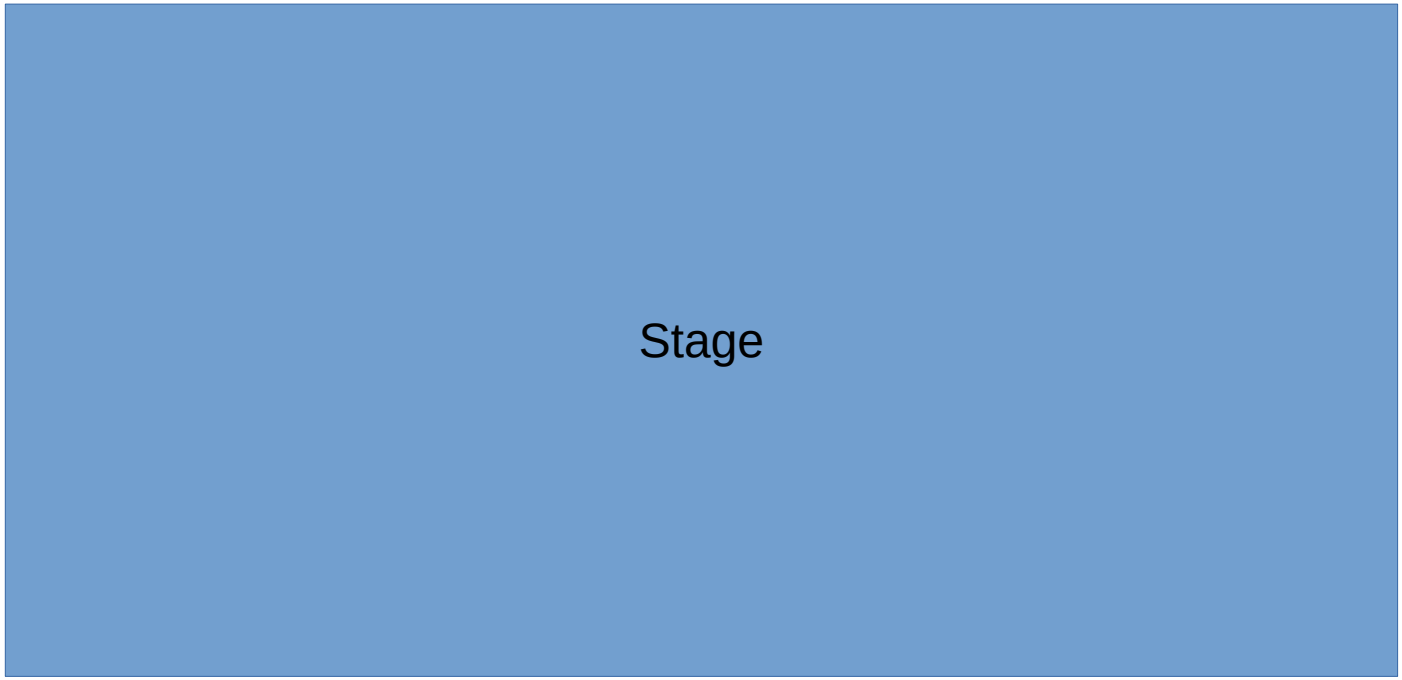
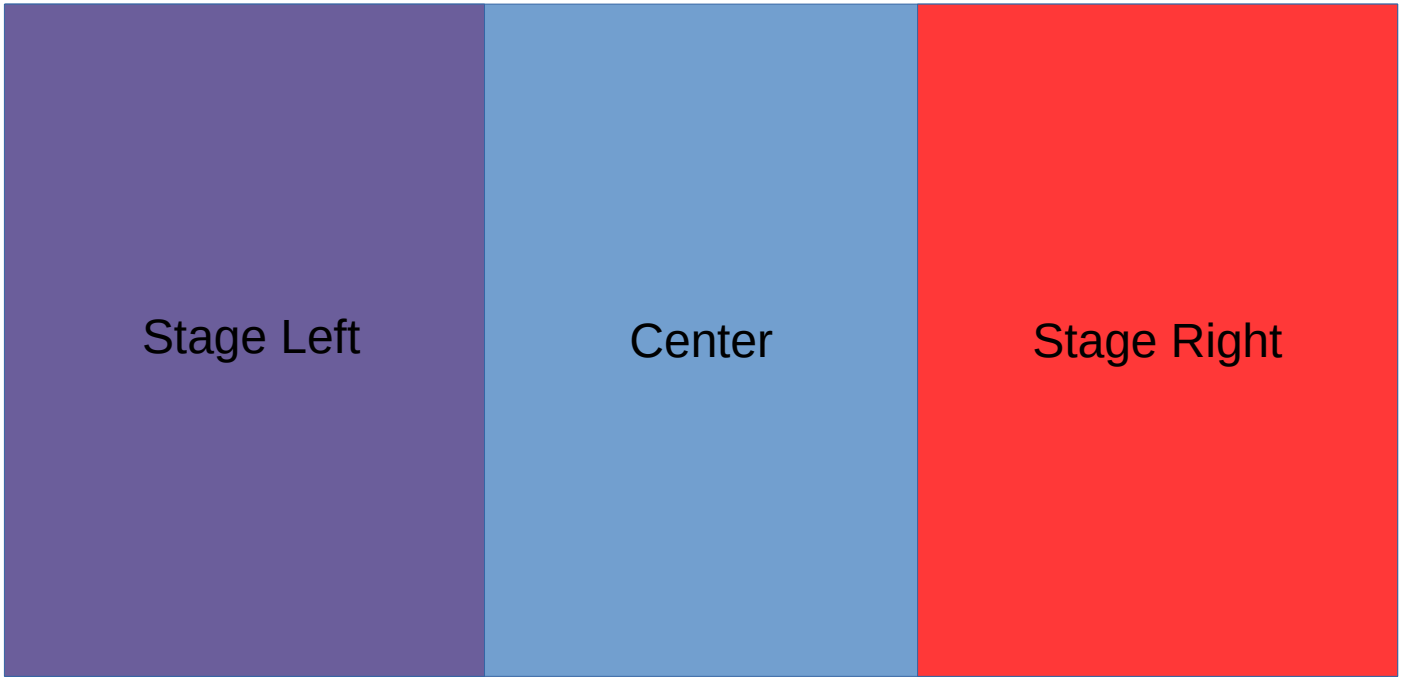
Audience



