

SECTION 11 6133  
PRODUCTION RIGGING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. The Rigging Contractor shall provide all items necessary for a complete, safe, fully functional system as described herein and as shown on drawings, including all tools, scaffolding, labor, and supervision, even though they may not be specifically enumerated.

1.2 RELATED SECTIONS

A. Coordinate with the following sections in carrying out this work:

1. Division 01 – General Conditions
2. Division 05 – Metals
3. Division 26 – Electrical
4. Section 26 05 35 – Production Systems Electrical Installation
5. It shall be under the work in this section to coordinate established clearances to the general contractor and all others trades on the project and maintain necessary clearance requirements for all rigging components and clear zones.
  - a. No conduit, raceway, sprinkler pipe, plumbing pipe, duct, any other part of the mechanical systems, or any structural component shall be in a rigging clear zone nor shall they obstruct the operations of the rigging systems nor shall they be within 6" of a moving rigging component, including lift lines.

1.3 REFERENCES

- A. Comply with all national, state and local regulations. In the event of conflict between these specifications and the applicable regulations, the more stringent shall govern.
- B. Equipment shall be provided per the related trade and regulatory guidelines including but not limited to UL, CEC, IEEE, and all manufacturer's recommendations and requirements. Contractor shall be responsible in the event that work under their control voids or jeopardizes manufacturers' warranties.
- C. Labor shall be provided per applicable labor regulations and practices.

1.4 DEFINITIONS

- A. Refer to Div. 01 for definitions.
- B. Owner's representative: For the scope in this Section, authorized personnel representing the Owner and The Shalleck Collaborative, Inc., Theatre Consultants.
- C. Recommended Working Load: This specification calls for minimum recommended working loads for hardware. The manufacturer's recommended working load is the maximum load which the manufacturer recommends be applied to properly installed, maintained, and operated new equipment. Manufacturer's recommended working loads shall be determined by calculations by a Licensed Professional Engineer and destructive testing by an independent testing laboratory. These calculations and reports shall be available for review.

## 1.5 SYSTEM DESCRIPTION

- A. Dead hung battens at the perimeter of the Black Box Theatre.

## 1.6 SUBSTITUTIONS

- A. All requests for substitutions from the specified materials, assemblies or related services shall be submitted for review by the Owner's Representative prior to bid. Substitution requests made after bid shall be neither reviewed nor accepted. Requests shall be made in accordance with Division 1 of the specifications, and in a timely fashion so as to not affect the project schedule in either case of the substitution being accepted or rejected.
- B. Documentation for the substitution shall be submitted with supporting material and shall include the related information for the item as specified so that equivalence can be demonstrated. The burden of proof rests solely upon the Contractor. The Owner's Representative shall be the sole evaluator of the fitness of the substitution.
- C. All expenses related to the substitution including, but not be limited to, all fees and expenses incurred in the evaluation of the substitution, and any effect on the costs and schedule of other trades whether or not the substitution is accepted, shall be borne by the Contractor.

## 1.7 SUBMITTALS

- A. Submittals shall be made in a timely fashion so as to not affect the project schedule and shall allow for adequate time for review and resubmittal. Partial submittals shall not be acceptable and shall be returned without review.
- B. All submittals shall be made in electronic format.
  - 1. Provide Hard copies if requested by Architect.
  - 2. Files shall be in .pdf format, and submitted via email, direct FTP download, USB memory stick, CD or DVD.
    - a. Third party website transfer services which require membership shall not be an acceptable means of transmittal.
- C. All submittals shall be complete and submitted as a comprehensive package, including finish selection materials (if required) and samples (if requested), all materials listed in this section, including, but not limited to, all shop drawings, product data, relevant calculations (as required) and any other information required to review the systems. Incomplete submittals will be rejected without review.
- D. All submittals shall be prepared for review by the CA Division of the State Architect as "deferred approval" items. As such complete shop drawings and relevant calculations shall be fully engineered and bear the stamp of a Structural Engineer licensed in the State of CA.
- E. Submittals shall be reviewed, and field dimensions verified prior to commencing acquisition for, and fabrication of the work in this section. All services and parts of the work in this section shall be verified through the submittal process. Approval does not relieve the Contractor of the responsibility of providing equipment in accordance with the specifications.
- F. Shop Drawings:
  - 1. Submit component and installation drawings and schedules showing all information necessary to fully explain the design features, appearance, function, fabrication, installation, and use of system components in all phases of operation.
  - 2. Upon approval by the Owner's Representative, submit a dedicated set of drawings, product data and test and compliance certifications regarding all aspects of the proscenium fire safety curtain for review by building officials.
  - 3. Shop drawing plans and sections shall be at 1/4" scale minimum. Details shall be larger scales to fully explain the component.
  - 4. Provide clear space on all shop drawings for comments and approval stamps.

