills, AZ. Jerry serves as chair of the USITT Standards Committee and he is an active participant in the ESTA Technical Standards Program. Jerry recently received the 2007 USITT International Safety Person of the Year award.

## Topics to include in a Safety Manual\*

### General:

- Letter from chief executive on the organization's commitment to safety
- Organization's safety policy
- Assignment of Responsibilities for safety program
- Policy on handling of safety issues
- How to use the Safety Manual
- Where/how to report emergencies
- Safety complaint/hazard reporting system
- Location of safety notices and bulletin boards
- Safety suggestions
- First aid, accidents, and reporting
- Safety and work rules
- Firearms (bringing to facility or job site)
- Discipline for infractions of rules
- Work requiring specific and/or specialized training
- Smoking rules
- Visitors' passes
- Outside contractor rules
- Dress, appearance (if not covered in other company documents)
- Awards
- Form to be signed, dated, and returned acknowledging receipt of safety manual

### Safety committees

- Structure (number, membership, and authority)
- Operation (minutes, reports, etc.)

### Fire and disaster plans

- Evacuation plan
- Fire response
- Crowd control
- Other disasters (tornado, flood, hurricane, etc.)
- Equipment protection due to weather or crowd issues

### Training programs

- Fall protection
- First aid and CPR
- Electrical safety (arc flash/blast)
- Lockout/tagout
- Aerial lift usage
- Forklift operation
- Power tool usage
- Welding
- Respirator usage
- Hazard communication
- Fire extinguisher usage
- Ladder usage

### Inspections

- OSHA inspections (state or federal)
- Theatrical systems inspections
- Other safety audits and/or inspections

### Areas regulated by OSHA\*\*

- Recording and reporting requirements
- Access to medical records
- Ventilation and powered exhaust system
- Exposure to toxic substances
- Occupational noise exposure
- Aerial lifts
- Personal protective equipment (PPE)
- Eye and face protection
- Respiratory protection
- Head protection
- Foot protection
- Accident prevention signs and tags
- Medical and first aid
- Fire protection
- Flammable and combustible liquids
- Electrical protective devices
- Lockout/tagout
- Machinery and machine guarding
- Walking/working surfaces
- Egress
- Fall protection
- Toxic and hazardous substances
- Housekeeping
- Eating areas
- Hazardous materials
- Hazardous waste
- Hazard communication
- Restricted areas
- Bloodborne pathogens
- Hand and portable power tools
- Industrial trucks (including forklifts)
- Topics for your specialized industry

### Topics for a theatre

- Counterweight loading and unloading
- Open trap procedures
- Open and/or lowered orchestra pit procedures
- Securing of temporary electrical cables
- Audience evacuation plan
- Open flame
- Flying of performers
- Pyrotechnics
- Use of firearms on stage

\* This list does not contain all possible topics. You should add or subtract from this list depending upon the specifics of your facility. Except in special circumstances all the items in the general section should be included.

\*\*This section does not list all topics regulated by OSHA, only those likely to be relevant to the largest number of operations. You should add or subtract from the list as it fits your facility's needs. Some topics may be covered in other sections.