Clemson University
Scene Shop Handbook
&
JOB DESCRIPTIONS
Welcome to the Scene Shop

The Clemson University Brooks Center for the Performing Arts scene shop is run by the Department of Theatre Arts and is supervised by the Staff Technical Director. The labor (you) is provided by a mix of students fulfilling requirements for course study in the theater department and GIA students of the University Performing Arts Department. We provide support for four Clemson Players theatre productions a year for the Department of Theatre.

During your time in the shop we hope to introduce you to the tools, procedures and techniques used in scenic construction.

Our shop is set up very closely to that of professional theater which you may encounter in the world outside academia. Therefore your experience will be very similar to being employed in a regional shop and should be of some educational value to you as a student of the theater arts.

This document will inform you of safety guidelines to be followed that help ensure a continued safe working environment for all. Theater work, by nature, is physical, and the use of power equipment is more dangerous than general classroom work. However, if you use common sense and follow these safety procedures, working in the shop and on stage will be fun and safe for you and your classmates/fellow workers.

Please feel free to ask questions at any time. We are here to teach you as we support the Clemson Players productions.

**We want you to have a positive and safe experience in our scene shop and theater spaces.**

Offices and Space Locations

**Technical Director** (Brooks 109) Matthew Leckenbusch is the current TD and is located two offices down from the scene shop.

**Scene Shop** (Brooks 107): Located within The Brooks Center, the shop is adjacent to the loading dock. The scene shop functions as a woodworking, painting, and production space for all the main stage shows, stagecraft classes, production crews (except costume and lighting), and all theater activities otherwise sponsored by the department. The space has standard bench and power/hand tools stored in the space and tool room, and may only be used under appropriate supervision and within designated areas and times. **Note: The scene shop is not available for personal use.**

**Scenery Storage**: Located off site, the scenery storage facility holds all stock platforms and flats, furniture pieces, and other large items for use in main stage productions. **Note: Items in scenery storage are not available for personal use.**

**Properties Storage (B73)**: Located in the basement of The Brooks Center, properties storage houses all stock hand properties for use in main stage productions. **Note: Items in properties storage are not available for personal use.**
Shop Safety

Your Safety Is Our Number One Priority

There are no dumb questions when it comes to safety.

- Do not work alone. There should be a supervisor in the shop anytime you are using any tools.
- NO cell phones are to be used in the shop area.
- NO flip flops, clogs, sandals or open toe shoes. Only closed toe shoes are allowed, preferably leather.
- Appropriate protection should be worn during projects, including safety glasses, hearing protection and dust masks or respirators. If you do not know what protection you should be wearing please ask.
- Attire: Avoid loose fitted clothing. Remove any long, dangling jewelry and accessories that could get caught in tools or machinery. Tie back long hair. No shorts or skirts (jeans are best).
- Long sleeves and pants are required for welding. You don't want to get burned.
- Do not use any tool without proper training. Each tool has its own purpose and safety guidelines. Please make sure you understand these before using the tool. Do not distract someone who is using a tool. Anyone working with tools must have full attention on their task.
- Ask for help when carrying large, heavy or awkward objects.
- Keep all work areas and the floor surrounding them clean while working. Sawdust and clutter can compromise safety.
- The table saw is not a table; do not store items on it. Failure to do so could lead to injury.
- No food or drinks in the shop.
- Do not walk away from a power tool until it stops moving.
- If something seems out of the ordinary, like liquid leaking from a tool, smoke coming from a tool or a wire hanging out, it should be reported to the technical director immediately.
- If you are uncomfortable with a job or do not feel safe in any action you are asked to do please let us know.
- Think before you act. If something seems like a bad idea, it probably is.
- Failure to comply with these rules or behaving in an inappropriate or unsafe manner will result in immediate and permanent suspension from the shop. This will be determined by the technical director.
General Safety Rules

The most obvious safety rule is to be careful and be aware of your surroundings. Pay attention to what you are doing and do not rush any task. Repetitious jobs can cause you to lose concentration, so be aware and pay attention.