G. Product Data:

1. Submit data sheets for all standard component parts, which shall include all information necessary to verify compliance with this Section.
2. Product data shall properly identify each component's intended use. Any options or variations must be clearly noted.

H. Samples:

1. Upon 14 days of request by the Owner's Representative, submit samples for review. Samples may include, but are not limited to:
  - a. Black finished pipe, 12" length.

I. Record Documents:

1. At time of final acceptance, submit regulatory listings and certifications as required by prevailing building codes.
2. Within 30 days, submit three (3) paper copies and six (6) electronic copies, in PDF format, of "as built" submittals including shop drawings, product data, flame certifications and listings, operations and instructions manuals for all products provided, care and maintenance instructions, service line and online contacts and warranty documents. Files shall be in .pdf format, and submitted via email, direct FTP download, USB memory stick, CD or DVD.

## 1.8 WARRANTY

- A. Warranty shall provide coverage of material and product defects and assembly workmanship for a period of three years following the date of acceptance by the Owner.
- B. Items under warranty shall be serviced to the satisfaction of the Owner with 14 days of notification to the Contractor, except for safety related items, which shall be corrected within 48 hours of notification.

## 1.9 MAINTENANCE SERVICE:

- A. Provide maintenance service for a period of one (1) year after final acceptance of the installation. This service consists of at least one visit to the site for checking and adjusting of equipment. Perform the visit 11 months after the system has been accepted. Time of visit shall be coordinated with Owner and Owner Representative's schedule.

## 1.10 QUALITY ASSURANCE

- A. Equipment in this Section shall be provided by specialty suppliers and manufacturers meeting the qualifications listed herein.
- B. Specialty suppliers and the individuals responsible for installation in the field shall have been continuously engaged in the sales and integration of rigging equipment similar to that specified herein for a minimum of fifteen years and shall have completed at least ten installations of this type and scope. The Owner's Representative shall be the final judge of the suitability of experience.
- C. Specialty suppliers shall have at time of bid, and continuously maintain throughout the project and warranty period, a Specialty Contractor's license appropriate for the work in this section as applicable.
- D. Specialty suppliers shall maintain bonds in the amount required for the project.

- E. Specialty manufacturers responsible for engineering and manufacturing shall have been continuously engaged in the engineering and manufacturing of rigging equipment similar to that specified herein for a minimum of fifteen years and shall have provided equipment for at least fifty installations of this type and scope. The Owner's Representative shall be the final judge of the suitability of experience.
- F. All equipment shall be UL listed and bear the appropriate labels.

#### 1.11 DELIVERY, STORAGE AND HANDLING

- A. Packing shall prevent damage to the equipment during transit. Costs to repair or replace all equipment damaged during the course of the contract services shall be borne by the Contractor.
- B. Do not deliver materials in this Section until building is ready for installation. Contractor is responsible to properly sequence the work and to protect materials from damage during delivery, handling, storage and installation.
- C. Contractor is responsible to coordinate and provide secure and protected storage as required for the execution of the Contract.
- D. Draperies shall be packed and shipped in methods and containers that shall prevent crushing of finished goods.

#### 1.12 PROJECT CONDITIONS

- A. Defects in the field which may impact the work in this Section shall be reported to the Owner's Representative and corrected in accordance with the requirements of the applicable Section of work prior to commencement of the work in this Section.
- B. Field Conditions: All bidders shall fully inform themselves of the conditions under which the work is to be performed. No additional compensation shall be allowed for any labor or item the bidder could have been fully informed of prior to the bid date.

#### 1.13 MAINTENANCE

- A. Provide maintenance stock of User-serviceable components within the system. Maintenance stock shall be packaged in labeled long term storage packaging and turned over to the Owner at time of system checkout.
- B. Maintenance stock shall include:
  - 1. For each type in the system provide:
    - a. not applicable.

