B&W PRODUCTIONS · CREW TRAINING · MODULE 15

Rigging, Truss and Staging

Everything in this module is above someone's head or under someone's feet. That makes it the one area where a small mistake hurts people, not just kit. You will learn what crew may build, what only a competent rigger may do, how stands, truss and stage decks stay up, and when to stop the job.

B&W Productions · Proper Planning, Prevents Poor Performance



01 Who may do what

Rigging means anything that holds kit above people: flown speakers, truss, hoists, lights on a bar. Staging means anything people stand on. Both can kill. So the first lesson is not how to do it. It is who is allowed to.

JOB	WHO DOES IT
Speaker on a tripod stand, T-bar with lights, ground stack	Trained crew, checked by the crew chief
Truss totem or goalpost on base plates, built to the maker's manual	Trained crew under a competent rigger or the crew chief who signs it off
Anything flown: hoists, motors, hanging from a roof or beam	A competent rigger only
Stages, roofs, big screens, scaffold towers	The stage or structure supplier, with their sign-off

At B&W we ground-stack speakers and put lights on stands. We have one ladder rack.
Nothing goes overhead unless a competent rigger has rigged it.

COMPETENT

Trained, experienced and appointed for that job. Being strong, or having seen it done, is not competent.

SIGNED OFF

Stages and structures are checked and signed by the person responsible before anyone uses them.

YOUR RIGHT

You may refuse a lift or a climb you are not trained for. Tell the crew chief. That is the job done properly.

> **FIELD RULE**
> If it is above heads and you did not get trained on it, you do not build it. You fetch the person who did.

02 Stands: the rigging you do every day



Legs wide, pins in, weight on the legs, a bond on every light. This is rigging too.

Most accidents on small shows are not truss. They are a speaker stand or a T-bar that went over. A stand is safe only inside its limits.

1. **Check the load.** Every stand has a maximum load printed on it or in its manual. The speaker or the lights must weigh less.
2. **Legs fully out** and locked. A narrow base tips. Put one leg pointing at the audience side.
3. **Level, firm floor.** Not on a slope, a carpet edge, or soft grass without a board under each foot.
4. **Pins in.** The safety pin goes through the mast at every height. Never rely on the clamp alone.
5. **Two people to lift a speaker** onto a stand. One lifts, one guides the socket onto the pole.
6. **Weight on the legs.** Sandbags on the legs outdoors and anywhere people walk past.
7. **Cables down the mast** and taped to the floor, so a trip on the cable does not pull the stand.

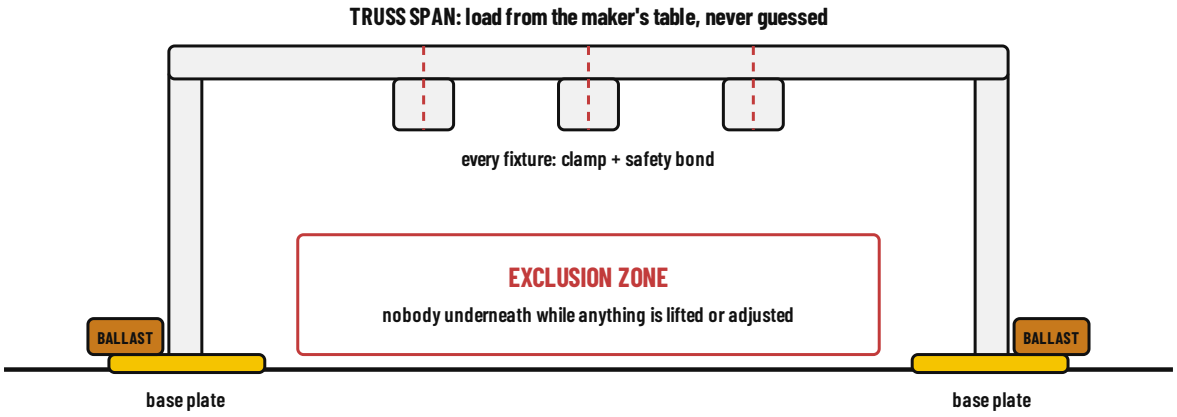
> **TAKE CARE**
> Wind-up stands come down under control, with a hand on the winch and nobody underneath. Never release the brake and let it drop.

