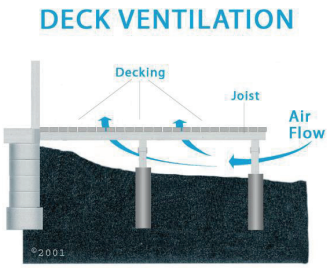
TECHNICAL BULLETIN
Deck Ventilation

It is well known that air flow and ventilation under and around wood decking are important for the stability and performance of the product.

Air-dried decking is typically delivered with a moisture content between 18% and 25%. It is more prone to contraction and cupping immediately after installation if equalization has not been fully achieved. Air-dried decking may shrink up to 1/8" on a 4" face and 1/4" on a 6" face depending on the moisture content at the time of installation, climate, and site conditions.



Maximo™ Kiln-Dried Decking is pre-stabilized to a moisture content typically between 12 and 14%, which minimizes shrinkage or expansion.

High moisture content under a deck combined with the impact of the sun and heat on the surface of a deck can cause stress that can result in increased checking, cupping, or twisting. Some applications simply cannot avoid the reduction of ventilation by their design. Decks at grade or on roofs are not that uncommon, so how do we reduce problems in these applications?

First, it is essential to understand that dimensional stability is directly related to decking thickness and width ratios. Instability will increase as the board widens related to its thickness. For example, a 1x4 is more stable than a 1x6, and a 5/4x4 is much more stable than a 5/4x6.

What's going on with the deck on the top?

This deck was installed in a concrete pan with decking installed on pressure-treated joists using adhesive and hidden fasteners. The concrete pan is holding water, keeping the decking between the joists wet, driving the tannins in the decking to the surface, causing staining. Meanwhile, the adhesive film is creating a barrier at the joist connections that keeps the decking over the joists dry where it is weathering normally. Uneven coloration is likely only

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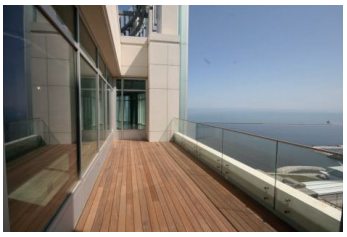
the start of the problem on this deck. Without proper ventilation and moisture removal from underneath the deck, board movement will likely occur in the future.

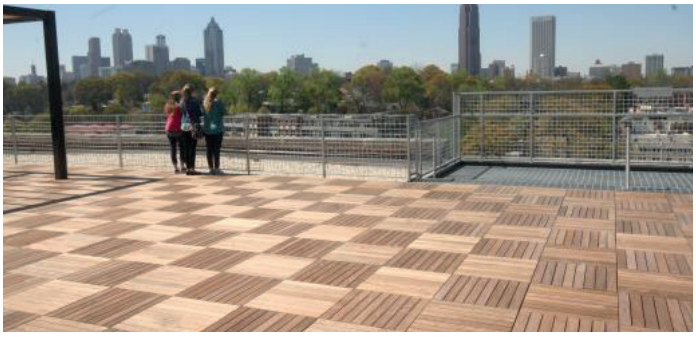
Poor Ventilation Solutions

From experience, we know that a 5/4x4 deck board, whether air-dried or kiln-dried, gives the most stable performance on poorly ventilated residential or commercial decks, no matter the fastening method used.



You may also wish to consider products such as Maximo™ Roof Deck Tiles and Pedestal Systems or Decking and Pedestal Systems, specifically designed for less well-ventilated applications. The deck tiles are constructed of wood slats that have a stable thickness-to-width ratio. Using shorter-length components provides a highly cost-effective and unique deck construction option.

Maximo™ 24" x 24", 24" x 48", 24" x 72", and 24" x 96" Deck Tile systems allow for drainage and can be applied directly to any flat surface using our Maximo™ Elevate EPDM, Star T, or Self-Leveling or Fixed Head Screw Jack pedestals. If you want to build a deck literally at grade, a cost-effective solution is to pour a concrete slab and apply pedestals and tiles directly on top.



Maximo™ Deck Tiles are also an excellent option for conventionally constructed decks. Simply double your stringers 24" on center and fasten them down at the corners with 4 Pro Plugs™ per tile. Maximo™ deck tiles provide a unique appearance while also significantly lowering overall construction costs. Deck tiles can be installed to create various designs and patterns.

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