### PART 2 - PRODUCTS

#### 2.1 PRE-APPROVED SPECIALTY SUBCONTRACTORS

- A. The following production systems specialty subcontractors have been pre-approved for bidding for the work in this section:

Protech USA  
3431 N. Bruce St  
N. Las Vegas, NV 89030  
Tel. (702) 639.0290  
Contact: Will Brants  
Email: [wbrants@protechlv.com](mailto:wbrants@protechlv.com)

Holzmueller Productions  
1000 25th St  
San Francisco, CA 94107  
Tel. (415) 826-8383  
Contact: Jim Schelstrate  
Email: [jim@holzmueller.com](mailto:jim@holzmueller.com)

Musson Theatrical  
890 Walsh Ave  
Santa Clara, CA 95050  
Tel. (408) 986-0210  
Contact: Dave Rimerman  
Email: [dave@musson.com](mailto:dave@musson.com)

- B. All other manufacturers and installers must be approved prior to bid. Other contractors seeking acceptance must submit the following information at least 2 weeks prior to the bid opening date. Approval of contractors will be by addenda. Failure to submit any of the required information will automatically disqualify the contractor from consideration of approval.
1. A listing of five equivalent installations including:
    - a. Name, address and telephone number of Owner
    - b. Name, address and telephone number of Theatre Consultant
    - c. Scope of work
    - d. A brief written description of the contractor's operation including facilities, financial capabilities, and experience of key personnel.
    - e. A statement from a bonding company agreeing to provide the required bonds in the amount required for the project.
    - f. Documentation necessary to show compliance with Quality Assurance, above.
  2. Permission to bid does not imply acceptance of the specialty subcontractors. It is the sole responsibility of the contractor for this Section to ensure that any price quotations received, and submittals made are for systems that meet or exceed the specifications.

## 2.2 SPECIALTY MANUFACTURERS AND SUPPLIERS

- A. The following production systems specialty manufacturers may furnish equipment for the work in this section:

H&H Hardware  
14850 Don Julian Rd, Suite B  
City of Industry, CA 91746

Wenger/J.R.Clancy  
7041 Interstate Island Road  
Syracuse, NY 13209

Texas Scenic  
5423 Jackwood Drive  
San Antonio, TX 78238

Thern Stage Equipment  
5712 Industrial Park Road  
Winona, MN 55987

Automatic Devices Company  
2121 South 12th Street  
Allentown, PA 18103

## 2.3 MATERIALS

- A. All components supplied under this Section shall be new. Used or factory reconditioned components shall not be acceptable.
- B. Materials shall conform to the following ASTM, ANSI and ESTA standard specifications:
  - 1. ASTM A36 – Specification for structural steel
  - 2. ASTM A47 – Specification for malleable iron casting
  - 3. ASTM A48 – Specification for gray iron casting
  - 4. ASTM A120 – Specification for black and hot-dipped zinc-coated (galvanized) steel pipe for ordinary use
  - 5. ASME B18.2.1&2 – Specification for square and hex bolts and nuts
  - 6. ASTM B221-02 – Specification for aluminum alloy
- C. Materials, devices, assemblies and installation shall meet or exceed applicable ESTA standards.
- D. In order to establish minimum standards of safety, the following factors shall be used:
  - 1. Steel – Per AISC specifications
  - 2. Bearings – Two times required load at full speed for 2000 hours
  - 3. Bolts – Minimum SAE J429 Grade 5 (ISO R898 Class 8.8), zinc plated
- E. All turnbuckles, clips, tracks, chains and other items of incidental hardware shall be furnished plated or painted black.
- F. All nuts shall be new lock nuts or shall be provided with “split lock” lock washers or nylock nuts. No exceptions.
- G. Fabrication:
  - 1. The mechanical fabrication and workmanship shall incorporate best practices for good fit and finish. There shall be no burrs or sharp edges to cause a hazard nor shall there be any sharp corners accessible to personnel.
  - 2. All moving parts shall have specified tolerances.
  - 3. All equipment shall be built and installed to facilitate future maintenance and replacement.
- H. Finishes:
  - 1. Paint shall be the manufacturer’s standard finish and color except as noted.
  - 2. All turnbuckles, clips, tracks, chains and other items of incidental hardware shall be furnished plated or painted black.