*Being careful is your best defense against injury.* Being careful means being careful all the time. You can be careful for years and then get hurt in two seconds of inattention. This is entirely under your own control.

Avoid danger by using common sense. Some people accept a greater risk of danger in order to work faster, more conveniently, etc. Do not hurry and cut corners on safety. Some people take greater risks because they have a strange notion of invulnerability, or as a show of bravado. This will gain no respect for you in our shop.

Power Tools

Each power tool has its own set of safety rules. They are safe when properly used, but they can cause serious accidents when misused. You will be trained on each power tool before you use it. In general, power tools have rotating parts that can wind you in like a fishing reel if they catch on clothes, hair, or jewelry. Power tools can throw debris at you, so eye or face protection is necessary. Ear protection from loud noise is also often necessary, even when you are not the one using a tool in the shop. Make sure the work surface and floors are clear, and get EVERYTHING ready before you hit the ON switch.

**Students may NEVER operate unguarded power tools.** Sometimes there is a strong temptation to remove safety guards when they seem to complicate the work. If you think you need to do something without the standard blade guard, stop and ask the staff. In cases where a guard must be removed, a jig will be put in its place to allow for safe operation of the saw and still provide adequate protection to the user.

Pneumatic tools are power tools also. You must learn each one before use. They also have safety guards, with the exception of the smaller stapler. Do not ever defeat the safety or use the tools in a manner they were not made for.

Hands

Hands are most susceptible to injury. Watch the cutting edge of any tool, especially the power tools, and be aware of where your hands are in relation to it. There is a dangerous temptation to hold parts together with one hand while shooting pneumatic tools with the other. Sometimes staples and nails turn inside the wood and poke out where you do not expect them. The simple rule is to keep both hands behind the direction in which the sharp edge is going and never pull a blade towards your body.
Housekeeping and Maintenance

A clean shop is a safe shop

- Clean up your work area at the end of your work shift
- Do not leave tools and supplies out unnecessarily
- Do not let your work area get cluttered; this can lead to trip hazards. Clean as you go
- Remove nails and staples in used lumber. A staple or screw can set off our table saw
- Do not leave long sticks in trash barrels
- Do not block fire extinguishers, doors, first-aid kits or marked tool-safety areas
- Keep pathways to fire exits and paths for crossing the shop clear. It is dangerous to carry large items while walking over lumber and trash

Daily

- Put up tools
- Sweep off all big tools and the miter table
- Put metal in recycling box, throw away unusable wood, sort wood that is worth keeping.
- Sweep floor

Weekly

- Move all portable items and sweep under them
- Sweep tool and paint rooms
- Sort hardware and store
- Remove stored items from the shop
- Check racks for misplaced items
- Tidy shop

Monthly

- Mop
- Check alignment of saws
- Dust upstairs and outlet boxes
- Throw away scrap in racks that is not useable

If you have any questions of what is useable material please ask the technical director or shop foreman.
Personal Protection Equipment (PPE)

The shop will provide you with safety equipment (there are cases where you might have to provide your own equipment; respirators that are custom fit for scene painting and chemical use are generally provided by the individuals who require them). If you have any questions or doubts, ask the technical director or shop staff. Your safety is our first concern. We will never knowingly put workers in a position to be over exposed to hazardous materials. We welcome all questions and will attempt to explain things to you clearly. Feel free to request safety equipment. Our goal is to make you safe and comfortable when performing duties in the shop.

- **Dust Masks:** Will be provided with the correct type of masks and instructed in their proper use. Comfort masks are available for lab students. These are for use for comfort from saw dust. They will do nothing to protect from fumes and vapors and other assorted toxins. Read the box for instructions on how and when to use these.
- **Ears:** We have earmuffs and earplugs for high noise jobs. Use of the saws, sanders, and vacuums will induce you to wear ear protection.
- **Eyes:** Eye protection is required at all times in the shop. You may not be using a power tool or a chemical but someone else might be. You can be struck by flying debris and splashing solvents or paints.

