**THEATER SAFETY**

***A Guide for Students, Teachers, Parents, Community,***

***and Administrators***

 **Rancho Mirage High School**

**Theater Safety Manual**

***A Guide for Students, Teachers, Parents, Community,***

***and Administrators***

# INTRODUCTION

*Theater Safety* has been developed for students, teachers, administrators, parents, the community, and anyone else involved in the use of the theater, the use of stage equipment, or the manufacture of scenery. The guidelines address **16 technical areas** that are critical to the safe operation of theaters. A **glossary of key technical terms** is also provided. The appendices contain **parental consent forms**, **guidelines for tool use**, and **safety inspection forms**. It is recommended that a crew member be appointed the Safety Manager, responsible for monitoring safety conditions and reporting unsafe practices to the director. The director is ultimately responsible for theater safety.

Persons using *Theater Safety* should read the entire document initially to gain an overview of its contents and then subsequently use it as a reference for day-to-day operations. Note that sections **after** the Statement of general safety policies and guidelines appear in alphabetical order.

Questions regarding any aspect of the guidelines may be addressed to the Building Technical Director 760-202-6455 Ext 2416

# TABLE OF CONTENTS

Safety Policies & Guidelines 3

[Audio System 7](#_TOC_250016)

[Catwalks 8](#_TOC_250015)

[Cosmetics 10](#_TOC_250014)

[Curtains 11](#_TOC_250013)

[Door Warnings 14](#_TOC_250012)

[Fire Safety 15](#_TOC_250011)

[Fog Machines 17](#_TOC_250010)

[Ladders 18](#_TOC_250009)

[Lighting 20](#_TOC_250008)

[Paints and Chemicals 25](#_TOC_250007)

[Personal Protection / Proper Apparel 27](#_TOC_250006)

[Powered Personnel Lifts 29](#_TOC_250005)

[Scaffolds 35](#_TOC_250004)

[Scenery 37](#_TOC_250003)

[Tools 42](#_TOC_250002)

[Winch Battens 44](#_TOC_250001)

[Glossary 47](#_TOC_250000)

Appendix A: Rules for Use of Power / Cordless Hand Drill 49

Appendix B: Rules for Use of Miter Saw 50

Appendix C: Rules for Use of Saber Saw 51

Appendix D: Rules for Use of Screw Gun 52

Appendix E: Rules for Use of Reciprocating Blade Saw (Sawzall) 53

Appendix F: Rules for Use of Drill Press 54

Appendix G: Walkthrough Inspection before Occupying the Auditorium 55

Appendix H: Walkthrough Inspection before Leaving the Auditorium 56

Appendix I: Safety Checklist for Designated Safety Manager 57

Acknowledgement of Responsibility by Outside Vendor 59

Acknowledgement of Responsibility by Community User 60

Parental Permission Form 62

**Statement of General Safety Policies and Guidelines**

It shall be the policy of the Helene Galen Performing Arts Center  that a safe, healthy environment shall be maintained at all times within the Theater Program and its environs, including performance spaces, rehearsal spaces, and shop and other work spaces. This includes controlling and minimizing hazards attendant with the creation of theater. We recognize that many processes, techniques, materials, and practices used in the theater contain inherent risks to individuals; if those risks cannot be adequately  minimized and controlled through proper training, equipment, and use of appropriate precautions, **THOSE THINGS MAY NOT BE USED WITHIN OUR PROGRAM.**

Furthermore, ignoring precautions and restrictions shall not be allowed. No production can ever be considered justification for risk to any member of our program, and no production can be considered successful if someone is injured in its completion.

No activity in theater is completely safe. Safety procedures considered standard in any other industry may not be practical in a performance situation. We must therefore be especially diligent in following safety rules that do apply. **FAILURE TO FOLLOW APPROPRIATE SAFETY RULES AND POLICIES MAY RESULT IN SERIOUS INJURY OR DEATH!** Therefore, failure to follow required safety rules may result in immediate temporary and possibly permanent expulsion from a given activity, production, or class.

**Handling Safety Issues**

It is the policy of HGPAC that no safety concern is unimportant. All personnel and students within the Department are encouraged to bring such concerns to the faculty and staff, and especially to the Technical Director. In no way will doing so reflect badly on or be held against the person making the report. Rather, contributing to the health and safety of all personnel is everyone's responsibility.

**Restricted Access**

The theater space, especially the stage area, is essentially a large machine for producing plays. It contains many hazards, especially to those unfamiliar with the mechanical and physical aspects of a theater.

**THEREFORE:**

No unauthorized personnel (i.e. anyone other than Cast and Crew) shall be allowed backstage during any performance, between call time and 15 minutes after final curtain.

No one is allowed access to the stage area unless supervisory personnel (faculty, staff, or authorized student supervisors) are present.

No one shall be permitted to work alone in the Theater space. In case of injury or incident, there must be another present to render aid or seek assistance.

**NO ONE SHALL BE PERMITTED TO OPERATE ANY POWER TOOLS IN THE SHOP SPACES UNLESS A PAID STAFF OR STUDENT SUPERVISOR IS PRESENT!**

***This includes Scenery and Costume Shops.***

**First Aid, Accidents, and REPORTING!!**

A First Aid kit is maintained in the office of the Technical Director, who is responsible for seeing that it is maintained and kept stocked. This kit is located in the wooden cabinet, and may be accessed as needed. Keys to the TD office are issued to all faculty, professional and academic staff, who are all authorized to access the first aid supplies.

However, this kit is intended for First Aid ONLY! In the event of anything OTHER than minor incidents, accidents are to be reported IMMEDIATELY to the Technical Director if present and/or the supervisor in charge of the area, who shall contact The Administration Office, who are authorized to contact the proper emergency services. If the incident is serious or life-threatening, the Technical Director will call 911 immediately. The on-call administrator must then be contacted as soon as practical. Render whatever first aid can be applied until emergency services arrive to relieve you.

All incidents must also be reported to the Technical Director after the fact.

**Emergency Procedures**

**FOR ANY EMERGENCY INCLUDING INJURY, ILLNESS, FIRE OR AN EXPLOSION, DIAL 566  During School Hours FROM ANY campus PHONE, OR IN EXTREME EMERGENCY, DIAL 911.**

The following are recommended procedures for various types of emergencies:

***MEDICAL EMERGENCIES***

1. If a SERIOUS INJURY occurs, immediately dial 566 emergency phone number, or dial 911. First aid can be administered or medical transport can be arranged if necessary.
2. Never move a person suspected of serious injury unless it is a life-threatening situation such as a fire. Attempts to move an injured person can cause further injury, especially to the spine and neck. Try to keep the injured person warm and still.
3. Because of infection, minor cuts have the potential to become more serious. Wounds should be washed and dressed. Visit the Health Center in the Admin Bldg. if necessary.

***FIRE EMERGENCIES***
In the event of a fire, Call 911 Immediately and the following actions are recommended:

1. Activate the fire alarm.
2. Put out the fire if you know how to do so without endangering yourself or others. Those that choose to fight small, incipient stage (no larger than a waste paper basket) fires must be trained in the proper use of fire extinguishers. If a fire cannot be extinguished within the first 10 seconds, leave immediately!
3. If the fire is large or spreading, leave the fire area and prevent the fire's spread by closing the doors behind you. If on stage, activate the Fire Curtain by breaking the glass cover on the Curtain release behind either proscenium wall.
4. Evacuate the building and await the arrival of Fire Officials. Try to account for everyone inside the building. Do not leave the area until you have been accounted for.
5. Do not re-enter the building until you are told to do so by District Personnel, Police or the municipal fire official.

 **CHEMICAL EXPOSURE**

1. If you spill a chemical such as paint thinners or fabric dyes on your skin:
* ***EMERGENCY SHOWER LOCATED IN SHOP AREA***
	+ Rinse the area with water for at least 15 minutes.
	+ Remove any soiled clothing and jewelry while you are rinsing.
1. If you get a chemical in your eyes:
* ***EYEWASH STATION LOCATED IN SHOP AREA***
	+ Rinse with water for at least 15 minutes, rinsing from the nose outward to avoid contaminating the unaffected eye.
	+ Remove contact lenses while rinsing - don't wait to remove them before you rinse.
1. If you inhale a chemical or are overcome by fumes:
	* Leave the room and move to fresh air.
	* Keep door of room open to vent.
	* Do not re-enter a contaminated area.
	* If symptoms do not subside, notify Technical Director and seek medical attention at Health Center in Admin Building.

**Chemical Spills**

The general procedure in the event of a spill is to notify supervisor (Technical Director if available) who will evacuate immediate area if necessary. The supervisor then calls campus security office or On-Call Administrator. Campus security staff or ON-Call Administrator will consult with the District Facilities Management director to make a determination on whether to call in the local hazmat team.

**Fire control and Use**

Fire is always a hazard in the Theater. To minimize this problem, the following shall be adhered to at all times:

The Helene Galen Performing Arts Center is equipped with a Fire Curtain, which is designed to lower automatically in case of fire. **AT NO TIME IS THE PATH OF THE FIRE CURTAIN TO BE BLOCKED BY SCENERY, PROPS, OR REHEARSAL PROPS OR FURITURE.**

All technical personnel and students MUST, and all actors SHOULD, be trained in the location and use of fire extinguishers in the backstage areas. HOWEVER, if a fire cannot be extinguished within the first 10 seconds or so, ***GETTING EVERYONE OUT SAFELY IS THE FIRST PRIORITY!*** This is the responsibility of the Production Stage Manager and the Technical Director. Activate the fire alarm immediately! If possible, the fire curtain lowering system (i.e. the "Break Glass" box) should be activated before leaving the stage. Fire alarm boxes are located at each exit to the building. Pull an alarm switch to alert the Fire Department on the way out if it has not already been activated.

**Open Flames:**
**THE USE OF OPEN FLAMES IN PRODUCTION IS STRONGLY DISCOURAGED!**

THAT SAID:
The use of open flames shall be permitted when necessary for production **ONLY WITH THE APPROVAL OF THE TECHNICAL DIRECTOR** who is responsible for training and overseeing personnel handling the effect. If necessary, the TD shall consult with and obtain permission from the City Fire Marshal before effects can be permitted. **IF EITHER THE TECHNICAL DIRECTOR OR THE FIRE MARSHAL DISAPPROVES THE FIRE EFFECT, NO MATTER HOW SMALL, IT SHALL NOT BE PERMITTED.**

At any time open flames are in use, at least one crew person shall act as a FIREMAN and stand by offstage with a fire extinguisher at hand the entire time the open flame is present, and that shall be that **PERSON'S SOLE DUTY AT THAT TIME!**

**Combat and Weapons**

ACTORS and DIRECTORS:
No stage combat shall be permitted in production or class without training and approval of the Theatre faculty responsible for  that training and/or the faculty Fight Director.

PROP WEAPONS:
Prop weapons are **NOT** toys. They are **NOT** to be handled **EXCEPT** by authorized persons (ARMORERS) and are the responsibility of the Props master of each production and/or the assigned Weapons Handler. **NO ONE ELSE IS ALLOWED TO HANDLE ANY PROP WEAPON!**

Prop weapons shall be secured in a **LOCKED ARMORY** when not in use, and shall be issued to the actors using them only when required, and shall be immediately turned back in to the props person responsible immediately when finished; the weapon shall then be immediately secured until the next performance.

All prop weapons **MUST ALWAYS BE TREATED AS REAL** weapons (which in fact they are). All guns used as props must be handled as if loaded; all edged weapons must be treated as sharp. **EVEN BATED WEAPONS CAN KILL!**

**Smoking Rules**

It is State Law that **SMOKING IS PROHIBITED** on all school sites, including the Theater facilities. The single exception is smoking required by the business of a particular production. THIS SHALL NOT BE USED AS AN EXCUSE TO SMOKE IN THE THEATER! Only such smoking as is absolutely necessary for a production is allowed, such permission can and will be withdrawn if necessary!

**Safety complaints and hazards**

Any perceived safety concerns or hazards, large or small, MUST be reported to the supervisor in charge of the area, and/or the Technical Director, who shall take steps to correct the problem or to report the problem to the appropriate District authorities for action.

Electrical or maintenance services to the building shall be referred to Technical Director or in his absence, Administration and/or M&O.

# AUDIO SYSTEMS

Theater sound systems are designed to provide amplification of the human voice and musical instruments, playback of recorded music and effects, and the recording of live performances. In addition, most high schools have intercom systems that allow communication among technical personnel during a performance. The equipment involved is delicate and can easily be damaged by erroneous wiring or misuse.

The following are specifications and guidelines with regard to theater audio systems:

### SPECIFICATIONS

1. **Certification** – Technicians working with the theater audio system must be trained and have a current parental permission form on file.
2. **Alterations and Repairs** – No alterations to the permanent audio system may be made.
3. **Permissible Adjustments** – Adjustments to the audio system are allowed but are limited to the following, at the director’s request:
	1. Plugging in and placing microphones, cables, and stands
	2. Plugging in and placing monitor speakers and cables
	3. Plugging in and placing intercom headsets
	4. Patching cables to the auxiliary inputs and outputs of the table top (non-rack mounted)
	5. mixers
	6. Any adjustment to ―front of panel‖ controls or settings, such as volume, equalization, and channel selector

### GUIDELINES

1. **Electrical Shock** – To prevent possible electrical shock, do not remove equipment panels and other protective hardware.
2. **Unauthorized Connections** – Do not connect unauthorized sound equipment or devices.
3. **Sound Levels** – Do not allow the audience to be exposed to a 95 decibel, ―A‖ weighted scale (dBA) level output (or greater) for more than 90 seconds. If an amplified music concert is anticipated, a sound pressure level meter, available at electronic supply stores, is the device that should be used to determine decibel output.