Loading Dock

Audience



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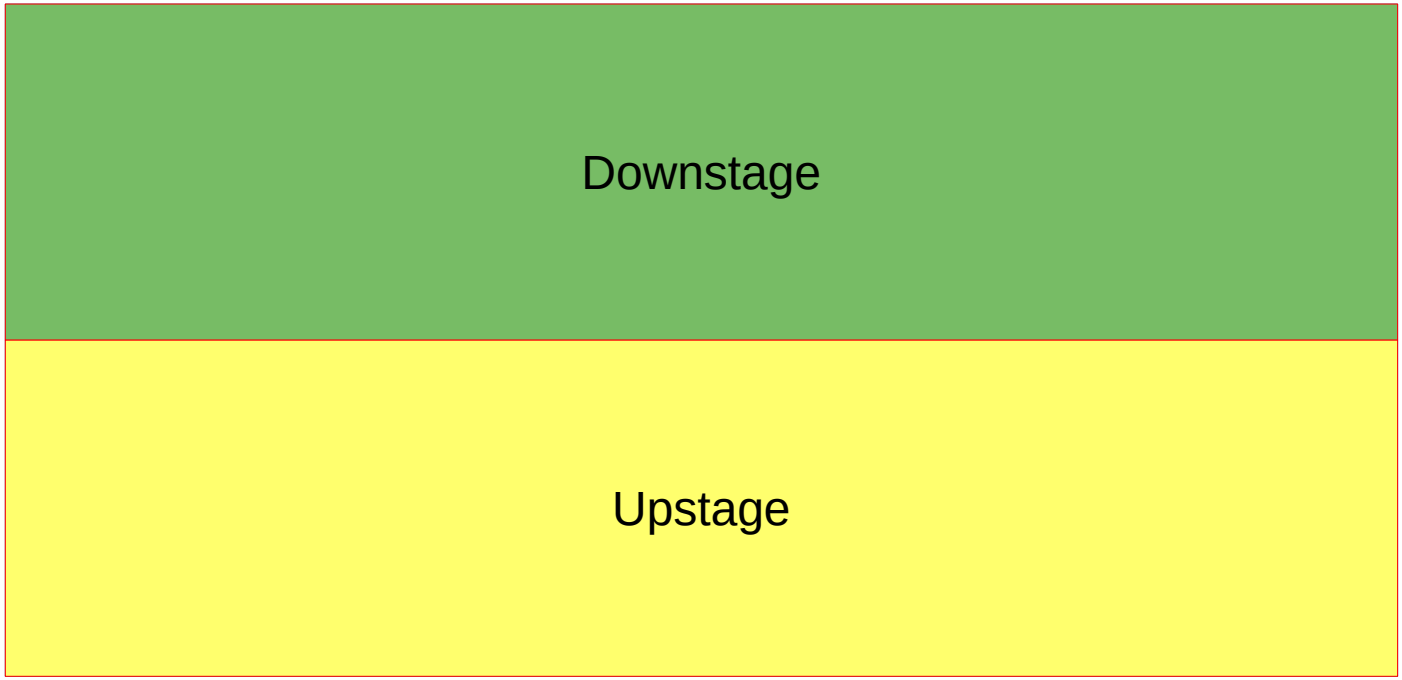
Audience