FIELD RULE

Low and wide beats high and narrow. If the stand has to go that high, it needs ballast or a different plan.

03 Truss: how it carries load

Truss is a light aluminium frame. It is strong along its length when it is loaded the way the maker designed. It is weak when it is dented, twisted, or loaded in the wrong place.



A goalpost on base plates. The span load comes from the maker's table. Ballast stops it tipping. Bonds catch a failed clamp. The zone underneath stays empty during work.

LOAD TABLE

Each truss type has a table: how much weight for how long a span. The number is in the manual, not in anyone's head.

POINT AND SPREAD

One heavy item in the middle is a point load. The same weight spread along the span is easier on the truss. The table gives both.

CONNECTIONS

Every joint uses the right pins or bolts, all of them, with the clips in. A missing pin is a missing joint.

DAMAGE

A dent, a crack at a weld or a bent tube takes that length out of service. Tag it red.

TRY IT: ADD UP THE LOAD

Add what you plan to hang. Type the limit from the maker's load table for your span. The tool does the adding. It does not know your truss.

FIELD RULE

No load table, no load. If nobody on site can show you the number for that truss and that span, nothing gets hung on it.

04 Ground support and ballast



Ballast sits on the base, strapped so it cannot slide off.

A truss totem or goalpost stands on base plates. A light breeze or a person leaning on it puts a sideways force at the top. The base and the ballast are what resist it.

- **Base plates flat** on firm, level ground. On grass or sand, a board or sole plate under each one.
- **Ballast as the plan says.** The amount comes from the supplier or the engineer for that structure. Water tanks are filled to the mark. Concrete or steel weights are counted.
- **Ballast fixed.** Strapped or bolted so it cannot be kicked off or slide.
- **Banners and screens are sails.** A branded scrim on a truss catches wind many times harder than bare truss. It changes the ballast needed.
- **No guy ropes across walkways** without a barrier and a marker.

> **FIELD RULE**
> Ballast is part of the structure. Nobody borrows a weight for a gazebo.

05 Clamps, bonds and the zone below

Everything hung has two attachments: the thing that holds it, and the thing that catches it when the first one fails.

1. **Clamp** rated for the load, done up by hand until tight, then checked.
2. **Safety bond** (steel wire with a clip) through the fixture's bond point and round the truss or bar. Short, so the drop is short.
3. **No loose items.** Barn doors, gel frames, lens hoods and tools are bonded or removed.
4. **Zone below.** Tape it off. Nobody walks under while anything is being lifted, adjusted or taken down.
5. **Hard hats** for everyone working under or near overhead work.
6. **Call it.** Shout "heads" before anything moves overhead and wait for the zone to clear.

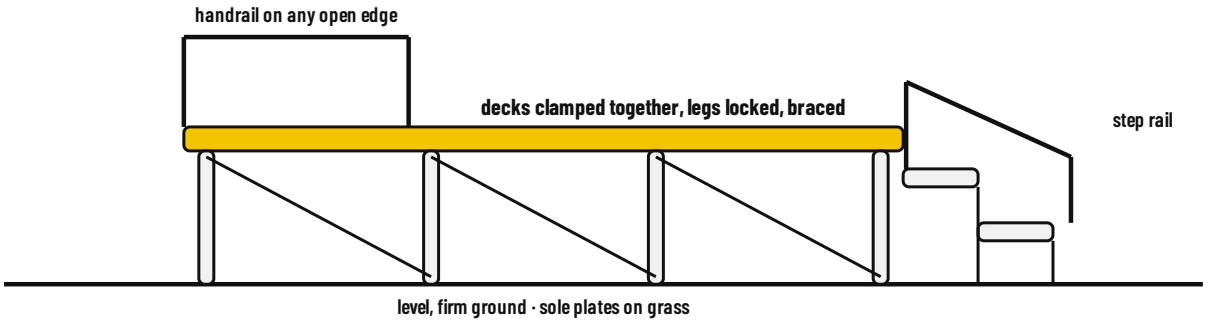
> **STOP**
> Cable ties, tape and rope are not rigging. They do not hold a light, a speaker or a screen.