# CATWALKS

The safe use of *catwalks* requires that great care be taken in diligently following proper procedures. Catwalks can be very dangerous areas for both technicians working on them and persons seated below in the audience. The possibility of falling from a catwalk is one of the most serious hazards.

Students have suffered injuries as a result of falls when proper precautions were not taken. Walking, sitting, or leaning on any surface that is not the actual catwalk can be extremely dangerous. The catwalk itself is the only surface that can support a person’s weight.

Injuries can be caused by any *structural steel, conduit,* or *ductwork* that is crossing or otherwise obstructing the pathway of technicians. Objects such as lighting equipment, tools, hardware, and personal pocket items can become lethal projectiles when dropped, and technicians unaware of them can dislodge such items left unsecured on a catwalk.

The following are specifications and guidelines for using catwalks safely:

### SPECIFICATIONS

1. **Certification** – All persons working on the catwalk must be certified for access by the theater or auditorium coordinator for the school. Certification requires parental permission, prior training, and supervised experience in the theater.
2. **Supervision** – An adult supervisor must be in the theater, on the stage, or in the catwalk area when student technicians are working on the catwalk.
3. **Capacity** – No fewer than two or more than six technicians may be on the catwalk at any time.

### GUIDELINES

1. **Security** – Keep the door(s) to the catwalk area closed and locked when the catwalk is not in use. If doors do not have locking devices, the building supervisor must be notified to have locks installed.
2. **Drop Hazard Prevention** – Empty pockets of all loose items prior to beginning work on the catwalk.
3. **Use of Tools** – Attach all tools to your body or the building structure with *safety tie lines* to prevent accidental dropping.
4. **Storage** – Carefully store supplies and materials pertaining to catwalk operations to prevent injury to technicians on the catwalk, or to anyone below.
5. **Projectiles** – Do not throw or drop any item from the catwalk.
6. **Hoisting Equipment** – Use a sturdy rope to raise and lower lighting instruments to the catwalk. Smaller items should be carried up by the technician, or placed in a plastic bucket attached to the hoist rope. **Do not allow anyone to stand beneath items being raised or lowered.**
7. **Housekeeping** –Food, drink, or tobacco products are not allowed on the catwalk at any time, by any one. Trash should not accumulate in catwalks, and a periodic general housekeeping check is suggested.
8. **Safety Cables** – Attach all lighting instruments, including those not in use, to the catwalk by safety cables. Safety cables are of critical importance for lighting instruments hung above the heads of members of the audience.
9. **Unauthorized Storage** – Do not store any items in the catwalk area that do not pertain to catwalk operation.
10. **Unauthorized Access** – Do not leave the areas of the catwalk to crawl along the roof trusses or to walk out on the ceiling for any reason.
11. **Inappropriate Use** – Do not use the catwalk as a lounge or a place to sleep.
12. **Safe Work Practices** – While working on the catwalk, take responsibility for the safety of audience members, performers, other technicians, and self. Focus full attention on working safely at all times.
13. **Alterations** – Do not make any alterations or renovations to catwalks.
14. **Bump Hats –** Bump hats should be worn while on catwalks, and should be purchased by the school.
15. **Obstructions –** All obstructions should be clearly marked with glow paint or glow tape and padded when necessary.
16. **Overhead Lighting –** All overhead lighting fixtures must be covered and in proper working order. Many accidents happen due to poor lighting or exposed light bulbs. Please see the school’s building supervisor to correct any of these conditions.

# COSMETICS

The use of theatrical makeup is essential in order to accentuate actors’ features or to alter age or physical characteristics. Since cosmetics are applied directly to the skin, the combined hazards of allergic reaction and the introduction of bacteria (particularly to the eyes) are always present. Students should be encouraged to purchase and use individual makeup kits whenever possible/feasible.

The following are guidelines for reducing health risks associated with cosmetics:

1. **Non-cosmetic Products** – Use only cosmetic products on skin. Do not use substitutes such as paints or dyes, and do not supplement cosmetics with such substances.
2. **Ingredient Listing** – Use only products that list the ingredients on the label.
3. **Hazardous Ingredients** – Avoid using products that are labeled as having hazardous ingredients.
4. **Aerosols** – Do not use aerosol products in small, poorly ventilated areas.
5. **Allergic Reactions** – use *hypoallergenic* cosmetics for students with sensitive skin or eyes.
6. **Hygiene** – Wash hands before and after applying cosmetics. Wash hands and any applicators before working on another actor.
7. **Sharing Makeup** – Do not share lipstick, eyeliner, or mascara.
8. **Dressing Room Ventilation –** All dressing rooms should have proper ventilation.
9. **Dampening Brushes** – Moisten brushes and pencils with clean tap water, not saliva.
10. **Removal** – Completely remove cosmetics with makeup remover or cold cream immediately after each performance. Replace lost skin oil with moisturizers.
11. **Applicators** – An individual disposable applicator should be used per student for the application of eye shadow. An individual sponge should be used for each student if used for the application of foundation. Clean all brushes in rubbing alcohol after each use.
12. **Storage** – Store cosmetics and applicators in a clean, protected area.

# CURTAINS

Curtains are common to most stages. They are used selectively to reveal areas of the stage or scenery and to mask the backstage areas and overhead equipment from the view of the audience. Some types of curtains are used as scenery, such as painted backdrop, cyclorama, and scrim curtains. Through misuse and carelessness, curtains can easily be damaged or become a fuel source for a fire.

The following are specifications and guidelines necessary for prevention of fire and other physical damage to these valuable accessories.

### SPECIFICATIONS

1. **Nomenclature**
	1. ***Traveler Curtains*** -- Curtains that are hung on wheeled carriers that travel on a track, operated by a rope and pulley system or pulled by hand. These curtains include the *Main Act Curtain*, (also called the *Grand Drape*), and mid-stage and upstage dividing curtains.
	2. ***Legs* (also called *Tormentors*)** – Curtains that hang at each side of the stage that are usually made from black fabric and serve to mask the backstage wings from view of the audience. These curtains are usually hung on a pipe that is attached to a *roto-draper* that allows the curtain to be rotated on its vertical axis. The roto-draper travels horizontally on a track to allow further adjustments.
	3. ***Borders* (also called *Teasers*)** – Valance Curtains that are hung above the stage and serve to mask the overhead equipment from view of the audience. These are usually made from black fabric and are hung on pipe battens fixed at a permanent height above the stage. The first border curtain that masks the main act curtain track is usually the *Grand Teaser* and is made from the same color and type of fabric used for the main act curtain.
	4. ***Cycloramas* (also called *Cycs*)** – These curtains cover the width of the stage and are usually hung furthest upstage (away from the audience). They are most often off-white in color, although some are sky blue. They are sewn flat with no pleats and are used as a surface to project washes of colored light.
	5. ***Scrims*** – These curtains are made from a seamless, open weave, black or white material. They are used to visually soften and blend the lighting on cycloramas and can also be used to dramatically reveal or hide an area of the stage, depending on how it is illuminated.
2. **Curtains installed** – All curtains, and the devices to which they are mounted, must be professionally manufactured and installed.
3. **Flame Resistant Material** – All curtains must be manufactured from flame resistant fabric and must bear the manufacturer’s label attesting to this fact.
4. **Alterations and Repairs** – School personnel may make no alterations to individual curtains or to the devices to which they are mounted.
5. **Permissible Adjustments** – Curtain adjustments that are allowed are limited to the following:
	1. Opening and closing of traveler curtains.
	2. Rotating and horizontal tracking of leg curtains.
	3. Temporary removal of legs, borders, and cyclorama curtains (See 4. In the Guidelines section below).

### GUIDELINES

1. **Flame Resistance Testing** – When requested by the Fire Marshal, the Technical Director will determine the flame resistance of any temporary or permanent curtain. A small sample will be removed from the curtain and subjected to the match flame test as described by the National Fire Protection Association. The Technical Director maintains fabric flame resistance certificates.
2. **Fire Prevention** – Curtains must not be positioned closer than 18 inches to the rear or sides and no closer than four feet to the front (lens) end of any stage lighting instrument.
3. **Protection From Physical Damage** – Prohibit unauthorized persons from adjusting curtains and prohibit all authorized persons from using excessive force to adjust curtains. Avoid activities such as sawing lumber or painting scenery in close proximity to curtains. Either relocate the activity or move the curtains from the work area. Use care when moving scenery and risers or rolling pianos near curtains. Particular caution must be used to protect scrims. This type of curtain is expensive and very delicate. A minor snag will ruin the effectiveness of the entire scrim.
4. **Attachment of Decoration** – Avoid attaching decorations to any curtain. Small, lightweight decorations, such as cut paper stars or snowflakes may be temporarily attached using safety pins only. Do not use straight pins, staples, glue, or adhesive tape. The use of adhesive tape is particularly damaging to velour curtains, because the threads that make up the pile on the fabric are pulled out of the curtain when the tape is removed. Do not use decorations that can stain the fabric or that leave a residue, such as glitter or artificial snow. All decorative material and pins must be removed as soon after the performance as possible. Never apply decoration to the scrim or the cyc.
5. **Removal** – Curtains may be temporarily removed under special circumstances such as replacement with painted drops for an event or avoidance of particularly tall or wide stage scenery. Curtains that are to be removed should be untied from the pipe or unhooked from the carriers. Hardware such as bolts, chains, roto-drapers, tracks, and battens must not be tampered with. Curtains that are temporarily removed must be carefully stored in curtain bags to protect them from dirt and physical damage. Curtains must be restored to their original location as soon after the event as possible.
6. **Temporary Curtains** – Curtains that are part of a stage set do not have to be professionally manufactured and installed, but have to meet all three specifications stated in the SCENERY section. Technical Director must approve Temporary Curtains prior to hanging.
7. **Painted Backdrops** – Painted muslin fabric backdrops must be made flame resistant. The unpainted backdrop can be made with flame resistant fabric, or the backdrop can be sprayed with a flame retardant after it is painted. Painted backdrops can be hung from border curtain battens or traveler tracks. Backdrops must not be hung from lighting battens unless all lighting instruments are removed.
8. **Roller Drops** – *Roller drops* - devices that roll a backdrop from the bottom up - are one method of changing backdrops during a performance. These devices can be installed on a temporary basis only and must be removed after the final performance. Roller drops must be made flame resistant. Roller Drops must not be hung from lighting battens unless all lighting instruments are removed.
9. **Rented Curtains and Backdrops** – All rented items must be flame resistant. Obtain a written certificate of flame resistance from the rental company and have it available for inspection by the Fire Marshall.

# Door Warnings

During productions, the following warnings, when appropriate, are to be posted on entrance doors and printed in the program:

STROBE EFFECTS

―Warning: This production includes a STROBOSCOPIC LIGHT EFFECT that might prove disturbing or otherwise harmful to persons suffering from epilepsy.‖

FOG EFFECTS

―Warning: This production includes an AEROSOL SIMULATED FOG EFFECT. This fog is intended for public performances, but persons who are asthmatic or who are allergic to dust should identify themselves to house personnel so they might be seated where there is least possibility for discomfort.‖

LOUD GUNSHOTS

―Warning: This production includes one or more LOUD GUNSHOTS. It may be disturbing or harmful to some persons with an emotional disturbance or abnormal heart condition.‖

VERY LOUD MUSIC OR NOISE

―Warning: This production includes VERY LOUD MUSIC OR NOISE. It may be disturbing or harmful to some persons.‖

LASER

―Warning: LASERS are being used in this area. The equipment makes it possible under certain conditions to produce a STROBOSCOPIC LIGHT EFFECT that might prove disturbing or harmful to persons suffering from epilepsy.‖

# FIRE SAFETY

Theaters and auditoriums are places of assembly that concentrate large numbers of people in single rooms. It is of critical importance that procedures for ensuring fire safety are in place and observed. Directions should be clear for those unfamiliar with the emergency procedures to be followed in case of fire. Many fire codes have been written or upgraded on the basis of serious fires in theaters.

