

PART II Exterior Conditions of the Building

Check the exterior of the structure to ensure the jobsite is ready to receive wood floors. Walk around the structure to identify any potential concerns that may affect your wood floor installation. Document, take photographs, and address all concerns with the homeowner and/or builder.

A. Grade

1. **Grade Level:** Note the grade level where the flooring is to be installed to ensure the flooring selected is appropriate.
 - a. **Above-grade** is defined as any portion of the subfloor where wood flooring is to be installed, that is above the plane of the surrounding ground.
 - b. **On-grade** is defined as any portion of the subfloor where wood flooring is to be installed, that is at, or above, the same plane as the surrounding ground.
 - c. **Below-grade** is defined as any portion of the subfloor where wood flooring is to be installed, that is 3" or more below ground level.
2. Engineered wood floors can be installed above-grade, on-grade, and below-grade.
3. Solid flooring can be installed on-grade and above-grade, but should not be installed below-grade unless otherwise recommended by the flooring manufacturer.



B. Site Drainage

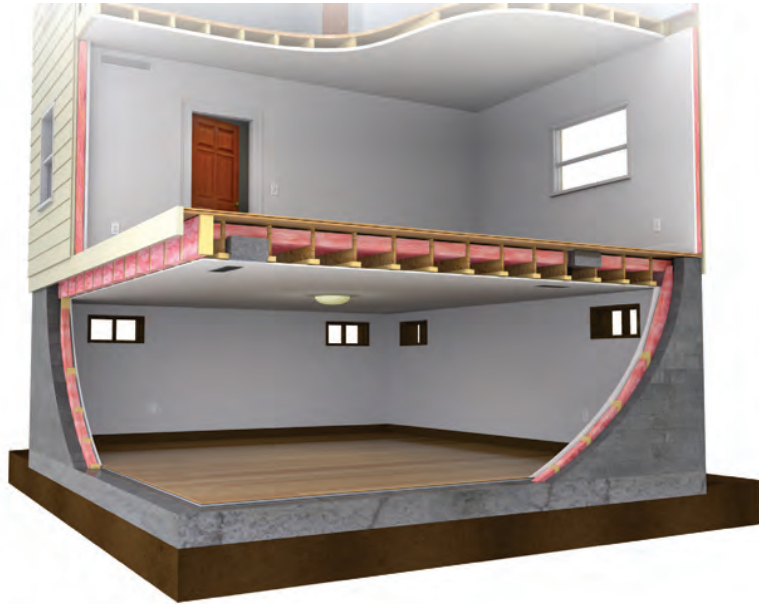
1. Exterior surface drainage (e.g., gutters, landscaping) should direct water away from the building. Water from rain, snowmelt, nearby water sources, and irrigation systems can naturally travel toward the foundation and into the structure.
2. Lots should be graded to drain surface water away from foundation walls. Normal building code requires a minimum fall of 6" (152 mm) within the first 10 feet (3.048 m). Impervious surfaces (pavement) should be sloped a minimum of 2 percent away from the building.
3. If any obvious concerns are observed related to the exterior site drainage, they should be addressed by a qualified landscape professional prior to wood flooring delivery or installation.

PART III Building Thermal Envelope

- A. The building thermal envelope includes the exterior walls, basement walls, floors, roof, and any other building element that encloses conditioned space.
- B. Building interiors are affected by two distinct humidity seasons - heating and cooling. Temperature and moisture (vapor) move from warmer/drier spaces to cooler/wetter spaces; this is known as vapor drive.
1. The moisture vapor moves from the warm side of the building assembly to the cold side of the building assembly.
 2. In the summer, and in hot/humid climates, during the interior cooling season, vapor drive is predominately inward. Cooling systems lower the temperature of the interior air. Cooling the air decreases its ability to hold moisture and the interior relative humidity naturally increases. Fortunately, air conditioning cools the air by removing moisture through condensation.
 3. In the winter, during the interior heating season, vapor drive is predominately outward. Heating systems raise the temperature of the interior air. Heating the air will increase its ability to hold moisture; therefore, the interior relative humidity decreases.



- C. The flooring installer should identify where, within the building, the wood floor is being installed in relation to other adjacent unconditioned spaces.
1. Conditioned space is an area or room within the building that is intentionally heated or cooled, and humidified or dehumidified, to be maintained at the same expected conditions as the living/interior space either for the comfort of occupants, or for preserving temperature and humidity-sensitive goods.