## 2.4 LIGHTING PIPES

- A. Lighting Pipes shall be installed as indicated on the drawings.
- B. Adjust pipes so that they are aligned straight and level.
- C. Lighting Pipes shall be fabricated from 1-1/2" nominal I.D. (1.9" o.d.) schedule 40 steel pipe.
  - 1. All edges shall be de-burred.
  - 2. Battens shall be finished with a suitable black rust resistant finish.
- D. All joints shall be sleeve spliced with 18" long tight fitting sleeves (mechanical tube - not pipe) extending 9" into each pipe and held by two 3/8" hex bolts and lock nuts on each side of the joint. Threaded couplers shall not be permitted. Spliced battens shall have at least the same overall capacity, deflection, and strength as the component pipe.

- E. Intersecting pipes shall be joined with a Clancy #015-100 Cross Grid Connector or by an approved equal. The cross grid connector shall have a recommended working load of at least 2,500 lbs.
- F. Each pipe which terminates at the wall shall be mounted to the wall using a flange, anchored into structural backing, as shown on drawings.
- G. At each hanging point the hanger shall attach to the overhead structure with an appropriate fitting.
- H. Pipe Clamps:
  - 1. Pipe clamps shall be made of two strips of 12 Ga. by 2" hot rolled steel formed to encompass and clamp the pipe batten to prevent its rotation. Corners shall be rounded.
  - 2. There shall be a 3/8" x 1" hex bolt with lock nut above and below the batten. A 5/8" hole in the top of each clamp half allows the attachment of cable, chain, or other fittings.
- I. Threaded Rod Hanging Assembly:
  - 1. The Lighting Pipes shall be rigidly hung from the overhead steel structures on centers not exceeding 8'-0" feet in either direction.
  - 2. Each hanging point shall be threaded rod, sized appropriately to support the loading conditions shown in the drawings.
- J. Compression Strut Hanging Assembly:
  - 1. Use compression struts in place of threaded rod as needed for seismic bracing.
  - 2. Internally routed diagonal braces shall extend from the Lighting Pipes up to the roof structure. Supply sufficient braces to prevent lateral movement of the Lighting Pipes. Provide diagonal bracing as required.
- K. Lighting Pipe Loading Signage
  - 1. Provide (1) advisory sign listing maximum allowable distributed and point loads.
  - 2. Sign shall meet ANSI Z535 standard for warning signs.
  - 3. Mount to wall as directed on site by the Owner's Representative.

## PART 3 - EXECUTION

### 3.1 PERFORMANCE OF THE WORK

- A. The Rigging Contractor shall be responsible for storage of stage equipment, tools, and equipment during the period of the installation.
- B. Extent: All specified equipment shall be installed by fully trained superintendents and workmen. Equipment shall be installed in a workman like manner, per plans and specifications. Equipment shall be aligned, adjusted, and trimmed for the most efficient operation, the greatest safety and for the best visual appearance.
- C. Standards: Installation practices shall be in accordance with OSHA Safety and Health Standards and all local codes. All welding must be performed in full compliance with the latest edition of the Structural Welding Code (ANSI/AWS D1.1).
- D. Fabricate metal work in accordance with standards of first class workmanship with ornamental work free of blemishes like tool marks, burrs, scars and abrasions. All edges shall be smooth. All points, welds and intersections shall be properly made and fitted to provide a uniform finish.
- E. All connection points shall be welded and ground smooth.
- F. Provide slotted holes, as needed, in steel members which require accurate alignment.
- G. Fit abutting surfaces closely.
- H. Accurately align and adjust various frame members before final anchoring.
- I. Erect metal work level, plumb, square and in proper alignment with adjacent work. Deformed components shall be remedied.
- J. Attachments: All equipment shall be securely attached to the building structure.
- K. Finishes:

1. All welds must be touched up to match disturbed finishes.
2. All finishes which are disturbed during shipping and installation shall be touched up to match the original.

### 3.2 CLEAN UP

- A. The Contractor shall be responsible for clean up, including removal of packing materials etc. and the protection of surfaces or equipment provided by other contractors.