Following are guidelines and specifications for preventing and reducing fire losses and casualties:

### GUIDELINES

1. **Inspection** – Inspect auditoriums and backstage facilities prior to each event to make sure that all stairways, doors and other exits are free of debris or obstructions and that all exits are in proper operating condition.
	1. **Aisles** – Keep aisles completely clear. Make sure that all routes to exit doors (aisles and other *exit access ways*) are at least 44 inches wide at all points and are kept free of obstructions (equipment, card tables, clothing, belongings and the like) at all times.
	2. **Number of Exits** – Do not disable access to exits based on the size of the audience. When an auditorium is occupied, all exit doors must be fully functional and accessible.
	3. **Panic Bars** – Check *panic bars* for proper operation under all conditions.
2. **Exit Signs** – Ensure that exit signs are not covered in any way (e.g., with paper, color media, or tape).
3. **Accessibility of Emergency Equipment** – Ensure that there is clear access to fire alarm manual pull stations, fire extinguishers, and fire blankets (if applicable) at all times.
4. **Audience Instructions** – Prior to the start of each performance or event, inform the audience of the locations of the auditorium exits to be used in the event an emergency evacuation is required.
5. **Sounding the Alarm** – Upon discovering a fire, observing smoke coming from the building, or smelling gas, immediately sound the fire alarm without asking permission.
6. **Evacuations of the Building –** Upon hearing the fire alarm, direct all audience members, performers, and technicians to exit the building and assemble at a point 100 feet from the building.
7. **Calling 911** – In addition to setting off the fire alarm, call 911 (the emergency number of Riverside County police and fire and rescue service), in order to provide details of the situation.
8. **Notification** – Immediately correct, or report to the appropriate person, any conditions likely to interfere with the safe exit of any person.
9. **Use of Flame** – **THE USE OPEN FLAMES IN PRODUCTION IS STRONGLY DISCOURAGED!** The use of battery- powered candles and lanterns are the recommendation.
The use of open flames shall be permitted when necessary for production **ONLY WITH THE APPROVAL OF THE TECHNICAL DIRECTOR** who is responsible for training and overseeing personnel handling the effect. If necessary, the TD shall consult with and obtain permission from the City Fire Marshal before effects can be permitted. **IF EITHER THE TECHNICAL DIRECTOR OR THE FIRE MARSHAL DISAPPROVES THE FIRE EFFECT, NO MATTER HOW SMALL, IT SHALL NOT BE PERMITTED.**
10. At any time open flames are in use, at least one crew person shall Act as a FIREMAN and stand by offstage with a fire extinguisher at hand the entire time the open flame is present, and that shall be that **PERSON'S SOLE DUTY AT THAT TIME!**
11. **Pyrotechnics** – Pyrotechnics, including *flash pots* and explosives, SEE: USE OF FLAME.

### SPECIFICATIONS

1. **Fire Extinguishers** – Designated adult school employees are the only persons permitted to use fire extinguishers. Students are not allowed to fight fire; they should be immediately evacuated from the building.
2. **Fire Blankets** – (If applicable) Fire blankets, supplied principally for smothering fires on clothing, may be used by adults on other small Class A fires (wood, paper, textiles, etc.) in the absence of other extinguishing means.
3. **Sprinklers –** Do not stack any item (such as boxes, scenery, lumber, costumes, furniture, or props) near a sprinkler head. The standard requires that all materials shall be at least 18 inches from any sprinkler head.
4. **Sprinkler Heads –** Sprinkler heads may not be painted in any way.
5. **Sprinkler pipes –** Sprinkler pipes are not to be used for hanging from, such as scenery, costumes and tools.
6. **Pull Alarm Boxes –** Pull alarms should not be blocked; there shall be full access to them at all times, and they should be readily visible.
7. **Smoke Detectors –** Do not block smoke detectors with storage items, scenery, curtains, or large props. A smoke detector must never be covered.
8. **Non -fixed Seating** – In cafeterias and gymnasiums used as auditoriums, chair arrangement must conform to the following code requirements:
	1. **Number of Seats in a Row** – The maximum numbers of seats in a row extending from one aisle to another is 16, and the maximum number of seats in a row extending from one aisle to a wall is eight.
	2. **Aisle Width** – All aisles must be a minimum of 44 inches wide.
	3. **Aisle Termination** – Every aisle must lead to an exit door or to a cross aisle (an aisle running parallel to the seat rows and leading to an exit door).
	4. **Distance Between Rows** – There must be at least 30 inches from the back of one seat to the back of the seat in the next row, measured in a horizontal direction.

# FOG MACHINES

Fog machines must be tested by the Technical Director before they are used. To arrange for a test, call 760-202-6455 Ext 2416.

# LADDERS

Because it is necessary to adjust stage lighting, assemble and paint tall scenic units, and hang microphones, ladders are essential tools to theater operations. Their use and care must be monitored to protect the safety of the person using the ladder and the persons working on the ground below the climber.

Following are specifications and guidelines for the use and care of ladders:

### SPECIFICATIONS

1. **OSHA Rating** – Ladders for stage use must have an *OSHA* rating of Type 1 (heavy duty— 250 pounds) or Type 1A (extra heavy duty—300 pounds). Ladders having an OSHA rating are labeled accordingly.
2. **Electrical Shock Prevention** – Ladders used for lighting or other electrical work must be made of fiberglass or wood. Metal ladders may not be used.
3. **Ladder Types** – *Extension ladders* or *straight single ladders* may not be used. Self- supporting *stepladders, platform ladders,* or *A-frame ladders* (without center extension) are acceptable.

### GUIDELINES

1. **Inspection** – Maintain ladders in good condition at all times. Prior to each day’s use, inspect ladders to ensure that the joints between steps and side rails are tight, all hardware and fittings are securely attached, and moveable parts operate freely without binding or undue play.
2. **Damaged Ladders** – Do not use ladders with broken or missing steps, broken side rails, or other faulty parts. Immediately withdraw from service ladders that have developed defects.
3. **Repairs** – Do not make repairs to damaged ladders. Report a damaged ladder to the Technical Director.
4. **Cleanliness** – Keep steps and side rails clean and free of all foreign material, including wet paint, mud, snow, grease, oil, or other such substances.
5. **Painted Ladders** – Do not paint ladders with opaque coatings because these disguise splits, cracks, and other defects.
6. **Work Area** – Use a ladder on a flat, firm base, and keep the surrounding area clean.
7. **Unstable Surfaces** – Do not place ladders on boxes, barrels, or other unstable bases to obtain additional height.
8. **Use Near Doors** – Do not use a ladder in front of a door that opens toward the ladder unless the door is blocked open or guarded.
9. **Proper Deployment** – Use only ladders fully opened, with the *spreaders* locked in place.

10 **Climbing** – When climbing a ladder, keep body centered between the side rails and do not overreach. Face the ladder when climbing up or down, and maintain a firm grip using both hands. Climb only on the front side of the ladder (using the rungs or steps), not on the brace side. Only one person at a time may be on a ladder.

11. **Spotters –** Use at least one other person as a spotter when working on ladders.

1. **Maximum Height** – Do not climb, stand, or sit above the second step from the top of the ladder.
2. **Securing Tools** – Secure tools and other objects against falling while work is being performed from a ladder. Use safety tie lines to attach tools to the body. Never leave tools or equipment on a ladder. Never drop or throw tools or equipment to another worker.
3. **Moving a Ladder** – Do not attempt to move a ladder while a person is on it.
4. **Storage** – Store ladders properly indoors, in such a way that they are not subjected to physical abuse, such as storing or dropping heavy items on them.
5. **Substitutes** – Do not use a chair, table, or any other substitute in place of a ladder.

# LIGHTING

Theater lighting systems are designed for flexibility and heavy-duty use. When properly used, they are safe not only for the technicians working with them, but also for anyone within the theater environment. However, in the hands of untrained or careless persons, lighting systems can be the cause of many potentially lethal situations. Previous accidents have included fires, electrical shock, and fallen equipment.

Following are specifications and guidelines with regard to theatrical lighting:

### SPECIFICATIONS

1. **Certification** – Technicians working with the stage lighting system must be certified by the director and must have a current parental permission form on file. (Appendix A)
2. **Alterations and Repairs** – No alterations to permanent electrical systems or lighting instruments may be made by school personnel. The Technical Director must submit requests for changes and repairs.
3. **Permissible Adjustments** – Adjustments to lighting equipment that are allowed are limited to the following:
	1. Re-hanging and refocusing of instruments
	2. Recruiting at the hanging position
	3. *Re-patching* at the lighting board
	4. Changing color media or pattern templates
	5. Using extension cords
	6. Changing *lamps*
4. **Extension Cables** – The only type of cable acceptable for use as an extension cord for a lighting instrument is 12 *gauge* (20 amp capacity), 3 *conductor* (grounded), protected with type *S, SO, SOO, SE, SEO, ST, STO* or *STOO* insulation. The permanent inscription found on the external insulating jacket can identify the cable type. The acceptable cable mark is

―12/3 AWG‖ followed by one of the letter codes: S, SO, SOO, SE, SEO, ST, STO, STOO.

Note: Cable with the mark ―SJ‖ is not acceptable for use with lighting equipment. The 12/2 SJ or 14/2 SJ cables can be used for audio speakers provided they have the correct type of connectors.

1. **Approved Equipment** – All lighting instruments must be listed by Underwriters Laboratories (UL) and bear the UL label.
2. **Purchases and Donations –** All lighting equipment purchases and donations must be approved by the Technical Director and should be in compliance with the current standards for lighting instruments.

### GUIDELINES

1. **Inspection** – Inspect each instrument as it is being hung and focused to determine if the equipment is both mechanically and electrically safe to use. ―Instrument‖ refers to any type of stage lighting device – *Fresnel, ellipsoidal, PARcan, and scoop, strip light, cyc light*, etc. Potential problems with extremely dangerous consequences include the following:
	1. Cracked *C-clamps*
	2. Stripped or missing bolts
	3. Loose wires of fiberglass *insulating sleeve*
	4. Exposed electrical conductors
	5. Rattling parts

Remove from service equipment found to be faulty, and tag it ―Dangerous, Do Not Use‖ with a brief explanation of the problem. The Technical Director must submit requests for changes and repairs.

1. **Hanging** – When hanging instruments for use, clamp them tightly with a wrench. **Mount a safety cable immediately after the instrument is clamped in place.** Curtains must not be positioned closer than 18 inches to the rear or sides and no closer than four feet to the front (lens) end of any stage lighting instrument.
2. **Attachment of Accessories** – Exercise great care when using a *color frame, pattern holder, barn door,* or *snoot* with an instrument. Check to ensure that these items are correctly installed and cannot accidentally slip out of the instrument. ―Downlights,‖ or instruments that are nearly perpendicular to the stage, are particularly at risk. Keep *lens barrels* of ellipsoidals and *lens doors* of Fresnels tightly secured.
3. **Fire Prevention** – Hang instruments with careful consideration given to fire hazards. Do not focus instruments directly into cables or other equipment. Place instruments so as not to create a hazard when a curtain is drawn at a later time.
4. **Electrical Capacity** – Always be aware of the *amp capacities* of the different electrical components being used and the *wattages* of the instruments. Have a thorough understanding of Ohm’s law as it applies to the power formula in order to prevent overloading electrical equipment. (See explanation at the end of this section.)
5. **Plugging in Equipment** – When plugging an instrument into a circuit make sure that the power to that circuit is off. Never *“hot patch”* electrical equipment. (For the schools that have *dimmer modules*, this guideline also applies to inserting a dimmer module into its rack.)
6. **Thermal Protection** – Since lighting instruments operate at very high temperatures and can cause serious burns, wear leather gloves while focusing, and exercise extreme caution to protect other exposed skin from accidental burns.
7. **Lamp Replacement** – When an instrument requires a lamp replacement, take the following steps in the order listed.
	1. Turn off power.
	2. Unplug instrument.
	3. Allow lamp to cool.
	4. Remove old lamp using gloves since the lamp may still be warm, the glass envelope might break, or the lamp might still be good if malfunction is due to some other cause.
	5. Check lamp type to be sure that the replacement is of proper wattage, base type, and

*light center length (LCL)*.

* 1. Use clean cotton or plastic gloves to install new lamp. Do not touch glass envelope with bare hands since natural skin oils will destroy the quartz glass. If the glass is accidentally touched, wash it off immediately with alcohol and allow to air dry.
	2. Make sure the lamp is securely seated and the *lamp housing* is properly closed. Failure to do this may allow an *electrical arc*, which in short time will ruin an instrument. This is a very common cause of instrument failure.
	3. Re-plug the instrument into the circuit.
	4. Use *dimmer* to slowly energize the circuit.
1. **Instrument Storage** – Carefully store lighting instruments to prevent damage. Gently coil the electrical lead to prevent the plug from getting caught and pulled. Push lens barrels and shutters fully into the instrument, and tighten *yoke bolts*. Store instruments clamped to a storage pipe if possible but, if space does not allow this, place lens end down on a clean surface, out of the way of other activity. Instruments stored on the catwalk must be secured with a safety cable to keep them from falling.
2. **Securing Overhead Electrical Cables** – When cables are mounted above, secure them properly to keep them from falling. Cord tie lines or *gaffers tape* are acceptable means of attaching cable to *battens*. Do not use masking tape or duct tape.
3. **Securing Electrical Floor Cables** – In order to prevent a tripping hazard, avoid placing cables on the floor if at all possible. If it is absolutely necessary to do this, choose locations that have the least impact on foot traffic such as the bases of walls or under platforms and risers. When placing the cables, first clean the floor of loose dust and debris, then arrange cables flat on the floor in a smooth, neat manner and tape down securely with *gaffers* to keep them in place. In areas where scenery pieces or numerous performers must cross, cover the cables with a *protective wood curb and gutter* or with a commercially available rubber cable cover such as ―Flex-I-Duct.‖
4. **Electrical Cable Storage** – Properly store cables that are not being used. They should be coiled individually, neatly tied or taped, and placed in a location that will protect them from

physical abuse such as being walked on, having scenery stored on them, or having any contact with moisture.

1. **Dimmer Security** – Keep the dimmer rack doors closed and locked while the system is operating. For schools that have fewer dimmers than the total number of lighting circuits, an adult supervisor may open the doors so that the dimmer modules may be re-plugged.
2. **Protection of Control Board** – Do not allow smoking, eating, or drinking in the control booth. Accidental spills have ruined lighting control boards. When the control board is not in use, it must be turned off and its protective cover must be in place.
3. **Strobe Effects** – If strobe lights are used for a performance, provide a clearly visible sign at all entrances to the auditorium. See Appendix E for DOOR WARNINGS.

### POWER FORMULA

The power formula is used to determine the amount of electrical energy consumed in an electrical circuit. This formula is derived from Ohm’s law and is also called the ―West Virginia‖ or ―Pie‖ formula.

