

BA15 Tootsie-Roll

Length: 17.75"

Diameter: 2.66"

End Cap Diameter: 2.75"

ABS Tootsie-Roll

Length: 17.25" filled with 15.5" of Quik-Crete + end caps = 17.75"

Diameter: 2.375"

End Cap Diameter: 2.8"

Tootsie-Roll Notes:

- There is a visible difference in diameter between the BA15 and the 2" ABS plastic pipe (0.285"). However the ABS endcaps are virtually identical to the BA15's (only 0.05" difference).
- Filling the 2" ABS with 15.5" of Quik-Crete + the end caps brought the simulated Tootsie-Roll to exactly the desired 5 LBS.



BA15 Dunnage made from 11/32 plywood

Top and Bottom: 33.5" long x 12" wide (set underneath and on top of the Front and Back pieces)

Front and Back: 33.5" long x 5.75" wide (sandwiched in between the Top and Bottom pieces)

BA15 Dunnage Notes:

- 16 of the ABS Tootsie-Rolls with 2.8" end caps would fit perfectly in the current BA15 dunnage constructed of 11/32 plywood.
- A significant drawback to the original dunnage is that it is not designed for long-term use. It was designed to be broken down and flattened for disposal and the intent was never to reuse the dunnage for numerous iterations over the long term.
- The wires integrated into the design are used for two purposes: to hold the top, bottom, front and back all together; and to serve as "latches" for opening/closing the dunnage. The wires are not intended to withstand the bending back and forth inherent in long term use. It will weaken and fail in short order. If this dunnage is going to be mimicked, then one modification might be to delete the wire loops and incorporate some type of canvas strap + friction adapter for open/closing.



Improved BA15 Dunnage made from $\frac{3}{4}$ pine

- Top and Bottom: 33.5" long x 12" wide (set underneath and on top of the Front and Back pieces)
- Front and Back: 33.5" long x 5.75" wide (sandwiched in between the Top and Bottom pieces)
- Bottom, Front, Back, and both Ends are all glued/bradded together to make one unit
- Tube Cradles were added to act as bracing and increase overall stability

Improved BA15 Dunnage Notes:

- I made the mockup with the same exterior dimensions as the original because I didn't want to skew the ability to build pallets of these boxes to the current specifications.
- Because the exterior dimensions are the same, and because the wood is thicker, that means the interior is smaller. Because of this, the End Caps will not fit on the 2" ABS pipe – it would make the Tootsie-Roll too thick. Instead, a smaller, "Test Cap" could be used to contain the concrete
- 16 ABS Tootsie-Rolls with the End Caps deleted will fit very well within this box.



