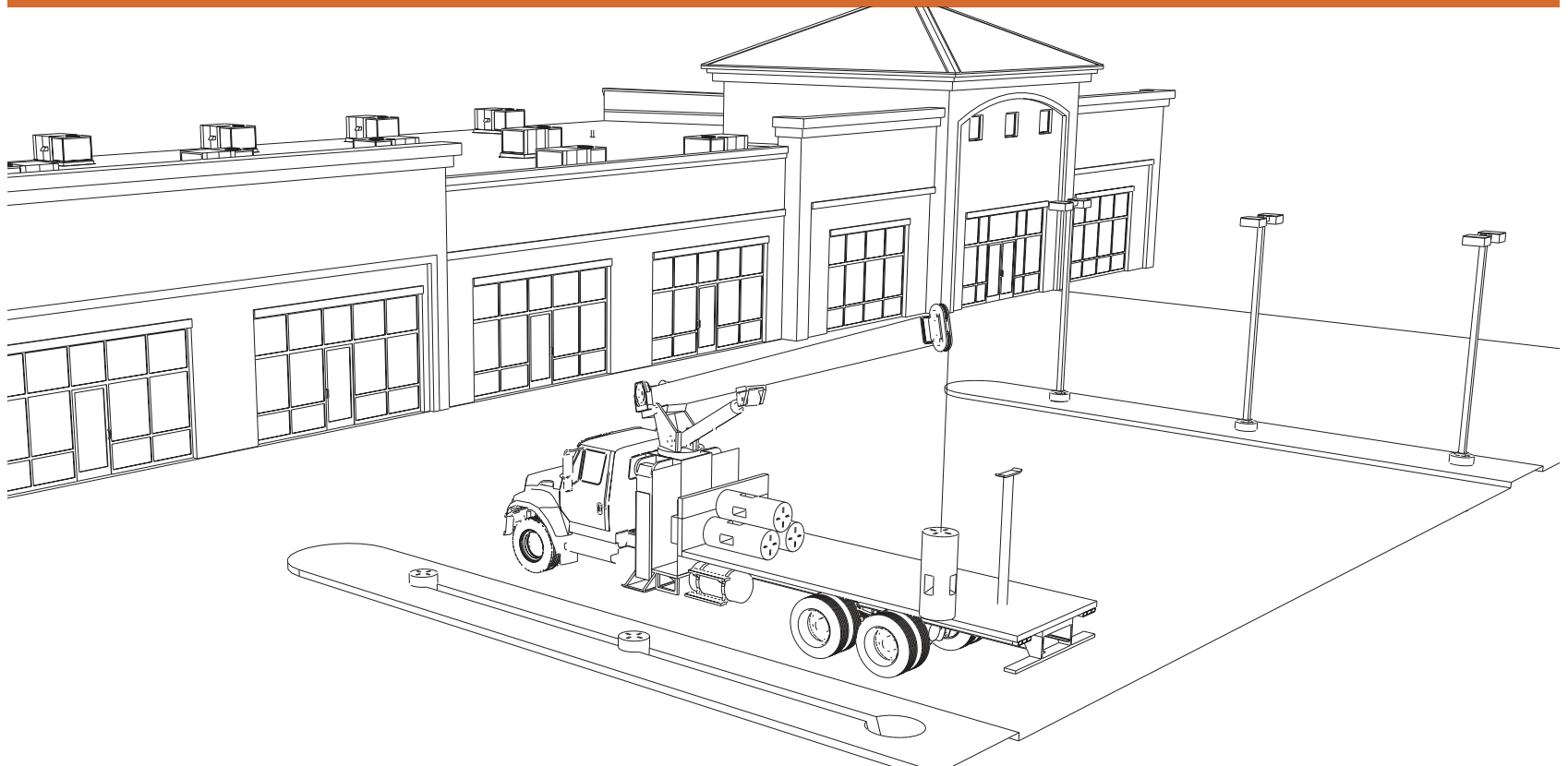


PRODUCT MANUAL - **INSTALLATION**



The Future of Precast **Light Pole Bases**



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Produced by ReCon Wall Systems, Inc.