―West Virginia‖

|  |  |  |
| --- | --- | --- |
| W | = | power in Watts |
| V | = | voltage in Volts |
| A | = | current in Amperes |

W = VA - Use this equation to determine watts.

A = W - Use this equation to determine amps.

V

V = W - Use this equation to determine volts.

A

―Pie‖

P = power in Watts

I = current in Amperes E = voltage in Volts

P = IE - Use this equation to determine watts. E = P - Use this equation to determine volts.

I

I = P - Use this equation to determine amperes (amps).

E

Example:

To determine the amperage load of an electrical circuit, the only information needed is the total wattage of the instruments plugged into the circuit. The voltage for all School theaters can be assumed to be 120 volts. If two 750-watt instruments are plugged into a circuit, the formula is set up as follows:

Formula:

A = W (―West Virginia‖ equation to determine amps.) V

|  |  |  |
| --- | --- | --- |
| W (watts) | = | 2 x 750 = 1500 |
| V (volts) | = | 120 |

A = 1500 (watts)

120 (volts)

12.5

120

1500

 120

300

240

600

600

A (amperes) = 12.5

# PAINTS AND CHEMICALS

Certain paints and chemicals used in theater are potentially dangerous as a health hazard and/or as a fire hazard. People working with these substances must know the dangers and take necessary steps to prevent injuries, not only during actual use, but with regard to storage and disposal as well.

Following are guidelines for working with paints and related chemicals:

1. **MSDS** – Know the location of the Material Safety Data Sheet (MSDS) notebook. An inventory of hazardous substances must be filed with the Technical Director.
2. **Knowledge of Hazards** – Read and understand the information provided by the MSDS before using a potentially dangerous product.
3. **MSDS Availability** – Make sure that an MSDS is on file for every product used that claims to have a health or safety risk.
4. **Hazardous Products** – Avoid the use of products that list potentially hazardous substances in their contents.
5. **Flammable Liquids** – Store no more than ten gallons of flammable liquid in one-gallon cans. Keep anything in excess in an approved metal storage cabinet.
6. **Containers** – Use only non-breakable containers that are clearly labeled as to contents and hazards. No glass containers are permitted.
7. **Container Seals** – Keep containers tightly sealed to prevent the escape of vapors.
8. **Storage** – Store containers on low, sturdy shelves, and make sure that the label side faces out.
9. **Stacking** – Stack no higher than two containers.
10. **Manufacturer’s Instructions** – Follow manufacturer’s instructions for use and cleanup.
11. **Spraying** – Avoid spray application of paint. Use brush paintings, rolling, dipping, or spattering as the method of application whenever possible.
12. **Skin Contact** – Avoid skin contact with paints and solvents. If contact occurs, wash with waterless hand cleaner and/or soap and water. Never use solvents to clean hands.
13. **Vapors** – Avoid breathing vapors. General dilution ventilation (open doors, fans, building heating and air conditioning system) can be used for acrylic, *latex*, and artist’s oil *paints*. Sprayed and/or oil-based paints require exhaust ventilation or outdoor use.
14. **Disposal of Water-Base Paint** – Dispose of small quantities (less than one pint) of *casein* and latex *paints* by flushing down a sink with plenty of water. Note: Paint labeled for use on stages, scenery, or display items will generally be water-based. Check label of contents to confirm.
15. **Large Quantities of Water**-**Base Paint** – Dispose of large quantities of *casein* and *latex paint* by allowing the paint to dry out in its container and then disposing of the solid remains in a trashcan.
16. **Disposal of Oil-Base Paint** – Dispose of oil-base paint or *mineral spirits* by pouring waste into a metal or plastic jug (one-gallon limit). Clearly label the container ―Paint Waste,‖ and notify the Technical Director.

# PERSONAL PROTECTION / PROPER APPAREL

The protection necessary for working in theater begins with a person’s own clothing and is then supplemented as needed with specific safety equipment. Wearing proper apparel contributes to general self-protection and can prevent injury.

Following are guidelines for preventing personal injury:

1. **Shoes** – Wear sturdy close-toed shoes at all times when working in a theater. Sandals and flip-flops will not provide the protection needed. Tennis shoes and running shoes may not provide the protection needed. High top work shoes equipped with steel toe guards are recommended for working with scenery.
2. **Arm Protection** – Wear long sleeves whenever possible to protect arms from flying splinters and from casual-contact burns from lighting instruments. Button cuffs when working with power tools.
3. **Hair and Jewelry** – Remove all loose jewelry and tie back long hair prior to using any power tool.
4. **Cotton Gloves** – Wear cotton gardener’s gloves or disposable cotton film editor’s gloves to handle *lamps* from lighting instruments. (Refer to ―Lighting‖ section for proper re-lamping procedures.)
5. **Leather Gloves** – Wear leather gloves when focusing hot instruments.
6. **Unauthorized Use of Gloves** – Wear leather gloves when handling heavy equipment or scenery, but do not wear them when operating power tools because a spinning blade or bit can catch them.
7. **Safety Glasses** – Wear safety glasses or goggles when sawing, drilling, or sanding any solid material. Do not use face shields as a substitute for safety glasses as they do not provide adequate protection.
8. **Safety Glasses Hygiene** – Avoid sharing safety glasses and goggles. If sharing is necessary, thoroughly wash the safety glasses or goggles with hot water and soap to prevent the transfer of infections.
9. **Hard Hat** – When helping a technician who is working on a ladder or scaffold, wear a hard hat to protect the head from hardware that might be accidentally dropped. Do not use a *“bump cap”* as a substitute for a hard hat when protection from falling objects is required.
10. **Bump Cap** – Use a bump cap or hardhat when working in a confined space such as the

*catwalk*. In these areas there is little chance of injury caused by an object dropped fromoverhead, so a bump cap is adequate protection from overhead hazards such as *conduits* or beams.

1. **Dust Masks** – If sensitive to dust and other inhaled irritants, use a particulate filter mask commonly available at hardware stores. Discard disposable masks when they become clogged. They must never be shared.
2. **Hearing Protection** – Use a hearing protection device such as earplugs or earmuffs when working with or near power tools that emit loud noise. The hearing protection device must have a noise reduction rating of 20 dB or more. The noise reduction rating should be clearly marked on the product packaging or on the item itself.

# POWERED PERSONNEL LIFTS

Powered personnel lifts are machines that use electrically powered hydraulic pumps to vertically raise a platform that the lift operator stands on. When used properly, lifts are the safest way to reach battens and lighting equipment over the stage. These machines require the full attention of all personnel involved in their use.

Following are specifications and guidelines for using powered personnel lifts.

### SPECIFICATIONS

1. **Types of Lifts** – The only type of lift permitted for stage use is a manually propelled, single-person lift. Power drive scissor lifts or boom lifts are only authorized on a per case basis by the Technical Director.
2. **Battery-Powered** – Battery-powered (DC voltage) lifts are permitted for school use.
3. **Electrical Shock Prevention** – Lifts used for the purpose of adjusting stage lights must have a fiberglass (insulated) work platform.
4. **ANSI/SIA Standard** – Lifts acquired, either by purchase or donation, after this regulation becomes effective, must meet standard number ANSI/SIA A 92.3-1990 of the American National Standards Institute/Scaffold Industry Association, Inc.
5. **Approval** – the Technical Director must approve all purchases or potential donations, at (760) 202-6455.
6. **Training** – All persons using a powered lift must have received training from a qualified instructor approved by the Technical Director and must have passed a user’s knowledge test. Upon successful completion of training and the test, an operator’s certificate will be issued.

### GUIDELINES

1. **Inspection** – Inspect lifts prior to each day’s use to ensure that all components are in good working order. Ensure that all of the following checks are made:
	1. **Controls** – Test all operating and emergency controls for proper function. All emergency stops and releases must function as designed.
	2. **Outriggers** – Ensure that all outriggers are able to lock in place and all leveling devices function properly.
	3. **Guardrails** – Determine that all guardrails are in place and any moveable rails are able to return freely to the operating position.
	4. **Hardware** – Check to see that all mounting bolts and other hardware are in place and properly secured.
	5. **Debris** – Clear the lift platform of loose hardware, tools, and debris.
	6. **Electrical Connection** – Inspect the electrical cord and plug to ensure that they are in good working condition, with proper strain relief and no damage to the insulation or conductors.
2. **Discontinue Use** – Do not use any lift that does not successfully pass the inspection described above until corrections can be made.
3. **Notification** – Immediately withdraw from service all lifts that have developed defects, and clearly tag or mark: ―Dangerous, Do Not Use.‖
4. **Repairs** – Make no repairs to a lift except as authorized by the manufacturer. Unauthorized repairs or modifications will void manufacturers’ warranties.
5. **Work Area** – Inspect the workplace prior to using a lift. Remove any loose debris that may hinder movement of the lift.
6. **Overhead Hazards** – Identify potential overhead hazards such as work lights, conduits, duct work, curtain tracks, and lighting battens.
7. **Outriggers** – Use all outriggers and stabilizers as required by the manufacturer. Never attempt to use a lift without proper deployment of outriggers.
8. **Level Surface** – Use the outriggers to level the lift when used on a sloped surface such as an auditorium aisle. The lift must be level prior to raising the platform.
9. **Unstable Surfaces** – Do not position lifts on orchestra risers, scenery platforms, or other light-duty surfaces.
10. **Ground Spotter** – Use a person who is knowledgeable about all emergency controls to act as a ―ground spotter‖ when the lift is in use.
11. **Spotter Required** – Use the lift only when accompanied by a spotter.
12. **Responsibility of Ground Spotter** – Ensure that the ground spotter gives full time and attention to warning the lift operator of any potential hazards and to warning all persons on the ground as to the presence of the lift and operator.
13. **Protection of Personnel** – Do not allow anyone other than the ground spotter to be present near a lift when it is in use.
14. **Securing Tools** – Secure tools and other objects against falling while work is being performed from a lift. Use tie lines to attach tools to the body when possible. Do not drop or throw items from raised lift platform.
15. **Capacity** – Do not exceed the rated capacity of a lift.
16. **Moving a Lift** – Never attempt to move a lift in a raised position.
17. **Cleanliness** – Keep lifts clean and free from all foreign material, including paint, mud, snow, oil, and other such substances.
18. **Security** – Secure lifts when not in use to prevent unauthorized access and use.

**RIGGING SYSTEM**

* Only authorized and trained personnel are permitted to work with the rigging equipment and to enter the grid area above the stage.
* Safety procedures should be explained to the entire crew at the beginning of each work period involving rigging.
* Work should be arranged so that all rigging and flying are done together, with no other work taking place on stage.
* When a scenic piece is coming in, or when an arbor is being loaded or unloaded, there should be complete silence on stage.
* The technical director or crew head should be the only person to call instructions to the grid crew. The director should inform both the grid and stage crew before a batten or piece is pulled in or out.
* The correct call to warn of a batten, scenery, or line coming in under control is “Heads up! Lineset Number xx Moving” The emergency call for falling objects is “Clear the stage!”
* Pockets should be emptied before going on to the grid. Tools brought onto the grid must be tied or secured to the worker. Safety belts should be worn while working on the grid.
* Ropes or electrical lines must never be dropped to the stage floor from the grid. They should be pulled up, coiled, and carried down.
* Any discovered irregularity in cable, rope, or the counterweight system should be reported immediately to the Technical Director.

**Counterweight loading and unloading**

TO LOAD A BATTEN SAFELY:

WITH FLYMAN AT THE LOCK RAIL AND LOADERS ON THE LOADING GALLERY:

* Flyman calls "Heads Up! Line Set Number XX Moving" and lowers batten to floor.
* Flyman gives clearance to deck crew to place the load on batten.
* AFTER load is on batten, Flyman estimates weight and then directs loaders to load the arbor with appropriate weights equal to the load.
* Loader calls “Clear the Rail” and stands by until the “Rail is Clear” response is given
* Flyman clears and secures the lock rail area, stopping all access to the Flyrail and keeps all persons back at least 10 feet from lockrail.
* Flyman will also post door guards outside of stage doors near lockrail to stop **ALL** access to the stage until the loading of stage weight is complete.
* Signage and the locking of stage doors will also be adequate measures in the absence of qualified personnel

**AFTER** these precautions have been taken, **ONLY** the Flyman calls “Rail is Clear”

* Loaders in the loading gallery raise keeper nuts and spreader plates, leaving one on top of batten weight.
* Loaders place required counterweights on arbor. If many "bricks" are needed, a spreader plate should be inserted between weights at appropriate marks or every two feet in the absence of markings.
* When finished, Loaders slide down remaining plates and keeper nuts, locking them in place with thumb screws. Only then do they call down: "Locked and Secured." “Loading Complete”
* Flyman calls “Rail is NOT Clear” then calls to Deck crew to "Clear the Batten."
* Flyman removes keeper ring and opens lock handle, and tests load for balance.
* If load is out of balance, repeat above procedure to adjust.
* Once weight is correct, Flyman calls "Clear the Batten" and “Heads Up! Lineset Number xx Moving” and  flys load to trim, locking rope lock and securing with Keeper Ring.

**TO UNLOAD, REVERSE THE PROCEEDURE:**

* Flyman calls "Heads Up" and “Lineset Number xx Moving” flys batten to the deck.
* Flyman “Clears the Rail” as above, Upon flyman's command, Loaders remove all weight down to but not including batten weight.
* Only after weight is off arbor, Deck crew removes goods from the batten.
* Flyman calls "Clear the Batten" and “Heads Up! Lineset Number xx Moving” and flies batten out for storage.

