

Wood Acclimation and Drying

Wood acclimation is a critical process that involves allowing wood materials to adjust to the environmental conditions in which they will be installed or used. This bulletin provides information on wood acclimation, its importance, and describes some of the responses wood may demonstrate during the acclimation process.

1. Importance of Wood Acclimation

Wood is a natural material that can be significantly affected by changes in moisture content and temperature. Acclimating wood helps minimize the risk of problems such as dimensional changes, warping, and cracking after installation. Proper acclimation ensures that wood reaches a moisture equilibrium with its surrounding environment, reducing the potential for future issues.

2. Acclimation Process

Wood acclimation involves exposing the wood material to the environmental conditions of the installation site for a sufficient period before installation. The specific duration of acclimation depends on several factors, including the wood species, thickness, and the anticipated range of environmental conditions.

3. Responses Wood May Demonstrate during Acclimation

During the acclimation process, wood may demonstrate several responses as it adjusts to the environmental conditions. These responses can vary depending on the initial moisture content of the wood and the prevailing humidity and temperature levels. Here are some common responses wood may exhibit during acclimation:

a) Expansion or Contraction: Wood absorbs or releases moisture in response to changes in humidity. As the moisture content of the wood increases, it expands, and as it decreases, it contracts. This expansion and contraction can lead to changes in the wood's dimensions.

b) Cupping: Cupping refers to the wood's tendency to warp along its width, creating a concave or convex shape. During acclimation, if the wood receives uneven exposure to moisture, it may cup, causing the edges to rise or dip.

c) Twisting: Twisting occurs when wood warps along its length, causing a spiral or helical distortion. Uneven moisture exposure during acclimation can lead to twisting, resulting in a loss of flatness and stability.

d) Checking and Cracking: Wood with high initial moisture content can undergo drying during acclimation, which may result in checking (superficial cracks) or more severe cracking. These cracks occur due to the internal stresses induced by moisture loss.

e) Changes in Color: Wood may exhibit changes in color during acclimation. For instance, light-colored wood species may darken slightly as they absorb moisture, while darker woods may lighten.



4. Best Practices for Wood Acclimation

To ensure effective wood acclimation, consider the following best practices:

a) Follow Manufacturer Recommendations: Always adhere to the manufacturer's recommendations regarding acclimation duration, environmental conditions, and specific requirements for the wood product.

b) Allow Sufficient Time: Provide enough time for acclimation, considering the wood species and thickness. Typically, acclimation periods range from a few days to several weeks.

c) Control Environmental Conditions: Maintain the installation site's temperature and humidity within the expected range to facilitate proper wood acclimation. Avoid sudden or extreme changes during the acclimation process.

d) Monitor Moisture Content: Regularly measure the moisture content of the wood using a moisture meter. Monitor the changes to ensure the wood reaches a moisture equilibrium with the installation site.

Wood acclimation is a crucial step to ensure the long-term performance and stability of wood materials. By allowing wood to adjust to its intended environment, the risk of dimensional changes, warping, and cracking can be significantly minimized.

Understanding the responses wood may demonstrate during acclimation will help you anticipate and address any potential issues effectively.