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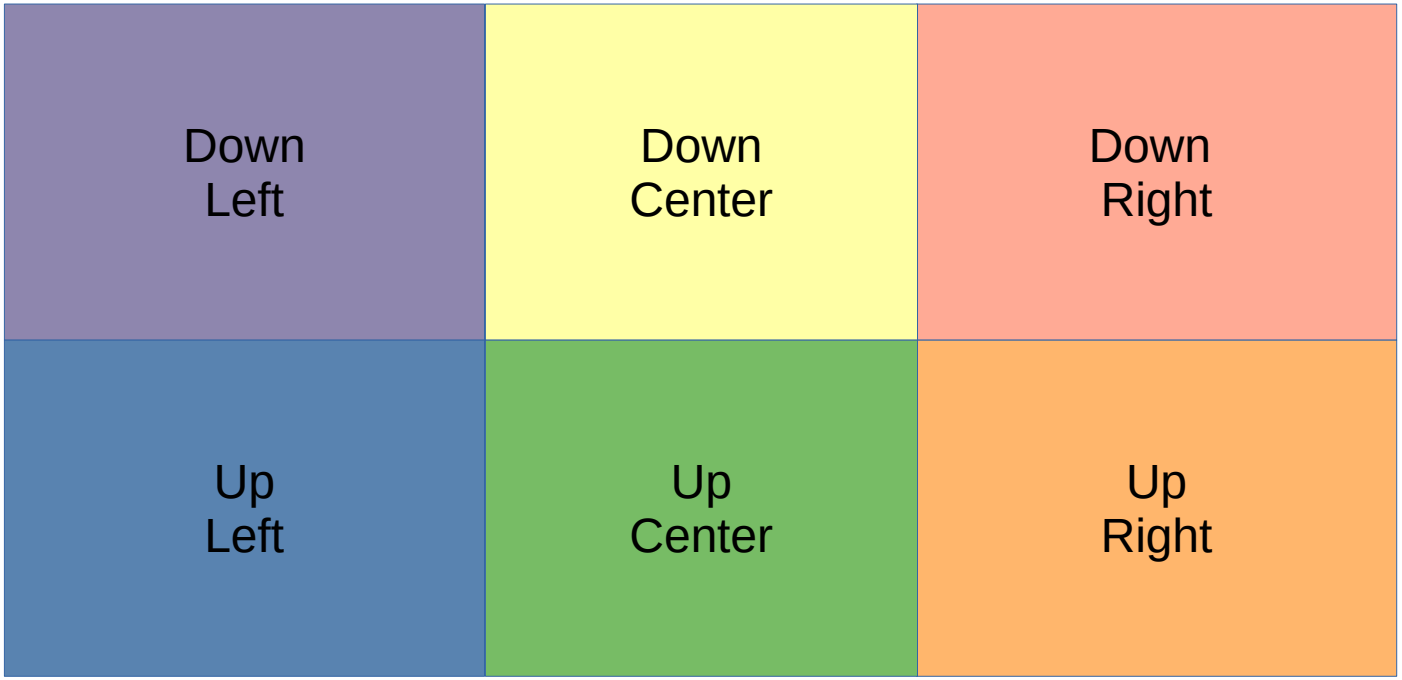
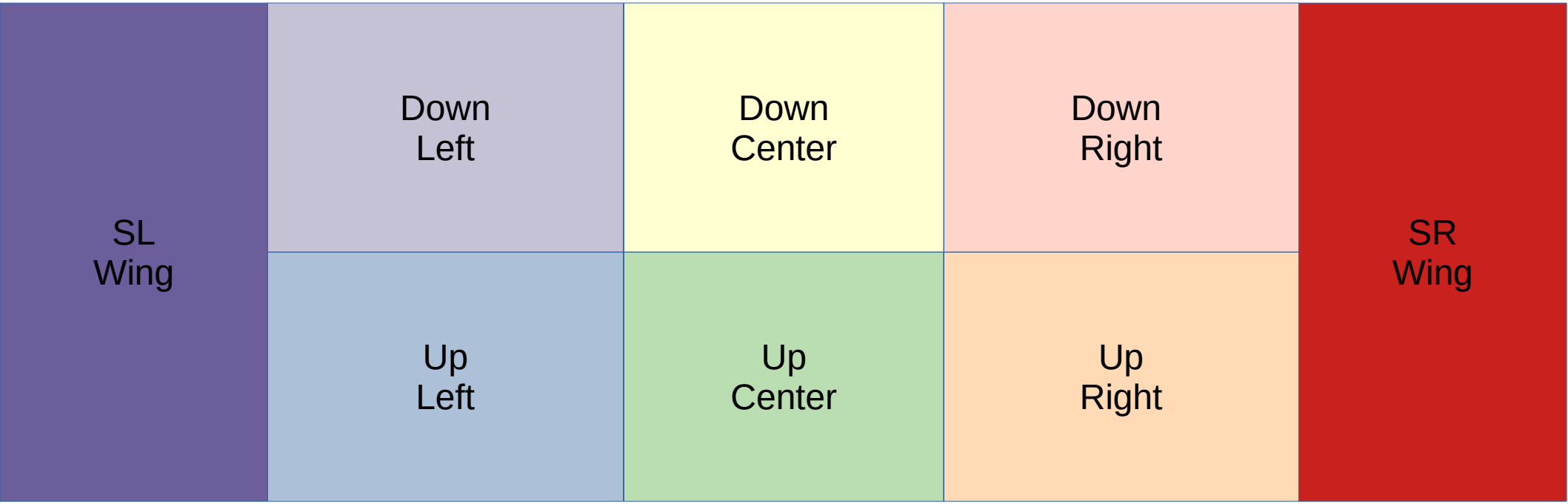
Audience