When hanging scenery or lighting equipment, the loading of the counterweights onto the arbor should be carefully coordinated with the attachment of the lighting and/or scenery to the batten. When striking scenery or equipment, the arbor unloading should again be carefully coordinated with the dismounting  of the lighting and/or scenery. Example: When loading ten light fixtures each weighing 20 pounds, the stage crew should allow the loading gallery crew the time to add counterweights to compensate for each  fixture added. Don’t add ten lighting instruments, and then add 200 pounds of counterweight; instead, add a light, add a counterweight, and repeat.

A 10-pound weight should not be put on the top of the stacked weights in an arbor. A 20-pound or heavier weight should be on top. Always make sure that the weight locking collars are on top of the counterweights (never under them) and that they are secured in place by tightening the set screws. If the arbor is equipped with spreader-plates, then see that they are raised-up as weights are loaded so that they do not become buried in the weight stack. Spreader plates should be positioned at about every 12-18 inches of counterweight thickness.

Counterweights not in use on the stage floor or loading platform should be neatly arranged. They should never be stacked above the toe rail height of the loading platform.

When loading or unloading is complete, the loading gallery worker should call out, “Rail is safe!” This call should be acknowledged from the stage.

A counterweight set must be left in a balanced position. The rope lock on the counterweight arbor should never have to hold more than about 50 pounds of imbalance. This means it should neither be “batten-heavy” or “arbor-heavy” beyond the control of a single operator.

Except for the actual moment of flying, every counterweight set should be kept locked off with the locking rings in place.

Pipe extensions to battens must be securely bolted to the batten with a steel splicing sleeve of equal or greater wall thickness than the pipe batten. There should always be at least three feet of pipe extension inside the batten. Batten extension pipes must be of the same or greater strength material than the main pipe batten. Do not use wood, plastic, or thin wall electrical conduit for battens or batten extensions. Long weight-bearing extensions must be bridle supported to the main batten suspension line.

When rigging pipes, battens and other flying pieces with a fiber or wire rope, secure the piece with a clove hitch finished with a half hitch and tape. Recommended batten attachment is to use a steel pipe clamp bolted to the pipe, forged screw pin shackle, trim chain rated for overhead lifting, wire rope thimble, and secure the wire rope with a swaged compression fitting (aka “Nicopress”), or a minimum of two forged wire rope clips tightened to manufacturer’s recommended torque specification.

Stagehouse rigging must be checked and approved by the faculty supervisor before use.

When not in use, every batten should be stripped of hardware, extensions, hemp, or other attachments.

This facility is equipped with motorized rigging the controls to which shall be locked and the key removed except when a fly crew is manning the control station

When rigging lighting instruments, scenery, or props always provide a secondary safety attachment (wire rope cable or chain) to secure the flown device from falling should the primary attachment mechanism become loose or fail.

# SCAFFOLDS

Scaffolds are useful pieces of equipment. They are safer and easier to use than ladders; however, when using scaffolds, one must follow many of the guidelines for ladders in addition to some that are unique to scaffolds.

Following are the guidelines for the use and care of scaffolds:

1. **Inspection** – Maintain scaffolds in good condition at all times. Prior to each day’s use, inspect them to ensure that the joints between individual components are tight and that all hardware and fittings are securely attached.
2. **Damaged Scaffolds** – Do not use scaffolds with faulty, damaged, broken, or missing parts. Make no repairs to scaffolds except as authorized by the manufacturer. Immediately withdraw from service scaffolds that have developed defects, and tag or mark ―Dangerous, Do Not Use.‖
3. **Repairs** – Do not make repairs to damaged scaffolds. Report a damaged scaffold to the Technical Director imediately.
4. **Cleanliness** – Keep scaffolds clean and free of all foreign material, including wet paint, mud, snow, grease, oil, or other such substances.
5. **Work Area** – Use scaffolds only on a flat, firm base, and keep the surrounding area clean.
6. **Unstable Surfaces** – Do not use scaffolds on boxes, orchestra risers, or other unstable bases to obtain additional height.
7. **Use Near Doors** – Do not use scaffolds in front of a door opening toward the user unless the door is blocked open or guarded.
8. **Wheel Locks** – Ensure that all scaffold casters are equipped with positive wheel locks and/or swivel locks to prevent movement. Lock casters prior to climbing, and do not move scaffolds or lifts while occupied.
9. **Securing Tools** – Secure tools and other objects against falling while work is being performed from a scaffold or lift. Use *tie lines* to attach tools to the body when possible. Never leave tools and equipment on a scaffold. Do not drop items from a scaffold or throw to another worker.
10. **Storage** – Store scaffolds properly indoors making sure that nothing is stacked against or on top of them and that they are protected from physical damage.
11. **Maximum Height** – Make sure that the maximum height of the top platform does not exceed four times the dimension of the narrowest side of the base. Suitable *outriggers* may be used to achieve the proper base width.
12. **Minimum Width** – Make sure the platform is at least 20 inches wide.
13. **Platforms** – Ensure that the work-level platform of a scaffold is the full width of the scaffold, except for necessary openings. Secure work platforms in place.
14. **Toe boards** – Provide a standard *toe board* for all work levels ten feet high or higher.
15. **Guardrails** – For all work levels ten feet high or higher, install a guardrail that is at least 36 inches high but no higher than 42 inches.
16. **Climbing Ladders** – Provide a climbing ladder or stairway for proper access and egress, and make sure it is affixed or built into the scaffold in such a way that its use will not have a tendency to tip the scaffold.
17. **Cross Braces** – See that scaffolds are properly supported with cross braces. Braces must be of a length that will automatically square and align vertical members so the erect scaffold is always plumb, square, and rigid.

# SCENERY

The production of scenery for the theater is a specialized craft that combines artistic interpretation with basic practicality. A theater art training emphasizes creativity and experimentation between the director and the design staff. It is impossible to establish standard guidelines that cover all scenery designs because of the infinite variety of possible visual solutions to any single staging problem.

While it is recognized that one of the primary functions of scenery is to help the audience transcend time and space, physical laws cannot be ignored. The purpose of these specifications and guidelines is to establish minimum safety standards without detracting from the artistic design.

Following are specifications and guidelines for the design and production of scenery.

### SPECIFICATIONS

1. **Design Hazards** – The design and use of scenery must not pose any health or safety risks to audience, actors, or technicians.
2. **Materials Hazards** – Materials for construction of scenery that would pose a toxic risk to people or the environment must not be used.
3. **Fire Prevention Code** – All scenic elements described in these guidelines (such as flats, platforms, stairs, ramps, and trap doors) will be considered ―decorative material‖

### GUIDELINES

**Platforms**

1. **Standard Platforms** – Use standardized platform units whenever a raised walk surface is required for stage scenery. A standard platform is a reusable basic building block for creating larger, more complex surfaces. The RMHS Standard Scenery Platform is provided in Appendix D.
2. **Sizes** – Basic unit, 4 feet x 8 feet, or the size of a sheet of plywood. Sizes of other stock units that may be useful include 2 feet x 8 feet or 4 feet x 4 feet and triangles with 4 x 4 leg and 4 x 8 right and left leg.

### Materials

* 1. **Top Surface** – ¾ -inch-thick CDX grade plywood or better. This material is economical, stronger than particleboard, and readily available.
	2. **Frame** – Stud grade 2 x 4.
	3. **Legs** – Stud grade 2 x 4.
	4. **Leg Attachment** – Two-3/8 inch x 3 ½-inch-long hex head carriage bolts for each leg.
	5. **Platform-to-Platform Attachment** – Two to four 3/8-inch x 3 ½-inch-long hex head carriage bolts (depending on length of contact surface).
	6. **Top Surface Attachment** – 2-inch-long drywall or wood screws spaced at 8-inch intervals. Screws resist tension force (depending on length of contact surface).
	7. **Framing Attachment** – 3 inch-long wood screws or galvanized deck screws. Regular drywall screws should be used cautiously since their resistance to shear force is not as great. Nails should not be used. They provide good resistance to shear force but perform poorly against tension force.
1. **Required Number of Legs** – Provide six legs for a standard 4 x 8 foot platform. If more than one standard platform is used to create a single height surface, adjacent platforms that are properly bolted together may ―share‖ support legs.
2. **Cross Braces** – Attach 1 x 3-inch wood cross braces to the legs of any platform over 2 feet in height. Cross braces should form an ―X‖ pattern on the sides and ends of the platform. The braces should be attached within 9 inches of the bottom of the leg.

### Fall Protection

1. **Design** – Incorporate sufficient area into the design of a raised platform. Performing on a platform that is too small may endanger actors.
2. **Off-Stage Railings** – Provide railing for all ―off-stage‖ exposed edges of a raised platform with the railing not less than 36 inches or greater than 42 inches in height. The railing must be strong enough to stop a person who has stumbled or inadvertently walked into it. Vertical and horizontal pieces of the railing must be made from 2 x 4 or stronger material. Vertical supports must be bolted or attached with 3 three-inch screws to the platform with a maximum spacing of 48 inches.
3. **On-Stage Railings** – Whenever possible, provide railing for the ―on-stage‖ exposed edges of platforms. If railing is inappropriate to the design of the scenery (such as a rock cliff), mark the top surface of all exposed edges with paint or tape of a contrasting color to the scenery.
4. **Visibility** – Whenever possible, avoid having performers move about in the dark. This is often impossible, and at such times *glow tape* should be used to mark the ―on-stage‖ edgesof hazards. Small, low wattage lamps should be used to illuminate ―off-stage‖ platform edges and stairs.

### Stairs

When creating a stair unit, regardless of the number of stairs, **consistency** is the key factor. Also take into consideration the formula that the rise + tread = 17 to 18 inches but keeping each stair consistent is really the key factor.

1. **Risers** – Construct stair units with risers of equal size. The riser height for acceptable stage use is between 5 and 9 ½ inches.
2. **Treads** – Construct stair treads with a minimum depth of 8 inches. Treads must be made from ¾-inch plywood, 2 x 12, or 5/4‖ stair treads.
3. **Handrails** – Provide handrails for all ―off-stage‖ stairs, and whenever possible, for all ―on- stage‖ stairs. Handrails must be constructed and mounted in the same way as those described in paragraph 2 of the ―Fall Protection‖ section. ―Ships ladder‖ type stair units

are acceptable for use both on stage and off, but they must have a handrail on both sides of the stairs.

1. **Cross Bracing** – Provide substantial cross bracing and support for stairs. Stairs receive more physical abuse than platforms because of the repeated shock load of the body weight of actors climbing and descending the stops.

### Ramps

1. **Maximum Slope** – Avoid designing ramps with slopes greater the 1:4. (For every 4 inches of horizontal travel, the ramp should rise no more than 1 inch.)
2. **Slip Prevention** – If it is necessary to have a ramp with a slope greater than 1:4, provide a nonskid surface such as sand-textured paint or a commercially available adhesive-backed nonskid surface.

### Trap Doors

1. **Design** – Use extreme caution when designing trap doors for stage sets. The trap door must have the same load-bearing capability as the rest of the platform surface. All edges of the trap door, and the hole in the platform, must be framed with 2 x 4 on edge. Hinges must be heavy-duty and closely spaced. The latch mechanism can best be accomplished using a section of 1-inch (inside diameter) schedule 40 steep pipe. The pipe is slipped through holes drilled into the platform and trap door frames.
2. **Notification and Inspection** – Notify the Technical Director at (760) 202-6455 if a trap door is planned for a show. The design must be reviewed and approved prior to construction and inspected before the first rehearsal use.

### Flats

1. **Size** – Design scenery flats (vertical surfaces) so that they can be easily handled. Flats wider than 6 feet and taller than 12 feet are difficult to move and store. Reusable stock scenery flats with standardized dimensions (such as 4 feet wide and 8 to 12 feet high) work well to create large wall surfaces, yet are not difficult to store.
2. **Materials** – Use flame-retardant scenery muslin (FR), and 1 x 3 framing for traditional scenery flats. Make corner blocks and keystones to join the flat frame from ¼-inch AC- grade plywood.
3. **Construction** – Align the wood grain of corner blocks and keystones so that they run perpendicular to the joint of the 1 x 3 frame.
4. **Hard-Cover Flats** – Use Masonite, Upson board, or luan plywood to make hardcover flats. The framing is the same as for muslin flats, but no corner blocks or keystones are required.
5. **Hard wall Flats** – Hard wall flats should be used if a more stable scenery wall is required. Hard wall flats have a 1 x 3 frame assembled on edge, not flat like those for muslin or hardcover flats. Corner blocks and keystones are not required, and the covering is the same as those for hardcover flats.
6. **Covering** – Use flame-retardant muslin over the hard surface if hard cover or hard wall flats are desired to have a smooth grain-free surface for painting.
7. **Bracing** – Brace all flats so that they cannot fall and cause injury or come in contact with hot stage lighting instruments.
8. **Borders** – To mount scenery borders that are constructed as flats from battens, do not exceed the weight capacity of the batten, which is usually 1200 lbs., overall and 500 lbs. at any one spot. Borders must be of lightweight construction and must be securely mounted at the top and bottom of the flat to prevent falling. Any batten should not deflect more than 1/360th of the span between supports. Mounting borders to Roto-Drapers is prohibited
9. **Glass** – Do not use glass windows for stage scenery. The effect of glass can be created using heat shrink window insulting plastic, Plexiglas, or aluminum window screen.
10. **Flame Retardant** – Commercially available products in the form of powders and liquids can be used as a paint additive or sprayed onto fabrics.
11. **Plastics** – Using rigid cellular plastics, such as polystyrene ―blue board‖ or other building insulation, for scenery construction is acceptable but must be painted by using flame- resistant paint.