### 3.3 INSPECTION AND TESTING

- A. Upon completion of the installation, the Contractor shall notify the Owner's Representative that the system is available for formal checkout. Notification shall be provided in writing. Checkouts shall be scheduled in accordance with the Owner's Representative's schedule.
  1. The Contractor shall be liable for any return visits by the specialty sub-contractor, factory engineer or Owner's Representative as a result of incomplete or incorrect installation, or erroneous representation that the Systems are complete and ready for the related Contractor or Owner's Representative to carry out their work.
- B. During the periods where movable systems are operated, the Theatre shall be quiet.
- C. In preparation for inspection by the Owner's Representative:
  1. Rigging system components shall be cleared of dust and debris.
- D. Make available for review by the Owner's Representative:
  1. Access to all components for physical inspection.
  2. All systems shall be complete and will be operated by the Owner's Representative for approval.
  3. Spare parts inventory, as applicable.

### 3.4 TRAINING

- A. Upon final approval of the system by the Owner's Representative, representatives from the Rigging Specialty Sub-Contractor shall instruct designated Owner staff or representatives in the safe use and maintenance of all systems specified herein.
- B. Schedule training sessions in advance to fit the Owner staff or representatives' schedules.
- C. Provide 1 hour of training.
- D. Training shall include, but not be limited to:
  1. An overview of the systems and all components.
  2. Proper and safe loading of system.
  3. Basic system visual inspections.

### 3.5 APPENDICES

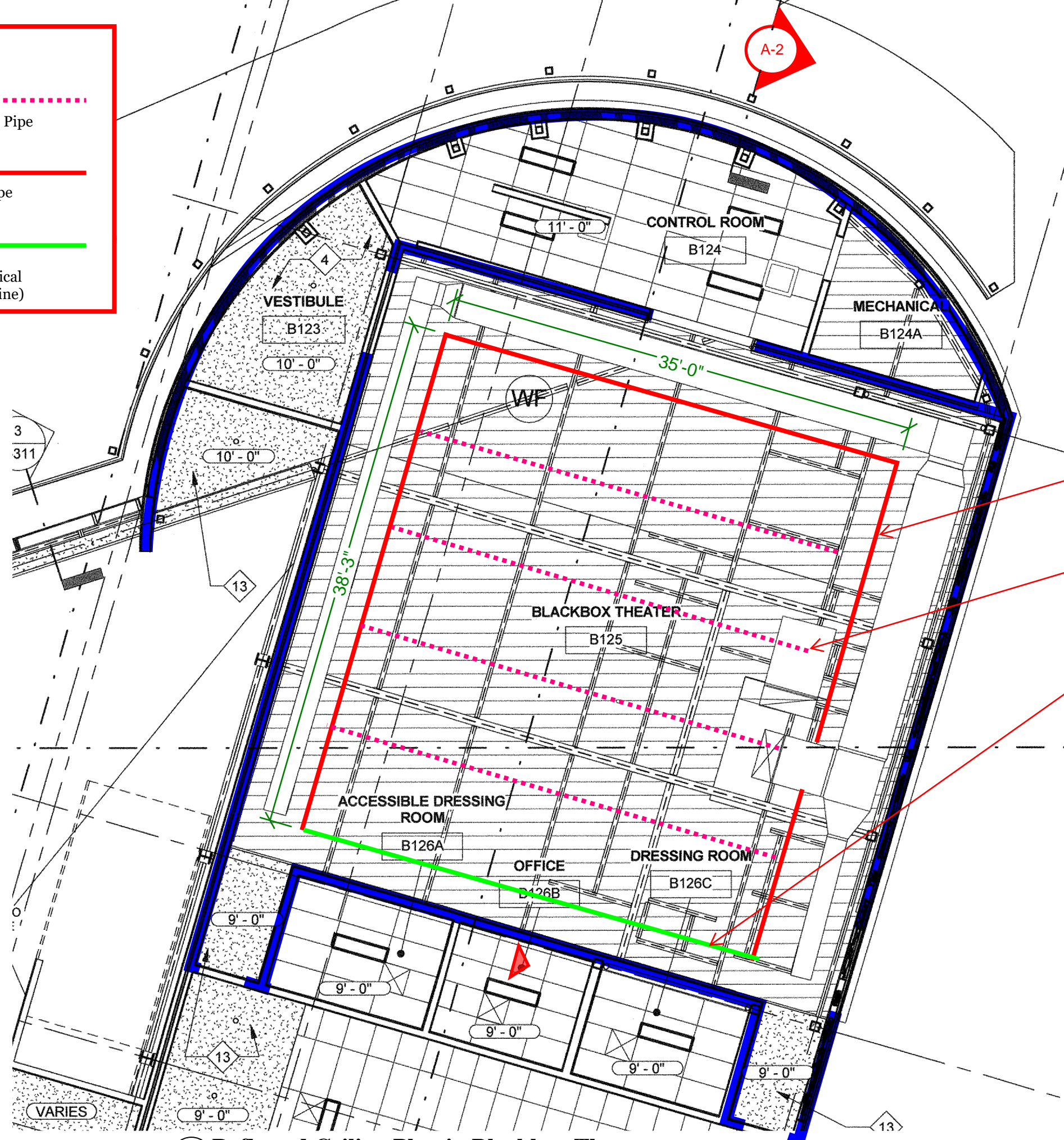
- A. This section is incomplete without the following appendices:
  1. 11 61 33A – Lighting Pipe Layout