Health Hazards

Ventilation is poor in the shop. We are continuously striving to make improvements with our equipment (within our budgets) and creating procedures for safe and alternate methods. Because this is mainly a wood working shop, the use of dust masks may help prevent some dust particles from getting in the nose. Note: These are not for lung protection from vapors and fumes. Paint solvents, adhesives, and welding produce toxic fumes. Do not spray paint or use adhesives in the shop. Go outside (and use a drop cloth to prevent overspray). Welding is done with only the necessary people in the shop. When possible, a welding fume respirator should be used by those welding. The bright blue glare from arc-welding is an eye hazard. A brief glance will not hurt, but do not stare at it. Proper equipment needs to be worn when welding (gloves, jacket, helmet, and jeans without frayed edges). Welding screens should be placed around welding area to protect others in the shop.

Handling Scenery/Lifting and Carrying Heavy Objects

- Lift correctly: bend your knees and lift with your legs.
- **Communicate with others.**
- Look where you are going, especially through doors and around corners.
- Be aware of the back end of the object being carried and what is behind you.
- When carrying tall objects like a flat or ladder, lift with one hand high and one hand low. One hand will carry the weight and the other hand is extended to help balance the object.
- It is all too common to set heavy platforms or walls on toes. Awareness and communication with fellow co-workers will prevent this.
• Machismo will only get you hurt. If you are losing your grip or if something is too heavy, tell the person you are carrying it with and take a rest and get a better grip. This will prevent dropping and having someone suddenly bear the entire weight at once. If you are being asked to carry something to heavy and cannot, please let us know. We will either replace you or assist you with the lift.
• When you lean scenery or materials against a wall, be sure that the object is a sufficient distance between its base and the wall, so it will not fall back by itself.

Ladders

Working on ladders and scaffolds presents a potential for a fall. If you must use a ladder, always have someone available to foot and hold the bottom for you. Do not stand on the top or any steps the safety labels indicate. Before you get on a ladder, make sure that all four legs are firmly on the floor. Remember not to leave tools and hardware or anything heavy on top of a ladder. This will lead to the next person who moves the ladder getting hit in the head by a falling object. When you are working above on a ladder you must take extra precautions. You need to be aware of overhead scenery, lighting instruments and electrical cable. Do not have loose items in pockets that may fall. Whenever possible, tools should be attached to you. If you can't attach tools, extra precautions must be made to keep people below aware of you and your work.

Fire Safety

• Most of the materials in the shop are combustible.
• Paint solvents and many adhesives are highly flammable and are kept in a fire cabinet. All flammable materials are stored in the fire cabinet when not in use.
• Welding and grinding produce sparks. Paper, sawdust, oil, and all flammable items must be moved away from the work area during these procedures.
• Know where the fire exits are in the shop.
• Know where the fire extinguishers are and what types we have in the shop, and how to use them.
• No smoking!!!!

Working in the Theater Spaces

We have two theater spaces at Clemson University in The Brooks Center; one is the Brooks Theatre, a proscenium theatre space, and the other is the Bellamy Theatre, a black box space. Both spaces are under the supervision of the Production Manager and Technical Director. No one should work in either space without permission and/or supervision. All theaters are created differently and you will be taught how to use our spaces in a safe and appropriate manner.

Fly System and Ropes

You should never use the fly system unless you are properly trained by the Technical Director, Production Manager, or Technical Coordinator.
When you are the person responsible for raising and lowering scenery or equipment, it is your responsibility to ensure that people are out of the way, that all hazards are cleared and that everyone onstage knows that you are about to move something in or out (down or up) onstage. This should be a loud verbal warning so all can hear you over all other work going on at the time. "Line set # 4
coming in." This applies when lifting a bucket up to a scaffolding unit or to moving a one ton wall on a counterweight batten. You must watch the rope you are pulling and the object that it is moving at the same time.