### Set Strikes

1. **Scheduling** – Schedule set strikes (dismantling) as soon after the final performance as possible. Strikes should be completed within 72 hours.
2. **Organization** – Carefully organize set strikes. All participants should be protected from accidents caused by haste. Teams of people with specific responsibilities should be established.
3. **Personal Protection** – Ensure that all those participating in a set strike have proper clothing and that they pay particular attention to hand and foot protection.
4. **Scrap** – Do not salvage lumber shorter than 12 inches in length. Such scraps are rarely used again.
5. **Removal of Hardware** – Remove all nails, screws, and any other hardware from lumber before it is stored. This is a task that is often ignored because of time constraints, but carelessness in this area has become a major cause of injuries.
6. **Stage Floor** – Carefully check the stage floor after a set strike to ensure that all protruding hardware, such as nails and staples, have been removed. Pushing a snow shovel or a piece of plywood across the stage is a good way of finding any remaining hardware.
7. **Storage** – Establish well-defined areas for scenery storage. Emphasis should be placed on good housekeeping to prevent injury caused by tripping over scenery or by being hit by dislodged set pieces.
8. **Fire Prevention** – Carefully stack and organize lumber and other scenery materials; a loose pile of boards provides greater exposure to the risk of fire. Disorganized materials are too difficult for most people to access. A reasonable amount of lumber may be stored. Avoid excessive amounts of flammable materials.

# TOOLS

The construction of stage scenery usually requires the use of hand and power tools. Accidents involving tools are among the most common causes of injuries in theaters. The manufacturers of tools are concerned with safety and make every effort to design their tools to provide the greatest possible protection for the user. However, the single most important factor in achieving safety is the user.

Following are specifications and guidelines for working with tools:

### SPECIFICATIONS

**1. Skills Test** – A student must achieve a perfect score on a written and practical skills test for each power tool he or she intends to use. Each theatre teacher should create his/her own skills test reflecting the specific tools used in his/her program.

1. **Parental Permission** – A students using power tools must have a signed parental permission form on file at the school. (See Appendix A.) An adult supervisor must be present when students are working with power tools.
2. **Authorized Tools** – The power tools that are approved for high school theater student use are drills, power screwdrivers, saber saws, reciprocating blade saws (Sawzall), powered sanders, hot knife, drill press, and powered miter box saws.
3. **At no time shall any student operate or attempt to operate any of the following pieces of equipment without permission of the staff.**a) Table Saw b) Radial Arm Saw c) Circular Saw d) Band Saw e) Sabre Saw f) Drill Press g) Any pneumatic power tool
4. **Hot Glue Guns** – Hot glue guns are permitted for use by students in high school only (not in middle or elementary schools).

### GUIDELINES

1. **Manufacturer’s Instructions** – Understand the safe operation of any tool prior to using it. Read and follow the manufacturer’s instructions completely.
2. **Clothing** – Be aware that proper attire is extremely important when working with tools. Remove loose jewelry and secure loose clothing to prevent entanglement with moving parts. Tie back long hair because it can be easily drawn into air vents of power tools. Do not wear gloves when working with power tools as a blade or bit can catch gloves; gloves offer good protection, however, from pinches and blows from hand tools.
3. **Safety Glasses** – Wear safety glasses or goggles when working with power tools.
4. **Attentiveness** – Stay alert at all times when working with tools, particularly powered ones. Many skilled workers have been injured because of simple mistakes that could have been easily prevented.
5. **Selection of Tool** – Select the proper tools for the job. Inexpensive hand tools often chip easily and break under stress. Do not use an undersized power tool to do heavy-duty work.
6. **Inspection** – Prior to using a tool, check for missing or damaged parts. Make sure all guards work properly. If a tool is dropped while work is in progress, recheck prior to continuing.
7. **Proper Adjustment** – Make sure that all bits, belts, and blades are tightly clamped. The speed at which power tools operate can cause parts to be thrown a considerable distance and at a high velocity.
8. **Removal of Adjusting Keys and Wrenches** – Remove all *adjusting keys and wrenches*

prior to starting a tool.

1. **Hot Glue Guns** – Use extreme caution when using hot glue guns. In addition to direct contact burns with the glue gun, injuries can occur when the glue drips on students working with or near the glue gun.
2. **Extension Cords** – Whenever possible, plug power tools directly into an outlet, not through an extension cord. If an extension cord is necessary, make sure that the size of the wire is equal to or greater than the tool’s cord and that the cord bears the ―UL‖ label (Underwriters Laboratory listed). Never use an ungrounded *two-wire extension cord*.
3. **Care of Electrical Cord** – Do not abuse a tool’s electrical cord. Never lower the tool to the floor by its cord.
4. **Securing Work** – Secure work with a vise or clamps whenever possible, so that both hands are free to control the tool.
5. **Proper Balance** – Do not overreach when working with tools. Maintain proper footing at all times.
6. **Work Speed** – Do not force tools. They will do the job better and safer at the rate for which they were designed.
7. **De-energizing** – Disconnect a power tool when not in use and prior to making any adjustment.
8. **Battery Powered Tools** – Since battery-operated tools pose a special hazard in that they are always energized, remove the battery if possible prior to making any adjustments.
9. **Maintenance** – Maintain tools properly. Keep them clean to prevent loss of grip. Keep air vents free of sawdust and chips to prevent overheating. Keep bits and blades sharp so that tools are not overworked.
10. **Notification –** If a tool is found to be mechanically or electrically defective, tag the tool

―Dangerous, Do Not Use‖ and remove it from service. A Teacher or the Technical Director must be alerted to the problem.

1. **Storage** – Store tools in their proper places when through working with them. Remove bits and blades, and carefully coil power cords to prevent damage. Make sure tools are clean prior to storage. The drama storage room must be properly secured at all times.

# WINCH BATTENS

*Battens* that can be lowered or raised by mean of *winches* can be great time savers, and the hanging of lighting equipment is easily accomplished in a safe manner when the technician can stand on the floor and not have to use a ladder. Winches exert great force to lift the extremely heavy loads placed on battens. The safe operation of winches demands a thorough knowledge of and respect for the physical factors involved.

Following are specifications and guidelines for the safe operation of winches:

### SPECIFICATIONS

1. **Certification** – The director must train all winch operators. The theatre teacher can make sure that all students are certified to operate the winches.
2. **Supervision** – An adult supervisor must be on stage when any batten is being raised or lowered.
3. **Alterations** – No alterations or adjustments to the permanently installed components of a winch batten may be made. Requests for changes must be submitted to the building Technical Director. The building administrator must request repairs from the Office of Maintenance Services, Department of Facilities Services.
4. **Security** – Winches must be securely locked when not in use.

### GUIDELINES

1. **Identification** – Before moving (or flying) a batten, carefully identify the batten needed and locate the proper winch.
2. **Obstructions** – Check for possible obstructions that may foul the moving batten, such as microphone cables, curtains, scenery, lighting instruments, and lighting cables.
3. **Spotters** – Use at least one other technician as a ―spotter‖ to watch the moving batten. If possible, use two spotters, one on each side of the stage.
4. **Protection of Personnel** – When a batten is being flown, ensure silence on stage, and warn other personnel. Do not allow anyone to walk or stand beneath a batten being flown.
5. **Unusual Sounds** – Listen for unusual sounds from the winch system or warnings from the spotter(s).
6. **Load Capacity** – Do not exceed the posted load limit for any batten. If load limits are not posted, check with the building administrator before proceeding.
7. **Fouled Battens** – Watch the travel of the batten and *wire-rope lift lines*. Stop if the battens should change angle or if one or more of the lift lines are observed going slack.
8. **Operating the Winch** – Keep a hand on the winch handle at all times.
9. **Runaways** – In the very unlikely event of a runaway batten, shout ―Heads‖ as a warning and immediately clear all personnel away from the path of the batten, lift lines, and winch. When there has been an incident of a runaway batten, shut down operation immediately.
10. **Notification** – Immediately notify the building administrator if there is a runaway or any other unusual situation with any winch system.

# GLOSSARY

**A-FRAME LADDER** – A freestanding ladder that consists of two sections, hinged together at the top. Both sections have rungs for climbing.

**ADJUSTING KEYS** and **WRENCHES** – Any tools or devices used to tighten or release the locking mechanism of the chuck that holds the bit (or blade) of the tool.

**AMPACITY** – The current handling capacity of an electrical device, measured in amperes (amps).

**ARC** or **ELECTRIC ARC -** Luminous discharge of current that is formed when a strong current jumps a gap in a circuit or between two electrodes. When an arc occurs, it expends much of its energy, leaving behind a crusty charred residue that can render an instrument useless.

**BARN DOOR** – A device for shaping the light emitted from a Fresnel. It consists of two or four metal flippers and is attached to the Fresnel by inserting it in the color frame holder.

**BATTEN** – A steel pipe, usually measuring 1½‖ (inside diameter), suspended above a stage; used for mounting lighting instruments or curtains.

**BORDERS** -1. Valance curtains that are hung above the stage and serve to mask the overhead equipment from the audience’s view. They are usually made from black fabric; also called teaser curtains. 2. Temporary scenery constructed from flats or unframed painted fabric that serve the same purpose as definition #1 above, but also function as visual extensions of the stage set.

**BUMP CAP** – Protective headgear that guards against minor blows but does not afford the protection of a true hard hat.

**C-CLAMP** – A malleable iron clamp shaped like the letter ―C‖ that is used to bolt lighting instruments to battens. C-clamps must be operational and free from cracks.

**CASEIN PAINT** – Scenery paint that has casein (a chemical derived from sour milk) as a binder. This type of paint is sold as a thick concentrated paste and must be diluted with water prior to use. (Also called protein-based paint.)

**CATWALK** – The lighting area that is located in the ceiling above the audience seating area. Catwalks include a walking surface, instrument mounting positions, and electrical circuits.

**COLOR FRAME** – A device for holding the color medium in place on lighting instruments; generally made of lightweight sheet metal.

**CONDUCTOR** – The metal part of an electrical cord or wire that carries the electrical current.

**CONDUIT** – Permanently installed metal pipe used to house and protect electrical wiring.

**CORNER BLOCK** – A 45-degree right triangle made from ¼-inch AC-grade plywood. A corner block is fastened to each corner of a1 x 3 wood-framed muslin scenery flat to strengthen the joint and to maintain a square corner.

**CROSS BRACES** – Structural members of a scaffold that are mounted at an angle to the horizontal and vertical sections. A cross brace consists of a single tube for aluminum or fiberglass scaffolds, or an adjustable ―X‖ shape of angle iron for steel scaffolds.

**CYC-LIGHT** – A lighting instrument that is designed for lighting a cyclorama or backdrop and is hung above the stage. A single instrument has from one to four lamps, each with a separate plug. (Also called FAR-CYC, SKY-CYC, or IRIS, all trade names.)

**CYCLORAMA (also called *Cycs*)** – These curtains cover the width of the stage and are usually hung furthest upstage (away from the audience). They are most often off-white in color, although some may be sky blue. They are sewn flat with no pleats and are used as a surface to project washes of colored lights.

**DIMMER** – A device that regulates the voltage supplied to lighting circuit outlets. Dimmers are located near the stage and are controlled by electronic signals from the control panel.

**DIMMER MODULE** – A component of the stage lighting control system. A module will contain anywhere from one to four dimmers, each protected by an individual circuit breaker.

**DIMMER RACK** – The metal cabinet that contains the individual dimmer modules. The rack has power line cables that energize the dimmers and circuit load wires that energize the lighting receptacles. The rack typically will have cooling fans and grills and a metal protective door.

**DIRECTOR** – The adult directly responsible for the entire production, or her designee.

**DUCT TAPE** – Adhesive tape with bright metallic silver finish intended to seal air ducts. AVOID USE OF DUCT TAPE ON STAGE OR IN ANY THEATRICAL SETTING.

**DUCTWORK** – Elongated sheet metal tube or box structure used to transport air from the heating or air conditioning source. Ducts are often wrapped with fiberglass insulation.

**ELLIPSOIDAL** – A lighting instrument designed to produce a hard-edged beam of light. Ellipsoidals are used on catwalks, or on box booms, or above the stage. An ellipsoidal has an adjustable lens barrel to focus the beam and four steel shutters to shape the beam. Ellipsoidals are classified by the diameter of their lenses and either the focal length or the beam spread (e.g., 6‖ x 9‖, 6‖ x 50 degrees). (Also called an ERS, which stands for Ellipsoidal Reflector Spotlight, or a LEKO, which is a trade name.)

**EXIT ACCESSWAYS** – Areas of the auditorium that are free of fixed seating and that are not considered aisles but are used by the audience as walking areas. Exit access ways include vestibules, foyers, and, in some cases, the areas behind the last row of seats.

**EXTENSION LADDERS** – A ladder that consists of two straight single ladders that are attached to each other by their side rails. The length of the ladder can be adjusted by sliding the two sections closer together or farther apart. (Extension ladders may not be used in the theater program.)

**FLAME RETARDANT** – A chemical used to render combustible materials resistant to flame, but not necessarily fireproof. A fire retardant is usually sprayed on as a clear liquid or added to paint as a powder.

**FLASHPOT** – A device used to electrically ignite chemicals to produce a flash of light, an explosion, and/or smoke. USE OF THESE IS PROHIBITED.