END OF SECTION



# Symbol Key

- - - - - Existing Theatrical Lighting Pipe (pink dashed line)
- New Theatrical Lighting Pipe (red solid line)
- Optional Additional Theatrical Lighting Pipe (green solid line)



New Perimeter Theatrical Lighting Pipe; spaced 12" from face of duct. Rated for 25plf.

Existing Lighting Pipe, typical.

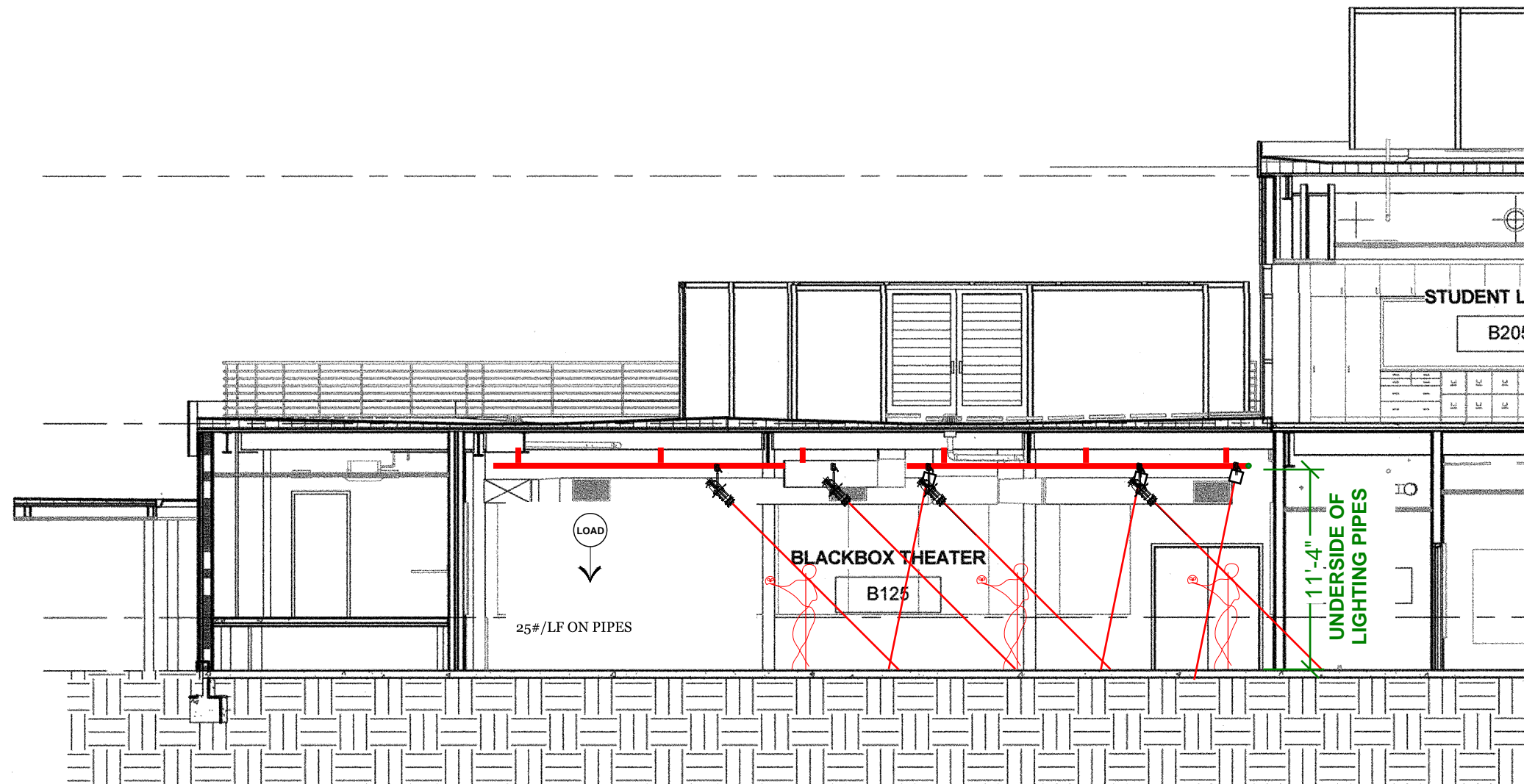
Optional Additional Theatrical Lighting Pipe; spaced 12" from face of drape. Rated for 25plf.