Do not use any rope or hardware or cable that is worn or in questionable condition to fly anything that is heavy or could lead to a hazardous situation. We do not want to endanger the lives of anyone. If you have a question always ask someone who knows.

Working Above

Whenever you work on the grid loading deck or any other overhead platform, all tools must be secured so they can't fall. Loose change and items in your pockets can cause serious injury if dropped from twenty feet or higher. They should be removed before you ascend. There is a safe place where you can store your items. You are responsible to make sure people working beneath you know you are above them. Whenever possible, areas where someone is working above should be cleared. If by chance an accident occurs and something is dropped, you should yell "HEADS!" Do this immediately. Be loud and clear so people know where the warning is coming from and can get out of the way of danger. If you are below and hear "heads" yelled, get out of the way. Do not let curiosity get the best of you and look up to see what is falling. This may cause serious injury or death.

If you need to work above in an area that does not provide railings and there is a possibility of a fall that could cause injury, you must wear proper fall protection equipment. You should also be trained in the correct use of this equipment.

Stage Elevator Lift

The stage lift (elevator) is found in the forestage of the Brooks Theater. This is a large and potentially dangerous piece of equipment. It has the capability of snapping a large piece of a set in half and could easily shear off a foot or crush someone to death. **This lift will only be operated by trained individuals.** You should obey all written and verbal instructions from them.

Set Strike

Strike is when the set is torn down and stored/discarded. A lot happens in a short time. Make sure you are aware of all the things going on and that you are communicating with others. The fast work pace and the extra enthusiasm you will find does not change the need to pay attention and follow all the rules for working in the theater and with power tools. Pay extra attention to nails in wood and debris on the floor. Always wear proper clothing, and closed toed shoes. Long hair should be tied back and dangling jewelry should not be worn.

**In the event of an accident:**

Report all accidents to the faculty/staff person in charge.

911 Life threatening emergencies
656-2222 All other emergencies
656-3939 Assistance and information

There are phones located in the technical director’s office and the scene shop.
Things you can do to be of help if an accident or emergency occurs:

- Know where fire extinguishers are and how to use them
- Know where the first aid kit is
- Do not move someone who has fallen
- Do not panic
- Notify supervisors **immediately**
- Get out of the way

**Job Descriptions**

**Technical Director**

The technical director has the daily responsibility for the technical operations of the theatre and scene shop, analyzing and implementation of the set design and construction, and coordinating necessary maintenance.

The technical director (TD) works with a great deal of independence and exercises independent judgment in performing a wide variety of duties. Because of the operating hours of most facilities, close supervision is not normally required. Student technical directors answer to the staff technical director for final interpretation of drawings and budget.

Because a TD may be called upon to deal with a wide range of technical issues, he or she benefits from a working knowledge of techniques, methods and procedures of theatre, dance, and music productions and presentations including stage, set, sound and lighting design and implementation; stage management; computerized lighting systems; stage carpentry; appropriate safety precautions and procedures.

Theatres also look for an ability to analyze and evaluate the need for technical support for various events and performances; plan, develop, schedule and provide the technical supports required for each event or performance; communicate effectively both orally and in writing; design and construct sets; design lighting and sound systems appropriate to each performance or oversee stage crews and volunteers; perform minor repairs and preventative maintenance on equipment; maintain inventory of necessary supplies; assist in budget preparation; establish and maintain effective working relationships with representatives of various groups, vendors, co-workers, and others; maintain irregular and extended working hours; able to lift, push or pull objects up to 100 pounds using appropriate tools.

In general, a TD may do any or all of the following:

- Operate, maintain and safeguard the technical assets of the theatre, including the supervision
of lighting, sound, communications equipment, and the use/maintenance of stage facilities.