**FLATS** – Large vertical surfaces of stage scenery often used to represent walls but made of lightweight materials such as thin plywood, fabric, or dense cardboard.

**FOG MACHINE** – A device that uses chemicals to produce a fog-like vapor for special effects.

**FRESNEL** – A lighting instrument (generally hung above the stage) that produces a soft-edged beam of light. This instrument has an adjustable lamp socket and reflector assembly to focus the beam of light. A Fresnel is classified by the diameter of its lenses (e.g., 6‖ or 8‖).

**GAFFERS TAPE** – Heavy-duty adhesive tape for stage use. Usually supplied in two-inch-wide by 60-yard-long rolls, this tape has a durable base of woven fibers and is strong enough to hold stage cables to battens. Gaffer’s tape comes in black and several other colors and is available through theatrical supply vendors.

**GAUGE –** The size or thickness of the conductors in an electrical cord. The lower the gauge number, the larger the conductor. The gauge number is printed on or embossed into the outer insulation of stage cables. Often the gauge number is followed by the amount of conductors in the cable. Example: 12/3 = 12 gauge conductor, three conductors.

**GLOW TAPE** – An adhesive tape that is luminescent. After exposure to a light source, this tape will appear as a green glow in the dark. Glow tape is available through theatrical supply vendors.

**GRAND DRAPE** – *See MAIN ACT CURTAIN*

**GRAND TEASER** – The border curtain that hangs above the main act curtain and is made from the same color and type of fabric as is the main act curtain.

**HARD HAT** – Protective head gear made of rigid material, with an inner suspension that spreads weight over the head’s surface and separates the head from the inside surface of the hat.

**HARDWALL FLATS** – Scenery flats that have 1 x 3 lumber frames assembled on edge, not flat like those for muslin or hard cover flats. Corner blocks and keystones are not used, and the frame is covered with a hard surface sheet material such as Masonite, Upson board, or luan plywood.

**HOT PATCH** – To plug a lighting instrument or circuit patch plug into an outlet that has been energized. This unsafe practice causes sparks and burned electrical contacts.

**HYPOALLERGENIC** – Having a low capacity to induce allergic reaction.

**INSULATING SLEEVE** – A hollow, flexible, woven fiberglass tube used as covering for protecting the wires that form a lighting instrument’s electrical lead.

**KEYSTONE** – A trapezoid-shaped wood block made from ¼-inch plywood for the purpose of strengthening the joint between horizontal (toggle rail) and vertical (stile) framing scenery flat members.

**LAMP** – The light-producing component of a lighting instrument. The lamp consists of a metal base, a glass envelope, and a filament. While lamps are most commonly classified by wattage output, many other factors must be specified when ordering lamps. Using the three-letter ANSI (American National Standards Institute) standard code guarantees that a replacement lamp will match the original.

**LAMP HOUSING** – The part of the lighting instrument that contains the lamp and lamp socket.

**LATEX PAINT** – Water-soluble, latex rubber-based paint. This type of paint is the most commonly available household paint.

**LUAN** – A tight-grained plywood made from Philippine mahogany. Often used for manufacturing hollow-core interior doors and stage scenery.

**LEGS** (also called Tormentors) – Curtains that hang at each side of the stage that are usually made from black fabric and serve to mask the backstage wings from the audience’s view.

**LENS BARREL** – The moveable part of an ellipsoidal lighting instrument that contains one or two lenses used to change the focus of the light.

**LENS DOOR** – The front access door of a Fresnel lighting instrument that holds the lens in place. This door is used to gain access to the reflector and lamp, and it has metal tabs to hold the color frame and/or the barn door assembly.

**LIFT LINES** – The wire ropes that attach to the batten. When wound on a winch, these lines lift the batten. Usually there are anywhere from three to seven lift lines for each batten.

**LIGHT CENTER LENGTH (L.C.L.)** – The distance from the tip of a lamp base to the middle of the filament.

**LIGHTING INSTRUMENT** – A complete lighting fixture including housing shell, lenses, reflector lamp, socket, electrical lead, plug, and mounting devices.

**LOFT BLOCK** – An individual pulley mounted to the ceiling over the stage. Each lift line of a batten passes over a loft block.

**MAIN ACT CURTAIN** – The traveler curtain that is hung closest to the audience. This curtain is usually made from a heavy velour fabric and often has a color different from the leg and border masking curtains.

**MANUAL PULL STATION** – A manually operated switch that activates a building’s fire alarm system.

**MASONITE** – A dark brown sheet material made from wood fibers. Masonite (a trademark) is available in several thicknesses and is either tempered or un-tempered. Masonite is used in scenery construction as a covering for flats or as a veneer surface for stages or platforms. This material is not structurally sound and must not be used as a weight-bearing surface.

**MIXER** – A component of the audio system that allows a technician to adjust input signals from microphones, tape decks, and other sources and to channel the signal to various speakers and other outputs.

**MUSLIN** – A plainly woven cotton fabric used to cover scenery flats or to cover plywood to mask the grain of plywood. This material is available from scenery supply companies in a natural or flame-resistant (FR) form. Non-FR muslin must be treated with a flame retardant prior to use on stage.

**OFFSTAGE** (also called backstage or wings) – The areas of the stage that are not readily visible to the audience.

**ONSTAGE** – The part of the stage that is within the audience’s view. This area is defined by the location of masking curtains, scenery, or acoustic shells.

**OSHA** – Occupational Safety and Health Administration, the federal agency that is responsible for establishing and enforcing safety and health standards for general industry. The Virginia Department of Labor and Industry is responsible for administering and enforcing occupational safety and health activities as required by the Federal Occupational Safety and Health Act of 1970.

**OUTRIGGERS** – 1. Angled support braces on scaffolds that connect the vertical members to the floor. The surface that contacts the floor has a nonskid pad, usually made of rubber. 2.

Temporary scenery constructed from flats or unframed painted fabric that serves the same purpose as definition #1 above, but also functions as a visual extension of the stage set.

**PANIC BAR** – A horizontal bar on a fire-exit door that releases the latch mechanism when the bar is pushed or struck.

**PANIC BUTTON –** A light switch, usually a push-button, that turns on all of the house lights in case of an emergency. It is located just inside the main entrance to the auditorium.

**PAR can** – A lighting instrument that uses a PAR (parabolic aluminized reflector) lamp to produce a soft-edged beam of light. This instrument has no lenses and does not have any means of adjusting the beam of light. PAR cans are classified by the size of lamp that they use (e.g.

PAR 38, PAR 56, PAR 64).

**PATTERN HOLDER** – A device for holding a steel pattern, or gobo, in place inside an ellipsoidal.

**PLATFORM LADDER** – A stepladder that has a platform surface positioned at, and replacing, the highest safe step. This platform allows the worker to turn his or her body and to shift his or her feet to reduce fatigue. The top part of the ladder (where the two sections meet) serves as a safety rail.

**PROTECTIVE WOOD CURB AND GUTTER** – A device made of two strips of wood connected by a strip of plywood 3/8‖ thick or thicker. The air space between the two strips and below the plywood is used to house cables placed on the floor. The outside top edges of the two strips are beveled to reduce the possibility of tripping, and the entire device is secured to the stage with nails and/or gaffers tape.

**PYROTECHNICIAN** – A person trained, tested, and licensed in the use of flash pots and explosive stage effects.

**RECIRCUITING** – Re-plugging an instrument into an outlet of a different electrical circuit.

**REPATCHING** – Moving a lighting outlet patch cord (or slider) from one dimmer to another.

**ROLLER DROP** – A mechanical device used to roll a backdrop from the bottom up. A roller tube at the bottom of the backdrop is manually raised with rope and pulleys.

**ROTO-DRAPER** – A swivel device centered on a short length of pipe that a leg curtain is tied to. The roto-draper is attached to a track that allows the curtain to be turned at an angle and travel sideways.

**S, SO, SOO, SE, SEO, ST, STO, STOO, SJ** – Designation codes for the type of external insulating covering of flexible electrical cords.

**SAFETY TIE LINES** – A general term used for any type of lightweight rope or cord employed to connect a tool to the technician’s body. The tie line serves as a means of catching a tool that is accidentally dropped by a person working above floor level.

**SCOOP** – A lighting instrument that produces a large flood of diffused light. The entire body of this instrument is a parabolic reflector, and it does not have any means of adjusting the beam of light. Scoops are hung above the stage and are often used for lighting painted backdrops or cycloramas. They are classified by body opening diameter (e.g., 10‖ or 16‖).

**SCRIM** – A curtain that is made from a seamless, open weave, black or white material. Scrims are used to visually soften and blend the lighting on cycloramas and can also be used to dramatically reveal or hide an area of the stage, depending on how it is illuminated.

**SHEAR FORCE** – The stress resulting from pressure that causes two objects to slide relative to each other in a direction parallel to their plane of contact.

**SHIP’S LADDER** – Stairs that are set at an angle steep enough to require the use of handrails. Access to lighting catwalks is often gained by the use of a ship’s ladder. A ship’s ladder is one method of exiting the off-stage side of scenery platforms.

**SHOCK LOAD** – The abrupt application of weight to something.

**SINGLE-USE DUST MASK** – An inexpensive disposable facemask that covers the nose and mouth. This type of mask provides protection from sawdust and other large particles only and will not protect the user from paint fumes.

**SNOOT** – A sheet metal tube that is affixed to the front of a Fresnel to narrow the field of light emitted from the instrument; sometimes used on ellipsoidals not to shape the emitted light, but to reduce glare that might be offensive to the audience; also called a high hat or top hat.

**SPREADERS** – A metal hinge device on a freestanding ladder that secures the two sections to each other at a fixed angle.

**STEP LADDER** – A freestanding ladder that consists of two sections, hinged together at the top. One section has steps; the other has braces only.

**STRAIGHT SINGLE LADDER** – A ladder that consists of a single section of two side rails connected by rungs. In order to use this type of ladder one must lean it against a wall or other structure.

**STRIPLIGHT** – A lighting instrument hung above the stage that consists of a row of sockets and reflectors. The sockets are wired in a repetitive series of either three or four circuits. No adjustments to the beam of light can be made, but provisions are made for the mounting of color media or colored glass roundels.

**STRUCTURAL STEEL -** Steel angles, rods, beams, and trusses that are part of a building’s main structure.

**TEASERS** – *See BORDERS*

**TENSION FORCE** – The stress resulting from pressure that causes two objects to pull apart in opposite directions.

**THREE-PRONG GROUNDED PLUG** – A plug for a three-wire extension cord that includes the hot, neutral, and ground conductors. The grounding wire and plug prong were designed not to carry any current unless there is a malfunction of the equipment and electrical current comes in contact with the outer shell of the piece of equipment.

**TOEBOARD** – A barrier surrounding the work-surface-level platform (usually the top platform) of a scaffold that prevents materials or a technician’s feet from sliding off the edge.

**TORMENTOR** – *See LEGS*

**TOXIC RISK** – The possibility of a person being poisoned by something.

**TRAVELER CURTAIN** – A curtain that is hung on wheeled carriers that travel on a track and is operated by a rope-and-pulley system or pulled by hand. These curtains include the main act curtain (also called the grand drape) and mid-stage and upstage dividing curtains.

**TWO-WIRE EXTENSION CORD** – An electrical extension cord that has only two conductors (hot and neutral) and does not have a protective ground wire.

**UPSOM BOARD** – Off-white, dense, pebbled-surfaced cardboard sheet material that is used to cover flats or used as a veneer surface covering only for stages or platforms. This material is not structurally sound and must not be used as a weight-bearing surface.

**WATTAGE** – The measure of power in an electrical devise.

**WINCH** – A steel spool with a crank handle that is mounted to the building’s structure. It is used for pulling and winding the wire rope that is used to suspend a batten.

**WIRE ROPE** – The material used for lift lines on a flown batten. Also called ―aircraft cable.‖

**YOKE BOLT** – The bolt that attaches the yoke of the lighting instrument to the C-clamp. The vertical adjustment bolts of an instrument are also called yoke bolts because they attach the instrument to the yoke.

Appendix A

## Rules for Use of Power/Cordless Hand Drill

### Rules for use:

* Always wear safety glasses and hearing protection.
* Do not operate while wearing jewelry, loose long sleeves, or loose long hair. Always keep hands well clear of the bit.
* Keep your eyes on the drill until the bit has stopped spinning.

### Procedures for use:

* Select the proper drill bit. The teacher will show you where the bits are located. Ask the teacher for a demonstration of how to remove/replace the drill bit.
* Insert the correct bit and make sure it is secure. Clamp or brace your work securely in place.
* Check under the wood to make sure you have clearance for the bit.
* Check the bit. If it is chipped or worn, secure a new one. Make sure the arrow on the collar is pointing toward the drill bit.
* Put the drill in forward gear.
* Place the drill onto your mark on the wood.
* Slowly squeeze the trigger. The drills are of variable speeds, so the more you pull the trigger, the faster they spin.
* When you get close to drilling all the way through the wood, back off a little on the downward pressure. This will ensure a cleaner hole on the other side of the wood.

### Remember, if you don’t feel comfortable doing something – DON’T DO IT!

The Power/Cordless Drill is not a toy. Treat it with respect.

Appendix B

## Rules for Use of Miter Saw

### Rules for use:

* Always wear safety glasses and hearing protection.
* Do not operate while wearing jewelry, loose long sleeves, or loose long hair. Always keep hands well clear of the blade.
* Never cut with any part of your body in the path of the saw. Keep your eyes on the blade until your hands are clear.
* Use only when adult is present.
* Never use without permission of the director.

