



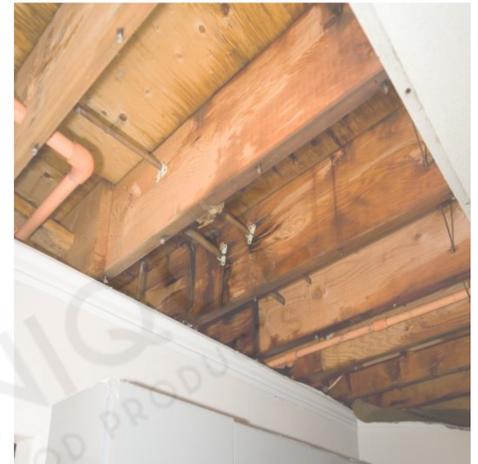
Water Damage

When a wood floor has been damaged by a leak or a flood, it must be addressed before further damage occurs. The first step in repairing a water-damaged wood floor is to identify and eliminate the source of moisture. Once the moisture source has been identified and removed, the floor can then be assessed.

It is important to understand that water will migrate to areas below the wood floor system anytime there is a flood. When water damage occurs, the wood flooring and subflooring systems must be evaluated to determine the extent of damage and ensuing repairs.

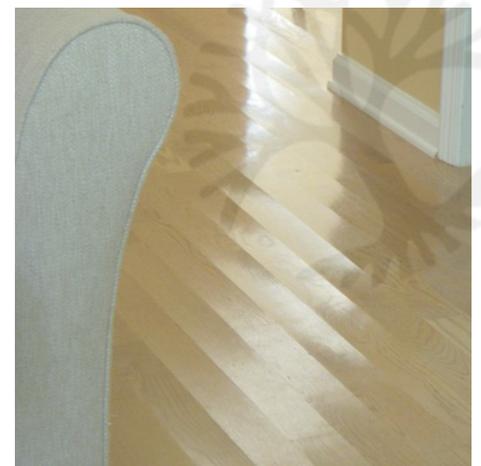
Subfloor Materials Evaluation

- Plywood – swelling, distortion and delamination can occur when exposed to high levels of moisture. Moisture tests should be conducted using insulated pin, hammer probe type meters on the surface, on the backing, and within the core of the material in several areas of the damaged material to properly assess the extent of moisture intrusion. Replace when the damage is evident. Ensure replacement material is within acceptable MC ranges prior to reinstallation of wood flooring.
- Oriented Strand Board (OSB) – swelling can occur with OSB when exposed to water. Swelling in OSB can create a decrease in density and a reduction in within-board strength due to the release of compaction stress created during the pressing process of manufacturing. This will directly affect how existing fasteners hold the wood flooring to the subflooring material. Replace when damage is evident. Ensure replacement material is within acceptable MC ranges prior to reinstallation of wood flooring.
- Concrete – concrete is a porous material. It typically does not become damaged when exposed to water; however, adhesives, sealers and other compounds will slow the drying of a wetted concrete slab. Moisture levels must be evaluated and properly addressed prior to installation of new flooring. Concrete substrates should be dried by use of airflow, heat, and dehumidifiers until moisture levels are within the flooring and adhesive manufacturer's recommendations.



Wood Flooring Materials Evaluation and Remediation

- Identify the type of flooring and installation methods.
 - Identify type of substrate.
 - Existing materials below the flooring surface may create additional mitigation costs and concerns (i.e., asbestos underlayment, radiant heating systems, etc.).
- Determine the target moisture content for the area and the facility.
 - Reference the EMC chart.
 - Consider the time of year repairs are to take place.



- Conduct moisture testing.
 - Use insulated pin, hammer probe type meters to achieve readings at multiple depths of flooring and subflooring material.
 - Use pinless, dielectric meters to scan the flooring surface and map the damage.
 - Check existing, unaffected wood.
 - Target should be within 2% of expected “in-use” moisture content.
- Use dehumidification systems to stabilize the ambient conditions and bring them within the target range.
 - Some of the most effective types of dehumidification systems include desiccant systems and low-grain refrigerant systems.
 - Dehumidifiers should be placed on the flooring surface as well as below the flooring surface (when applicable).
 - Unconditioned areas directly below the wood subflooring system or sleepers, such as basements and crawlspaces, should also be opened to introduce heat and airflow. Any insulation on the underside of the floor joists should also be removed.
- Many times the cupping will dissipate or even completely disappear as the flooring dries out over time.
- Airflow and heat can be used to speed the natural drying process.
- Vacuum extraction systems include placement of large mats/panels that are attached to vacuum/suction systems designed to pull water from the flooring surface.
- Negative and positive air pressure systems force airflow beneath and within the flooring systems in order to decrease the moisture content by direct use of airflow.
- A buckled wood floor requires replacement wherever the buckling has occurred. Once the flooring has buckled, the fastener or adhesive are no longer effective and the system will never return to its original state. Once the moisture source has been identified and eliminated, the buckled portion of the flooring may be replaced. The remainder of the flooring should be treated as noted above.

More-detailed information about identifying and repairing water damage is available in the NWFA Wood Flooring Installation Guidelines and Methods publication, or at <http://member.nwfa.org/default.asp?page=InstallGuidelines>.



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