- Attend all production meetings
- Determine the necessary technical supports, such as lighting, sound, staging, and special needs, necessary for events and performances presented at the facility in advance of production dates
- Advise production managers, lighting and sound designers, on the technical specifications, costs and use of technical equipment required for the individual show/supervise the implementation of approved technical designs
- Supervise and assist with set and stage construction and management.
- Assist in recruiting, training and assignment of volunteer or paid technical staff for individual shows
- Monitor the condition of equipment including lighting, sound, and rigging equipment; arrange for the repair and replacement within budgetary constraints; perform preventive maintenance on equipment
- Assist with the preparation and control of production budgets; maintain inventory and order special supplies
- Attend technical week rehearsals, supervise and assist in the technical aspects of the mounting the show

Assistant Technical Director

Answers to the technical director helping to supervise the crew, build and carry scenery, rigging, tool maintenance, etc. Provide facility support, technical coordination and strategic planning advice for Intermediate theatrical productions.

In general, an assistant technical director (ATD) may do any or all of the following:

- Ensure that student workers engage in safe working practices with tools, supplies, and equipment and promote safety through example
- Assign tasks to students according to their knowledge and experience in consultation with the technical director and by referring to the shop log book
- Assure quality control by checking work done by student workers against specifications from the construction plans
- Maintain shop log book
- Track attendance of student workers
- Confirm completion of monthly timesheets for student workers
- Review all safety rules with student workers and verify completion of all related paperwork
- Inform the technical director of tool, supply, and material needs
- Assist the technical director in training students in the proper use of tools and equipment, construction techniques, and specialized theatre techniques
- Purchase needed supplies, materials, and monitor production spending
- Secure technical spaces at the end of a work period
- Maintain inventory control of shop equipment, tools, and supplies and report any missing equipment to the technical director
- Ensure that shops and other technical spaces are cleaned and orderly at the end of work periods
Set Designer

The set designer is responsible for the visual appearance of the scenery and properties assigned production. It is necessary to meet with and communicate with the technical director to ensure that the scenery is built and will function as needed. Several readings of the script and discussions/meetings with the director(s)/choreographer are necessary to come to a full understanding of the production’s focus and intent. Further discussions with the other designers and technical staff on the team will assure a cohesive concept which is functional within the available resources of time, budget and labor.

Specific assignments for individual students will be discussed and outlined prior to the initial production meetings. The completed design should be represented by a complete white or colored model (1/4” or 1/2” scale) and accompanying sketches, renderings and drawings. These are the primary means of communication with the director and the other members of the design/production team. Upon approval, the design of all scenic units and constructed properties should be drafted and discussed with the technical director. Unless a detailed color model is provided, painter’s elevations should also be presented. Early discussions with the charge artist should result in full scale paint technique samples which should be presented to director and faculty advisor for approval. These paint samples or color swatches should be available to the lighting and costume designers for use in determining or refining color selections. Some discussion and adjustment should be expected. It is crucial that color be discussed in very specific terms throughout the design process with the lighting and costume designers. All sketches, models, draftings and color elevations must be presented for approval to the faculty scene design advisor, technical director and director before they are realized.

Meeting the established deadlines is absolutely essential. Adequate time must be allotted for the technical director to complete working drawings and order materials before the shop can begin the build. Deadlines for completed drafting will be determined by the technical director with the faculty scene design advisor. Regularly scheduled meetings with the faculty scene designer and technical director will help the student designer to develop clear drawings and meet deadlines.

Questions about mechanics, materials and costs should be directed to the show’s technical director. If the technical director is a student, it is his or her responsibility to consult with the faculty technical director (who will be present for meetings).

Painter’s elevations should be presented as soon after the draftings as possible. Estimates for paint orders should be developed with the faculty scene designer, who will then order the paint. All materials must be ordered on a per show basis.

Set designers will also be expected to do the following:

- Attend production and design meetings
- Attend rehearsals as necessary
- Work with props master to pull and purchase all props needed for rehearsals and show
- Supervise the painting of scenery or work with scenic charge
- Read and follow scene shop handbook
Master Carpenter

The master carpenter uses the working drawings from the TD and ATD, and build parts of the set as assigned.