### Procedures for use:

* Set the correct angle by unlocking the rotating base and moving it to the correct degree and re- locking the base.
* Line up the blade with the measurement by bringing the stopped blade down to the mark and moving the wood until the blade and mark line up.
* SLOWLY Hold the piece you are cutting firmly with your hand. Make sure your hand is well clear of the blade.
* Check to make sure you are following all safety rules above. Start the saw.
* bring the saw blade down through the piece, making certain you are still on your mark. When you have cut through the piece, slowly guide the saw back up to its original position.
* Turn off the saw.
* DO NOT remove scrap from the blade area while the blade is moving.

### Remember, if you don’t feel comfortable doing something – DON’T DO IT!

The Miter Saw is not a toy. Treat it with respect.

Appendix C

## Rules for Use of Saber Saw

### Rules for use:

* Always wear safety glasses and hearing protection.
* Do not operate while wearing jewelry, loose long sleeves, or loose long hair.
* Always keep hands well clear of the blade.
* Never cut with any part of your body in the path of the saw.
* Keep your eyes on the blade until the blade has stopped moving.

### Procedures for use:

* Clamp or brace your work securely in place.
* Check under the wood to make sure you have clearance for the blade.
* Place the saw against the work, with the blade ½‖ from, and the plate securely on, the work.
* Hold the saw with one hand on the handle and one on the front of the saw and squeeze the trigger. If you lock the trigger, keep your finger on the trigger.
* Most saber saws are variable speed, which means that the more you squeeze the trigger the faster the blade moves. For most applications, you should squeeze the trigger all the way.
* Move the saw slowly through the work, following the cut line. Do not force the saw; let it do the work. Keep the footplate resting flatly on the wood.
* As you move the saw forward, exert a slight downward pressure in addition to a forward motion.
* Stop frequently as sawdust covers your line. Blow the sawdust out of the way. When you start again, back the blade ½‖ from the end of the cut before pulling the trigger.

**As you approach the end of the cut, make sure your cutoff is supported. Do not cut through and let the cutoff piece fall.**

### Remember, if you don’t feel comfortable doing something – DON’T DO IT!

The Saber Saw is not a toy. Treat it with respect.

Appendix D

## Rules for Use of Screw Gun

**Rules for use:**

* Always wear safety glasses and hearing protection.
* Do not operate while wearing jewelry, loose long sleeves, or loose long hair. Always keep hands away from the screw and bit.
* Keep your eyes on your work at all times while in use.

**Procedures for use:**

* Check your bit. If it is chipped or worn, see the director for a new one. Make sure the arrow on the collar is pointing toward the drill bit.
* Put the drill in forward gear. There is a button on the handle that should be placed all the way to the left.
* Place a screw on the bit. It should fit snugly. If it does not, check the screw head for obstructions. Discard all screws that are damaged.
* Move your hand from the screw onto the back of the screw gun.
* Slowly squeeze the trigger. The guns are variable speed, so the more you pull the trigger, the faster they spin.
* Start slowly. Once the screw catches and starts going into the wood, speed up, and lean into the drill, using you body weight to help drive the screw into the wood.
* Sink the screw so that the head is slightly below the level of the wood.
* If you feel the drill bouncing in and out of the screw head, STOP IMMEDIATELY; continuing will strip the head and make it difficult to continue or to remove the screw. Set the gun in reverse by pushing the button on the handle all the way t the right, and slowly back the screw out ½‖ or so. Put the gun back into forward and begin again.

**Remember, if you don’t feel comfortable doing something – DON’T DO IT!**

The Screw Gun is not a toy. Treat it with respect.

Appendix E

## Rules for Use of Reciprocating Blade Saw (Sawzall)

**Rules for use:**

* Always wear safety glasses and hearing protection.
* Do not operate while wearing jewelry, loose long sleeves, or loose long hair. Always keep hands well clear of the blade.
* Never cut with any part of your body in the path of the saw. Keep your eyes on the blade until your hands are clear.
* Use only when a Teacher is present.
* Never use without permission from the Teacher.

**Procedures for use:**

* Clamp or brace your work securely in place.
* Check behind the work to make sure you have clearance for the blade. Clear the area of people. Place the saw against the work, with the blade ½‖ from, and the plate securely on, the work.
* Hold the saw with one hand on the handle and one on the barrel and squeeze the trigger. If you lock the trigger, keep your finger on the trigger.
* Most Reciprocating Blade Saws (Sawzall) are variable speed, which means that the more you squeeze the trigger the faster the blade moves. For most applications, you should squeeze the trigger all the way.
* Move the saw slowly through the work. Do not force the saw; let it do the work.
* As you move the saw forward, exert a slight downward pressure in addition to a forward motion.
* Stop frequently as sawdust covers your line. Blow the sawdust out of the way. When you start again, back the blade ½‖ from the end of the cut before pulling the trigger.
* Take care at the end of the cut that the weight of the saw does not pull the saw down into the floor or onto a leg.

### Remember, if you don’t feel comfortable doing something – DON’T DO IT!

The Reciprocating Blade Saw (Sawzall) is not a toy. Treat it with respect.

Appendix F

## Rules for Use of Drill Press

**Rules for use:**

* Always wear safety glasses and hearing protection.
* Do not operate while wearing jewelry, loose long sleeves, or loose long hair. Always keep hands well clear of the bit.
* Never do any work ―free-hand,‖ i.e., holding the work piece rather than supporting it on the table. Never move the head or table support while the drill is running.
* Never climb on the drill press table; it could break or pull the entire drill press down on you. Do not perform layout, assemble, or set-up work on the table while the drill is rotating.
* Use only when a Teacher is present.
* Never use without permission from the Teacher.

**Procedures for use:**

* Place the drill press on a stable, flat table in a well-lit area.
* Support the piece you are working on so it won’t shift or bind on the drill.
* Whenever possible, position the piece you are working on so as to contact the left side of the drill column.
* When using a drill press vise, always fasten it to the table.
* Before starting the operation, jog the motor switch to make sure the drill bit does not wobble or cause vibration.
* Use the spindle speed recommended for the specific operation and material you are working on.

### Remember, if you don’t feel comfortable doing something – DON’T DO IT!

The Drill Press is not a toy. Treat it with respect.

Appendix G

### THEATER SAFETY

1. **POINT WALK-THROUGH INSPECTION BEFORE OCCUPYING THE AUDITORIUM**

School

Date Time

Inspector

YES NO

* 1. Exits are accessible; signs are illuminated.

* 1. Panic bars for all doors function properly.

* 1. Panic button for houselights functions properly.

* 1. Fire extinguishers are accessible and in working order.

* 1. Work lights on stage function properly.

Comments:

Appendix H

### THEATER SAFETY

1. **POINT WALK-THROUGH INSPECTION BEFORE LEAVING THE AUDITORIUM**

School

Date Time

Inspector

YES NO

* 1. Auditorium doors are properly secured.

* 1. Control booth is properly secured.

* 1. Access to catwalk is properly secured.

* 1. Aisles are clear of obstructions and trip hazards.

* 1. Stage equipment and tools are properly stored.

* 1. Stage floor is free of any dangerous debris (nails, etc.).

* 1. Dressing rooms are clean and orderly.

* 1. Personnel lifts have been secured to prevent unauthorized use.

* 1. The drama storage room is properly secured.

Comments:

Appendix I

### SAFETY CHECKLIST FOR THE DESIGNATED SAFETY MANAGER

School

Date

Inspector

### CATWALK

* At least two, and no more than six, persons are on the catwalk at any one time.
* All technicians have **safety tie lines** attached to tools.
* All technicians are wearing **bump hats**.

### LADDERS AND SCAFFOLDS

* A **spotter** is in place whenever someone is on a ladder or scaffold.
* All technicians have **safety tie lines** attached to tools.

### HAZARDOUS LIQUIDS

* Technicians are using hazardous liquids (e.g., spray paint) in a ventilated area or outside.

### PERSONAL PROTECTION/PROPER APPAREL

* Technicians are wearing sturdy, closed-toe shoes.
* Technicians using power tools have removed loose jewelry and tied-back long hair.
* Technicians handling lamps from lighting equipment are wearing cotton gloves.
* Technicians using power tools are wearing safety goggles.
* Spotters are wearing hard hats.
* Technicians operating loud power tools are using ear plugs.
* Technicians working near hazardous vapors are wearing dust masks.

### POWERED PERSONNEL LIFTS AND SCAFFOLDS

* Outriggers and stabilizers required by the manufacturer are in use.
* The lift or scaffold is located on a sturdy, level surface.
* A spotter who is familiar with the emergency controls of the lift is being used.
* No one other than the spotter is near the lift when it is use.
* Lift and scaffold technicians have safety tie lines attached to tools.
* Lift and scaffold technicians are wearing bump hats.
* Scaffolds are not being used near doors opening toward the user unless the door is blocked open or guarded.
* Lift and scaffold wheels are securely locked.
* Scaffolds with work levels ten feet or higher have toe boards installed and have guardrails that are between 36 and 42 inches high.

### POWER TOOLS

* All technicians using power tools have been trained in their use.
* Extension cord wires are equal to or greater in length than the power tool cord.
* Extension cords have 3-prong plugs.

### WINCH BATTENS

* An adult is on stage when any batten is raised or lowered.
* Winches are securely locked when not in use.
* A spotter is in place when battens are raised or lowered.
* No one is standing beneath a batten that is being raised or lowered.
* Before a batten is raised or lowered, all personnel are warned and there is silence on stage.
* Technicians operating a winch should keep a hand on the winch at all times.

### DOOR WARNINGS

* During productions, the following warnings, when appropriate, are to be posted on entrance doors and printed in the program:

STROBE EFFECTS

―Warning: This production includes a STROBOSCOPIC LIGHT EFFECT that might prove disturbing or otherwise harmful to persons suffering from epilepsy.‖

FOG EFFECTS

―Warning: This production includes an AEROSOL SIMULATED FOG EFFECT. This fog is intended for public performances, but persons who are asthmatic or who are allergic to dust should identify themselves to house personnel so they might be seated where there is least possibility for discomfort.‖

LOUD GUNSHOTS

―Warning: This production includes one or more LOUD GUNSHOTS. It may be disturbing or harmful to some persons with an emotional disturbance or abnormal heart condition.‖

VERY LOUD MUSIC OR NOISE

―Warning: This production includes VERY LOUD MUSIC OR NOISE. It may be disturbing or harmful to some persons.‖

LASER

―Warning: LASERS are being used in this area. The equipment makes it possible under certain conditions to produce a STROBOSCOPIC LIGHT EFFECT that might prove disturbing or harmful to persons suffering from epilepsy.‖

### ACKNOWLEDGEMENT OF POLICIES, GUIDELINES AND RESPONSIBILTIES BY OUTSIDE VENDOR

This form is to be completed and signed by any Outside Vendor working for The Helene Galen Performing Arts Center or any group, within or without, using the Theater. It is to be filed with the Building Technical Director prior to the commencement of any work or the group’s occupation of the theater.

 NAME OF VENDOR \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 POSITION \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NAME OF GROUP

DIRECTOR

I have read the Rancho Mirage High School’s Theater Safety Manual and acknowledge that I am responsible for its implementation during our production. I understand that failure to adhere to these safety guidelines may result in the suspension or termination of my ability to perform any work in this facility in the future.

Vendor’s signature Date

### ACKNOWLEDGEMENT OF RESPONSIBILTIY BY COMMUNITY USER

This form is to be completed and signed by the director of any community group using Helene Galen Performing Arts Center. It is to be filed with the Building technical Director prior to the group’s occupation of the theater.

NAME OF GROUP

DIRECTOR

I have read the Rancho Mirage High School’s Theater Safety Manual and acknowledge that I am responsible for its implementation during our production. I understand that failure to adhere to these safety guidelines may result in our group being denied use of this facility in the future.

Director’s signature Date

** Rancho Mirage High School**

**Technical Theater Program**

31001 Rattler Road

Rancho Mirage, CA 92270

Telephone: 760-202-6455

Appendix A

**PARENTAL PERMISSION FORM**

**THEATRICAL AUDIO, LIGHTING, AND SCENERY TECHNICIAN**

I hereby grant permission for my daughter/son to receive training and perform related work as a student theatrical technician. I understand that my child may not perform any work until after the appropriate training has been completed and that some of the activities of a theater technician may expose him/her to the risk of injury.

I have reviewed the Rancho Mirage High School’s publication **THEATER SAFETY – A Guide for Students, Teachers, Parents, and Administrators** and understand that all activities will comply with the guidelines. Sections of **THEATER SAFETY** that will be most relevant are Audio, Catwalks, Ladders, Scaffolds, Tools, Scenery, Lighting, Paints and Chemicals, Personal Protection, Winch Battens, Fire Safety, and Curtains.

I understand that my child will receive training in the use of any of the following equipment that he/she will be expected to use, depending on the availability of the equipment at the school: ladders, scaffolds, powered personnel lifts, cordless power hand drills, miter saws, saber saws, reciprocating blade saws, and screw guns.. The guidelines of the appropriate sections of **THEATER SAFETY** will apply at all times.

Student’s Name:

I certify that I am the parent/legal guardian of the above named student.

Signature

Print

Date

**PARENTS**: If you have questions concerning this form or any of its contents, you may contact

Kelly Newhouse, Theater Teacher, at (760) 202-6455 Ext 2407 or Email knewhouse@psusd.us