Loading Dock

Audience



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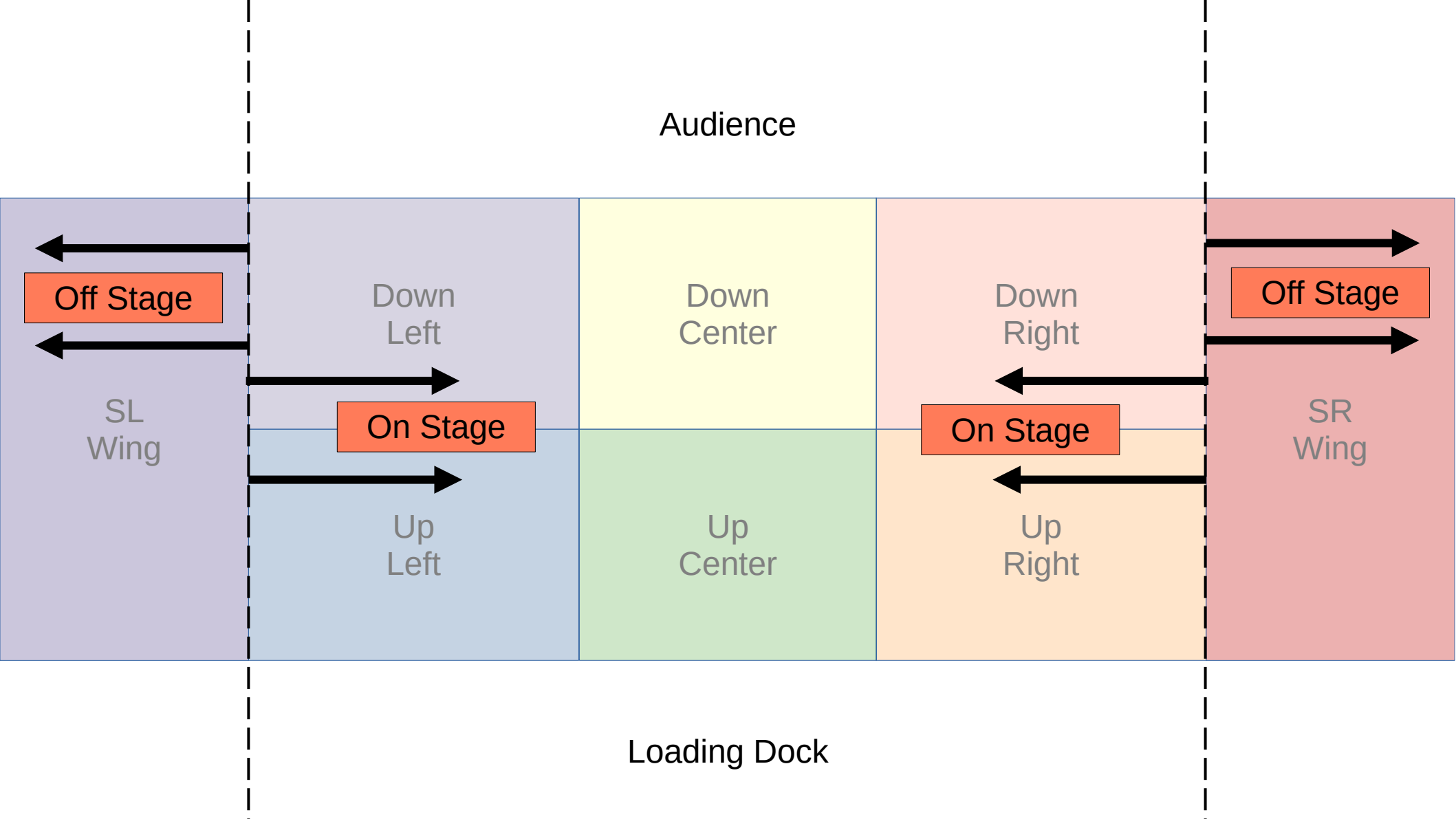
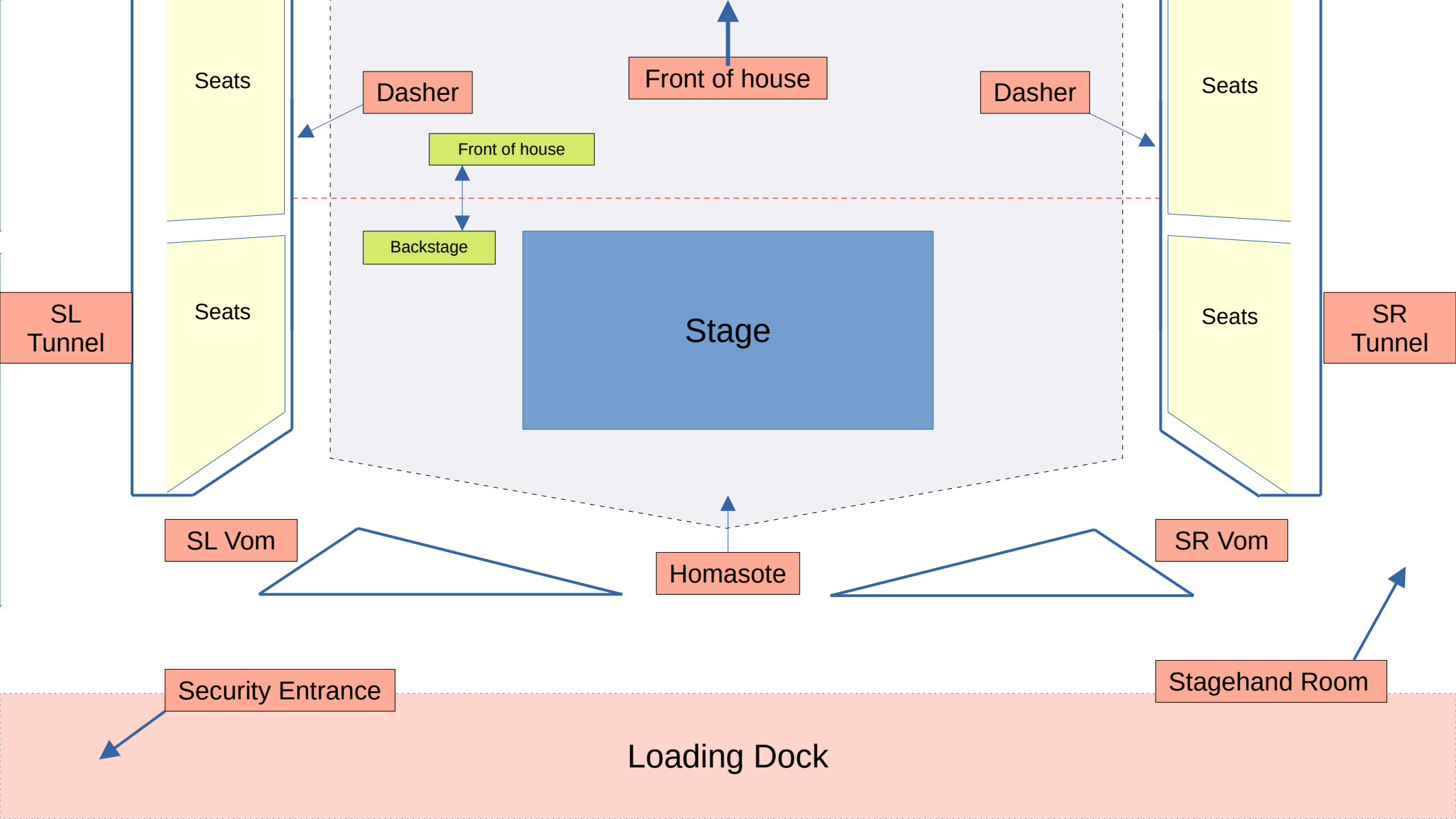
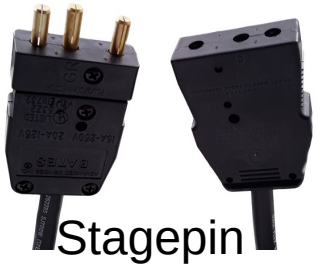

