



Safety Inspection Report

Alden Theatre
Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609

Requested By: Kyle Hobin
Inspection Date: October 2, 2009
Inspector: Bill Sapsis

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Statement of Purpose

Rigging inspections are conducted by Sapsis Rigging, Inc. to help make performance spaces a safer place to work, perform and visit.

We conduct our inspections using the following criteria:

- Manufacturer specifications and instructions for rigging, lighting, sound equipment and related hardware.
- Independent testing organizations, e.g.: Underwriters Laboratories, The American Iron and Steel Institute, The American Wire Rope Institute, The United States Institute for Theatre Technology, etc.
- All applicable building and safety codes. These may include, but are not limited to OSHA, NFPA, ICC and IBC.
- Industry standards and practices.
- Common sense.

A professional rigging inspection should be conducted on an annual basis. To further reduce the likelihood of accidents, these inspections should be part of a well-documented, ongoing maintenance program incorporating all areas of the performance facility.

Structural Report

As a service to the client, Sapsis Rigging, Inc. will visually inspect, where possible, the support structure of the stage area. However, Sapsis Rigging, Inc. shall not be held responsible for any/all structural members in the facility. If, in the inspector's opinion, a problem exists, or if the client has any questions or concerns regarding any support member in the facility, we strongly recommend that a structural engineer be retained to make the necessary tests and calculations.

October 2, 2009

1. System Description and Use

1.1. The rigging systems in this facility consist of six (6) hanging points in the Front of House (FOH) area and twelve (12) single purchase T-bar guided counterweight sets. The main Valance is rigged on a wire-guided counterweight set downstage right. There is also a brail style fire curtain.

1.2. The theatre is used for school functions and as a rental house.

2. Fire Safety and General Building Conditions

2.1. The fire curtain did not pass the emergency descent test. When activated the curtain only descended halfway down and then stopped.

2.2. The smoke door manual release system is located at the smoke doors in the roof above the grid. This renders these release mechanisms useless as no one should go to the grid if there is a fire in the theatre. The manual release cables should be brought down to the stage level. **Photo 1**

2.3. “Keep Clear” signs for the fire curtain rigging should be placed near the fire release line and the electronic release system.

2.4. Access to the upstage right fire extinguisher is partially blocked. All extinguishers should be kept clear at all times. **Photo 2**

2.5. The pipe partially blocking the upstage right doorway should be moved. **Photo 3**

2.6. Flame retardancy certificates for the stage curtains were not available at the time of this inspection. The black masking curtains are relatively old and in disrepair. It is unlikely that they would pass the new NFPA 701 flame retardancy test. The Main Curtain is new but the label does not carry the proper information. Certificates for all stage curtains should be kept on file to assist future inspections and meet NFPA requirements.

2.7. More light is needed on the stage right grid access ladder.

2.8. A railing is needed on the stage left side of the grid. **Photo 4**

2.9. A hatch door should be placed on the loading bridge at the ladder access.

2.10. There is a serious head height obstruction on the grid access ladder. This beam should be padded and a sign placed on the wall directly behind the ladder.

3. Structural Report

- 3.1. There were no obvious problems noted during this inspection. However, should a question arise, concerning any support member in this facility, it is recommended that a structural engineer, licensed in the state of Massachusetts, be retained to make the necessary tests and calculations.

4. Stage Rigging

- 4.1. It was reported to the inspector that a runaway accident had recently occurred involving the # 1 electric. Given the shock load caused by this accident, the lift line termination fittings should be replaced.
- 4.2. The rope locks are over-tightened. These devices are rated for 45 pounds and should be adjusted accordingly.
- 4.3. The numbering of the sets at the locking rail and the loading bridge should be in front of the sets, not behind them.
- 4.4. There are no positive stops on the wire guides for the main Valance. These stops would limit the travel of the counterweight arbor and help prevent damage to the system due to over-travel. Stop sleeves should be installed on the wire guides.
- 4.5. The area around the locking rail should be kept clear of all unnecessary equipment and debris. The upstage section, in particular around the door, should be cleared of the pipe. **Photo 5**
- 4.6. The border (strip) lights are suspended from the batten with unrated twisted wire chain. While replacing this hardware is unrealistic, heavy-duty safety cables should be installed around the batten and the lighting housing at all suspension points.
- 4.7. The connector strip junction box on the # 3 electric has a loose cover. It is held on by only one screw. **Photo 6**
- 4.8. Cast iron C-clamps are used to support the power feed cables for the strip lights at the ends of their respective battens. These clamps are not rated for this application and should be replaced with rated clamps. **Photo 7**
- 4.9. The cotter pin shackle used in the trim chain, while not specifically prohibited from use in overhead applications, is not advised for this situation. Should a side load occur to the shackle, it is unlikely the cotter pin will be able to support the added force. A screw pin anchor shackle would be more appropriate for this application.

