

DeepStream Designs

Design Without Limits



LEED Commercial Planters

ARCHITECTS' NOTE ON RECYCLED PLASTIC LUMBER

When choosing planters made with Recycled Plastic Lumber (RPL), it is important to recognize that RPL has no structural integrity. Therefore, DeepStream's unique proprietary extrusions are the basis for a frame on which the plastic lumber is mounted as an aesthetic façade.

Unlike the aluminum frame, the RPL has a thermal expansion coefficient of .00007" per inch per degree of temperature variation, so as the planks heat up in the sun, they expand, until they are constrained by the frame, and bow. For our craftsmen's comfort and efficiency, DeepStream's manufacturing facility is kept at about 78°, while on a 90° day *in the full sun*, the temperature of the RPL, depending on its color, will reach approximately 125°.

This means, for example, that a 72" planter with a "Black Ball" plastic temperature of 140° will expand by approximately .33", which will cause visible bowing in the long planks. For most locations, RPL planters over 44" placed in full sun would have a visible amount of elongation in relationship to its rigid aluminum frame.

To accommodate this expansion differential, we design RPL planters with .25" to .50" expansion slots in the horizontal frame members, depending on their length. With an allowance of .25" for total expansion, a 50" planter can accommodate a temperature differential of approximately 65°. .50" will allow for a 90° differential for a 72" planter.

Another force in effect is the ratio of plank length to thickness. The longer the plank, the greater the ratio, and the greater the tendency for the plank to warp; therefore, planters under 44" generally do not need expansion slots, except in extreme conditions.

To prevent bowing, your planters will be "tuned" at the factory by leaving the horizontal fasteners slightly loose before placing the planters in the full sun for two hours to allow for the sun to thoroughly heat both sides of the planter before the fasteners are tightened down.

Average daytime temperatures in Miami where your planter is assembled vary from the 50s in the winter to the 90s in the summer, so the temperature of the RPL in full sun can vary from 80° to 130°. Should conditions in your area be significantly hotter than Miami when your planter was assembled, some bowing could still occur.

Should it be necessary to tune your planter, simply loosen the four liner support frame fasteners with a #3 Phillips head screwdriver, and allow the RPL to heat to heat up by rotating the planter's long faces towards the sun for an hour each during the hottest, sunniest part of the day before tightening them back down. If your planter was designed with horizontal 1" angles to prevent liner bowing, also loosen and retighten these four fasteners at the same time.



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