

# DeepStream Designs

## Roof Terrace Planter Receiving and Assembly Instructions

**VERY IMPORTANT!!!  
READ BEFORE UNPACKING**

***Be sure to read and understand all of the information below before unpacking any materials.*** Your success with this project is very important to us, so if you have any questions, at any time, call Tom at 305-807-9876 or Sheila at 305-857-0466 day or night.

### **Receiving:**

There is an attached code sheet and layout plan that shows the final location of every bundle packed in the crates that you will be receiving, as well as the location of the seven preassembled planters that anchor the layout on both terraces. There are copies of the layout plan and installation instructions in each of the two large crates. The supplied tools on the attached list are also in the largest crate.

Your planters have been packed in a very particular order that, if maintained when unpacking, will allow for rapid assembly of the planters.

The **Crate** marked **SE** should be taken to the SE Terrace, and the **Crate** marked **NW** should be taken to the NW Terrace. These contain pieces marked with a code that are specific to each planter.

The **Crate** marked **Ends** contains the planter ends, which are universal. 12 ends go to the NW Terrace, and 8 ends go to the SE Terrace, but do not unpack them until they are actually needed in the installation sequence to avoid damage..

The **Pallet** marked **Legs** with 41 24" cardboard boxes contains 162 T-legs (4 to a box, with 1 box of 2), which are also universal. 96 T-legs (24 boxes) go to the NW terrace; 66 T-legs (16 boxes of 4 and 1 box of 2), will go to the SE terrace, but do not unpack until they are actually needed in the installation sequence to avoid damage.



**Left to right: Pre-Assembled End Crate, SE Terrace Crate, NW Terrace Crate, Leg Pallet**

There are 3 pre-assembled planters that anchor the NW terrace as marked on their exterior and 4 preassembled planters that anchor the SE terrace. These are packed on 4 pallets.

## **Caution: READ BEFORE UNPACKING**

Failure to understand these critical points may cause great delay and/or damage, and possibly void the system warranty.

The planters require a minimum of two people to assemble. Three people are much more efficient.

**Aluminum** is soft and easily scratched, which will ruin the protective anodized finish. Keep the legs in their boxes until after the 1" aluminum angles and 1-½" flat bar, which create the frame between the legs, and bundles of planks have been laid out in position and you are ready to assemble the leg vertically as part of the planter frame. The plastic foot of the leg goes down.

**Plastic lumber** is also very soft. Do not uncrate the plastic lumber until after you have laid out the aluminum frame. Do not set the pieces directly on the roof deck, or drop the pieces as you work with them or they, like the legs, will be scratched. Set the bundles of planks down on the coded cardboard separator sheet that it is attached to. If you must lay a plank down, keep the label side up. The label is on the exterior surface that will be visible when assembled.

**USE ONLY THE ENCLOSED DeWalt SCREWDRIVER with #3 Phillips bit that we provided to assemble the planters, and leave the torque setting on 3** until the frame is ready to be "locked down" in the tuning process. (See Frame Tuning below).

If a fastener will not progress at a setting of 3, then the hole is not in proper alignment with the leg and fastener. Because the plastic lumber is soft, fasteners will go right through in the wrong place on any higher torque setting on the screwdriver, whether there is a drilled hole or not.

If you are having difficulty aligning the drilled hole in each plank, use the **blue awl** we have provided. With bottom and middle planks properly installed, the top rounded edge should be flush, or very close to flush, with the top of the leg. ***If you are unsure about the hole alignment, do not drive fasteners until the top rounded edge is flush.*** Body weight may be applied at the ends of the planks so clamps are not necessary. Do not apply weight to the center of planks.