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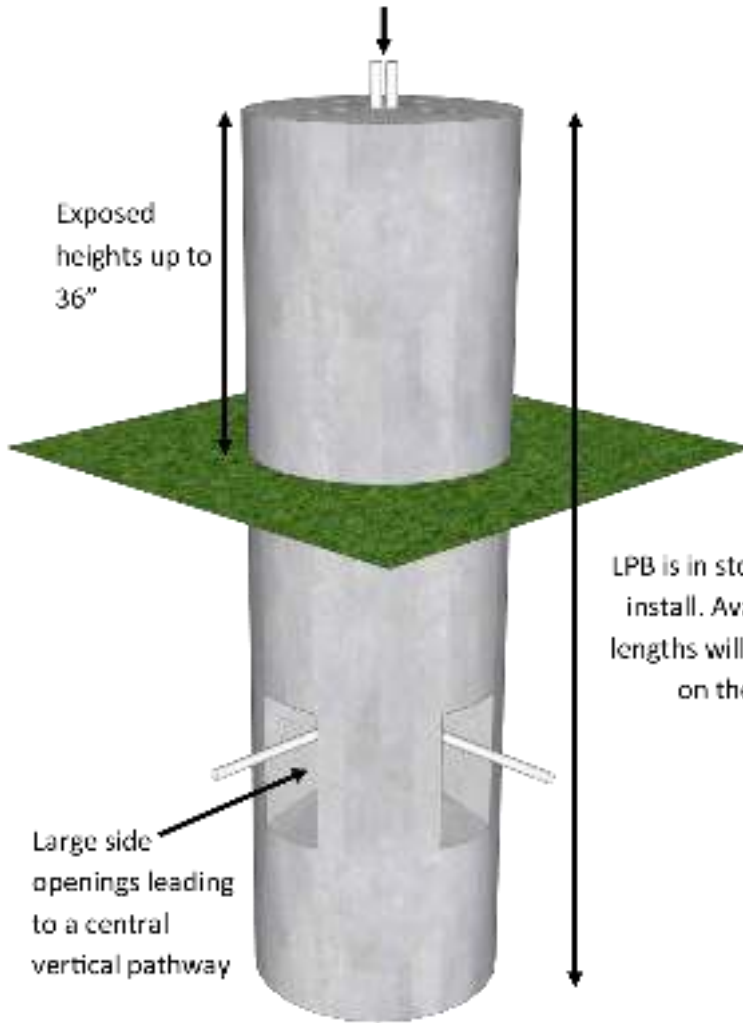
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Primary Product Features

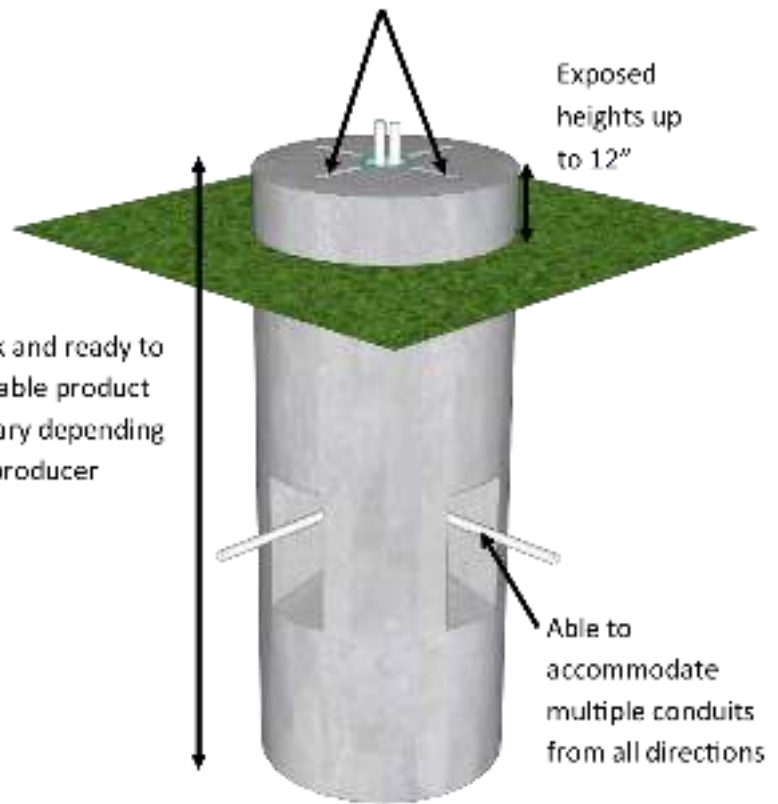
LPB can easily accommodate light poles up to 25' in height - taller depending on the conditions