- 4.10. The chains used to dead hang curtains and track are wrapped around the steel grid support beams. This method applies a side load to individual links and may cause a failure in the chain. Standard load rated beam clamps should be used in place of wrapping the chain. **Photo 8**
- 4.11. Several of the dead hang chains are wrapped around the subway grating. The grating was not designed to carry a concentrated load. A bracket that spreads the weight over a wider area would be more appropriate for this application. **Photo 9**
- 4.12. Padding is needed on the power feed cables for the lighting pipes where the cables pass over the grid channels and drop to the pipes. **Photo 10**
- 4.13. A kick plate is needed at the ladder access area of the loading bridge.
- 4.14. The floor of the loading bridge should be kept clean and gear stored there in an orderly manner.
- 4.15. There is loose equipment on the grid. All non-essential equipment on the grid should be removed and all essential equipment should be stored in a secure manner.

5. Front Of House (FOH)

- 5.1. The short ladder from the HVAC to the attic is loose. The only thing holding it in place is a sheet rock screw. **Photo 11**
- 5.2. The pin on the hammerlock connector device for the house right # 3 hanging point has shifted approximately 1/8". This does not present a serious problem at this time but regular inspections should be conducted to insure the pin does not move further. If the pin does continue to move then the device should be replaced.

6. Speaker Cluster

The rigging for the speaker cluster has the following problems: **Photo 12**

- 6.1. The 1/8" aluminum sleeves have only 2 crimps. 3 are required.
- 6.2. The non-rated screw eye used to support the tilt cable should be replaced with a load rated plate and lag bolts assembly.

6.3. There is no way to lock down the Unistrut hardware used throughout the rig.
Bolt-through connections would be more appropriate for this application.

6.4. There is an unrated turnbuckle used within this set up. It should be replaced.

Summary

This facility is in good condition. The problems noted in this report, however, should be addressed as soon as possible. In addition, a fully documented maintenance plan should be put into place. This plan, along with regular inspections, will not only help insure the safety of all that use the facility, but also prolong the life of the equipment.

End of Alden Hall Report

Riley Common

1. System Description and Use

- 1.1. This is a small cabaret style performance space. The rigging consists of several dead hung pipes. The venue is used for college functions
2. The problems noted in the 2008 report still exist. It was reported to this inspector that the pipe rigging is no longer used. This rig should be removed.

2.1. From the 2008 report

- 2.1.1. The brackets suspending the pipes from the wood covered ceiling beams use wood screws for attachment to those beams. There are two screws per bracket. For safety reasons, it was decided to not remove any of the wood screws to check on size and length of the screw and the thickness of the wooden facing at the time of this inspection.
- 2.2. Threaded couplers are used to join sections of lighting pipe together. This is a substandard connection and should be replaced with an internal sleeve.
- 2.3. The wiring on a number of the lighting instruments is not longer safe. The insulation has dried, cracked and, in some cases, fallen off, leaving exposed wire.

End of Riley Common Report

Odeum

1. This is a hotel style meeting room. Lighting truss is suspended from ceiling mounted Unistrut track channel.
2. The room is used for college meetings.
3. The following problems were noted:
 - 3.1. There is no method for locking down the unistrut nuts that connect the threaded rod hangers to the unistrut. Two of these nuts are loose and no longer supporting the truss. **Photos 13 & 14**
 - 3.2. The load rating of the conduit hangers used to support the lighting truss should be determined. **Photo 15**

This situation is unsafe and should be addressed as quickly as possible.

