

Hemlock Decks & Porches Details Heat Effects on Composite Decking

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Following a July that set overnight temperature records across southern New England, Hemlock Decks & Porches has issued guidance on how sustained heat affects composite and PVC deck boards and on the installation requirements that determine whether a surface accommodates that movement.

The Northeast Regional Climate Center at Cornell University reported that Providence tied its all-time warmest low temperature on record at 80 degrees during July, in a record extending back to 1904, and that the month was the only July on record there with a low of at least 80 degrees. Boston recorded a high of 101 degrees during the same period, and heat index values reached 118 degrees in parts of the region.

Composite and PVC deck boards change dimension with temperature, and manufacturers address that behavior through required gapping at board ends and where boards meet fixed objects. Those requirements are keyed to the temperature at the time of installation rather than to any single day's conditions. Trex publishes butt joint gapping that differs above and below 40 degrees for its composite lines, and specifies a larger clearance where boards meet a solid object such as a wall or post. TimberTech publishes temperature-based butt joint tables in its installation guide for the same reason.

The practical effect is that a board installed on a cold day is already contracted and requires a wider gap to accommodate later expansion, while a board installed during heat is closer to its expanded dimension and requires less. A deck gapped against the manufacturer's table for the installation temperature is built to absorb the full seasonal range. A deck gapped without reference to that table can reach the limits of its tolerance during sustained heat.

"Gapping is not a rule of thumb, it is a table, and the number changes with the temperature on the day the boards go down," said Teddy Labonte, Owner of Hemlock Decks & Porches. "A crew that gaps everything the same way regardless of conditions is guessing, and a hot July is when that guess gets tested."

The extent of movement varies between products. PVC boards, including the TimberTech AZEK line, exhibit greater thermal expansion than wood-plastic composite products, while mineral-based composite boards such as those produced by Deckorators show comparatively little dimensional change with temperature. Board width matters as well, since wider boards move more than narrower ones over the same temperature change. Hemlock Decks & Porches installs Trex, TimberTech by AZEK and Deckorators products, and sets gapping from the installation instructions for the specific product and fastener system rather than from a general figure.

Color also influences the temperature a board reaches. Darker boards absorb more solar radiation and reach higher surface temperatures than lighter boards of the same product under identical exposure.

Fastening method is addressed directly in manufacturer guidance, and the requirement is more specific than a general preference for concealed systems. The TimberTech composite installation guide advises that in areas of high heat build or sunlight, tighter joist spacing of six to eight inches maximum be used along with additional framing, and that top-down fastening rather than concealed fastening be used in those locations. Following the guidance for the product and the exposure is what preserves warranty coverage, since manufacturer warranties are written on the assumption that the installation instructions were followed.

Framing material behaves differently from the decking above it. Wood framing responds primarily to moisture content rather than temperature, and its dimensional change along the length of a joist is comparatively small. Metal framing responds to temperature, with aluminum expanding more than steel over the same increase. The interaction between decking and substructure is therefore not uniform across framing types.

Joist spacing affects performance under heat for reasons beyond fastening. Closer spacing reduces the unsupported span between bearing points, which limits deflection in a board that has warmed, and manufacturers specify tighter spacing for diagonal installations and areas of concentrated heat.

"Most of the calls we get after a heat wave are about boards that were installed tight or fastened the wrong way for the exposure," Labonte said. "The material did what the manufacturer said it would do. The installation did not leave it anywhere to go."

Boards that have shifted out of alignment, gaps that have closed completely, or fasteners that have worked loose can be evaluated against the manufacturer's requirements for that product. Hemlock Decks & Porches provides deck repair, resurfacing and full replacement where board movement has affected alignment, fastening or the connections beneath.

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Hemlock Decks Porches and Home Additions

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