8-Foot Tall LPB Option

Approx. Weight: 3500 lbs.
Concrete: Min. 5,000 psi
Diameter: 24"

Adjustable Anchoring System can accommodate bolt circle diameters from 7-1/2" up to 13-1/2"



6-Foot Tall LPB Option

Approx. Weight: 2600 lbs.
Concrete: Min. 5,000 psi
Diameter: 24"

LPB is in stock and ready to install. Available product lengths will vary depending on the producer

Important Notice to Installers

LPB is a proprietary product that contains two distinct and unique features; the adjustable anchoring system and the large side openings in the concrete foundation that facilitate conduit installation. Since site conditions and project requirements vary, analysis of these two features is required for each job utilizing the LPB. Information that is pertinent to the designer in the analysis process may include, but is not limited to:

- Area wind speed
- Site topography and exposure
- Pole height, shape and diameter/width
- Fixture quantity and surface area
- Site soil conditions

Final design, for construction purposes, must be completed by a Professional Engineer who is familiar with the project, the specific site conditions, and the specific light pole that will be installed. For additional information, or to assist in the design process, refer to the Engineering Reference Manual that is available at www.lightpolebase.com

Installation Bill of Materials (per LPB)

- 1 - LPB (total length based upon design and required bury depth)
- 4 - 3/4" diameter x 9" long HDG threaded rod (ASTM F1554 Grade 55)
- 4 - 3" x 3" x 5/16" thick HDG bearing plate (ASTM A36)
- 12 - 3/4" diameter HDG heavy hex nuts (ASTM A194 Grade 2H)
- 8 - 3/4" HDG hardened flat washer (ASTM F436)
- Grout for filling the anchoring slots (Refer to Grout Mix and Water Recommendations section for additional information)
- Figure 1 below, is a recommended bolting diagram that should be followed in the absence of guidance provided by the light pole manufacturer. Any guidance or requirements provided by the light pole manufacturer shall supersede the guidance in Figure 1, except as stated in Note 1 below.

