
Technical Theatre Guidelines for Virginia Public Schools



Commonwealth of Virginia
Department of Education
Richmond, Virginia

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Virginia Department of Education
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Richmond, Virginia 23218-2120
www.doe.virginia.gov

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The CTE Resource Center is a Virginia Department of Education grant project administered by Henrico County Public Schools.

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Acknowledgments

The Virginia Department of Education expresses sincere thanks to the theatre arts educators who contributed to the creation of the *Technical Theatre Guidelines*. The work and expertise of these persons is greatly appreciated.

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Introduction

Objective

These guidelines are intended for theatre arts instructors, administrators, and others involved with the delivery of technical theatre instruction and theatre performance at the middle and high school levels. Safety must be given the highest priority in implementing the theatre arts instructional program. Theatre arts instructors should exhibit comprehensive knowledge of the theatre and instructional spaces, including safety regulations and safe operation of facilities and tools used in the theatre program.

This manual is designed to serve as a guide for technical theatre instructors. It is not intended to serve as the sole source of information for best practices or procedures.

Please note that the list of production team duties may be combined based on production needs. Additionally, the list of tools included in this document is a suggested list of tools necessary for the delivery of high-quality technical theatre instruction.

Collaboration

While the theatre arts instructor is responsible for all aspects of productions, collaboration with different departments within the school is a viable option. Theatre arts instructors may wish to collaborate with career and technical education (CTE) instructors for assistance with carpentry, drafting, and business aspects of a theatrical production. Fine arts instructors, such as music, dance arts, and visual arts, can also be excellent resources to assist with theatrical productions.

Theatre arts instructors should meet with the building administrators to identify the appropriate OSHA-certified personnel for scheduling repairs and maintenance of theatrical facilities and equipment.

Theatre arts instructors should meet with building administrators and bookkeepers for assistance with understanding and following school and school division procurement guidelines.

Safety

Safety must be given the highest priority in implementing the theatre arts instructional program. Students must know how to follow safety guidelines; demonstrate appropriate safety techniques; use and care for equipment, stage properties, costumes, and facilities safely; and practice theatre etiquette both on and off stage while working individually and in groups.

For every instructional activity, correct, safe techniques as well as a wise selection of appropriate resources, materials, and theatrical experiences must be carefully considered in regard to safety. Safe facilities for instruction and performance require thorough planning, careful managing, and constant monitoring during theatre activities. Class enrollment and audience size should not exceed the designated capacity of any instructional or performance setting.

Theatre production embraces a wide range of necessary activities when mounting a performance, including rehearsal, design and implementation of technical elements, performance, and strike and

cleanup. Each of these activities requires teaching and learning the safe use of equipment and facilities. The standards listed below are among those that should be followed to avoid injury or damage.

Rehearsal

- Platforms and stair units must be secured from accidental movement and have sufficient railings.
- A telephone should be available at all times, and emergency numbers should be displayed prominently in the space being used.
- Performance and technical rehearsals should be staffed by a theatre arts instructor as well as a stage manager, production manager, and/or technical director.

Design and Implementation of Technical Elements

- Construction of scenery, costumes, and properties should be conducted under the same conditions and according to the same practices used for career and technical education classes, including use of appropriate personal safety equipment, such as gloves, goggles, hearing protectors, and dust masks.
- Stage curtains and drapes should have a flameproof rating and current certification.
- Stage lighting circuits, wiring, dimmers, and fixtures must be properly maintained and regularly inspected, especially for ground continuity.
- A master switch for the electrical supply to stage lighting equipment must be easily accessible.
- Amplified sound volumes must not exceed safe levels.
- All equipment must be assessed for safety issues prior to being used.

Performance

- Proper procedures for evacuation of the theatre should be discussed and rehearsed with crews.
- All exits must be unobstructed and usable at all times.
- All exit and emergency lights must be in good operating condition.
- Fire extinguishers must be well-maintained and available at all times. Appropriate school personnel should be trained in their use.

Strike and Cleanup

- Scheduling strike and cleanup immediately after the final performance, when carelessness due to fatigue may increase the risk of accidents and injuries, should be avoided.
- Strike and cleanup must be supervised by a theatre arts instructor with training in theatre safety.

Toxic Theatrical and Visual Arts Materials

Prior to using hazardous art materials in an instructional theatre arts activity, teachers must be knowledgeable about their properties, use, storage, and proper disposal. Art materials containing toxic substances that can cause acute or chronic health effects are prohibited from use with students in pre-kindergarten through grade six, or up to twelve years of age. All hazardous art materials are required to have been tested by the manufacturer and to exhibit the safety labeling “Conforms to ASTM D-4236,” “Conforms to ASTM Practice D-4236,” or “Conforms to the health requirements of ASTM D-4236.”

Toxic materials can enter the body in three different ways: inhalation, ingestion, or absorption through the skin. If toxic material does enter a child’s body, it can result in an allergic reaction, acute illness, chronic illness, cancer, or death. Toxic materials can be more harmful to children than to adults for several reasons. Since children are smaller than adults, any given amount of a toxic material in a child’s body is more concentrated than in an adult’s body. Since children are still growing and developing, their bodies more readily absorb toxic materials, which can result in more damage than in adults. Children are also at higher risk because of their behavior: they may not understand why it is important to be careful when using harmful materials, and, for example, they may put things in their mouths or swallow them without regard for the consequences.

While no comprehensive list exists to cover all situations, the following guidelines from The Center for Safety in the Arts should be followed to avoid potential safety problems:

1. Avoid certain art supplies for students in pre-kindergarten through grade six, or up to twelve years of age. The general rules are as follows:
 - No dust or powders;
 - No chemical solvents or solvent-containing products;
 - No aerosol sprays, air brush paints, or other propellants;
 - No acids, alkalis, bleaches, or other corrosive chemicals;
 - No donated or found materials, unless ingredients are known;
 - No old materials, as they may be more toxic and have inadequate labeling; and
 - No lead, metals, or cadmium products, as found in paints, glazes, metal work, and stained glass.When feasible, substitution of nontoxic materials for hazardous materials should be made a priority with students over twelve years of age.
2. High-risk students, who are at greater than usual risk from toxic materials, must be treated with special care and attention when using potentially harmful art supplies. High-risk students include those who have visual or hearing problems, physical disabilities, or asthma; take medication; or are emotionally disturbed.
3. Make sure products are adequately labeled. Do not use any product that does not have a label or has a label that gives inadequate information. In general, the more the label describes the product, the easier it will be to use safely. The label should state how the product is to be used. It should also state what to do in case of an accident. Even if the label says “nontoxic,” do not assume that the product is completely safe. Art materials must contain one of the three ASTM D-4236 labels listed above for assurance that they are safe to use. If containers are changed, be sure to label the new container.
4. Purchase hazardous products in small containers, because the smaller the amount of a product, the less potential there is for exposure to it. Also, larger amounts often are not quickly depleted, and leftover products need to be properly stored. Accidental poisonings may occur when stored products are left unattended. If such an accident should occur, call the local poison control center immediately.

Theatre arts educators are responsible for the art materials they order and supply to students and for the safe use of those materials. Numerous safe art materials are available for use in place of materials identified as being toxic. Only art materials manufactured and labeled for use in the production of art projects and activities should be used in the execution of theatre arts projects within the classroom.

Resources

Virginia Museum of Fine Arts

The Virginia Museum of Fine Arts (VMFA), an agency of the Commonwealth of Virginia, opened in 1936 to serve regional, statewide, national, and international audiences. Today, the mission of this state-supported, privately endowed museum is “to collect, preserve, exhibit, and interpret art, to encourage the study of the arts, and thus to enrich the lives of all.” VMFA supports and enhances the teaching of Virginia’s K-12 Standards of Learning through exhibitions, programs, student tours, teacher workshops, publications, and Web-based resources. The museum serves as an extension of the classroom through its collection of more than 33,000 objects that span 5,500 years and five continents. Visual arts educators and students across the state will find the museum’s resources invaluable as they address art processes, art history, cultural context, art analysis and evaluation, and aesthetics. More information is available on the VMFA’s Web site at <http://vmfa.museum>.

Virginia Commission for the Arts

The Virginia Commission for the Arts (VCA) is the official state agency created in 1968 that supports the arts through funding from the Virginia General Assembly and the National Endowment for the Arts. Its mission is to support artistic excellence and encourage growth in artistic quality for the benefit of all Virginians. In 2014, nearly 7.1 million people attended arts events made possible through VCA funding, including 1.6 million schoolchildren. Arts in Education is one of seven different grant programs offered by the VCA that provides funding opportunities up to \$10,000 with a one-to-one match for PreK-12 schools and not-for-profit organizations. Eligible Arts in Education grant activities include artist residencies, after-school or summer arts education programs run by not-for-profit arts organizations, or training programs for artists who work with elementary and secondary students. The teacher training activity is applicable for universities, schools, or arts organizations that want to further develop their teaching artists to work in PreK-12 schools. For more information about the Commission and the Arts in Education grant program, visit the VCA Web site at <http://www.arts.virginia.gov>.