**Production systems shown are deferred approval. Installation of all deferred approval items shall not be started until contractor's drawings, specifications, and engineering calculations have been accepted by the Owner's Representative, and approved by the Division of the State Architect.**

Title: Terra Linda Lighting Pipe Layout  
 Date: 2023-01-12      Drawing Number:  
 Scale: 1/8"=1'-0"  
 Drawn By: ml, MWB, mc    11 61 33A-1

**The Shalleck Collaborative Inc.**  
 Planning and Design of Theatres | Production Systems | AV  
 1553 Martin Luther King Jr. Way      tel 415-956-4100  
 Berkeley, CA 94709      www.shalleck.com

**1 Reflected Ceiling Plan in Blackbox Theatre**  
 1/8" = 1'-0"



**1** Lighting Pipes Centerline Section in Blackbox Theater  
 1/8" = 1'-0"

Production systems shown are deferred approval. Installation of all deferred approval items shall not be started until contractor's drawings, specifications, and engineering calculations have been accepted by the Owner's Representative, and approved by the Division of the State Architect.

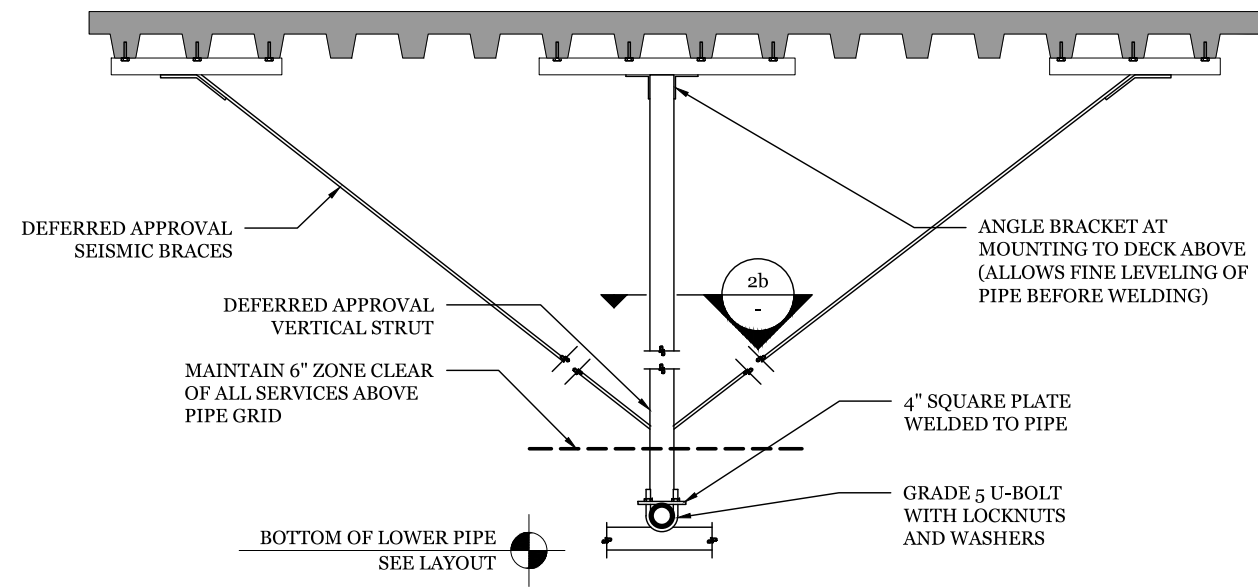
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 Date: 2023-01-12 Drawing Number:  
 Scale: 1/8"=1'-0"  
 Drawn By: ml, MWB, mc 11 61 33A-2

The **Shalleck Collaborative** Inc.