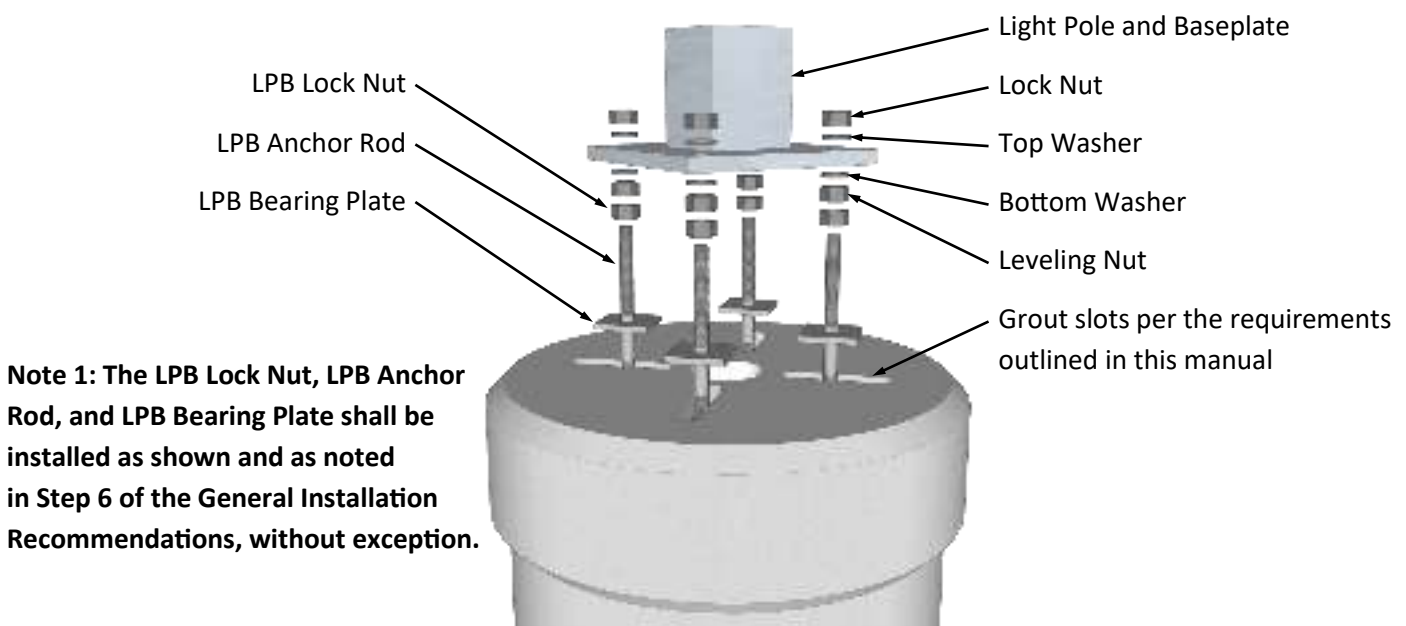


Figure 1: Recommended LPB Bolting Diagram

General Installation Recommendations

Step 1 - Determine the Location for the LPB

1. Mark the center location in which the LPB will be installed.
2. Install offset stakes to allow for relocating the center location after the hole has been augered or excavation is complete.

Step 2 - Auger or Excavate Hole

1. Auger or excavate hole at the marked location. Hole diameter should be 6 to 12-inches larger than the diameter of the LPB.
2. Auger or excavate to the required embedment depth plus 6-inches. The additional depth will allow for installation of the base material. The required embedment depth will be specified by the design engineer and is based upon the actual site conditions.
3. The bottom of the augered or excavated hole should be relatively flat.



Step 3 - Install Base Material

1. Place a minimum of 6-inches of crushed stone at the bottom of the augered or excavated hole.
2. Crushed stone should be compacted, level, and extend to the edges of the hole.
3. After placing the base material, ensure minimum embedment depth can still be achieved.



Step 4 - Place the LPB

1. Lower the LPB into hole. The base can be lifted by threading two straps through the center of the LPB or by attaching chains to the anchors located along the sides.
2. Ensure that the conduit openings are aligned properly for the site and installation requirements. Refer to Figures 2 and 3 on page 8 for additional information on final LPB orientation.
3. Once the LPB is in place, ensure that it is plumb, the top of the foundation is level, and the top surface elevation is set to the project requirements.
4. Brace the LPB as required to maintain location and level until the unit can be backfilled.



Step 5 - Install Backfill Material and Required Conduits

1. Place backfill material per the project requirements. It is recommended that all LPBs are backfilled using crushed stone or granular fill (sand).
2. Backfill material should be placed uniformly around the LPB in 6 to 8-inch lifts and compacted to 95% standard proctor density.
3. Initial backfill should be placed to an elevation just below the large side openings.
4. Install the required conduits through the side openings and out the top of the LPB.
5. After conduit installation is complete, install the rest of the backfill material to the finished grade elevation around the perimeter of the LPB.



LPB — Installation Orientation Figures

In most cases, project requirements will dictate the placement and orientation of the light pole fixtures and light pole base plate. To get the proper orientation of these elements, initial placement of the LPB is critical. The figures below show how the LPB should be placed in the ground, and which conduit openings to use, when alignment and orientation of the light pole fixtures and baseplate are mandated by other project requirements.