The 1-1/4" fasteners that hold the angles and legs must be installed with a split lock washer and flat washer before they are inserted through the longitudinal angles into the legs. **Fasteners** are stainless steel and ***MUST be dipped in the anti-seize paste*** provided as they are inserted in the holes of the aluminum legs ***or the warrantee is void.*** The 1/2" X 1-1/2" cross flatbars between legs are mounted with the 7/8" fasteners and do not require washers, but the ***fasteners must also be coated with anti-seize.***

**Frame Tuning:** Plastic wood will expand in heat and sun. ***Do not compress the lock washers during planter assembly. Leave fasteners holding the planks and longitudinal 1" angles loose.***

Once the ENTIRE planter has been assembled, wait until the sunniest, hottest part of the day when the sun is full on the plastic lumber so it will be fully expanded, pushing apart the legs in the slots we have machined in the angles, and ***only then*** tighten every 1-1/4" screw. This is critical to prevent the plastic lumber from bowing during the heat of the day. If it is a cloudy day, wait until the sun returns. Once the liners have been installed and filled with soil, it will be impossible to correct with out removing the liners. ***We can not stress this enough!***

**Assembled Planters:** The Philips fasteners with split washers holding the top and bottom horizontal frames of the assembled planters were locked down for shipping. They need to be loosened and then tightened following the same Frame Tuning procedure described above once they have been moved to the site.

## ASSEMBLY INSTRUCTIONS

### Overview:

The DeepStream LEED Planter System is based on aluminum frames with vertical L corner legs and T connector legs for combining panels in long multiple-section runs. 1" lateral angles connect the legs on the inside at the top and bottom of the front and back legs, with ½" x 1-1/2" flat bar as the transverse connecting cross bars between opposing T-legs. This frame is first attached to a pre-assembled end and erected loosely to a T-leg, then the plastic lumber planks are inserted, bottom to top, back and front, before moving on to the next section in the planter.



Assembly should take about 10 minutes a section once the frame work has been laid out. It is most efficient to use two people assembling and one person to retrieve materials.

A **DeWalt screw driver** has been provided to speed assembly using a **#3 Phillips bit**. ***A torque setting of 3*** is used for initial assembly, as it will not force the fastener into the soft plastic if not aligned with a predrilled hole, nor will it compress the lock washers, which is not done until after the entire planter is assembled and you are ready for **Frame Tuning**. A **blue awl** has been provided to locate the predrilled holes in the plastic lumber planks if necessary. There are **2 large tubs of anti-seize**, one for each terrace, which ***must be applied to every fastener*** during assembly.

- 1) Move crates and pallets to each terrace as marked. If you are unable to use a pallet jack, place the crates in a central location to minimize walking, or assembly time will increase dramatically. If the planks can be kept in the shade, or covered, assembly will be easier and faster.
- 2) Place the preassembled planters in place as indicated on the layout plan.
- 3) Place two string lines on the deck 26.5" apart to indicate exactly where the front and back of the frame will be lined up so that you will not have to move the planter after assembly.
- 4) Using the code chart to locate each unique bundle by planter and section, start by laying out bundles of 1" angles nose-to-tail along your string lines with 1" gap between them. Separate the front from the back angles. Assembly will begin from one end as indicated on the enclosed plan and work in a **counter-clockwise** direction on the SE Terrace, and **clockwise** on the NW Terrace.
- 5) Distribute 2 universal ½"x1-½" flat bars at each gap in the angles that you have laid out. They form the cross bars between opposing universal T-legs that will eventually fill the gaps. Together with the legs and the longitudinal angle, the cross bars form the frame for the multi-section planters between the preassembled planters indicated on the plan.

- 6) Using the code chart to locate each unique bundle by planter and section, distribute the plastic lumber bundles of 5 planks to a section, 3 front and 2 back, matching them to the 1" angles that you have already laid out in the same order. When uncrating the bundles, keep the cardboard separator sheets with each bundle. Set the bundles down on the cardboard side to prevent scratching the soft plastic lumber on the deck. The plastic lumber is slippery so do not pull the tab releasing the strapping until ready to use the bundle.
- 7) Now you are ready for assembly, which starts by uncrating one of the universal assembled end panels and placing it on its feet with one person holding it upright. Angle it inward as the other person attaches the first of the top horizontal 1" angles on each side. **To correctly orient the 1" angle for installation, the location code labels on the angle should be read standing inside the planter ready to install.** This will leave the horizontal leg of the angle sticking out at the top forming a flat table like surface, not at the bottom forming a ledge with the label upside down or the back angle in front and the front angle in back. **Photo below V**