Theatre Performance Spaces

Adequate teaching, workshop, and performance spaces are required to meet the needs of the *Theatre Arts Standards of Learning*. A *performance space* is an auditorium with no fly space above the stage, while a *theatre* has the space and rigging necessary for raising and lowering scenery to the stage. Both spaces should have a raked seating space for the audience.

There are five types of stages/performance spaces commonly used for middle- and high-school-level theatre productions:

- A *proscenium stage* is the most common type of stage. The audience faces a raised platform surrounded by some type of frame. Stage safety must be practiced at all times during rehearsals and performances. Special care must be taken when the stage area includes an orchestra pit, whether being used for musical performance or built-over for extra stage space. In the latter use, the structure covering the pit must adequately support the weight of all performance components (e.g., performers, scenic pieces, props). If there is no pit cover, a safety barrier must be placed at least one foot back from the front of the stage.
- A *thrust stage* has the audience on two or three sides around a performance space that is usually raised off the floor. The audience should be on raised platforms around the stage to allow for proper sightlines for each patron. For audience safety, railings must be provided, meeting all local and state safety regulations.
- An *arena stage* has the audience seated on all four sides around the performance space. The same logistics and safety protocol should be followed as described for the thrust stage.
- A *black box theatre* consists of a simple, somewhat unadorned performance space, usually a large square room. It offers flexible seating arrangements. The space is meant for smaller productions with fewer performers and technical requirements; however, it should have lighting positions and instruments, and an operating sound system. The walls are commonly painted black or dark blue to allow for simple lighting. There must be at least two lighted exits available for audience and actor use.
- An *amphitheater* is an outdoor space that provides some sort of stage and raised seating.

Note: There must be a stocked first-aid kit that is easily accessible for actors and crew located in each wing, wherever a rehearsal or performance is taking place.

Elements Required for the Safe Operation of Theatre Spaces

Audience Requirements

Each seating area is used for various events and programs and has specific demands for its daily use. Therefore, aisle and ceiling lighting must be checked by maintenance personnel each week to ensure safe operation. Electrical questions pertaining to repair and operation of equipment should be directed to the appropriate school personnel. Maintain audience seating, directing concerns to appropriate school personnel.

An operating telephone landline near the audience and stage space should be available at all rehearsals and performances. A stocked first-aid kit and emergency equipment should also be easily accessible. Theatre instructors must maintain certification in CPR.

Flooring

The stage surface should be wooden, smooth, sealed, and non-reflective, and should be cleaned with a damp mop prior to each rehearsal and performance. Monitor the condition of the stage floor to determine repair and maintenance needs and to plan repair schedules. Maintenance of the floor should occur during the off-season to ensure safety. Spike marks should be removed from the floor after each performance run.

Instructional Space Requirements

All instructional spaces must offer appropriate seating and work stations and must meet safety standards for students, instructor(s), and audience. The instructional space should be large enough to allow for small-group work and classroom presentations.

Workshop space should be housed in a separate location that provides proper ventilation and allows for the safe use of power, hand, and painting tools. The space should be large enough to accommodate building several 4' x 8' scenic pieces. Adequate storage space for tools must be provided.

Rehearsal and performance spaces should be reserved well in advance. When performance spaces are unavailable, alternative spaces must be identified and reserved.

Lighting

A full-stage wash and one or more follow spots should be available for auditorium/theatre use.

Soft Goods

Grand drapes, act curtains, wings, sides, teasers, borders, and cyclorama should be checked annually for flame-proofing certificates, dry rot, rips/tears, and damage from use. (Flame-proofing certification for theatre curtains is approximately 10 years.) Check rigging points and hardware of battens for wear and correct mounting. Constant temperature should be maintained throughout the year, not only while school is in session, to maintain the flame proofing of the curtain fabrics.

Sound

Speakers, a sound board, a computer, and at least three standing microphones with appropriate connections should be available for auditorium/theatre use.

Production Team Responsibilities

For additional information on production team responsibilities, see Addendum 1.

The following list of positions and responsibilities is intended to assist with production management. Depending on production needs, all positions identified below may not be required. Positions can be combined as necessary.

Producer/Director (licensed and endorsed theatre arts instructor)

- Secure production rights from the royalty house or publisher-agent.
- Develop production budgets.
- Determine production schedules and performance venue(s).
- Secure and hire the production team, including designers and production staff.
- Schedule, plan, and run production meetings, rehearsals, and performances.
- Assist in the development of rehearsal and performance schedules.
- Manage production expenses and revenues.
- Network with local industry, communities, educational organizations, and the public to plan events. Apply knowledge of audiences to ensure a balance between different types of productions while keeping an awareness of productions that have been well received.
- Promote arts participation within the community.
- Advise and oversee booster organizations.
- Ensure the performance venue meets health and safety requirements and that the production is in accordance with copyright licensing laws.

Scenic Designer

- Analyze scripts for required and implied scripted design considerations.
- Meet with the director, lighting designer, and costume designer to create a unified production.
- Provide preliminary design sketches, and may provide a scale drawing or model of the set.

Costume Designer

- Analyze scripts for required and implied scripted design considerations.
- Create costume plots and drawings, and select fabric swatches.
- Supervise construction of costumes.
- Apply the fundamentals of sewing, following safety guidelines.
- Adapt existing costumes from stock.

Lighting Designer

- Analyze scripts for required and implied scripted design considerations.
- Meet with the director, scenic designer, and costume designer to create a unified production.
- Provide a hanging plot for lighting instruments.
- Anticipate, plan, and develop light cues for production.
- Select lighting color choices.
- Create special lighting effects.

Sound Designer

- Analyze scripts for required and implied scripted design considerations.
- Adhere to copyright laws during selection of music and sound effects.
- Amplify, mix, record, sync, and reproduce sound effects and music for production.
- Ensure safe use of sound equipment.
- Prepare sound boards and equipment for productions and events.

- Maintain sound quality by checking and setting levels, conducting sound checks, and testing equipment.
- Repair and troubleshoot sound equipment.
- Secure sound equipment when the theatre is used by others.

Musical Director (Orchestral)

- Meet with the producer/director to determine the personnel needs of the production.
- Select members of the orchestra.
- Prepare the orchestra for production.
- Conduct the show.

Musical Director (Vocal)

- Meet with the producer/director to determine the personnel needs of the production.
- Facilitate auditions for singers.
- Prepare vocal musical numbers, both solo and chorus, for production.
- Attend rehearsals, as necessary.
- Provide rehearsal notes for singers in regard to blend, tone, and balance.

Choreographer

- Design the dance/movement elements of the production in coordination with the producer/director.
- Facilitate auditions for dance/movement.
- Teach the choreography to the cast.
- Prepare and refine dance/movement numbers for the production.
- Provide rehearsal notes for the cast in regard to dance/movement.

Business Manager (licensed and endorsed theatre arts instructor)

- Oversee staff involved in marketing, finance, and artistic production.
- Oversee training of box office personnel, house managers, and concessions personnel.
- Work with the director to set the budget and maintain financial control.
- Monitor fundraising for the theatrical season and theatre arts program, ensuring that booster organizations follow school and school division requirements and regulations.

Technical Director (licensed and endorsed instructor or advanced student)

- Set up, maintain, and operate lighting and sound systems for theatre arts, dance arts, music, and other productions to ensure proper facility operation.
- Determine the technical specifications, production costs, and special technical equipment needs for each production with production managers, designers, and directors.
- Create working drawings in preparation for building the set.
- Supervise the safe application and implementation of technical designs.
- Supervise set and stage construction and management.
- Recruit and train volunteer construction or crew personnel.
- Maintain inventory and order specialized supplies, as necessary.
- Monitor the condition of equipment including lighting, sound, and shop equipment; arrange for repair and replacement; and perform preventive maintenance.
- Maintain, operate, and safeguard the technical equipment of the theatre, including supervising the use of lighting, sound, and communications equipment, and the use and maintenance of stage facilities.

- Attend technical and dress rehearsals, and assist in taking detailed technical notes during rehearsals.
- Train and advise facility renters in safety, technical characteristics, and other areas of facility operations.
- Oversee the use of the technical facilities by school personnel and individuals or groups renting the facility.
- Assist guest designers and artists with technical support.
- Coordinate the safe striking and storage of sets and equipment.