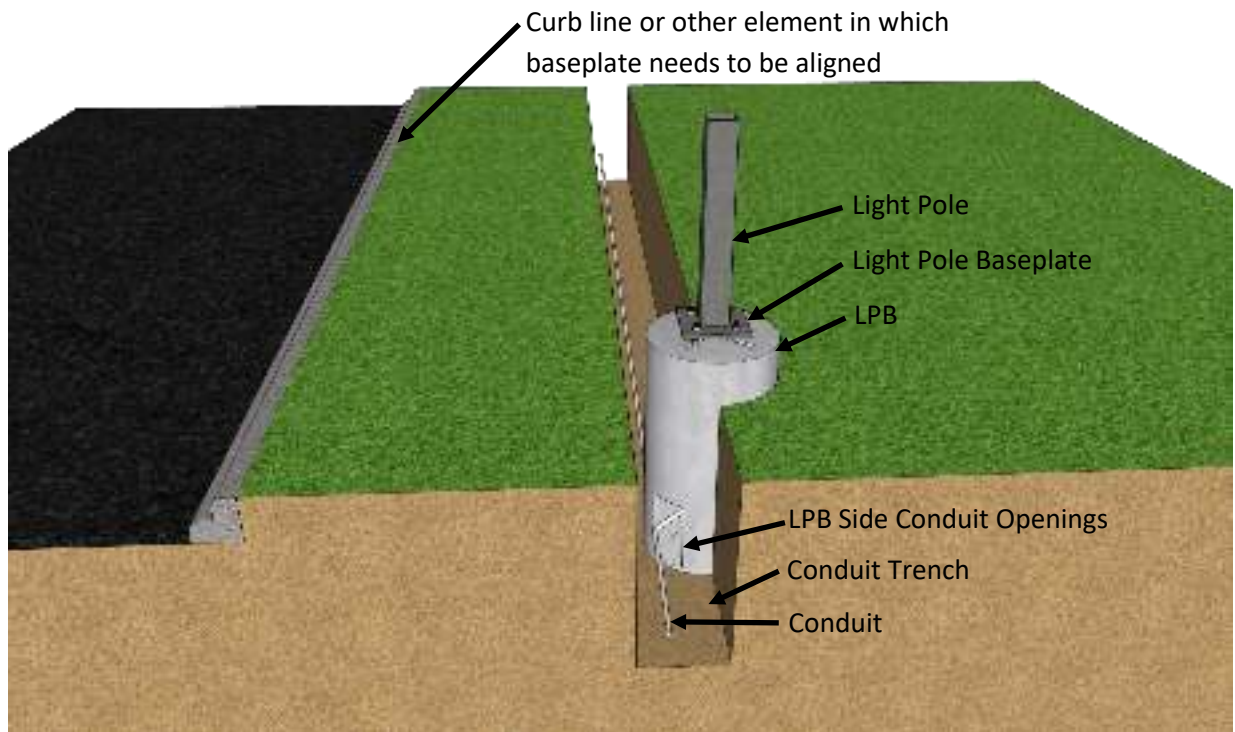


Figure 2: LPB Installation Orientation

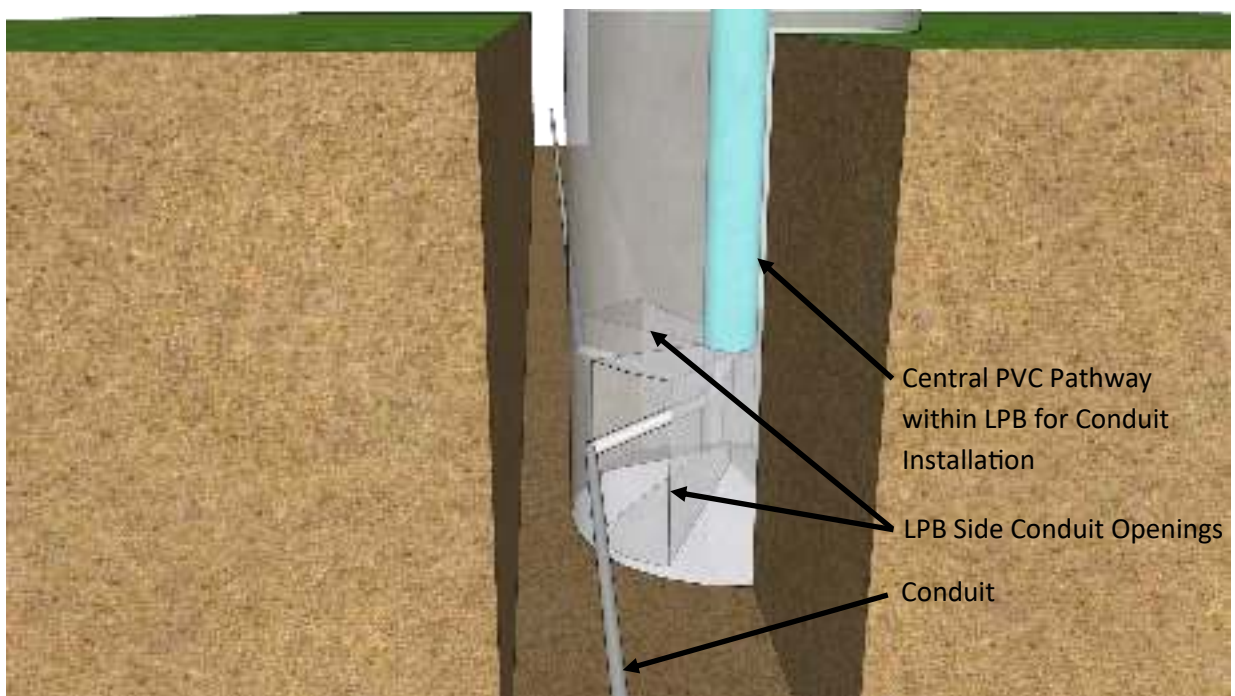


Figure 3: LPB Conduit Opening Detail

Step 6 - Setting Up the Anchoring Rods and Grouting

1. Install one threaded rod into the anchoring nut at the bottom of each slot located along the top of the LPB.
2. The threaded rod should be oriented with the 1.5-inch threaded end installed in the anchoring nut and the 5-inch threaded end extending out of the top of the LPB.
3. Using a template, slide the threaded rod and anchoring nut along the slot to achieve the required bolt circle diameter.
4. Once the threaded rods are in the correct location, continue tightening the rod until it seats against the bottom of the slot. This will hold the threaded rod in place.
5. Place one bearing washer and one nut onto each threaded rod. Tighten the nut against the bearing washer using standard crescent wrench. The nut should be hand tight.
6. Pour fluid grout into each slot. Be sure to fill each slot completely and trowel off any excess. Refer to the Grouting Section of this manual for additional information.



Step 7 - Install Light Pole

1. The light pole and base plate should be installed using the Recommended Bolting Diagram, previously shown in Figure 1 on page 5, in the absence of guidance provided by the light pole manufacturer. Any guidance or requirements regarding bolting from the light pole manufacturer shall supersede those shown in Figure 1, except as stated in Note 1 of Figure 1.
2. Ensure that the light pole is installed plumb using leveling nuts and that the bottom of lowest leveling nut is in contact with the top of the LPB Lock Nut. Leaving a space, or having a pole that is out of plumb, can create excess stress on the anchor rods.
3. The remaining portions of the light pole and fixtures should be installed per the manufacturer's recommendations.

Grout Mix Requirement

