



Stagecraft Industries, Inc.

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Stage Equipment and Issues in Backstage Areas.

1. Introduction of presenter and attendees:

Craig Austin, ETCP Certified Rigger-Theater at Stagecraft Industries.
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2. Workplace Hazards common to backstage areas: "Hazard ID".

- 2a. Poorly lit and dark work areas
- 2b. Ladders, lifts, scaffolding, catwalks, grid irons, and other elevated work areas
- 2c. Untrained workers and outside users
- 2d. Missing workplace signage such as Auth. Personnel Only, Procedure Placards, WARNING! Signs
- 2e. Stationary and Portable power tools and hand tools
- 2f. Heavy Loads suspended overhead
- 2g. Raising and lowering of loads with counterweight or motorized rigging systems
- 2h. Extensive electrical uses including the stage lighting and dimming system
- 2j. Paint and Chemicals, use and storage
- 2k. Poorly constructed sets, i.e. elevated stage platforms held by drywall screws, lack of railings, etc.
- 2L. Obstructed pathways and doorways, covered or non-working EXIT signs
- 2m. Poorly stored materials, set pieces, and props
- 2n. Fire prevention elements not tested: fire safety curtains and roof smoke vents, lack of records
- 2p. Flammable stage curtain fabrics

3. Stage Curtains and Cycloramas:

- 3a. Ensure all textiles purchased and present are flame treated or flame resistant
- 3b. Flame tags should be attached to each stage curtain with dates of flame treatment
- 3c. All fabrics are required to meet flame resistance properties for NFPA 701.
- 3d. Perform a field flame test on curtains known as NFPA 705 and retain records.
- 3f. Stitch repair any rips or tears upon discovery. Never use tape.
- 3g. Keep bottom hems above the floor to prevent the bottom hem from being ripped out.
- 3h. Dislodge or vacuum dust and debris to prevent flammable dust accumulation on the curtains.
- 3j. Make sure all of the curtain top hem ties or s-hooks are connected to a pipe or track carrier

CONTRACTOR LICENSES

AK-5095 • AZ-129893 • CA-252177 • HI-C15872 • ID-11989-AAA-4(10150) •
MS-10626 • MT-5442 • NM-060655 • NV-0012299 • OR-65050 • WA-STAGEI*365R8



4. Stage Tracks:

- 4a. Ensure that all overhead traveler tracks are securely attached with rated hardware.
- 4b. Maintain proper tension and trim for traveler track operating cords and master carriers.
- 4c. Make sure the track cords are properly seated in both track end pulleys, that spin freely.
- 4d. Provide sag support where required to prevent a track cord from getting slack.
- 4e. Replace all twisted link type of chains overhead with welded link chains and rated connectors.

5. Scenery and Props:

- 5a. Review the scenery and props for basic construction quality and integrity.
- 5b. Never allow open-flame to be used onstage. LED flicker lights are effective fire light.
- 5c. Review any prop guns, knives or pyrotechnics for compliance with safety rules.
- 5d. Ensure that all elevated platforms and steps have adequate fall protection systems in place.
- 5e. All overhead scenery should be built to withstand the forces of being lifted overhead.
- 5f. Use only rated hardware that is properly attached to be used on any item being lifted overhead.
- 5g. Ensure proper paint and chemical use and storage.
- 5h. Ensure power tools are in good working order, and people are trained to use the equipment.
- 5j. Ensure proper PPE is used at all times.
- 5k. Poorly constructed stage extensions or pit filler platforms.

6. Stage Lighting:

- 6a. Keep dimmer rack fans clear and air filters clean.
- 6b. Make sure that all overhead lighting fixtures employ a safety cable.
- 6c. Maintain adequate clearance between hot lighting fixtures and curtains or other items.
- 6d. Check fixture plugs and system receptacles for proper terminations and strain relief.
- 6e. Beware of white asbestos cords used in the 1950's and 60's on fixture cords.



7. Fire Safety Curtains and Roof Smoke Vents:

- 7a. Both the FSC and the RSV pieces are part of the life and fire safety plan for the building. NFPA 101.
- 7b. Prevalent code for the parts is NFPA 80, chapter 20. ANSI E1.22 applies to FSC's only.
- 7c. FSC's should be drop tested at least annually, though some require every 90 days. Document.
- 7d. RSV hatches are often required to be tested every 4 years. Beware of closing challenges.
- 7e. Fusible links should not be painted and should be replaced on a periodic basis.
- 7f. Both items should be part of a written Emergency Action Plan for the building.
- 7g. Maintain required inspection, service, training records, and signage for the equipment.

8. Stage Rigging Systems:

- 8a. Make sure to follow recommendations provided in Operation and Maintenance manuals provided.
- 8b. Ensure regular inspections, qualified service, and training records exist. Equate to forklift programs.
- 8c. Disallow damaged parts to continue to remain in service overhead. Lock-out/Tag-out as required.
- 8d. Prevent unauthorized use of the overhead rigging equipment.
- 8e. Ensure proper safety placards and operator instructions are posted near the machinery.
- 8f. Post relevant data such as load limits and capacities of the rigging.
- 8g. Rigging systems have a normal serviceable life of 25-30 years and then need to be replaced.
- 8h. Do not allow unrated or homemade rigging to be used overhead, i.e. clothesline pulleys, zip ties
- 8j. Ensure equipment meets the requirement of ANSI E1.4 and meets or exceeds industry standards.
- 8k. Make sure all motors and controls are in good working order.

Resources for assistance with backstage safety programs:

Risk Management or insurance carrier claim prevention specialists
OR-OSHA Consulting division
Backstage Handbook by Paul Carter
Practical Health and Safety Guidelines for School Theater Operations by Randall Davidson
United States Institute for Theater Technology (USITT)
Stage Rigging Handbook by Jay O. Glerum, 3rd Edition
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