Assistant Technical Director (student with instructor supervision)

- Meet with the technical director to review rules, regulations, and safety protocols to be followed during construction and performance.
- Discuss production designs, budget information, and any other special considerations with the technical director.
- Assist the technical director in compiling a list of needed materials.
- Assist the technical director in the creation of a build and load-in schedule.
- Assist the technical director in production meetings, create the strike schedule, and supervise set strike.
- Monitor and assist with the build and strike.

Master Carpenter

- Use the technical director's working drawings to build the set.
- Schedule set construction and order construction materials.
- Supervise and exhibit proper set construction techniques.
- Monitor the safe use of tools and equipment during set construction.
- Ensure that scenery is built according to the designer's specifications and the technical director's drawings.

Master Electrician (licensed and endorsed theatre arts or CTE instructor)

- Attend production meetings during the building process to provide progress reports to the technical director.
- Oversee the building of scenic elements that use practical lighting for a production.
- Obtain the required documentation and resources for the production (e.g., light plot, gels, cable and patching information and materials).
- Work with the lighting designer and technical director to schedule the load-in and the hang and focus of lighting elements.
- Supervise the safe installation of lighting equipment.
- Educate the board operator and other lighting crew members regarding their duties during the rehearsals and run of the show.
- Adjust the focus, hang, or placement of lighting elements as discussed with the lighting designer.
- Work with the board operator to perform a dimmer check and correct any problems prior to each dress rehearsal and show.
- Serve as board operator, as necessary.
- Supervise the dismantling of the lighting equipment, restoration of the lighting system, and the return of borrowed equipment.

Properties Designer

- Analyze required and implied scripted design considerations.

- Meet with the director and scenic designer to create a unified production.
- Research historical period requirements for production (e.g., furniture, personal properties, set decorations).
- Prepare a properties list.
- Gather, purchase, or construct needed properties.
- Provide rehearsal properties.
- Construct a chart with the location of properties for the run of the show.
- Oversee the safe storage of properties.
- Return all borrowed and rented properties in a timely manner.

Shop Foreman (licensed and endorsed theatre arts or CTE instructor)

- Ensure that students engage in safe working practices when using tools, supplies, and equipment, and promote safety by example.
- Assist the technical director and/or master carpenter in training students in construction techniques and the proper use of tools and equipment.
- Supervise shop activities, including scenery and properties construction, installation, and scenic painting.
- Interpret and work from shop drawings, with the assistance of the technical director, to construct set pieces and properties.
- Determine if shop drawing specifications have been met by evaluating construction of set pieces and properties.
- Maintain tool, supply, and material needs for production construction.
- Review safety rules with production crew.

Scenic Artist

- Assist the scenic designer with the selection and purchase of paint and supplies.
- Create textures, color samples, and patterns based on the scenic designer's model and/or elevations.
- Supervise and exhibit proper painting techniques.
- Create a "touch-up" kit for touching up the scenery, as necessary.
- Maintain and clean the painting area during and at the completion of the production.

Sound Technician

- Ensure safe use of sound equipment.
- Assist with the amplification, mixing, recording, syncing, and reproduction of sound effects and music for theatrical rehearsals, productions, and events.
- Assist with sound board and equipment preparation for productions and events.
- Assist with sound checks and the testing of equipment.
- Repair and troubleshoot sound equipment.

Sound and Light Board Operator (well-trained students and/or adults)

- Program and operate the sound board and/or light board, under the supervision of the sound designer and technical director, for rehearsals and performances.
- Perform microphone and channel checks and resolve any issues with the assistance of the technical director, prior to each performance.
- Perform dimmer checks and resolve any issues with the assistance of the master electrician.
- Follow stage manager's instructions to execute sound and light cues during technical rehearsals and performances.

- Power down equipment after technical rehearsals and performances, as assigned by the technical director.
- Assist the technical director during strike by sorting and packing rental equipment for return, coiling cables, striking speakers, and performing other assigned tasks.

Wardrobe Master/Mistress

- Care for, maintain, and repair costumes and wigs.
- Check with cast and running crew about allergies to makeup and hair-care products.
- Ensure equipment (e.g., sewing machines, irons, steamers) is in working order.
- Train running crew to perform efficient quick-changes.
- Preset costumes prior to the performance, both in the dressing rooms and changing areas.
- Oversee safe laundering or dry-cleaning of costumes, as necessary.
- Oversee safe use and storage of costumes, makeup, and hair-care products.
- Purchase supplies, as necessary, for costume repair and to restock makeup and hair-care products.

Makeup Designer/Artist and Hair Designer/Stylist

- Create the desired effects for the production.
- Check for cast's makeup and hair-care allergies to products.
- Advise actors on the selection, purchase, and proper application of makeup and supplies (e.g., skin reactions, breathing reactions, allergies).
- Provide pictures or diagrams of makeup designs to ensure uniform applications for performances.
- Train performers to prepare skin for application of makeup.
- Create hairstyles that are accurate to the show.
- Wash and reset wigs.
- Train performers on proper application and removal of makeup and wigs.

Stage Manager

- Tape out the dimensions of the set on the rehearsal space floor.
- Record blocking and the light, sound, and set change cues in a master copy of the script/promptbook.
- Assist with scheduling and running rehearsals, ensuring performers and crew are notified of all rehearsal times, meetings, and costume/wig fittings.
- Communicate the director's notes and any changes to designers and production staff.
- Create an efficient plan for the stage crew to follow during set changes with approval of the director.
- Coordinate the work of the stage crew and oversee the entire show each time it is performed, including calling cues to board operators and the cast.
- Run technical rehearsals, warning and calling each technical cue in the promptbook to dictate timing for coordination with the onstage action.
- Run performances, warning and calling technical cues in the promptbook.

Assistant Stage Manager

- Assist with the various jobs and duties of the stage manager.
- Ensure actors have properties and furniture for rehearsals.
- Assist with complex set changes, quick costume changes, and preshow set up.
- Ensure the availability of a stocked first-aid kit for rehearsals and performances.

Note: There should be two assistant stage managers for each production, placed off-stage in the right and left wings, to assist the stage manager with the actors and running crew.

Running Crew

- Assist with extra tasks (e.g., dressing actors, moving properties), as necessary.
- Follow directions and safety rules provided to the stage manager by the director/instructor.

House Manager

- Maintain a safe audience environment.
- Conduct walk-throughs of the theatre to ensure the house is clean and all exits are operational.
- Schedule, train, and supervise the ushers.
- Provide ushers with supplies (e.g., programs, flashlights) and train them on procedures for seating late arrivals.
- Work with the box office to resolve ticket issues.
- Ensure occupancy rules are followed and aisles are kept clear.
- Ensure the availability of an easily accessible first-aid kit and an operational landline.
- Conduct walk-throughs after performances, secure any left items, and note any repairs that need to be addressed prior to the next performance.

Usher

- Learn the layout of the seats in order to seat the audience quickly and efficiently.
- Greet patrons, take tickets, pass out programs, and lead patrons to their seats.
- Ensure the audience is not seated in the aisles or blocking the exits.
- Seat late arrivals so they do not cause disruption.
- Assist with audience control at intermission.

Business Management for Theatre Programs

For additional information on budgeting, see Addendum 2.

Business Management

Financial and budget practices will vary with each school division. While planning activities for the school year, the instructor should check with the school treasurer or financial secretary for procedures regarding

- budget approval
- vendor approval (vendor tax identification may be necessary for payment)
- policy for school tax exemption
- guest artist/instructor contracts
- purchase orders
- reimbursements
- accounts receivable (e.g., donations, ticket sales, fundraising)
- accounts payable (e.g., reimbursements, invoices, field trips).

In the beginning of a school year, theatre instructors should project the budget/funds needed for productions, guest artists/instructors, field trips, and classroom and production materials not provided by the school division.

The theatre arts instructor is responsible for managing all funding and expenses. Theatre activities are a business, and the instructor is the chief operating officer and must keep accurate records. Theatre-budget development should include the following considerations:

- Budget to the lowest number of tickets sold.
- Prior to making purchases, obtain multiple quotes for all products.
- Purchase orders need to be signed by the building administrator or other person(s) assigned by school administration to this task.
- The building financial secretary will have a procedure that must be followed for payment of invoices. (Often, the paperwork is turned in and the payment will not be made until the necessary funds are in the theatre account.)
- Promptly submit invoices to the financial secretary, keeping a copy for theatre arts program records.
- Create a line item for each invoice. The instructor must keep track of funding and expenses. The instructor is accountable for financial inquiries.

Fundraising

Follow school fundraising guidelines and school division policies for productions and theatre class activities (e.g., field trips, guest speakers, guest artists).

Field Trips

Plan field trips so that the exclusion of a student does not occur.

