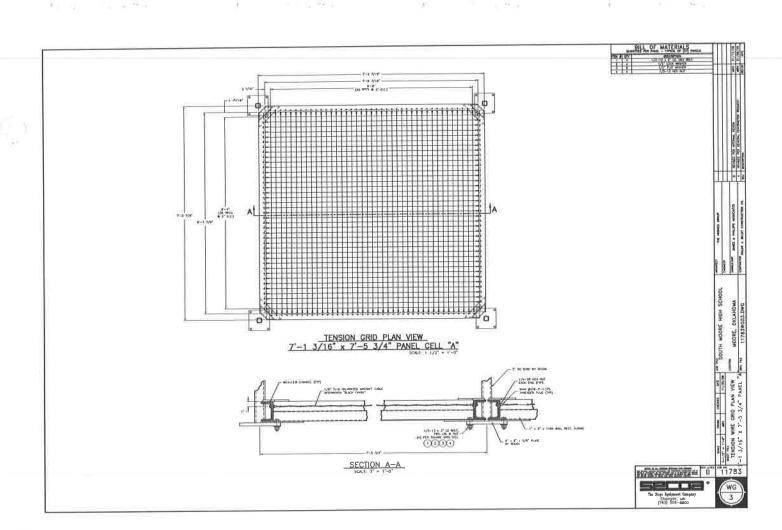


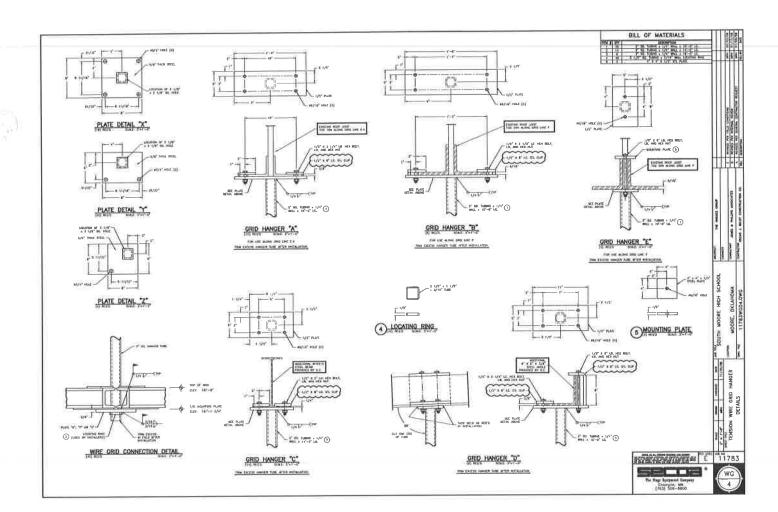
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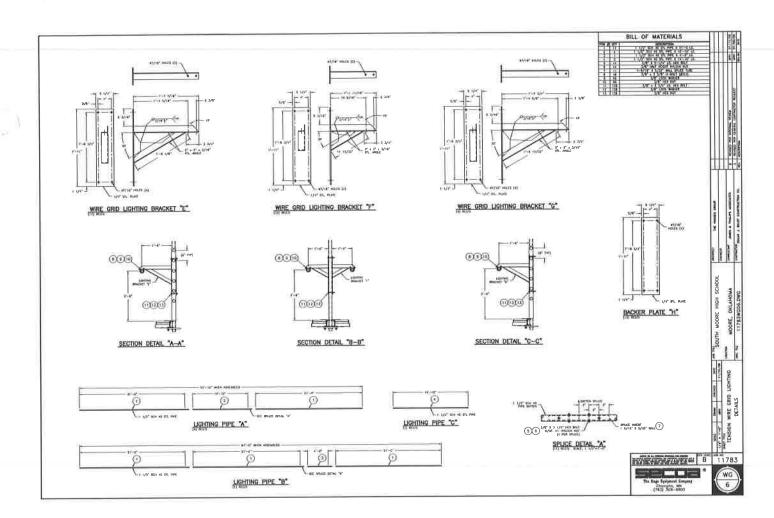


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1 Introduction

This operating manual is supplementary to prevailing protective legislation and regulation. It is imperative that the Owner and operator familiarize themselves and comply with such controlling authorities.

3 Safety Procedures

The stage of a theater is an inherently dangerous place. Moving equipment, flammable materials, electricity, power tools and other potential dangers are all present and in close proximity to each other.

SECOA makes every effort to design, manufacture and install Stage Equipment that may be operated safely. The equipment is designed to withstand some abuse and poor maintenance, without catastrophic failure. SECOA uses only the best available materials and installation procedures, to protect the operator's safety.

Stage Equipment safety depends as much on the system operations and use of procedures, as on the equipment itself. Thorough understanding of the systems and their operation needs to be understood prior to use. Only personnel who have demonstrated such ability should operate the systems. No stage is safe, unless the Stage Rigging, Lighting and other equipment is operated and maintained correctly. Operator(s) should familiarize themselves with the relevant safety procedures described by OSHA.