End of Odeum Report



Photo 01.jpg



Photo 02.jpg



Photo 03.jpg



Photo 04.jpg

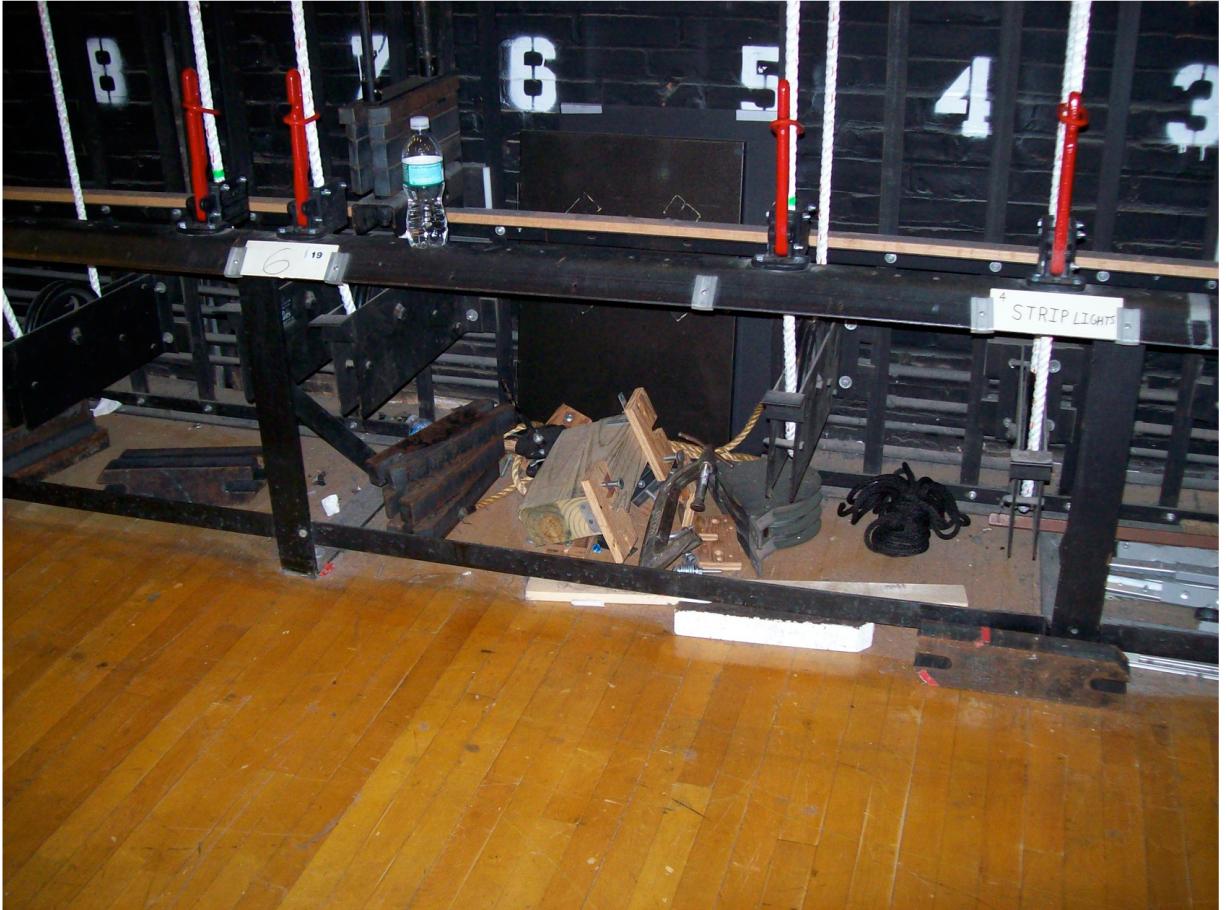