Boosters

A parent organization is a possible resource for fundraising and other production activities. Such organizations must follow school fundraising guidelines and school division policies. Also, these organizations must have a charter and bylaws on record and clearly defined roles for booster members' participation in fundraising and theatrical productions.

Special Considerations for Musical Theatre Productions

Many schools elect to present a musical each year. Select a production that can be produced within the limitations of the performance space and budget.

Musicals, unlike other theatrical productions, are often expensive to produce. Considerations for musical productions should include the following:

- Building administrator approval
- Community values
- Director
- Royalties
- Production budget
- Set design
- Costume design
- Lighting design
- Sound design
- Choreography
- Musical direction
- Size of production staff (e.g., actors, technicians, running crew, orchestra)
- Guest artists/instructors (e.g., rehearsal pianist, choreographer, makeup artist)

The theatre arts instructor should research local pay rates for guest artists/instructors hired to assist with the production (e.g., choreographer, musical director, technical director, lighting designer).

Plan a minimum of six weeks for rehearsal. Appropriate rehearsal spaces should be reserved for each rehearsal and production at the beginning of the school year.

Provide advance notice of audition and production dates to involve students school-wide.

Best Practices in Theatrical Design

The theatre arts instructor serves as both instructor and designer for performances and classroom exercises. The instructor will describe, demonstrate, and understand elements of art (i.e., color, form, line, shape, space, texture, value) and principles of design (i.e., balance, contrast, emphasis, movement, pattern, proportion, rhythm, unity, variety) that are common to both theatre arts and visual arts.

The theatre arts instructor will be acquainted with the potential of spaces for both classroom projects and performances by considering the following:

- Stage type (e.g., proscenium, thrust, arena, black box, amphitheater)
- Performance space dimensions (e.g., width and height of stage opening, depth of stage, wing space)
- Space limitations
- Stage sightlines (ensuring every audience member can see the entire performance space)

Prior to designing processes (i.e., costuming, lighting, makeup, properties, scenery, sound), read and analyze the script to determine production needs and requirements (e.g., exits, properties, location, time period, season).

Select the type of design (e.g., naturalism, suggested realism) to unify all elements of the production.

Research selected design (e.g., clothing, architecture, properties) of the period in which the play is set.

Develop a production budget for necessary expenses (e.g., royalties, costumes, set construction, lighting needs, publicity, hired positions).

The needs of production designs are indicated by the script. The design should reflect the mood and spirit of the play, the historical time period, the locale, and the season of the year.

Production designs should be presented through models, sketches, computer-generated presentations, scale drawings, renderings, plots, and/or charts.

Construction

For more information on flat construction, see Addendum 3.

Flats

The most common scenic elements used in middle and high school-level theatre productions are flats.

Because a Broadway, or stage style, flat is usually constructed of 1" x 2-1/2" rails and stiles, and covered with a 4' x 8' sheet of 1/4" inch plywood, safety regulations regarding hand and powered tools must always be followed.

A soft-cover flat is constructed with a top and bottom rail, one toggle rail at 4'-0' on center, and two stiles (i.e., left and right stiles) in a 4' x 8' foot flat. The toggle rails should be added across the width of the frame for support. The top and bottom rails enclose the stiles, and the stiles enclose the toggle rails. Caution students to allow room for the width of top, bottom, and toggle rails in cut lists. Corner blocks and keystones are placed one inch from the outside edges of the frame. Turn the frame over to begin covering it.

A soft-cover flat is covered with a flame-proof (FP) designated muslin or canvas. Tightly stretched material is stapled along the front edges of the frame, approximately two inches from the outside edge. The canvas is folded back to the center, and glue is applied to the frame. Do not apply glue or staples along the toggle rails.

The canvas is placed over the glue, and the glue is then worked into the canvas. Allow the glue to dry, and carefully use a razor knife to seal the canvas to the edges of the flat. Remove staples and excess canvas. Mix glue and water to make a sizing, and apply to the canvas area of the flat. Do not apply the sizing to the top and rails or stiles. Allow the sizing to dry prior to painting the flat.

Platforms

Platforms that are built in 4'-0' x 8'-0' size and are constructed with frames made by using two 2" x 4" x 8'-0" pieces of lumber and joined together with four 2" x 4" x 3' x 9" stringers placed at every 2'-0" between the two 2' x 4' x 8' x 0" pieces are called stock platforms.

All frames for a Broadway flat have the wood placed flat on the 2-1/2" side and are joined together by gluing 1/4" thick corner blocks and keystones to the back of the flats. They are attached by using 2(d), 4(d), or 3/4" narrow crown staples in a five figured pattern on both sides of the seam. Platforms are covered with plywood at least 3/4" in thickness, depending on the weight requirements of the production. All platforms must adequately support the weight of all performance components (e.g., performers, scenic pieces, properties), which is called the *load weight*.

**Tool Safety Overview:
“Responsibility Increases Safety”**

First Aid and Safety Equipment

Prior to students participating in technical theatre activities, they should be trained in emergency first-aid procedures.

Training should include the identification of standard first-aid procedures and school policies regarding incidents involving

- bodily fluids
- electrical injuries
- eye injuries
- falls
- burns.

Additionally, technical theatre students should be trained in the use of protective equipment. Identification should include procedures for properly inspecting, wearing, and removing

- eye protection
- dust masks
- gloves
- hearing protection
- closed-toed shoes.

Inspection and maintenance of materials should be ongoing to assist in the identification of potential hazards in the work area.

Instructor Responsibility

- Most tools require some kind of maintenance or upkeep, so it is important to check complete tool inventory for wear prior to student use.
- Collect and maintain documentation of student safety contracts and assessments.
- Demonstrate the proper use of each tool prior to student use.
- Monitor students while they are learning how to use any tool.
- Each student must demonstrate proper use for each tool used prior to permission to work independently. **Suggestion:** Keep a log of each student's guided practice time with each tool.
- Develop safety protocols and expectations to reinforce safety at the beginning of each class period.
- Provide an accessible first-aid kit in the work area.
- Establish and train students in emergency safety procedures.
- Establish a safety zone around stationary powered tools to avoid unintentional contact with running powered tools.

Student Responsibility

- Follow established safety procedures.
- Prior to using tools, each student and a parent/guardian should sign a safety contract. (*See Addendum 4*)
- Each student is responsible for using proper safety equipment as necessary, including work gloves, safety glasses or goggles, ear protection, and closed-toed shoes.
- No student should be allowed to use a tool without instructor permission.

- Each student should complete safety assessments on each tool used.
- No student should be allowed to play with or improperly use a tool.
- To ensure students can hear audible warnings and instructions, students should not use headphones in shop areas.
- When powered tools are operating, students should stay where they are instructed.
- No loose or dangling clothing, hair, jewelry, or electronic devices should be worn while working with powered tools.
- Students should be aware of and observe safety zones around powered tools.
- Each student is responsible for returning tools to their intended storage areas.

Safety, General Operation, and Storage of Equipment and Tools

Costumes

Safety

- Keep records of fabric allergies.
- Ensure straight pins have been removed from garments prior to wear.
- Clean any purchased or borrowed costume pieces.
- Use a thimble and a finger guard when guiding a needle through thick cloth.

Best Practices

- Identify tools, materials, and equipment.
- Determine the budget.
- Keep a costuming measurement chart for each actor.
- Pull available costumes from storage.
- Procure (e.g., rent, purchase, borrow) needed costume pieces.
- Check equipment electrical cords for wear prior to use or storage.
- Use appropriate scissors for the fabric to be cut.
- Use care when cutting a printed pattern.
- Select fabrics to ensure the comfort and accommodate the movement demands of performers.

Storage

- Launder or dry-clean costumes prior to storing.
- Avoid keeping clothing that can be purchased inexpensively.
- Never store costumes around heat sources or near electrical panels.
- Store costumes in a climate-controlled environment to prevent dry rot or mold, avoiding plastic storage bags.
- Ensure irons and steamers are cool prior to storage.
- Organize costumes in categories (e.g., time periods, shows, type of garment) for easy inventory and access.

Lighting

- Discuss production lighting needs with appropriate school division representative. Post representative's contact information for emergencies.
- Know the brand names and capabilities of the equipment for repair and compatibility purposes.
- Know the capabilities, parts, and hardware of the instruments in the theatre.
- Review and have available a manufacturer's operations manual for the board(s).
- Keep foods and liquids away from lighting equipment.
- Check cords for wear prior to use.
- Check electrical connectors for wear or short circuits.
- Replace worn electrical cables or have them professionally repaired.
- Check safety cables, both in storage and in use on instruments, for wear.
- Use ladders or mechanical lifts in accordance with manufacturer and school division policies.
- Use a surge protector and a rubber floor mat to prevent damage from lightning or power surges.
- Develop and train students in the proper emergency procedures for power loss in the theatre space.
- Identify and label the location of house light "panic switches" for the theatre space.