Audience
Off Stage
Down
Left
Down
Center
Down
Right
Off Stage
SL
Wing
On Stage
On Stage
SR
Wing
Up
Left
Up
Center
Up
Right
Loading Dock


Seats
Dasher
Front of house
Dasher
Seats
Front of house
Backstage
Seats
SL
Tunnel
Stage
Seats
SR
Tunnel
SL Vom
Homasote
SR Vom
Security Entrance
Stagehand Room
Loading Dock

Connectors



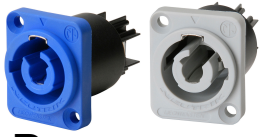
Stagepin

Twist Lock

Speakon

Cheeseboro

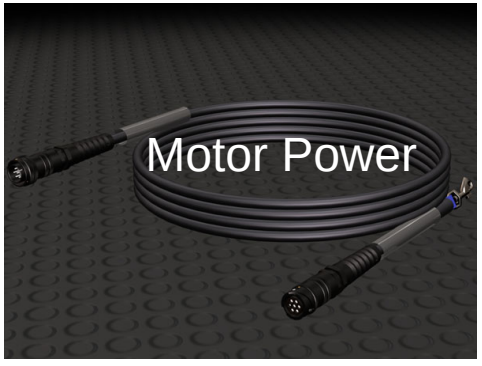
True One



Powercon

XLR

DMX



Break-in

Socapex

Camlock

Tails

Pickle

Break-out

Definitions

DEPARTMENTS
Electrics
Sound
Carp
Pusher
Rigger
Backline
Video
Truck Loader

TERMS
Coming in
Going out
Working height
Trim Height
Float
Hung/hang
Pick
Load in/out
Stage Push

PLACES
Vom
Dasher
Dock
Truck
Front of house
Deck
Grid
Dimmer Beach
Monitor world
Video world
Tunnel
Stagehand Room
Catering

PEOPLE
Call Stewart
Local Dept. head
Touring Dept. head
Production Mngr.
Spot op
Running crew
Local
Roadie
Arena Crew

THINGS
Road case
Rider
Hamper
Gondola
Motor box
Steel
cable pick
Spanset
Shackle
Feeder
Distro
Dimmer
Truss
Pickle
Motor
Mover (light)
Tails (cable ends)
Homasote
Video Wall
Console

Example

Motor case out of truck onto dock
Pushed through vom to dasher
Steel pulled by rigger
Motor hung on grid
Road case with truss as rider
Truss hung on motor by spanset and shackle
Truss goes out to working height
Movers from road case placed on truss with cheeseboro
Safetyed around pipe
Flown out to Trim Height

Mover Plugged in DMX and Power (powercon/twistlock/True one)
power into Socopex via break-out
Soca cables off truss through cable pick
Power and data tails plug into Dimmers at dimmer beach
Dimmers powered by Distros powered by camlock feeder

Situational awareness

- HEADS UP!!
- Look Around – Head on a swivel
- Listen!!
  - Even if the call comes from across the stage or isn’t in your department, always pay attention.
  - Safety calls: If you hear “Coming in!” or “Going out!”

Etiquette

- Stay in your department
- Report back to your Department head
- Anyone can say STOP! in any situation
- Load ins/load outs are a finely tuned machine
  - Do the task given to you, but don’t try to jump ahead or do any step that wasn’t specifically said.
  - It might not make sense, but the flow goes the way it does for a reason.

PPE

Recommended PPE on the Jobsite

- Hard Hats/Helmet
- Gloves
- Safety Toe Shoes
- Hearing Protection (Show Call)
- Knee Pads

Hard Hats/Helmets

- Must conform to ANSI Standard Z89.1 for protection
- Strongly recommended for protection from overhead work as well as objects at head level - PA stacks, lighting truss, video wall, stages, etc.
- Basic hard hats are available at a hardware store or on Amazon, starting at about $15. From there, more ergonomic and lightweight options are available, including climbing helmets such as Black Diamond and industrial rigging brands such as Petzel, both of which are popular with touring techs, and run about $100.

Hard Hat Recommendation

My recommendation for an entry level hard hat would be the Pryamex HP44117 Ridgeline with a 4 point ratchet suspension, retailing for $28.

- Lightweight construction and ventilated for your comfort
- 4 Point suspension and ratchet makes it easy to adjust, with a variety of different options for comfort.
- Meets ANSI Z89.1-2009 standards, type 1, rated for class G, C, and E.

Gloves

- Currently the only required PPE per the hiring hall rules.
- Protects your hands from abrasions, pinch points, and foreign substances. Currently recommended for pushing, truck loading, carpentry, down rigging, and Convention Services jobs.
- There is no cut level requirement, and any type of glove will suffice. Basic Mechanix, store brand, or dipped gloves will work for protection. Fingerless gloves are also a popular choice.

Safety Toes

- Safety Toed Shoes are also strongly recommended in order to protect your feet from dropped equipment, set carts, road cases, rolling stages, forklifts, and other hazards in the workplace.
- Traditionally steel toes, but composite and alloy toes are also available and recommended. However, they must conform to ATSM F2413 standards to provide adequate protection. Boots with at least a 6” rise are also recommended to protect against ankle injuries as well.
- Safety toed work boots generally run ~$100 a pair. Recommended brands include Caterpillar, Timberland Pro, Redwings, Whites.

Hearing Pro

- Recommended for concert show calls such as the Arena, Podium, Pavilion and fairgrounds venues.
- There is a box of disposable ear plugs available at the Arena office, however disposable ear plugs run about $1/pair, or ~$18 for a case. Reusable ones run for roughly $15/pair, and are easily found online or at hardware stores.
- Hearing pro must be rated for at least 26db to be effective in concert environments.