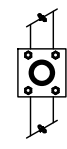
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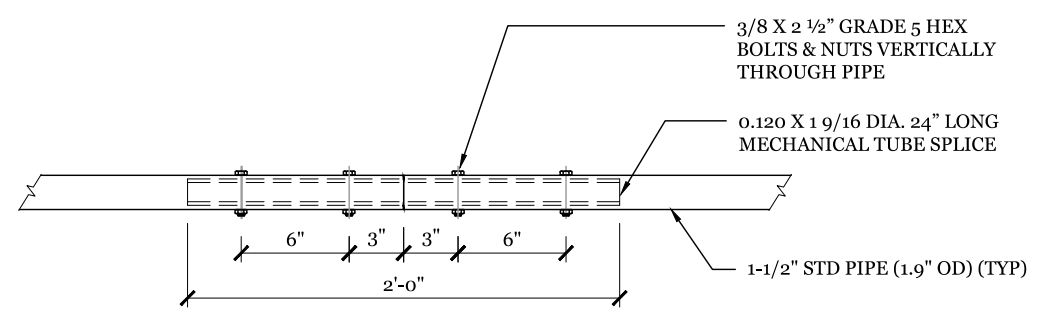
ELEVATION VIEW



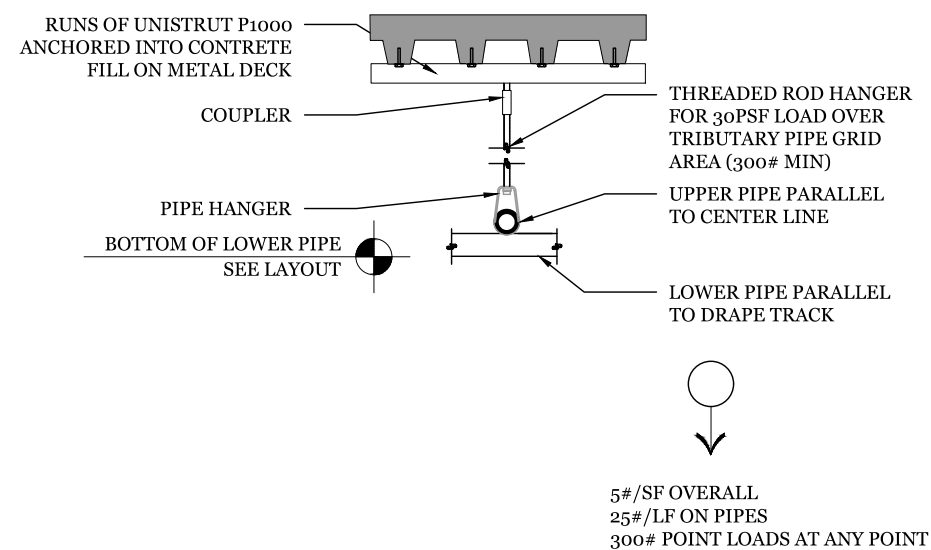
2b: PLAN VIEW

VERTICAL STRUTS AND SEISMIC BRACE LOCATIONS TO BE DETERMINED IN DEFERRED APPROVAL SUBMITTAL

**2** COMPRESSION STRUT PIPE GRID HANGER  
3/4" = 1'-0"



**3** TYPICAL PIPE SPLICE  
DOES NOT SCALE



**1** NON-COMPRESSION STRUT PIPE GRID HANGER  
3/4" = 1'-0"

**Production systems shown are deferred approval. Installation of all deferred approval items shall not be started until contractor's drawings, specifications, and engineering calculations have been accepted by the Owner's Representative, and approved by the Division of the State Architect.**

Title: Terra Linda Lighting Pipe Layout  
Date: 2023-01-12 Drawing Number:  
Scale: 1/8"=1'-0"  
Drawn By: ml, MWB, mc **11 61 33A-3**