- Have flashlights available for the safety of patrons and personnel in the event of emergency or power outage.

Lights/Dimmer Systems

Safety

- Know the proper replacement procedure for each lamp in the theatre.
- Unplug lights prior to changing lamps.
- Never touch the glass part of a lamp with bare fingers or hands.
- Have gloves available for personnel when focusing lighting instruments.
- Avoid using oil-based lubricates on lighting instruments.
- Keep a list of the type and style of replacement lamp for all lighting instruments.
- Do not look directly at the lamp when testing to see if it works, or after replacement.
- Secure wrench to body when working above head height.
- Ensure lighting gel frames (color media for lighting) and gobos are securely attached to lighting instruments.
- Ensure “C” clamps are tightly secured to the battens, trees, and tormentors.
- Use safety cables on each lighting instrument hanging above the stage or audience.
- Know the weight limitations of the battens, trees, and tormentors in the theatre space.

General Operation

- Create and have available diagrams of lighting instrument locations.
- Maintain a supply of replacement lamps and parts.

Storage

- Stored instruments should be hung by “C” clamps, with color and gobos removed and shutters closed.
- Check cords for wear prior to storage.
- Check safety cables for wear.
- Check electrical and control cables on lighting instruments in use, as well as in storage.

Lighting Boards

Safety

- Know the brand names and capabilities of the equipment in the lighting booth for repair and compatibility purposes.
- Never patch (plug in) a lighting instrument while the power to the dimmer/channel is on.

General Operation

- Avoid use of board by untrained faculty, staff, renters, or students.
- Turn the board on and pre-warm lighting instruments at a low level prior to operation.
- Check cues and lamps prior to the house opening to patrons.
- Provide a step-by-step guide for safe board operation in the booth.
- Run production/rehearsal as programmed, following cues.
- Turn off the board and allow it to cool down.

Storage

- Follow manufacturer's shut-down instructions.
- Cover the light board when not in use.

Sound

- Discuss production sound needs with appropriate school division representative. Post representative's contact information for emergencies.
- Know the copyright laws and acceptable use policies for music, lyrics, and sound effects.
- Secure proper permissions when using copyrighted music, lyrics, and sound effects.
- Know the brand names and capabilities of the equipment in the sound booth for repair and compatibility purposes.
- Know the capabilities, parts, and hardware of all sound equipment.
- Provide a step-by-step guide for safe board operation in the booth.
- Keep foods and liquids away from sound equipment.
- Check cords for wear prior to use.
- Use a surge protector and a rubber floor mat to prevent damage from lightning or power surges.
- Be sure to check electrical connectors for wear or short circuits.
- Replace worn electrical cables or have them professionally repaired.

Sound Equipment

Safety

- Train personnel on the levels of the system to avoid speaker damage.
- Avoid use of board by untrained faculty, staff, renters, or students.
- Post acceptable levels for faculty, staff, renters, and students to prevent speaker damage.
- Avoid having foods and liquids near sound equipment.

General Operation

- Review and have available a manufacturer's operations manual for board(s).
- Patch any adapters or cords when the system is either off or on and muted to avoid potential speaker damage.
- Avoid using a microphone while standing in front of a speaker, to avoid feedback.
- Avoid hitting or tapping the microphone with your hand to check if it is on. Speak into it or snap fingers next to it.
- When setting sound levels, gently increase volume to avoid feedback.
- Perform equipment sound check prior to opening the house to patrons.
- Maintain a supply of wireless microphone batteries.

Storage

- Have trained personnel wrap lavalier microphone cords with caution to avoid breaking the wire inside.
- Have sound technicians attach, remove, and turn on/off performers' lavalier microphones.
- Remove batteries from microphones prior to storing.
- Store sound equipment in a safe and secure location.

Sound Boards

Safety

- Use a surge protector and a rubber floor mat to prevent damage from lightning or power surges.
- Patch any adapters or cords when the system is either off or on and muted to avoid potential speaker damage.
- Post a step-by-step guide for safe board operation in the booth, in the event of not having a trained person available.

General Operation

- When using a sound system, use the mnemonic MAAM to safely turn on and off the equipment as follows:
 - System on
 1. Mixer/sound board
 2. Amplifiers
 - System off
 1. Amplifiers
 2. Mixer/sound board
- Avoid having actors adjust controls on wireless microphones, including the mute options.
- Check patches for microphone circuiting.
- Perform a live level check with actors prior to each performance.
- Use a single headphone when operating the sound board, to ensure balance of live and amplified sound.
- Monitor the mixing of sounds to ensure proper balance.

Storage

- Turn off the board and allow it to cool down.
- Cover the sound board when not in use.

Tools

Prior to using tools, each student should receive instruction on and observe demonstration of proper tool use, pass an instructor-developed safety test for each tool at 100%, and receive instructor's permission. A permission slip signed by the student and a parent/guardian must be returned to the instructor prior to tool usage. *See Addendum 4 for a sample permission slip.*

Hand Tool Safety

- Hand tools should only be used for their manufacturer's intended purpose.
- Handsaws should be checked for dull or damaged teeth prior to use.
- Instructor should be notified of any broken or defective tools.
- Secure materials prior to drilling or sawing.
- Do not keep tools in personal clothing.
- Do not toss or throw tools or materials.
- Loose or dangling clothing, hair, jewelry, or electronic devices must not be worn while working with hand tools.
- Cut away from the body, unless the tool is specifically designed to be used otherwise.
- Clean up and return tools to the proper storage places for inspection and inventory prior to dismissal.

Powered Tool Safety

- Powered tools should only be used for their manufacturer's intended purpose.
- Inspect electrical cords and plugs for wear or damage prior to and after usage.
- Do not operate powered tools in the presence of flammable fumes.
- Powered saws should be checked for dull or damaged teeth prior to use.
- Instructor should be notified of any broken or defective tools.
- Instructor should monitor students using powered tools.
- Maintain a safe distance from others when using powered tools.
- Loose or dangling clothing, hair, jewelry, or electronic devices must not be worn while working with powered tools.
- Never converse with anyone while operating a powered tool.
- Keep liquids away from all powered tools.
- Do not pull on an electric cord to unplug it.

Drills

Drill Press

Safety

- Wear safety equipment.
- Make adjustments to the drill press and settings when the machine is turned off.
- Ensure the belt guards are in place and secured.
- Tighten the drill chuck with the chuck key and return the chuck key to the holder.
- Never allow the bit or cutter to make contact with the table during use.
- Keep hands a minimum of 2" away from a moving bit.
- Keep the long side of the material to the left side of the drill bit.
- Never attempt to grab or stop material that comes loose or is spinning on the bit.
- Never leave the machine while the spindle is still spinning.

- Instructor must approve and supervise drilling of metal materials.

General Operation

- Mark, align, and secure material.
- Select the appropriate drill bit.
- Insert the drill bit or cutter into the chuck and tighten by hand.
- Check the appropriate speed for the intended use.
- Turn the drill on.
- Use the hand wheel to slowly lower the bit into the material.
- Drill to the desired depth, and then return the drill to its starting position.
- Turn the drill off.
- Remove the material.
- Remove the drill bit by loosening with the chuck key only after it has come to a complete stop and is fully cooled.
- Remove the chuck key from the chuck and replace it in its holder.
- Return drill bit to proper storage.
- Remove any scraps from cutting area and floor.

Storage

- Unplug the machine.
- Remove and store the bit.
- Use cover as available.

Powered Drills: Corded and Cordless

Safety

- Do not operate a portable powered drill in the presence of flammable fumes.
- Avoid using a portable electric drill in wet conditions.
- Only recharge a portable powered drill battery or battery pack with a battery charger recommended by the manufacturer.
- Prior to inserting a battery or plugging in a portable powered drill, turn the power switch off.
- Make portable powered drill adjustments with the power switch off and the drill unplugged.
- Keep hands and fingers away from the rotating drill chuck and bit.
- Use caution when changing drill bits, as they are sharp and become hot during use.
- Never carry a portable powered drill by the power cord.
- When carrying a portable powered drill, turn the drill off and keep the index finger away from the power switch.
- Never stop the rotation of the drill chuck or bit with hands or fingers.

General Operation

- Ensure the battery is fully charged, according to manufacturer's instructions, prior to use.
- Select the proper drill bit for material to be drilled.
- Insert bits into the drill chuck and securely tighten.
- Mark and secure the material.
- Turn the drill on.
- Ensure the drill is operating in the correct direction.
- Drill as the task requires.