Knee Pads

- Recommended for carpentry and LCD/Fern/Convention Services jobs, or anywhere extended kneeling can be expected. Not frequently used, but an absolute knee-saver when necessary.
- Many different options are available, but my recommendation is for soft shell knee pads, due to their flexibility, low profile, light weight, and infrequent use. These are easily found online or at a hardware store for $10-$15.

Cable Managemet

Over/under Coiling Method

- Cable is coiled in an under/over method to allow easy deployment, prevent loops and tangles, and prevent undo wear and tear on the internal wiring.
- This is often used for single coils and small looms, and is a staple stagehands skill. Unless told otherwise, this is how cables should be wrapped.

Cinnamon Roll Method

- Used to store large looms and snakes inside road cases. You will often be instructed to use this method when appropriate.
- As the name implies, begin by wrapping the cable around the perimeter of the case for several layers, then begin wrapping the cable inwards along the bottom of the case until the entire bottom layer is filled, then begin working outwards from center until the outside is reached, then rinse and repeat. Tight, even coils are the name of the game.

Figure-8, Feeder, and You

- Figure-8 wraps are used for feeder and (sometimes) snakes. When coiling feeder, it is CRITICAL that it be figure-8 coiled, THIS IS A FIRE AND SAFETY ISSUE. If you are unsure, please stop and ask an adult. PLEASE DO NOT TOUCH FEEDER UNLESS SPECIFICALLY INSTRUCTED. IT IS VERY HEAVY AND THERE CAN BE UP TO 1200 AMPS PRESENT WHILE THE CABLE IS LIVE.

Figure 8, Feeder, and You Con’t

- Figure 8 coils are formed by making two alternating loops next to each other, that resemble a figure-8, or infinity sign, from above. With feeder, this is an electrical safety necessity, as it causes the electrical current to flow in opposing directions, which prevents heat buildup and the formation of an electromagnet, which can cause fires or other serious equipment damages.
- For non-feeder cabling, figure-8 storage works in a similar manner to under/over, allowing for easy, tangle free deployment and the opposing twists in the cable prevent kinks from forming.

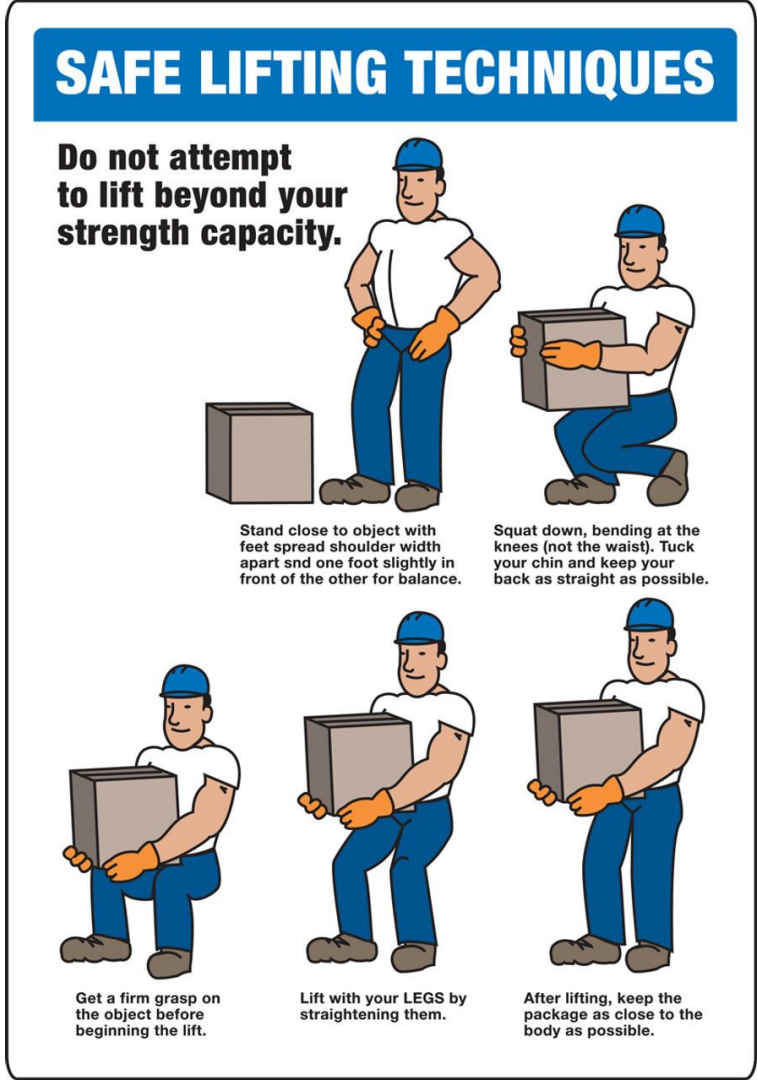
Safely Moving and Lifting Heavy Equipment

General Safety

- STOP is the magic word. If anything feels or looks unsafe, or if there is immediate danger, please yell STOP. If you have a mouth, you are allowed to call STOP. We would all rather STOP and fix an issue or learn for 30 seconds rather than call an ambulance or damage irreplaceable gear.
- NO HEROS! If something is falling, tipping, or running away, GET OUT OF THE WAY. DO NOT TRY TO CATCH OR STOP IT. Equipment is replaceable, people are not.

Safe Lifting Techniques

- Lift with your legs at all times
- Avoid pivoting, turn your feet and entire body
- Don’t be afraid to ask for help!
- Make sure to use a count when lifting with multiple people - “1, 2, 3, lift!”
- If possible, put objects against a wall while stacking or unstacking for added stability.



Safe Pushing Techniques

- Push Low!
- Forklifts, heavy items, and items already in motion have right of way. Please be aware of your surroundings and stay to the right if possible.
- People in the front of object walk forward and steer, people in the back push and monitor tail swing.
- Pinch Points!
- Tyler Truss
- Truss sticks

Stacking With Motors

- Spansets go around the outside edges of the item, or connection points on Tyler truss. Stay to the outside of the wheels and/or legs.
- Keep Spansets taunt until the motor takes weight.
- Please be aware of pinch points.