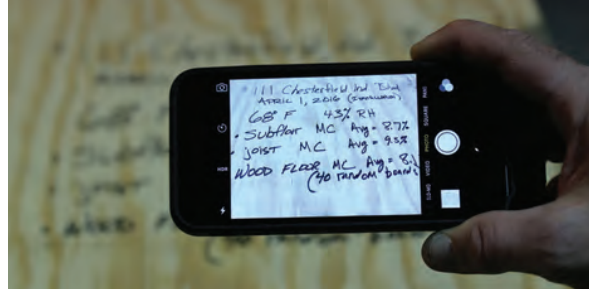
2. Unconditioned space refers to exterior space, or a space within the shell of a building, that is uncontrolled, and is neither directly nor indirectly heated, cooled, humidified, nor dehumidified.



PART IV Interior Conditions

The conditions in the space in which the wood flooring is being installed will directly affect the performance of the wood floors. Wood flooring should not be delivered, stored, nor packages opened, on a jobsite or within any facility with uncontrolled environmental conditions, or that is outside of the conditions set forth by the manufacturer (temperature and RH) of the flooring product. Unless otherwise defined by the flooring manufacturer, follow these Guidelines as related to the interior conditions of the building at the time the wood flooring is being delivered to the jobsite.

- A. Wood flooring should be one of the last jobs completed in any remodel or new construction project.
- B. Do not deliver wood flooring to any jobsite, or install wood flooring, until the envelope of the structure is fully enclosed and protected from exterior weather conditions with all windows, doors, exterior siding, soffits, roof coverings, insulation, and ventilation in place.
- C. All exterior doors and windows must be installed and in good repair in the specific locations, and in adjacent rooms, to where wood flooring is being installed. If any issues are present, they should be repaired by a qualified professional before flooring is delivered to the jobsite or installed.
- D. Do not deliver or install wood flooring to the jobsite, until all “wet-trades” such as concrete, masonry, plastering, drywall, texturing, painting, and power washing are completed within the building thermal envelope.
- E. Verify that the facility receiving new flooring has permanent or temporary mechanical systems (heating, cooling, humidification, or dehumidification) capable of achieving and maintaining the required conditions necessary for the wood flooring being installed.
 1. These systems should be operating for a minimum of 5 days preceding delivery of flooring materials. Longer operation of HVAC systems and jobsite conditioning may be necessary prior to flooring delivery due to tighter building envelopes and wet conditions.
 2. These same conditions should be maintained prior to, during, and after wood flooring installation.
 3. Note that the use of temporary propane heating systems will introduce moisture to the environment. Large amounts of water are produced with the combustion of propane. Propane systems should be avoided prior to, during, and after wood flooring installation.



- F. Test and document the temperature and relative humidity in each of the room(s) where flooring is being installed.
 1. For factory-finished solid and engineered wood flooring, always follow the manufacturer’s requirements for interior temperature and relative humidity requirements.
 2. As a general rule for solid wood flooring, with geographic exceptions, appropriate temperature and humidity conditions are defined as those conditions where the interior environment is controlled to stay within a relative humidity range between 30% to 50% and a temperature range between 60-80 degrees Fahrenheit. These ranges are likely to be the average of all types of wood products used in normal household environments, assuming common heating and cooling equipment is used to ensure human comfort.
 3. Some manufacturers intentionally produce flooring products at higher (8-13%) or lower (4-9%) moisture content levels to accommodate different geographical regions. In some climates, the ideal average humidity range can be higher (45% to 65%) or lower (20% to 40%). Know your region and the flooring product specified for the project to determine whether they are properly aligned before selling and delivering material to the jobsite.
- G. Ensure the substrate receiving the wood floor meets all minimum standards detailed in the applicable Substrates chapter.
- H. The space below the flooring system should be free of any evidence of standing water and high humidity levels.
- I. **IMPORTANT:** Never install a wood floor over a known moisture condition. A known moisture condition is one that you are aware of, and could pose future damage to the flooring, the building, or the occupants. It is compulsory practice to always test for moisture regardless of conditions so that any unknown conditions can become known conditions that then can be handled appropriately. In all cases, it is important that the installer consult with all involved parties including the manufacturer and customer.
- J. Where the minimum jobsite conditions are present, the flooring may be delivered to the rooms in which it will be installed.