- If a drill bit is not penetrating properly, do not force it against the material; turn the drill off and change the drill bit.
- If the bit becomes lodged in the material, turn the drill off and set to reverse. Then turn the drill back on to dislodge the bit.
- Turn the drill off.
- Use the chuck key to loosen and remove the drill bit.
- Return the drill bit to proper storage.
- Clean work area upon completion of the drilling task.

Storage

- Remove and store the drill bit(s), battery, and charger.
- Ensure all parts are stored together in a secured case.

Sanders

Belt/Disc Sander

Safety

- Wear safety equipment.
- Inspect the abrasives for tears or damage, and do not use if they are torn or damaged.
- Ensure that the belt or abrasive is securely installed.
- Ensure the dust collector is operational.
- When using any sander, sand away from the body.
- Never allow fingers to get closer than 1" from the belt or disc when sanding.
- Never adjust the sander or materials while in use.
- Never set down the belt/disc sander until the sander comes to a complete stop.

General Operation

- Ensure there is no more than 1/8" between the table and the abrasive.
- Secure the material to be sanded.
- Hold the belt/disk sander securely.
- Turn the belt/disk sander on.
- Sand on the downward side of the disc.
- Press evenly across the material while sanding.
- Follow the grain of the wood.
- Turn the belt/disc sander off when finished.
- Check abrasives for buildup, and replace, as necessary, prior to continuing.

Storage

- Unplug the machine.
- Remove abrasive material and discard as necessary.
- Ensure abrasive materials are stored together.

Saws

Band Saw

Safety

- Wear safety equipment.
- Have a partner to assist when using a band saw.

- Never allow another person inside the safety zone.
- Check setup, operation, and adjustments prior to turning on the saw.
- Check that both the door guards are in place and secure.
- Secure round stock prior to cutting.
- Relief cuts are necessary when cutting curves smaller than the blade allows.
- Avoid backing out of curves or long straight cuts with the saw running.
- Never place hands or fingers directly in line with the blade.
- Never force the material into the blade.
- Never allow anyone to stand to the right of the saw when it is running. (Broken blades may eject out the side of the saw.)

General Operation

Follow these procedures for each cut:

- Adjust blade guide assembly to within ¼" of the material.
- Turn the saw on.
- Place hands and fingers on each side of the cut line. Never allow fingers or hands to be in line with the blade. Use a push-stick if necessary.
- Guide the work slowly, letting the machine do the work. Do not force the work into the blade.
- Use relief cuts for sharp curves, if needed.
- Turn the saw off.
- Wait until the blade comes to a complete stop prior to removing any wood that is close to the blade.
- Remove any scraps from cutting area and floor.

Storage

- Unplug the machine.
- Remove any scraps from cutting and surrounding areas prior to storage.

Circular/Skill Saw

Safety

- Wear safety equipment.
- Ensure that the appropriate blade is in the circular/skill saw.
- Ensure that the safety screen is operational.
- Keep guards in place and in working order.
- Secure boards less than 6" wide with clamps.
- Stand beside, never behind, the blade while cutting.
- Never allow another person inside the safety zone.
- Wedge the saw cut open with a shim if the board starts to pinch the blade.
- Ensure the blade guard is operating freely. Never block or wedge it in the raised position.

General Operation

Follow these procedures for each cut:

- Set the saw blade to cut ¼" deeper than the thickness of the wood.
- Turn the saw on.
- Adjust the speed as required.
- Slowly cut along the cut line. Do not force against the blade.
- Turn the saw off and wait for the blade to come to a complete stop.

- Remove any scraps from cutting area and floor.

Storage

Unplug the machine.

Jig/Saber/Scroll Saw

Safety

- Wear safety equipment.
- Have a partner to assist when using a jig/saber/scroll saw.
- Check the following and obtain instructor approval prior to turning on the saw:
 - Ensure that the appropriate blade is in the saw.
 - Select the correct cut speed for the material.
 - Ensure the blade's teeth are pointing down.
 - Secure the material to avoid contact with body parts.
- Lightly touch the hold-down foot to the work piece to guide the blade.
- Never make adjustments when the saw is running.
- Never allow another person inside the safety zone.
- Keep hands and fingers on either side of the cut line.
- Never place hands or fingers in line with a blade.
- Keep the electrical cord away from the blade.
- Never force the cut.

General Operation

Follow these procedures for each cut:

- Select and install the proper blade for the materials to be cut.
- Turn the saw on.
- Adjust the speed as required.
- Have an assistant help secure and hold the material against the table.
- Slowly cut along the cut line. Do not force against the blade.
- Turn the saw off and wait for the blade to come to a complete stop.
- Remove any scraps from cutting area and floor.

Storage

- Unplug the machine.
- Remove the blade and check for damage prior to storage.

Power Miter Saw

Safety

- Wear safety equipment.
- Have a partner to assist when using a power miter saw.
- Keep guards in place and in working order.
- Never allow another person inside the safety zone.
- Clear cutting area prior to operating saw.
- Lock adjustments prior to operating the saw.
- Never allow the blade to be in contact with the material prior to switching on machine.
- Secure the material manually or using a hold-down clamp.

- Only clear the sawdust chute when the saw is unplugged.
- When cutting square or right-angled miters, hold the piece of work with the left hand and operate the handle with the right hand.

General Operation

Follow these procedures for each cut:

- Align the blade with the cut mark.
- Without squeezing the power trigger, pull the blade down close to the stock.
- Adjust the stock so that the mark lines up with the blade.
- Return the saw to the fully upright position.
- Turn the saw on.
- Squeeze the power trigger and wait for the blade to reach full speed prior to cutting.
- Pull the saw slowly and smoothly down through the material.
- Return the saw to its upright position and release the power trigger.
- Turn the saw off and wait for the blade to come to a complete stop.
- Remove any scraps from cutting area and floor.

Storage

- Unplug the machine.
- Use cover as available.

Table Saw

Safety

- Wear safety equipment.
- Have a partner to assist when using a table saw.
- Never stand in line with the blade. This protects from injury if a kickback occurs.
- Use a splitter when cutting completely through the wood.
- Use the guard when operating the table saw under normal circumstances. The instructor must specifically approve any operation that requires removal of the guard and be present during table saw operation when guard is removed.
- Set the blade so that it extends no more than 1/8" above the material to be cut.
- Never cut warped or round stock on the table saw.
- Use a push stick when cutting narrow stock less than 4" wide.
- Stock must be a minimum of 12" long, unless the instructor grants specific permission to use a shorter piece.
- Stock must be surfaced with at least one true straight edge prior to ripping.
- Never saw freehand. Use the fence or the miter gauge.
- Never use the rip fence and the miter gauge at the same time when cutting completely through the wood. Kickback may occur.
- Never reach over the blade to grab stock.
- The operator must push the stock completely past the blade. The assistant should never pull stock through the blade.
- Never cut through a loose knot in lumber.
- The instructor is responsible for adjusting the blade prior to making angled or beveled cuts.
- Wait for the blade to come to a complete stop prior to removing scraps.

General Operation

Follow these procedures for each cut:

Ripping

- Set the blade $\frac{1}{8}$ " higher than the material to be cut.
- Ensure that the guard is in place and operating properly.
- Ensure an assistant is stationed at the back side of the saw.
- Turn the saw on.
- Stand slightly to the left of the blade.
- Use left hand to hold the stock down against the fence, while right hand pushes the stock forward.
- Feed the stock through the saw, taking the following precautions:
 - Use a push stick for any material less than 4" wide.
 - Hold the material down and against the fence.
 - Push the material completely past the blade.
 - The assistant should help maintain the position of the material and the cut off after the lead end is past the blade and guard.
 - The assistant should not pull the material through the blade.
 - Remove any scraps from cutting area and floor.

Crosscutting

- Set the blade $\frac{1}{8}$ " higher than material to be cut.
- Ensure that the guard is in place and operating properly.
- Check the miter gauge for squareness and place it in the left miter gauge slot.
- Remove the fence prior to crosscutting.
- Place the stock on the front of the miter gauge.
- Hold the miter gauge with right hand.
- Hold the material with left hand.
- Keep body to the left side of the blade.
- Turn the saw on.
- Move the material slowly to the blade and check for position, taking the following precautions:
 - Use a push stick for any material less than 4" wide.
 - Hold the material down and against the fence.
 - Push the material completely past the blade.
 - The assistant should help maintain the position of the material and the cut off after the lead end is past the blade and guard.
 - The assistant should not pull the material through the blade.
 - Adjust the material, if necessary, and recheck.
 - Remove any scraps from cutting area and floor.

Storage

- Turn the saw off and wait for the blade to come to a complete stop.
- The assistant should remove the material and cut off from the table saw surface.
- Lower the blade below the table.

Sewing Machines

Serger/Overlock Machine

Safety

- Proper instructor supervision is needed for safe operation.