Photo 05.jpg



Photo 06.jpg

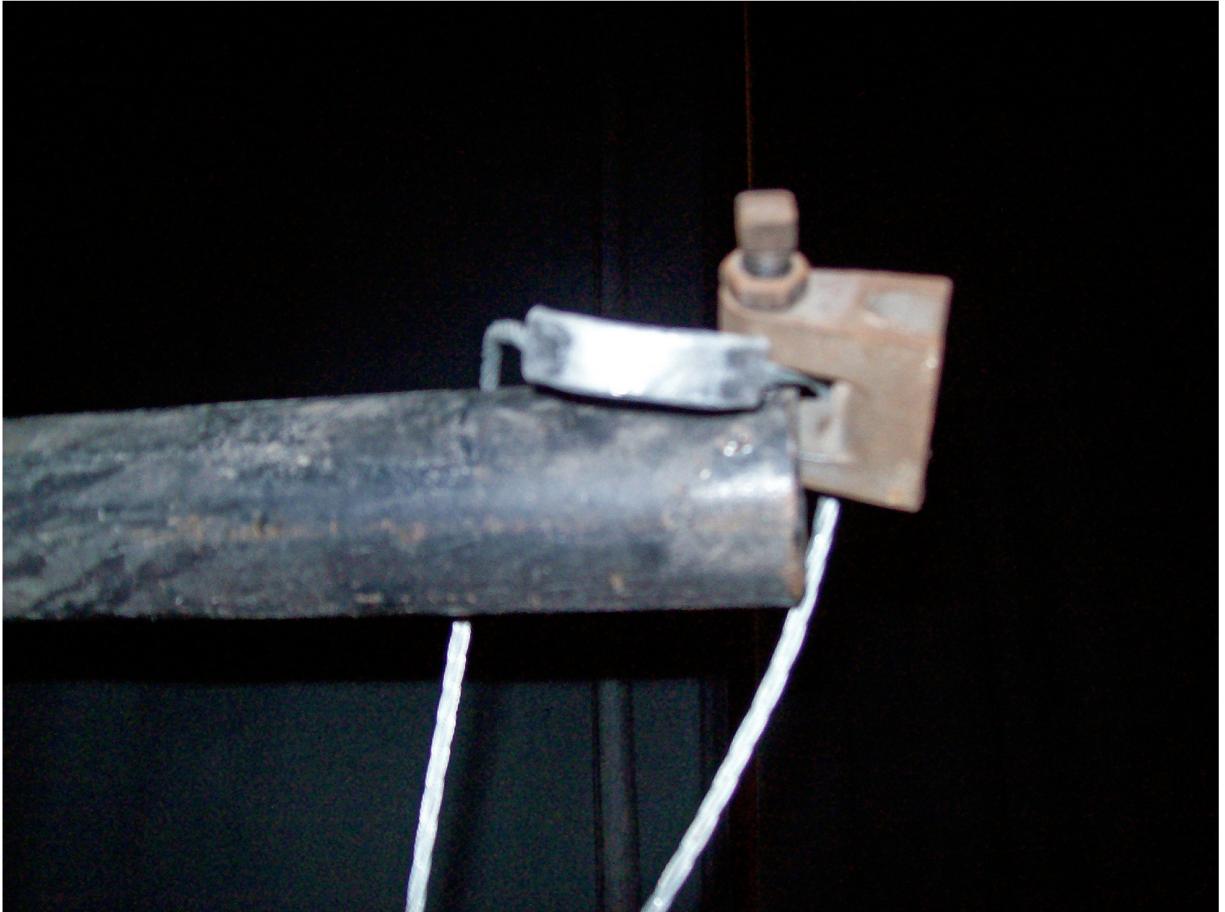


Photo 07.jpg