The master carpenter may do any or all of the following:

- Should have working knowledge of and training on all tools used in the shop
- Follow safety guidelines set by technical director
- Will inform shop foreman when materials and supplies are low
- Help determine what materials are needed for projects
- Help with load-in and strike of set
- Help supervise carpenters and students during build
- Will be responsible for at least one major piece of scenery for each show
- Supervise and work with inexperienced students

Carpenters

Carpenters are responsible both for assembling and building the scenery. Carpentry is the first step in working in the shop. Carpenters work directly under the technical director for training on tools and materials.

- Supervise and work with inexperienced students
- Complete cut lists from technical director
- Understand working drawings
- Help interpret drawings from set designer

Properties Master

This person is responsible for designing and securing stage properties needed for productions.

- Work with director, stage manager, and set designer to understand vision and needs related to time period or other limitations
- Determine props for each show considering script, time period of show, and use of props
- Compile a comprehensive props list early in the process (once the design is complete)
- Work with technical director to communicate budgetary needs
- Collect all props receipts for expenses and turn in to technical director
- Work with set designer or technical director to find alternate sources for props
- Work with stage manager and director to ensure props are ready according to schedule
- Work with each actor to develop understanding of how props are to be used/handled
Work with stage manager and props crew to explain and develop mechanics of running the show
Set up and label prop tables
Help stage manager with assignments of specific tasks to each crew member
Strike and store/return all props at close of show

Scenic “Charge” Artist

Is responsible for all painting, sculpting and specialized treatments. The scenic charge artist works directly with the set designer.

Determine paint and material needs/communicate with technical director to order
Coordinate with the technical director, lighting designer, stage manager and master carpenter/electricians to establish a painting schedule. The set will usually need at least a complete base coat to allow the lighting designer to set levels which must be accomplished prior to the technical rehearsals. The scenic artist must keep in mind drying time when scheduling work calls--the set must be available for rehearsals as needed. Conflicts should be brought to the attention of the stage manager and director with enough lead time prior to the scheduled rehearsal to make alternate arrangements.
Keep all brushes, pans, sprayers and any other paint materials clean.
Check the set during the run for touch-up painting.
Restore floor to neutral after the production closes
Clean paint area after show opens/label all paint
Attend all production meetings and technical rehearsals

Crew Chief

A crew chief is, in essence, a student assigned to supervise a particular production area. The crew chief is trained to operate all power tools, equipment, stage machinery, instruments, and products in a particular area. The crew chief acts as a resource or "charge" person supervising work calls in that particular area. All crew chiefs must undergo a training session.

Contact and meet with assigned crew members, obtain class/work schedules and discuss tasks for the production.
Establish and post reasonable schedules for work calls as soon as possible (working with technical director, stage manager and designers). This schedule should be as accommodating as possible to members' conflicts without compromising the efficient completion of all tasks.
Notify all crew members of schedules, changes in schedules and all calls in advance. Lack of preparation or forethought on the part of a crew chief should not be construed as an excuse to make unreasonable demands on crew members. Any conflicts in this area should be referred to the technical director or faculty member supervisor.
Attend all posted work calls and called rehearsals unless prior arrangements have been made with the technical director or production stage manager.
Grant-In-Aid/Scene Shop Staff

A grant-in-aid student receives an end of semester stipend to work in the scene shop.

Scene Shop Grant-In-Aid recipients will:

- Help build scenery and props as needed for each production
- Work at least 10 hours per week in scene shop. This may vary depending on job title
- Be responsible for at least one major piece of scenery
- Help load in and strike the show.
- Supervise and assist students with little or no experience with their assigned tasks
- Sign out the shop-hours time sheets when necessary
- Help maintain the shop and safety rules implemented by the technical director
- Will follow scene shop guidelines
- Complete jobs to the satisfaction of the technical director.