- 8) The lateral connecting angles are fastened to the legs using 1-1/4" screws through a lock washer and then a flat washer (**Photo below**) before being dipped in anti-seize paste, passing through the angle and connecting with the topmost hole and second hole up from the bottom. **Do not forget the anti-seize paste!** Until you insert the planks, **do not thread these past the initial fin of the extrusion**, or you'll block the slot, preventing the insertion of the planks.



*[Note: At the factory, our method of application is to dip one screw tip into the paste and use it to spread it on a second screw (Photo above), then roll the threads together to evenly coat the tips, which will spread in the fastener hole when inserted.]*

It is **CRITICAL** that the aluminum legs be **LEFT IN THEIR BOXES** until you are ready to assemble that particular leg in its vertical orientation unless you have some material to protect them. Otherwise, **THEY WILL BE SCRATCHED.** The plastic inserts that stick out from the end of the legs are the HDPE feet, which protect the legs once they are vertical and attached to the horizontal framing pieces. If you need to lay them down, make sure to fully open the box to have a piece of cardboard under them.

9) Retrieve and attach the first set of 2 legs vertically at the other end of the top 1" angles with one person holding both legs upright. Next connect the two bottom angles. Finally, connect two universal pieces of 1 1/2" cross bars using 7/8" fasteners dipped in anti-seize paste, as with all fasteners. The cross bar fasteners may be fully tightened and do not require lock washers or washers. **Photo right >**



10) 1/2" x 1-1/2" x 24.5" Cross-bar mounting holes are drilled off center so that where the cross bar is used on the bottom, the hole goes down to raise the bar out of sight, and on the top piece, it goes up to lower the bar. **Photo below V**



11) Insert the first set of planks. There are five planks in each bundle of plastic lumber which consist of the Front Top, Middle and Bottom planks and the Back Top and Bottom planks. The Top plank is rounded over on the top and has mounting holes in each end, the Middle plank has tongue and groove and no holes, and the Bottom plank has tongue and groove and mounting holes at each end. Each plank is labeled with a code that indicates where it goes in accordance with the code chart and diagram. **To correctly orient the planks to match corner legs and multi-section T-leg connectors the label is read from the outside of the planter looking in.** This is the opposite of the frame labels, which are read from standing inside the planter looking out.



12) Gently insert the bottom back plank aligning the fastener holes, and lightly tighten with the screw gun on 3, then insert the top back plank leaving a gap between them. Next add the 3 at the front, again working from bottom to top. **Photos above right ^**

- 13) The top rounded plank should be reasonably flush with the top of the leg when the fasteners are correctly in the holes, use the blue awl to ensure that the hole is lined up if the screw gun will not drive the fastener at a setting of 3. **Photos below V**



If the leg seems too tight to slide the plank in place, first check to make sure a frame screw is not impeding insertion. You may need to loosen the set screw holding a filler piece or foot in place using the supplied Allen key or Allen key bit. If it seems too tight to get the mitered plank end into the pre-assembled end panel, use the supplied 1/8" Allen key bit to loosen the set screws in the preassembled end panel a few turns.

The fastener should go in with no resistance with the DeWalt screw gun torque setting on 3. Most often if the bottom plank is resting on the foot, then it will be 1/8-1/16" too low to line up with the fastener. Raise the plank until the awl engages the hole, and the plank is square with the leg so that there is no visible gap between the leg and the plank on the outside.

**Always stop well short of compressing the lock washer.**

This is critical so that the fasteners slots in the horizontal angles can slide past the fastener as the plastic planks expand during the heat of the day see **Frame Tuning** above.

You now have a self-supporting section to add section after section to, repeating the same process >

