

# LALT Stage Reconstruction Details

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## Report by Jim Sicilian

There were several factors that led to the project during the summer of 2012 to rebuild the stage at the Los Alamos Performing Arts Center:

- 1) The previous stage was built in the early 1970s, and its surface needed refurbishing or replacement.
- 2) The original stage was built in three sections; left, right and center. The overall stage was consequently not quite level or flat, which has led to some problems getting set walls vertical.
- 3) Los Alamos County performed a lot of work to improve the building during the spring of 2012. One project was the reinforcement of the side walls of the auditorium. This was done by adding steel rods parallel to the trusses of the building, including the two trusses located above the stage. These reinforcement rods protrude several inches below the bottom of the trusses, which made it difficult to maneuver eight foot tall flats on and off stage, among other problems. (The surface of the old stage was 22 inches above floor level.)

It was therefore decided by the board of directors (in response to a proposal by Allen Brown) to tear down the existing stage and build a new one low enough to provide clearance.

The work began in June 2012. A core crew of four oversaw the work. They were: Allen Brown, Richard Klamann, Ken Milder and Jim Sicilian. A number of others helped destroy and build at various points in the project, including Martin McRoberts, John Stewart, John Gustafson, Paul Lewis, and Iain May. Bob Williams and Larry Cox helped greatly with the design of the new stage. Gracie Cainelli donated lunch on several of the longer work days during the project. Gracie Cainelli and Sarah Preteska lengthened the main curtains after stage reconstruction was completed. The project was completed in late August.

This report intends to record important details of the construction of the new stage in hope that future work will be better informed by it.

A floor plan of the new stage is shown in Figure 1. The basic elements of the new stage are:

- 1) 11 7/8 inch tall I-joists (BCI 60s) running parallel to the side walls of the auditorium. 2 in x 4 in ledger boards are affixed to the side walls at the same level as the I-joists.
- 2) Nominal 4ft x 8ft sheets of 23/32 inch OSB (oriented strand board) tongue and groove on top of the I-joists with the long edges perpendicular to the I-joists. These are outlined in red in Figure 1.
- 3) 4ft x 8ft sheets of square edged 3/4 inch Plyron\* on top of the OSB. These sheets run in the same

\* [www.olypanel.com/common/pdf/Tempered%20Plyron%20Prod%20Lit%20-%202011-07%20.pdf](http://www.olypanel.com/common/pdf/Tempered%20Plyron%20Prod%20Lit%20-%202011-07%20.pdf)

direction as the OSB, but are offset 17 ½ inches from the front trim board and offset 24 inches from the border of the OSB sheets so that none of the joints coincide with those of the OSB. These are outlined in blue in Figure 1. (This combination puts the final stage height at about 14 inches, 8 inches lower than the old stage.)

- 4) Nominal 2inch x 6 inch trim boards at the front and rear edges of the stage. These are shown in orange in Figure 1.
- 5) 4 ft wide particle board shelving boards with radius on the top which form the front skirting of the stage.
- 6) The edges of the stage abutting the side walls were trimmed using ¾ inch quarter round molding. These are attached to the side walls with finishing nails at one foot intervals.

Here are some of the details of the construction:

- 1) The I-joists were spaced 2 ft apart (although some deviate as much as ½ inch from this). Each I-joist is shimmed at 5 points along its length to create a level foundation for the OSB sub floor. The shims are held in place with 4 inch deck screws driven through the bottom flange of the I-joist and the shims into the floor. The tops of the I-joists were leveled with a laser level to within about ¼ inch. As the sub floor was laid, each I-joist was brought to be perpendicular to the floor of the building with a carpenter's square.
- 2) The OSB is fastened to the I-joist tops with subfloor adhesive and 2 inch staples driven in with a pneumatic stapler. The adhesive is also in the tongue and groove joints between sheets of OSB. The sheets are butted up against one another tightly in the field, but a small gap was left between the edge of the OSB and the side walls to allow for expansion.
- 3) The Plyron is attached to the OSB and the I-joists with 2 ½ inch Phillips head deck screws. These are spaced about 5/8 inch from the edges at 2 ft centers so to correspond to the locations of I-joists. Screws are also placed at 2 ft centers across the center of the long length of the sheets. Plyron is a plywood like material that is strongly bonded to a tempered surface material (similar to masonite) on both surfaces. Square edge sheets were chosen to enable removal and replacement or reversal of sheets as they wear. Unfortunately, quite a few of the sheets were damaged in transit. Only good surfaces are now serving as the stage floor. Sheets will have to be examined for damage if they are to be flipped over. The sheets are butted up against one another tightly in the field, but a small gap was left between the edge of the Plyron and the side walls to allow for expansion. A trim of molding is covering these gaps.
- 4) The 2 in x 6 in trim boards are held down by deck screws driven into the I-joists. They butt against the edges of both the OSB and Plyron sheets, and are very close to the combined height of the two flooring materials. The trim boards hang over the ends of the I-joists by varying amounts. It was necessary to apply a strong pressure to remove the bow and twist from some of the 2 x 6 boards. They will spring back if the screws that hold them in place are removed.
- 5) The front panels of particle board shelving are held in place with black Velcro to facilitate removal to access storage space beneath the stage.
- 6) A shallow groove was routed into the downstage and upstage trim boards to indicate center stage.
- 7) The stage surface is finished with two coats of latex primer and two coats of satin finish black latex paint. Outdoor paint was used to provide maximum water and wear resistance.