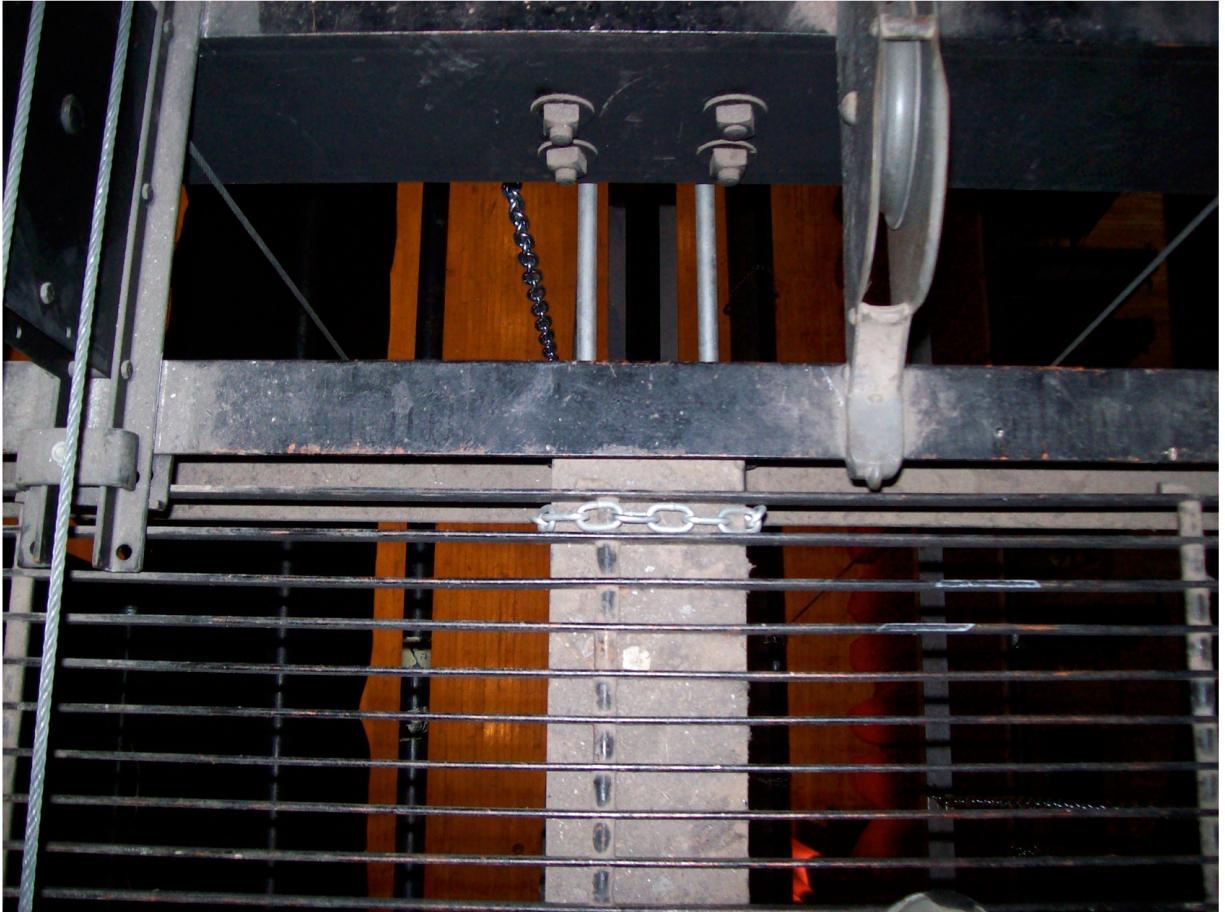


Photo 08.jpg



Photo 09.jpg

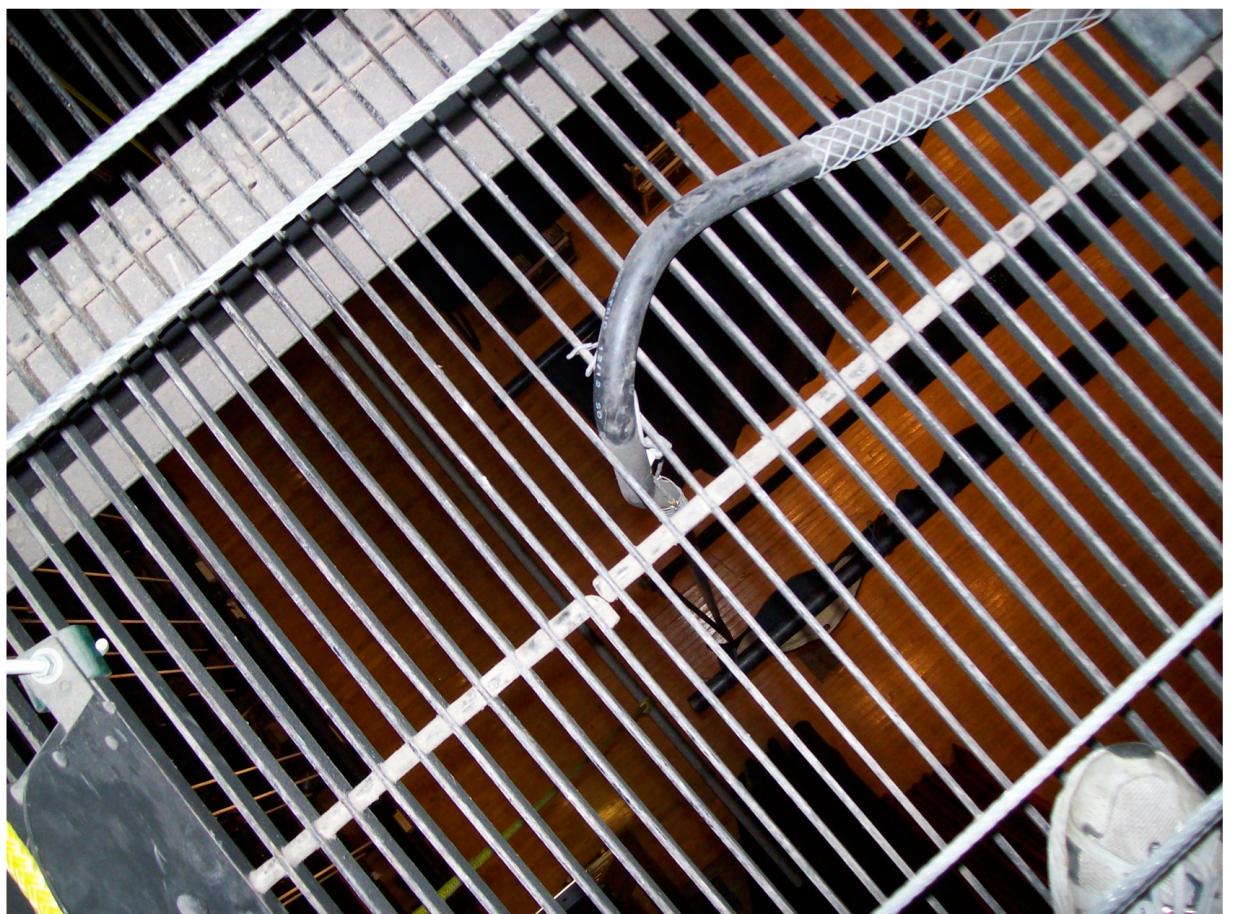


Photo 10.jpg