> **FIELD RULE**
> Two attachments on everything overhead. If you can only find one, it is not finished.

06 Stage decks, steps and edges



Legs locked, decks clamped to each other, bracing in, rail on the steps.



A small stage is still a structure. Legs locked and braced, decks joined, a handrail on open edges, steps with a rail.

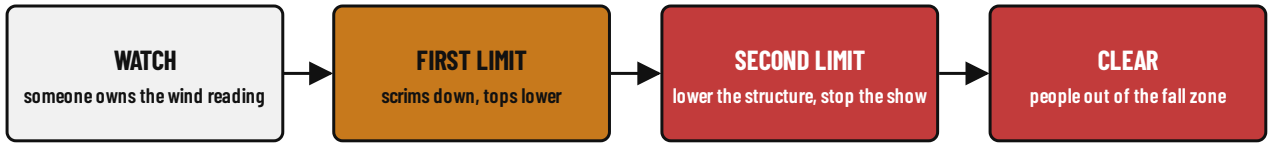
- **Legs locked** in every socket, all the same height. Check each one by hand.
- **Decks clamped to each other** so they cannot drift apart and open a gap.
- **Bracing** as the maker's manual says for that height.
- **Load.** Each deck has a rated load per square metre. A grand piano, a big LED screen or a crowd of dancers needs checking against it.
- **Edges.** White or lumo tape on every edge and step nose. A handrail on the back and sides once the stage is high enough to hurt in a fall. Follow the venue and the safety officer.
- **Steps** fixed to the stage, with a rail, lit during the show.

- **Nothing stored underneath** that people must crawl to fetch during the show.

> **FIELD RULE**
> Jump on it before the client does. Walk every deck and every step before you load kit on.

07 Wind and weather outdoors

Outdoors, the wind decides. Every tent, stage roof, screen and truss structure has wind limits set by its maker or its engineer. Those limits are written in a wind plan: at this speed we do this.



A wind plan has steps, and each step has a number from the supplier. One named person watches the reading.

TRY IT: READ THE WIND PLAN

Type the two limits from your structure's wind plan and the current gust reading. These example numbers are placeholders, not a rule.

- Gusts matter more than the average. Read the gust.
- A Highveld storm arrives fast. Act on the first limit, not when the scrim is already flapping.
- Lightning: stop work at height and on stage, get people inside (Module 13).
- Wet decks are slippery. Dry the steps and the stage edge before the show restarts.

> **FIELD RULE**
> Lowering early costs ten minutes. Lowering late is not possible.

08 Inspect, sign off, strike

A structure is checked three times: when it is built, before doors, and after any weather or knock. Then it comes down in the reverse order it went up.

1. ☐ **RIGHT PERSON BUILT IT**
   Crew for stands. Rigger or supplier for anything flown or structural.
2. ☐ **LEVEL AND FIRM**
   Bases flat, sole plates on soft ground, legs locked.
3. ☐ **ALL PINS AND CLIPS IN**
   Every joint, every stand mast, every deck leg.
4. ☐ **LOAD KNOWN**
   Weight added up and under the maker's limit.
5. ☐ **BALLAST IN PLACE AND FIXED**
   As the plan says, strapped down.
6. ☐ **BOND ON EVERY FIXTURE**
   Clamp plus safety bond. Nothing loose.
7. ☐ **EDGES AND STEPS MARKED**
   Tape, rails and light on steps.
8. ☐ **WIND PLAN AND WATCHER NAMED**
   Outdoors: who reads it and what the numbers are.
9. ☐ **SIGNED OFF**
   Crew chief, rigger or supplier has checked and said yes.