Truck Ramps

- Ramps are steep under good conditions and become very slick in rain or snow, exercise proper judgement and caution.
- Use at least 3 people to move items up and down the ramp. At least one on each side of the ramp, and one behind or in front of the case. DO NOT stand in the direction of travel on the ramp to avoid being run over if you slip.
- The edge of the ramp can be used as a brake. Be cautious of tipping when doing so, and be careful not to accidentally brake when unwanted.
- Be aware of riders.
- Be aware of the drop at the end of the ramp.

Electrical Safety and You

How Does Electricity Work?

- The easiest explanation is to think of electricity like water: It always flows along the path of least resistance, and is trying to return to its source.
- Electricity can be divided into 3 parts: Voltage (V), wattage (P), and Amperage (I). Continuing the metaphor, voltage is the “speed” of the current, wattage is the volume, and amperage is the overall power. P/V=I.
- AC vs. DC: Alternating current, comes from outlets. Direct current, comes from batteries.
- Electricity is always trying to return to the earth via the path of least resistance. Ideally this is through the proper wire, but in the event of broken equipment or carelessness, it will take that path through YOU or anything else available.
- Ideally we can shape this path safely via the neutral or ground cable in a circuit.

Electrical Systems

- A typical outlet and wiring system contains 3 parts: A hot, a neutral, and a ground. The hot wire is energized, it can be thought of as the origin point. The neutral wire is a path back, to complete the circuit. The ground provides a “safety” or path of least resistance back to the earth, in the event that the circuit becomes unbalanced and too much power is drawn.
- The goal of electrical safety is to make sure the path of least resistance is going back to the earth. This is why the ground is always attached first and unattached last, and why electricians wear specialized shoes and gloves to increase resistance and discourage current to flow through them.
- This is also why it is important to have all cable and equipment free of damage and in proper condition, to ensure electricity follows the proper route.

Injuries

- Shock vs. Electrocution: Electrocution is death caused by electrical current - internal and external 3rd degree burns, heart failure, other tissue damage. Cooked from the inside out. Shock is anything leading up to death.
- Voltage hurts, amperage kills. Typical residential circuits are 120v, 15amp.
- There is no such thing as a “safe voltage” - although systems >50 volts are not required to be shut down to work, a low voltage, high wattage system can kill you as easily as a high voltage, low wattage system.
- Electrical Shock typically manifests as an inability to move or let go - basically, it causes all the muscles in the body to tense at once. Signs of someone being shocked include being frozen in a rigid position and unable to speak or respond.

How to Help

- ACT IMMEDIATELY: By the time you go for help, they will have been electrocuted.
- DO NOT TOUCH THEM WITH METAL, SKIN OR CLOTH. THIS WILL CARRY THE CURRENT AND YOU WILL ALSO BECOME A VICTIM. USE WOOD OR PLASTIC AND SHOVE THEM AS HARD AS IS NECESSARY TO REMOVE THEIR CONTACT FROM THE OBJECT. THIS WILL SAVE THEIR LIFE.
- Once they are removed from the electrical source, it is safe to administer CPR or other first aid as necessary.
- Anyone who receives a shock needs to go to the hospital for observation regardless of severity. Electrical shocks disrupt heart and brain functions.

Accident Prevention

- This why it’s incredibly important not to plug in, unplug, or turn on or off any equipment without specific instructions from the tour lead or department head. Electricity follows all available paths (especially metal trussing) and will choose the fastest and easiest one to the earth.
- Water and electricity DO NOT MIX. Be especially careful in wet or snowy conditions. Water is extremely conductive, and will cause shorts and hazards with non-IP rated equipment. It will also allow current to “jump” - i.e., you can be shocked if there is a puddle between you and an exposed conductor. Current will travel from the conductor to the puddle to you, without the items needing to touch. Wet skin, clothing, or equipment is a multiplier for shock hazards.

How to Spot Damaged Equipment

- Evidence of electrical issues is most easily spotted at plugs. They will often appear burned, discolored, or brittle due to heat exposure. Metal components will appear corroded or discolored. Cabling can also appear discolored or brittle due to heat exposure.
- Be aware of any smells of burning or hot plastic or metal, or of ozone. These can be indicators that something is about to fail.
- Please be aware of nicks or cuts in any cable, loose strain reliefs or plugs, and ESPECIALLY any bare metal. Do not touch or attempt to fix any of these, immediately notify your department head or tour lead.

How to Spot Damaged Equipment Con’t

Precautions

- Typically, lock out/tag out procedures are followed to ensure that distros and other large power sources are not accidentally energized. Because we do not follow those practices, PLEASE VERIFY with your department head, tour lead, or head electrician that power is off before connecting any cables.
- If you do not know what a cable is or how to connect it, DO NOT TOUCH IT.
- DO NOT PUT DRINKS ON POWER DISTRIBUTION, CONSOLES, LIGHTS, OR ANYTHING WITH AN ON/OFF SWITCH. This is for the safety of both personnel and equipment. One is irreplaceable, the other costs more than your car.

Reminders

- Electricity is dangerous. If you see something, say something.
- Do not handle plugs unless you know how and are explicitly told to do so by the tour or department head.
- If you’re at all unsure or feel something to be unsafe, please contact your department head and ask for help.

Call steward.