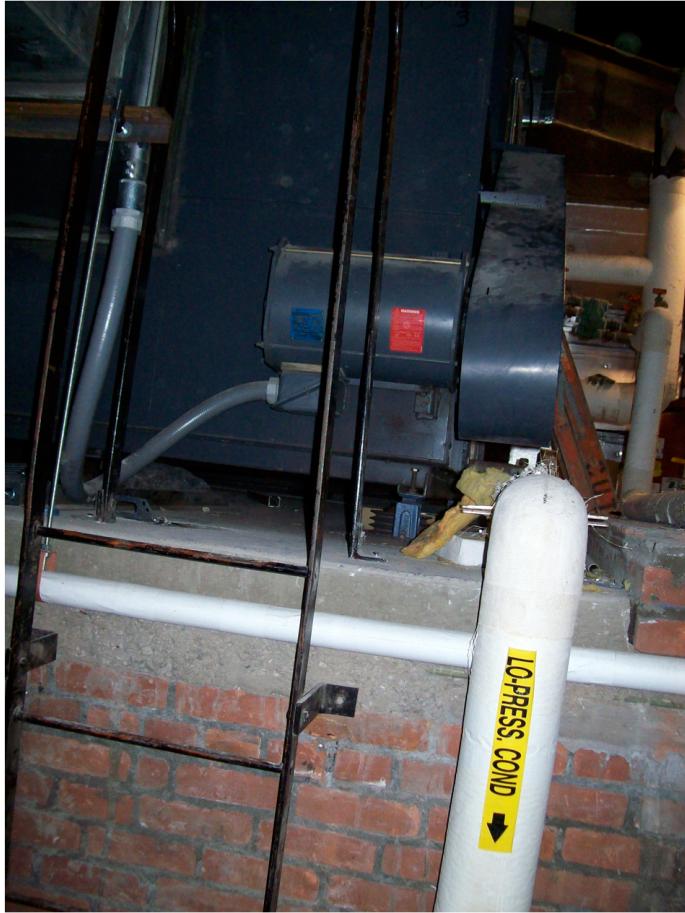


Photo 11.jpg



Photo 12.jpg



Photo 13.jpg



Photo 14.jpg



Photo 15.jpg