- Identify possible fabric allergies prior to stitching.
- Keep the foot controller free of objects and fabric scraps and away from liquids.
- Check for damaged or worn electrical cords, damaged blades, and bent needles prior to use. Repair or replace any damaged parts.
- Keep machine unplugged when changing lamp.

General Operation

- Read and review manufacturer's operating instructions prior to use.
- The following special precautions should be taken around the machine's moving parts:
 - Keep fingers together and hands at a safe distance when holding fabric on the face plate.
 - Do not push, pull, or bunch fabric under needle; guide fabric evenly on the plate.
 - Turn the machine off prior to unplugging.

Storage

- Ensure the machine is cool and free of debris (e.g., threads, pins, fabric).
- Detach the foot controller and store with the machine.
- Use cover as available.

Sewing Machine

Safety

- Proper instructor supervision is needed for safe operation.
- Check for damaged or worn electrical cords, bent needles, or damaged needle plates prior to use. Repair or replace any damaged parts.
- Unplug machine when lubricating, cleaning, and replacing lamps.
- Keep the foot controller free of objects and fabric scraps and away from liquids.
- Do not allow the machine to overheat. Keep air openings free of lint.

General Operation

- Read and review manufacturer's operating instructions prior to use.
- Turn machine off when making any adjustments, including threading or changing needle, installing bobbin, or changing pressure foot.
- Use the proper type and size of needle for the selected fabric.
- Do not use the foot controller when adjusting the stitch length and width.
- The following special precautions should be taken around the machine's moving parts:
 - Keep fingers together and hands at a safe distance when holding fabric on the face plate.
 - Do not push, pull, or bunch fabric under needle; guide fabric evenly on plate.
- Turn the machine off prior to unplugging.

Storage

- Unplug the machine when not in use.
- Ensure the machine is cool and free of debris (e.g., threads, pins, fabric).
- Detach the foot controller and store with machine.
- Use cover as available.

Additional Tools

Electric Scissors

Safety

- Ensure blades are in working order prior to use.
- Keep electrical cord away from blades while in use.
- Keep body parts away from blades while in use.
- Cut materials in accordance with manufacturer's directions.
- Immediately turn off scissors when a jam occurs, and remove material prior to resuming use.

General Operation

- Plug in and turn on scissors.
- Do not force scissors through material.
- Turn scissors off in between each use.

Storage

- Unplug scissors.
- Remove any extraneous material from scissor blades.
- Secure scissors and electrical cord.

Fabric Steamer

Safety

- Fill water reservoir only when the steamer is unplugged.
- Ensure water reservoir is filled prior to use.
- Secure the garment on hanger prior to steaming.
- Keep body parts away from the steamer nozzle.
- Always return nozzle to resting holder when not in use.
- Turn the steamer off after each use to avoid overheating.

General Operation

- Clean the nozzle face plate prior to each use.
- Turn the steamer on and select appropriate setting for the fabric.
- Turn off steamer prior to unplugging.

Storage

- Empty water reserve.
- Secure cool steamer and electrical cord.

Hot Glue Gun

Safety

- Hot glue guns should be used on a low-melt temperature setting whenever possible.
- Keep the tip of the glue gun clean and unclogged.
- Keep body parts away from stream and drips of hot glue.
- Do not touch the glue gun tip or melted glue at any time during use, and do not touch others with the tip of the glue gun. Glue guns can cause serious burns.
- Do not leave the glue gun unattended or plugged in while not in use.

General Operation

- Plug in and allow the glue gun to properly heat.
- When not in use, rest the glue gun on fire-proof stand.
- Keep additional glue sticks nearby for efficient reloading during use.
- Apply stream of glue to surface, ensuring glue does not harden prior to attaching needed material.
- To prevent burns, carefully place material onto hot glue.

Storage

- Unplug glue gun.
- Secure electrical cord, and store when cool.

Iron

Safety

- Secure the ironing board at the appropriate height.
- Garments and fabrics must be ironed on the surface of an ironing board.
- Keep body parts away from the iron's face plate and escaping steam.
- Fill water reservoir only when the iron is unplugged.

General Operation

- Ensure the ironing board is covered with manufacturer's suggested cover prior to use.
- Clean the iron face plate and fill the water reservoir prior to use (unplugged).
- Turn the iron on and select appropriate temperature and steam setting for the fabric.
- Store the iron securely in an upright position between steps in an ironing project.

Storage

- Empty water reserve.
- Secure cool iron and electrical cord.
- Clean iron face plate.
- Securely fold and store the ironing board.

Theatrical Materials: Safe Storage

General Use

- Only keep as many materials as can be used and stored properly.
- Store items in accordance with sprinkler head minimum clearance of 18".
- Check with your building safety supervisor for guidance regarding safe storage practices and codes in accordance with local fire regulations.
- Clean out storage areas annually.

Cloth

- Store cloth in a climate-controlled environment to avoid dry rot or mold.
- Cloth used on sets should be flame retardant or treated to be flame retardant.
- Avoid storing fabrics near heat sources or electrical panels.

Hardware

- Keep hardware in a dry storage area, away from moisture.
- Keep hardware (e.g., hinges, braces, angle irons) organized by type for easy location and inventory control.
- Dispose of worn or damaged hardware.

Lumber

- Store lumber in neat horizontal stacks that are securely tied or braced to avoid potential falling. If lumber is stored vertically, brace and secure to the wall.
- Avoid storing more lumber than will be needed. Lumber stored for long periods of time will dry out and warp. To prevent a fire hazard, store only lumber identified for use in upcoming productions.
- Remove metal fasteners and hardware from lumber prior to storing or reusing.

Makeup

- Check with students about allergies to latex or other ingredients in makeup prior to opening makeup containers.
- Check manufacturer's guidelines for storage temperature to avoid contamination prior to storing theatrical makeup.
- Avoid sharing makeup.
- Use clean sponges and applicator brushes for each application of makeup to the skin.
- Check stored makeup for contamination prior to use.

Paint

- Check with students about allergies to latex or other ingredients in paint prior to opening any paint containers.
- Store toxic and flammable materials in a locked, fireproof metal cabinet.
- Keep material safety data sheets (MSDS) on file for all materials used. The MSDS must be easily accessible in case of injury or accident. In the case of emergency ambulance transport, provide MSDS in a timely manner to the healthcare provider.
- Avoid use of toxic materials (e.g., oil-based paints, mineral spirits, paint thinners, spray paints, polyurethanes). If a safe substitute for a toxic material is not available, follow the safety regulations as stated in the MSDS.

Props

- Avoid storing props that can be purchased inexpensively.

- Check electrical cords and plugs on electrical props prior to and after use.
- Secure or brace props that are stored on shelves that are over six feet in height.

Scenery

- Store flats vertically, securing them in a rack or tying them against a wall.
- Store platforms horizontally or securely store them vertically against a wall.
- Avoid storing scenery that cannot be recycled or reused.
- Remove fasteners prior to storing flats or platforms.
- Items stacked above head height should be properly braced or secured to avoid falling.

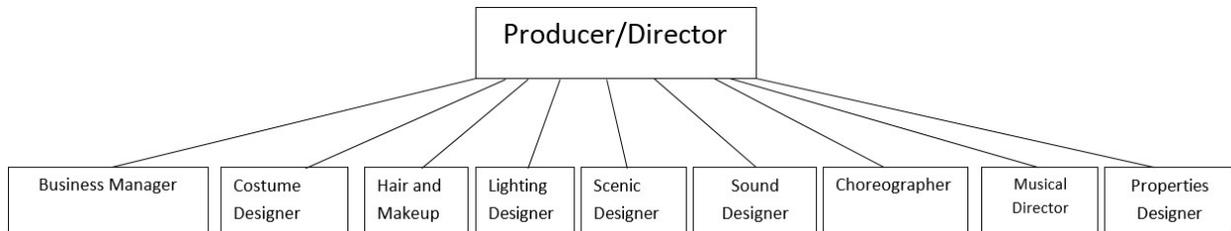
Screws

- Avoid storing screws in damp areas to avoid rust and corrosion.
- Stay consistent with types of screws for construction.
- Dispose of screws with dull, bent, or stripped heads.