SECOA believes that the responsible parties MUST establish and enforce rules and procedures to be used by anyone, with access to the stage. Our experience suggests that there is no better way to protect the safety and health of all.

General Safety

Insure that all persons on stage understand that they are in a serious place. The possibility exists for injury. If access (to non-production personnel) can be denied by locking a door, it should.

Precautions to prevent / minimize injury:

- NO Horseplay
- General Good Housekeeping rules apply
- Equipment not in use should be stored
- Walkways should remain clear and unobstructed
- Lighting should provide people see where and what they are doing
- Barricade / Rope off Open traps, stage edges and other holes that people could fall into.

Clothing and Personal Protective Equipment

Loose fitting clothing or jewelry should not be worn while operating stage equipment. Long hair should be tied back or otherwise secured. Long sleeve shirts should be buttoned at the cuffs or rolled to the upper arm.

Personal Protective Equipment

- Safety harness and lifeline; should be worn, whenever it is necessary to hang from a catwalk, boom ladder or other high place.
- Hard-soled shoes with steel toes should be worn, while operating Stage Equipment.
- Leather Gloves; for the operators of counterweight rigging equipment.
- Helmets and safety goggles onstage is a wise precaution.

4 Tension Wire Grid System

System Description

The walking surface/catwalk system above the auditorium is referred to as a Tension Wire Grid. The Tension Wire Grid consists of a series of modular panels interconnected and supported from the roof via Hangers. Each panel is constructed of a steel channel frame, with a woven mesh of 1/8 Aircraft Cable on 2 centers. This provides a safe walking surface, which is literally transparent to light or sound being projected down through it.

Panel Description

The panel frame consists of 4" steel channel around the perimeter, if required there will be a tube steel compression member running through the center. Located in each corner is a connection plate where a 1/2" bolt joins the panel to the hanger assembly. 1/8" Aircraft Cables are woven in an over/under pattern every 2". Each cable is terminated to a Sava Industries, threaded plug with a 1/4-28 hex adjustment nut and jam nut. The cables have been factory tensioned by tightening the threaded plug on the end of the cable and locking it in place with the jam nut.

Caution

The surface of a tension wire grid is designed as a walking surface. Care should be taken when placing objects or equipment on a tension wire grid surface, as it is easy to snag or damage individual cables. Use plywood or a similar material to support heavy equipment and loads. Sharp corners must be padded with carpeting or other similar material.

WARNING: Do not use Ladders, stools or platforms on top of a tension

wire grid system. These require a stable base to prevent tipping and a tension wire grid does not provide a stable

base.

WARNING: Do not jump or bounce on the tension wire grid system. It is

not designed for use as a trampoline. It is designed for use

as a walking surface only.

WARNING: Do not stand or sit on railings. Railings are not to be used

to support people. Do not jump down from a railing onto the

tension wire grid system.

System Maintenance

The Tension Grid Panels are made from 1/8" aircraft cable, which will stretch. Depending upon usage and loads imposed upon the cable they will require periodic tightening.

CAUTION: Continued usage of a tension wire grid panel with cables not

properly tensioned can lead to cable termination damage or

failure.

WARNING: Do not use a tension wire grid panel with broken or missing

cables. Remove this panel from service.

If the cable is broken, please contact SECOA at (763) 506-8800 for a replacement.

Because a tension wire grid panel is made up of woven aircraft cables it is not possible to tension the individual cables using a torque wrench. Tensioning the individual cables by feel attains proper tension.

To lift a panel for cable tensioning, first loosen and remove the 1/2" bolts located in each corner. Lift the panel up and support it off of the adjacent panels so that it is safe to work on the cable ends.

Retighten a loose cable by first holding the cable end fitting with a pair of pliers and then loosening the inside jam nut on both ends of the cable with a 7/16" box end wrench. Next grab hold of the cable end fitting with a pair of pliers, this will prevent the cable from turning when the tensioning nut is turned. Turn the cable-tensioning nut with a 7/16" wrench a half of a turn at a time, tensioning each end of the cable, as each end has a tensioning nut. When the cable is tensioned properly, hold onto the cable end fitting with a pair of pliers and retighten the jam nut, repeat this step for the other end of the cable.

A tension wire grid panel is properly tensioned when all of the cables are sufficiently taught so that the cables form a straight line across the panel from one side to the other; and when a 200-pound person standing in the middle of the panel causes the cables to deflect 2" at the center of the panel.

When tensioning large areas of a tension wire grid panel it is best to start at the center of area to be tightened and work outward towards the ends.

Reinstall the panel by lowering into position onto the support and installing the 1/2" bolts in each corner. Tighten all nuts on the bolts 1/3rd of a turn past snug tight.

