

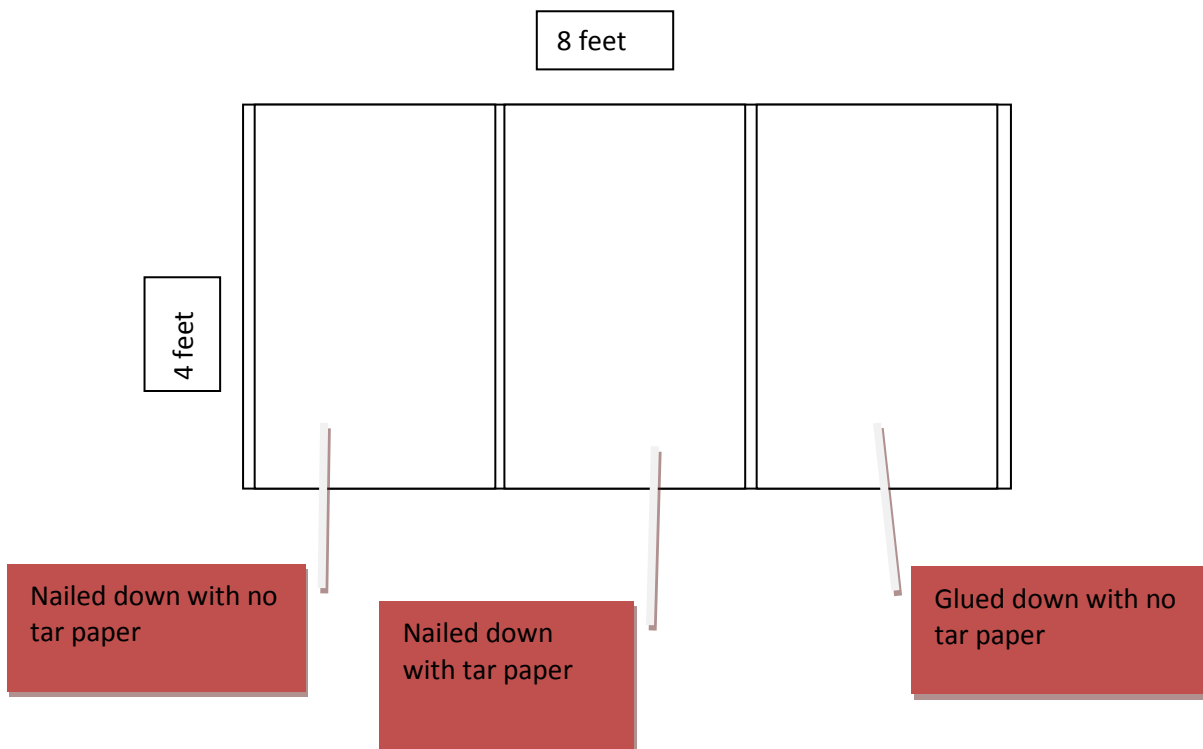
Hardwood flooring drying test March 2010

Test: which hardwood dries, and how long, relative to other hardwood installations, bare floor and carpet/pad. Visually inspect floors before, during and after drying to determine acceptability to customers after drying.

Test cells: 5 @ 4x8 sheets of plywood over 2x4 joists. The flooring materials used are:

- Traditional pre-finished hardwood
- Bamboo hardwood
- High quality engineered hardwood
- Low-quality engineered hardwood
- Control area with carpet/pad and bare subfloor

Each test cell is laid out as follows. The wood is continuous on top, but underneath is different materials/attachment methods



The control cell is a 4 x 8 sheet of plywood covered half with carpet and pad and half bare plywood.

Hardwood	Bamboo	HQ Engineered	LQ Engineered	Control area: ½ carpet, ½ bare plywood.
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Flooding

The test cells are all connected and make a 8' x 20' area. 2" x 2" lumber forms the boundaries of each cell. Each cell was filled with 10 gallons of water (50 gallons total) and covered with moving blankets to hold the water on the floor. After flooding the floor was covered with plastic to contain high humidity to floor for maximum effect. After approximately 14 hours, the floor was re-flooded with 5 gallons on each cell (a total of 25 gallons). The blankets and plastic were re-set after this flooding. The water dwelled 2 more hours.

Extraction

Extraction was completed on the wood floor areas with rescue mats and a truck mount. The area was extracted for 1 hour and all mats were hooked in series to one vacuum hose. On the carpet a Rover was used. On the bare plywood, a squeegee wand was used.

Drying

Drying was a "sandwich" drying method.

- Under the floor was ventilated and dried using an airmover and wolfpack to force air under each test cell. One airmover with 5 vents. Ducted into the airwolf was a Dri-Eaz LGR 2000.
- The surface of the floor was dried with rescue mats and Dri-Force units. 2 mats per test cell. All mats and Dri-Force units were hooked in series, so that all mats had the same amount of suction.
- The top side of the floor air conditions were controlled by tenting and ducting in a Dri-Eaz 2800i dehumidifier

Monitoring

Air readings

- Hygrotrac sensors will be used above and below each test cell to verify that conditions are equal

Moisture readings

- 2 locations were monitored in each area of each test cell. Therefore, a total of 28 locations on the floor were monitored daily.
- Each monitoring location consisted of 2 @ 2" long nails which were monitored with a Protimeter Surveymaster
- Additionally, each area had 1 hygrotrac sensor screwed from the bottom through all layers of the floor to track moisture and air at that location

Supplies

- 5 @ sheets of $\frac{3}{4}$ " plywood
- 11 @ 2" x 4" x 93"
- 4 @ 2" x 4" x 10'
- 6 @ 2" x 2" x 8'
- 4 @ 2" x 2" x 10'
- 4 " duct material for wolf pack (dryer vent duct) at least 20'
- Plastic sheeting for tent (at least 10' x 30') Get CLEAR film if possible
- 32 sf of oak prefinished hardwood
- 32 sf of bamboo hardwood
- 32 sf of high quality engineered hardwood
- 32 sf of low quality engineered hardwood
- 1 @ roll of 15 lb tar paper

Analysis

- Before, after flooding and after drying photos will be compared to determine if the drying/restoration would require replacement or sanding/refinishing.
- Air readings will be compared to ensure that all areas were receiving the same drying conditions.
- Moisture readings will be compared to determine
 - How long each floor took to dry
 - What the relative rates of drying were

Conclusions

- The goal of the study is to determine
 - What are the relative rates of drying between the different floors
 - Which floors are most feasible for drying

Timeline

- March 5: Purchase supplies, begin build
- March 15/16: Finish build
- March 16/17: test drying system
- March 17/18: flooding protocol
- March 19-25: Dry
- March 25 Data Analysis
- March 29 Release draft of results for peer review
- April 15 Final results paper due