



BOLT STAR

THE NEED

Two electricians and an engineer, experienced in building wood templates for light pole base construction, saw an opportunity to make the process safer, less costly and more efficient. The result is the BOLT STAR® reusable bolt template, manufactured by Construction Innovations LLC of Sacramento, California.



FIGURE 1 BOLT STAR INSTALLED ON FORMING TUBE

Bolt Star holds four anchor bolts and conduits in place while supporting the rebar cage during the concrete pour of a light pole base foundation. The tool replaces an inefficient, wasteful and error-prone construction process of constructing light pole foundations involving building wood “templates” to pole manufacturer specifications for the correct anchor bolt size and position. Unlike the repetitive 14-step process of fabricating a wood template, Bolt Star mounts directly on the construction forming tube and takes just 6 steps to accomplish the same task – without the added logistics of ordering wood and gathering the drills and saws needed for the job. What’s more, contractors typically fabricate a wood template for each and every structural pole base foundation, and then discard it after the pour.





No more measuring, cutting or drilling of holes



No more template support materials required



No more removal of template to finish base



No more bolts out of alignment and costly rework

FIGURE 2 ISSUES IN CONVETIONAL WOOD TEMPLATES

THE TECHNOLOGY

Bolt Star is 57% more efficient, eliminating the measuring, cutting and drilling of holes required to build each wood template. Key innovations that benefit the contractor include:

- Reusable up to a dozen times or more when properly cared for
- Manufactured of lightweight, high-strength ABS -- strong enough to hold up to 1,000-lbs.
- Holds four anchor bolts, from 5/8" to 1" diameter bolts
- 4 1/8" diameter center opening for conduits
- Cage tie slots on the end of each arm for tying and centering the rebar cage in the form



- Consistent accuracy in the setup with bolt circle diameters adjustable from 7" to 14", a BCD range common to most poles specified for parking lots and outdoor area lighting
- An "X" design provides wider openings for faster concrete pours
- Patented arched arms provide room to trowel-finish the top of the base without removing the template, reducing the risk of bolt "leaners" or unsightly form marks
- Bubble levels at the end of each "arm" ensure a level base and straight bolts
- Measures 2 ¾" from top of form to top of Bolt Star template for ease in calculating bolt projections
- Fits standard 18-inch and 24-inch diameter forming tubes. Xtender adaptor available as an accessory for larger outer diameter 19-inch and 25-inch nested forming tubes.



FIGURE 2 BOLT STAR ELIMINATES WOOD TEMPLATES

SUSTAINABILITY

The reusability aspect of Bolt Star also yields a more sustainable solution, given that wood templates often end up in landfills as construction waste after a single use.

THE BENEFITS

- **Time savings** – Bolt Star cuts in half the labor needed to setup and pour, saving 25-30 minutes for each pole base. In a parking lot with 100 light poles to erect, the time savings can add up to over a week's worth of labor.
- **Quality** – With Bolt Star, high quality is consistent. There is no rework due to form marks, bolt "leaners" or measurement mistakes.
- **Safety** – Bolt Star requires no power saws or drills.



- **Sustainability** – Wood templates are seldom usable more than once. Contractors have reused Bolt Star over a dozen times.
- **Cost Savings** – Bolt Star costs \$85. A single-use wood template costs up to \$100 in labor and materials.

STATUS

Since 2013, Bolt Star has been used by contractors in 50 states and in Canada. Bolt Star has won:

- the international 2015 NOVA Award for innovation in construction from the Construction Innovation Forum
- the 2015 Construction & Engineering Award from BUILD magazine;
- the 2014 Product of the Year award for specialty products from EC&M magazine; and
- the 2014 Top Products award from Electrical Products and Solutions magazine.

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REVIEWERS

Peer reviewed as an emerging construction technology

DISCLAIMER

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