Strike

- Clear the area below first. Audience out, zone taped.

- Kit off before structure down. Lights and speakers come off while the truss is at working height.
- Lower under control. Never drop, never pull pins on a loaded joint.
- Check every length for damage as it goes back in the dolly. Tag anything bent.

> **FIELD RULE**
> If something looks wrong, say so and stop. Nobody was ever fired for a five-minute check.

09 Check what you learnt

Ten questions. Circle one answer for each. The answer key is on the last page. Pass mark: 8 out of 10.

1. Who may hang a speaker or truss from a venue roof?

- ○ **A** Any strong crew member
- ○ **B** A competent rigger only
- ○ **C** The DJ
- ○ **D** Whoever arrives first

2. What does "competent" mean for rigging?

- ○ **A** Has seen it done before
- ○ **B** Is the oldest on the crew
- ○ **C** Trained, experienced and appointed for that job
- ○ **D** Owns a harness

3. A speaker stand must go on grass. What do you add?

- ○ **A** Nothing
- ○ **B** A board under each foot and weight on the legs
- ○ **C** A taller mast
- ○ **D** Tape round the legs

4. **Where does the weight limit for a truss span come from?**

- ○ **A** The crew chief's memory
- ○ **B** The maker's load table
- ○ **C** How it looks
- ○ **D** The venue manager

5. **You find a dent in a truss tube. What do you do?**

- ○ **A** Use it at the end of the span
- ○ **B** Turn the dent to the back
- ○ **C** Tag it red and take it out of service
- ○ **D** Tape over it

6. **What is a safety bond for?**

- ○ **A** Tidying cables
- ○ **B** Catching the fixture if the clamp fails
- ○ **C** Earthing the light
- ○ **D** Holding gels

7. **Someone wants to borrow a ballast weight for a gazebo. What do you say?**

- ○ **A** Yes, one will not matter
- ○ **B** No, ballast is part of the structure
- ○ **C** Yes, if they bring it back
- ○ **D** Only on a calm day

8. **Why does a banner on a truss matter outdoors?**

- ○ **A** It hides the truss
- ○ **B** It catches the wind like a sail
- ○ **C** It adds a lot of weight
- ○ **D** It blocks the lights

9. **The gusts reach the first limit in the wind plan. What happens?**

- ○ **A** Wait and see
- ○ **B** Carry on, it is only the first limit
- ○ **C** Do the first action: drop scrims, lower tops, secure loose kit
- ○ **D** Add more lights

10. **What is the right order at strike?**

- ○ **A** Pull the pins, then take the lights off
- ○ **B** Clear below, kit off, then lower the structure under control
- ○ **C** Lower it fast before the venue closes
- ○ **D** Leave it for the morning crew

Answer key

1. **B**. Anything flown is done by a competent rigger. Crew do stands and ground stacks.
2. **C**. Competent means trained, experienced and appointed for that task.
3. **B**. Firm footing under each foot, legs fully out and weight on the legs.
4. **B**. Each truss type has a load table in the manual. No table, no load.
5. **C**. Damaged truss is taken out of service and tagged.
6. **B**. The bond is the second attachment. It catches the fixture if the clamp fails.
7. **B**. Ballast is part of the structure and stays where the plan put it.
8. **B**. Scrims and banners catch wind and change the ballast and the wind limits.
9. **C**. Each limit has an action. Act on the first one early.
10. **B**. Clear the area, take kit off at working height, then lower under control.

Photos: scene photographs are AI-generated illustrations and do not show B&W Productions equipment or events. This module is crew training, not a substitute for the manufacturer's manual, the venue's rules or the event safety officer's instructions.