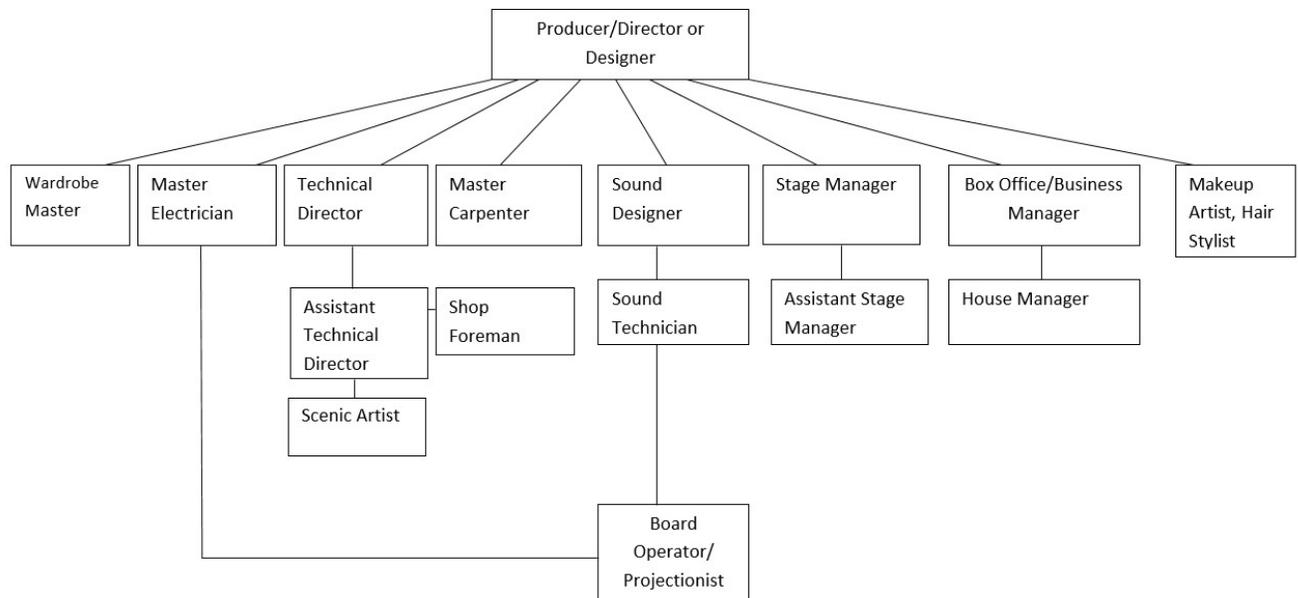
APPENDIX

Design and Production Team Flow Charts

Design Team



Production Team



Theatre Budget Example

INCOME:

STRAIGHT PLAY: number of tickets X price of tickets = income

MUSICAL: number of tickets X price of tickets = income

Additional income possibilities:

- Program advertising
- Concessions
- Fundraising

EXPENSES:

Field trips _____
 Royalties _____
 Production expenses _____
 (e.g., sets, costumes, props)
 Guest artist/instructors _____
 Classroom supplies _____

Projected Income

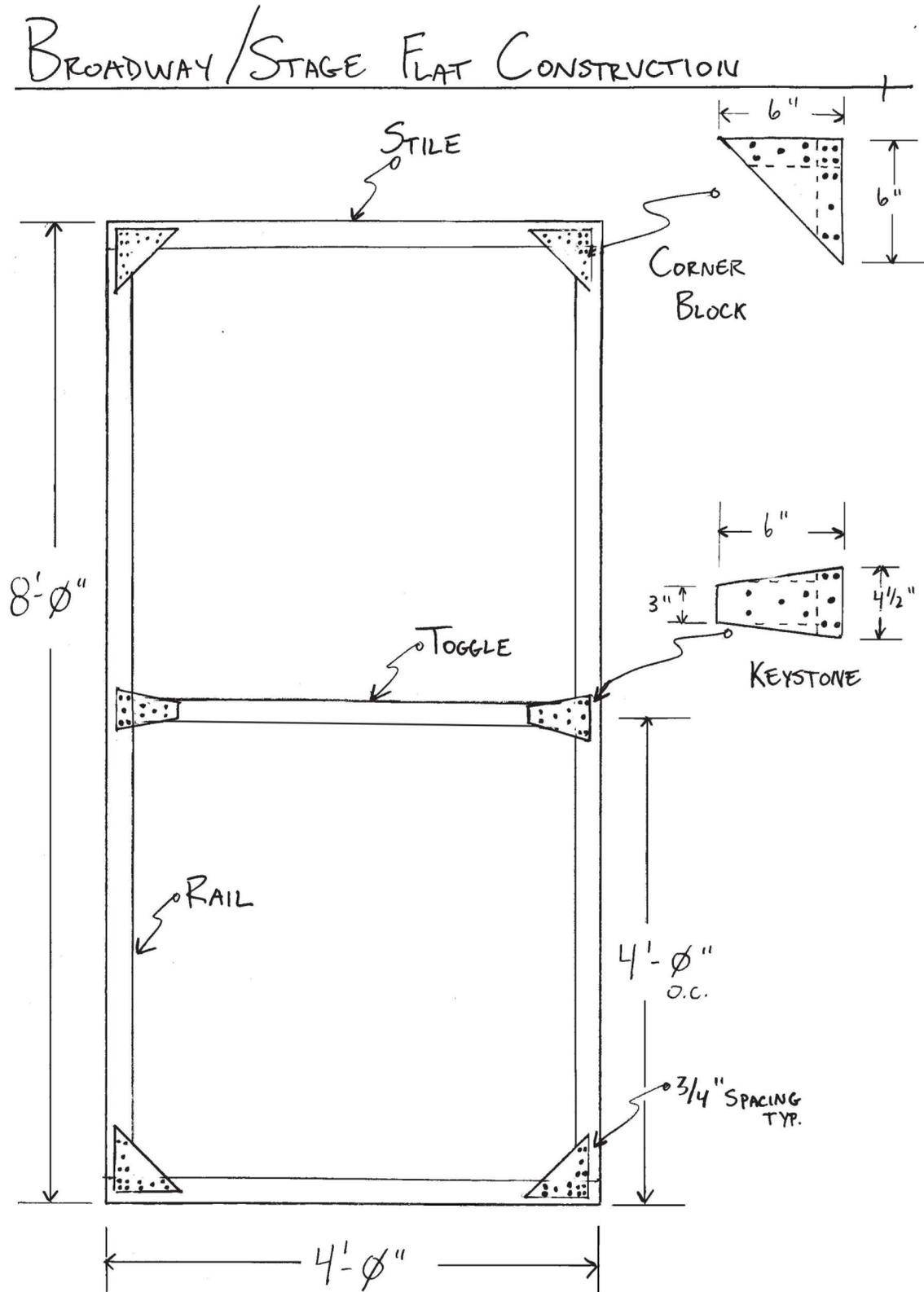
Projected Expenses

RESERVE:

Carry-over funds _____

Reserve Funding

Broadway/Stage Flat Construction Diagram



Permission Slip for Use of Tools

As the parent/guardian of _____, a student at _____, I understand that my student is enrolled in a stagecraft class and will be working with various types of hand and powered tools. Under the direction of the theatre arts instructor, your student must pass a tool safety and usage assessment prior to using hand and powered tools.

Select one:

_____ My student has permission to work with any tool.

_____ My student may not work with powered tools.

Signed _____ **Date** _____

Emergency Phone Number _____

I, _____, understand that I will be working with various types of hand and powered tools. This will only be allowed after passing a test on tool safety and usage and while under the direction of the theatre instructor. Permission slip must be on file.

Signed _____ **Date** _____

Grade Level _____

Vocabulary

Students will use theatre arts terminology pertaining to all aspects of technical theatre. Students will use these terms in oral and written communications and apply them in theatre experiences. Teachers are encouraged to supplement the identified terminology, as appropriate.

amplifier	grand drape	set/scenery
apron	green room	shadow
arena stage	hair plot	shape
artistic director	highlight	shop
backdrop	house	sight line
backstage	house management	sound board
balance	lamps	sound effect
barn door	legs	sound plot
batten	lens	space
blackout	light board	special
booth	light plot	spike
border/teaser	line	stage crew
box office	makeup plot	stage manager
budget	microphones	stagehand
cables	model	stair unit
catwalk	monitor	straight makeup
character makeup	mood	strike
color	movement	swatch
concept board	orchestra pit	tech rehearsal
construction tools	par can	technical director
contrast	pattern	texture
costume parade	perspective drawing	thrust stage
costume plot	platform	tormentor
cue	playbill	trapdoor
cyclorama	press release	traveler
dimmer system	producer	unity
dress rehearsal	promptbook	usher
drop	properties	value
electric	proportion	variety
elevations	proscenium arch	wagon
ellipsoidal	proscenium stage	wash
emphasis	prosthetic	wattage, voltage, amperage (WVA)
fade	publicist	wings
flat	raked stage	
fly rail/flies	read-through	
follow spot	rendering	
foot lights	revolving stage	
form	rhythm	
foundation	rigging	
frequency	running crew	
Fresnel	scale	
gel	scoop	
gobo	scrim	

