



GILFORD·JOHNSON
FLOORING

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Gaps Appear in This Wood Floor Despite Humidification ...Why?

The Problem



The newly installed plank floor was gapping and cupping.

What Happened

The 10-inch-wide, 3/4-inch-thick solid white oak planks were installed in September in a new home in the Northeast. The flooring acclimated for three weeks with the HVAC running. The HVAC system included an Aprilaire humidification system, and the great room also had radiant heat, which was not operating at the time of installation.

The contractor said moisture testing was performed on the plywood, which measured between 6–10% MC, and the flooring, which was from 8–12%. The flooring was nailed over the plywood subfloor, sanded and finished. Three months later, the homeowners complained about gaps appearing.

The Inspection

The gaps were affecting the entire installation but were in greatest quantity in the great room, where they ranged from 0.002–1/16 inch. There were random gaps that measured 1/8 inch. I observed cupping, which measured from 0.006–0.040 inch, in approximately 30 percent of the floor.

Using a pin moisture meter, the readings in the great room on the top of the wood averaged 7.5%. In the bottom of the wood they were 9.1%, and on the top of the plywood subfloor the average was 10.3%. The great room had 40.5% RH and a temperature of 65 degrees Fahrenheit.

In the great room, individual planks measured from 9 15/16–10 inches wide. I also measured three sets of 10 planks; their overall width in the great room was 99 15/16 inches. There were two planks with 1/16-inch gaps, one plank with a 1/64-inch gap and one plank with a 1/32-inch gap, and six planks with no gaps.



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I determined that since installation, the wood flooring had lost moisture, causing the gaps, and that the cupping was consistent with the moisture imbalance in the installed flooring. According to Aprilaire, the humidification system installed in the home would not accommodate a home of this size, which was 6,000 square feet.

How to Fix the Floor

A correctly sized steam humidifier was installed. When I returned at the end of February, it had been running for one month, and the RH was 55% at 71 degrees. Approximately 90 percent of the gaps had closed, and the cupping was gone.

In the Future

Proper acclimation of wood flooring is achieved when the wood's MC is at equilibrium with the average expected conditions of occupancy. Leaving the wood at the job site for several days does not mean it was properly acclimated. And when installing over radiant heat, the radiant heat system should have already been running before the time of installation.