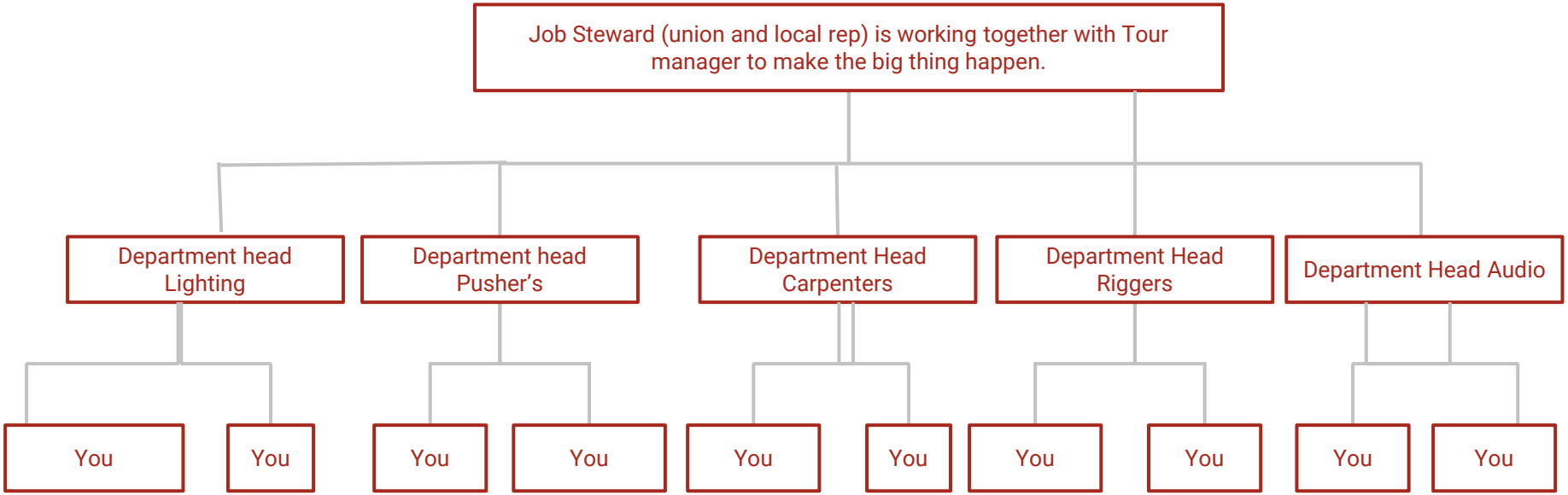
https://www.youtube.com/playlist?list=PLDnNRdVhkDwnptbqcQjNQJ4LT_dTPU8De

Organization of a concert or broadway call.

- You will be assigned a department. Please stay with that department until otherwise noted.
- Your leader and boss is your department head they tell you what needs to get done and how to do it.
- After finishing a task please report back to your department head
- You will start as a pusher and will be broken out into respective departments hours after the call starts

Organization of Local 93 On the Job

- Your supervisor for the day, is your job Steward. That is the person that you check in with.
  - Breaks people in to their respective departments
  - Disciplinary
  - Safety concerns
  - Union rep
  - New hire paperwork
- Department head this is the person that will give you work to do and tell you how it comes together.



- Please address all safety concerns and injuries to your department head **then** your job steward.
- If you see something say something we are all safer when we are all in this together, we want a safe work environment.
- If you do not feel safe doing something your department head told you to do speak up.

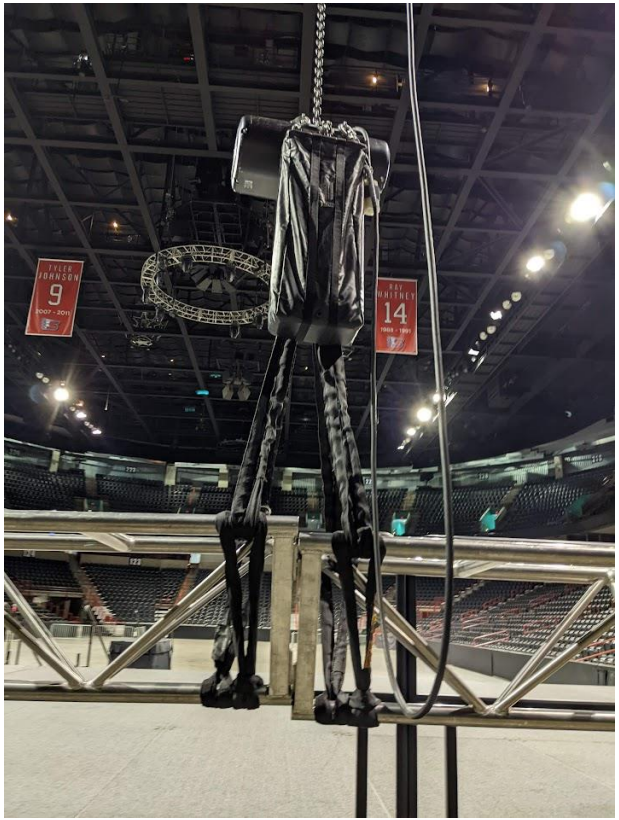
Organization of Local 93

- President
  - Kevin Ford president@iatse93.org
- Vice president
  - Pat devereux
- Business agent
  - Incharge of up holding and negotiating contracts.
  - Helps with rate setting
  - discipline matters
- Treasurer
- Recording Secretary
- Member at large (3 positions)
- Sergeant at arms
- Call steward
  - Jill Scott callsteward@iatse93.org
  - Jill is in charge of dispatch

safety committee

- Exists for you
- Recommends safe working practices
- Provides clarification and when needed documentation for safety concerns
- Allows avenue for safety complaints only AFTER they are brought up to your Job steward when you are on the job

Motors.



- This is a piece of heavy machinery. Only approved techs are allowed to use these.
- Things to note
  - These will run remotely.
  - Keep hands and other objects out of chain path.
  - Do not grab them by the wires to move.
  - Do not unplug motor power unless you are told to.
  - Pickel
  - Hooks out
- If you see something stuck in the motor or the motor mal functioning yell stop or unplug motor power
- During load in and out if you see chains and down riggers keep a safe distance