LPB requires the use of a high-strength, non-shrink grout when filling the anchoring slots. The grout should have a minimum compressive strength of 8,000 psi at 28-days when mixed to a fluid consistency (see photos below). One option for use is Quikcrete's Non-Shrink Precision Grout mix. Other grouts may be used provided they meet the stated requirements. All grout used should be mixed and installed per the specific manufacturer's recommendations. The Grout Mix Quantities table was prepared based upon the mixing recommendations for Quikcrete's Non-Shrink Precision Grout.



Grout Mix and Water Quantities

Number of LPBs	Number of Slots (4 per LPB)	Required Grout Mix (lb) (1.85 lb per Slot)	Required Water (oz) (6.45 oz per Slot)
1	4	7.4	25.8
2	8	14.8	51.6
3	12	22.2	77.4
4	16	29.6	103.2
5	20	37.0	129.0
6	24	44.4	154.8
7	28	51.8	180.6
8	32	59.2	206.4
9	36	66.6	232.2
10	40	74.0	258.0
11	44	81.4	283.8
12	48	88.8	309.6
13	52	96.2	335.4
14	56	103.6	361.2
15	60	111.0	387.0
16	64	118.4	412.8
17	68	125.8	438.6
18	72	133.2	464.4
19	76	140.6	490.2
20	80	148.0	516.0

(Note: Required grout mix and water quantities shown include a 5% waste factor)

Manufacturer's Limited Product Warranty

Each LPB shall have a 28-day compressive strength of at least 5,000 psi for 15 years after proper installation. If an LPB does not meet this warranty standard, please notify the manufacturer in writing. If after it has been determined that the LPB has not met the specifications, the manufacturer will have shipped to you, a replacement LPB which shall be the manufacturer's sole remedy for breach of this warranty. However, neither the manufacturer nor ReCon Wall Systems, Inc. shall have any obligation to install such replacement LPB.

This warranty shall not apply to any LPB which is damaged, defective or fails to meet the warranty standard due to improper installation of the LPB, chemical contact, or excessive and unforeseen site conditions beyond the manufacturer's or ReCon Wall Systems, Inc.'s control.

The above warranty is the exclusive limited product warranty. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED.

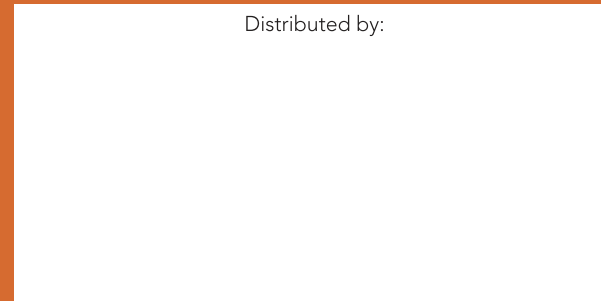


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