

Inspection Site: **XXXXXX**

Commissioning Party: **XXXXXX**

Inspector: Genia Smith
Accent Hardwood Flooring
601 Foster Street
Durham, NC 27701

Inspection Observer(s): **XXXXXXX**

Inspection Date: February 21, 2008

Report Date: February 28, 2008

ISSUES PROMPTING THE INSPECTION

Gaps in the hardwood flooring.

Product 3/4" x 2 1/4" select oak flooring

Flooring Contractor **XXXXXX**

Building Contractor **XXXXXX**

TIME LINE RELATING TO THE INSPECTION AND FLOORING ISSUES

Flooring Installed	Mid September, 2006
HVAC Operating	Information not furnished
Flooring Sanded and Finished	
Home Occupied	Mid May, 2007
Roof Leak in Bathroom	Late July 2007

INTERVIEWS AND RELATED INFORMATION

At my inspection, XXXX, stated:

- There were drops and blobs in the finish when the flooring was finished.
- The contractor came back, put tape down, and put another coat of finish on that part.
- There is flooring upstairs, but there is not an issue with it.
- She first noticed the gaps in September (moved in May 2007).
- The gaps then got worse and more appeared.
- It sounded like gunshots going off in the house.
- The gaps were at their worst at the end of January 2008.

At my inspection, XXXXX showed me:

- 2 large gaps.
- A bathroom where flooring was removed due to a roof leak.
- An area where there is a gap between the flooring and moulding.

XXXXXX stated in a phone interview on February 26, 2008:

- HVAC was not on when the flooring was installed.

Flooring contractor, in a phone interview on February 25, 2008 stated:

- The homeowner complained about some gaps. He went and looked at them and told her they were seasonal gaps.
- He did not check the moisture content of the flooring or sub-flooring when the flooring was installed.
- He said that there had been some storm damage and the customer had a company place de-humidifiers in the home.

GENERAL DESCRIPTION

Approximately 1,800 square feet of unfinished select oak flooring was installed on the ground floor of this home. The flooring was then sanded and finished on site. The home is a newly constructed 2-story dwelling with a finished basement underneath.

GENERAL OBSERVATIONS AND DATA

- The flooring system is $\frac{3}{4}$ " x 2 $\frac{1}{4}$ " solid oak flooring over OSB sub-flooring. The sub-flooring is attached to engineered H joists.

For the initial inspection, I observed the flooring from a standing position per NOFMA Guidelines. During the inspection I noticed:

- The flooring has many small gaps as well as some larger gaps.
- The larger gaps are evenly spaced apart from each other.
- The 2 largest gaps are aligned with exterior walls of the home above the rim joists (band boards).
- There are seen differences in the finish between the dining room and family room as well as in the kitchen area.

SAMPLED AREA DATA

I selected thirty-nine (39) sample areas for close inspection.

Tests performed:

- Moisture content of flooring using Delmhorst resistance pin meter (11 taken).
- Temperature and relative humidity readings taken using a Lufft C200 Humidity/Temperature instrument (6 taken).
- Measurements of gaps between boards to nearest .005" using a precision Starett taper gauge (78 taken).
- Measurement of individual boards to nearest 1/64" using precision Starett chrome rule (80 boards measured).
- Number and spacing of nails in flooring using magnet and tape measure (10 boards in 3 areas checked).

TEST	RANGE	AVERAGE	NOFMA STANDARD
Moisture Content	<6% - 6.5%	6.14%	Standard of manufacture-6to9% mc with an allowance for 5% of pieces to 12% mc
Temperature & RH	67° and 28%	6.2%	Related EMC Equilibrium Moisture Content (EMC) is the moisture content for the wood flooring at which point it is neither gaining nor losing moisture. National Wood Flooring Association recommends that RH be kept between 30-50% for optimal performance of wood floors.
Aggregate – 20 board run	44 7/8" - 45 1/16"	45"	Nominal size for 20 board runs is 45"
Nailing pattern on ends of strips	2" - 6"	3"	Spacing on ends should be 1"-3"
Nailing pattern on sides of strips	3" - 11"	7"	Spacing of fasteners on sides should be 10"-12", 8"-10" preferred
Measurement of gaps between boards (of 76 adjoining boards, there are 21 gaps)	.01" - .075"	.027" (Approx. 1/32")	
Measurement of individual boards (of 80 boards, 20 boards were undersized)	-1/64" - -1/32"	.02" (slightly over 1/64")	2.25"

- Larger gaps were examined in the kitchen/keeping room area. These areas have 5 larger gaps that are 49 1/2", 47 1/2", 47 1/2" and 47 1/4" apart. These gaps run beside multiple boards in lines across the length of the rooms. These gaps are 1/16", 3/16", 1/16", 3/32" and 3/32" wide.
- The gap between the top of the flooring and the bottom of the shoe moulding and door casing (at deck door in keeping room) is 1/4".

- The two largest gaps are aligned with exterior walls of the home. The largest one is $\frac{1}{4}$ " and is located close to the garage door in the kitchen. The other large gap is $\frac{3}{16}$ " and is located across the keeping room in line with the door opening to the screened porch. These gaps are above rim joists (exterior walls of the home).

ANAYLSIS OF DATA AND OBSERVATIONS

- Size measurements collated with moisture content readings indicate the flooring was generally on-size and at the moisture content of manufacture.
- The flooring is adequately nailed.
- The drying of the sub-floor system is evidenced as the flooring has separated in association. The frequency and position of these gaps show they are directly related to sub-floor panel dimensions (48").

CONCLUSION

The preceding data, the on-site inspection, and the interviews with the involved parties support the following conclusion:

- The smaller gaps ($\frac{1}{64}$ " – $\frac{1}{32}$ ") are a normal condition of a dry environment in the heating season.
- The larger gaps have occurred due to movement/drying of the sub-floor system. These gaps are permanent and not acceptable in a finished floor.
- The vertical gap by the deck door has been caused by settlement of the home.

Respectfully submitted _____
Genia Smith



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