

When manufacturing, handling and installing darker colored windows additional precautionary steps are needed to avoid heat related PVC profile distortion.

- Precautions can include:
 - o COOLING - The use of **ventilation holes**
 - o SUPPORT - Addition of **reinforcements** (either internal and/or proper attachment)
 - o EXPANSION - **Insuring sufficient gap** around the perimeter of the installed frames for thermal expansion.
- For information on installation methods and procedures, visit the Fenestration Masters pages on the [AAMA website](#). Products used in different regions of the country may use different installation methods and require special installation specific solutions.

As the trend toward darker colored windows and doors continues, more exterior dark colored options are being used in wider geographical areas. Manufacturers and suppliers must be aware of the potential for issues relating to heat build-up and related heat distortion of these products. At every step from manufacture to transportation to installation awareness, an adherence to proper precautions is important.

More homeowners choose PVC for their windows and doors than all other materials combined due to their superior thermal insulating properties and long-lasting maintenance free finish. The more than ½ billion PVC windows and doors installed in North America from hundreds of manufacturers all share one specific characteristic; they must be manufactured, handled and installed properly with special considerations in extremely hot environments.

All products made of thermoplastics materials such as PVC are sensitive to extremely hot environments. Extremely hot environments can result from high ambient temperatures and/or intense direct sunlight. Just as the exterior metal of a dark car sitting in the hot July sun will burn your skin and the inside become unbearably hot, a dark colored PVC window or door can become hot enough to distort, especially when other contributing conditions are present.

When the ambient temperature is around 80°F or more it does not require much direct sunlight to push the temperature of the PVC to the softening point. Intense direct sunlight alone can push the surface temperature of the dark PVC up 30°F to 50°F or more ABOVE the ambient temperature. All PVC begins to soften and is subject to heat distortion at combined temperatures above 150°F. Location, humidity, altitude and the surrounding environment can also impact heat build-up as these elements relate to both the ambient temperature and the heat build-up due to sun intensity.

If you have any further questions please do not hesitate to contact your Territory Manager.

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