

**20mm THICKNESS**  
**PORCELAIN PAVERS**

# TECHNICAL INFORMATION.

## PROJECT

OUTDOOR FLOOR DESIGN

Frontier20 Blue Select Bluestone - 24"x24"

Frontier20 Blue Select Bluestone Coping - 12"x24"

Frontier20 Blue Select Bluestone Coping Corner - 12"x24"

WALL DESIGN

Veneer World Pro LedgeStone Bluestone Blue Select - 6"x24"

# INSTALLATION INFORMATION AND RECOMMENDATIONS.

## INSTALLATION INFORMATION AND RECOMMENDATIONS.

Specific details and instructions are given for each of the following installation options. Different climates and geographical locations will affect the thickness of the base. Depending on the location, contractors will install the standard base thickness to install porcelain pavers for the needs of the area. When installing porcelain pavers, the bedding course sand must be pre-compacted and then struck off with a screed to the required thickness as shown in the drawings. Before the laying of the porcelain pavers, the sand layer underneath must be pre-compacted. The sand layer needs a 5 to 6% moisture content to insure a smooth strike off finish.

### Compacting dry sand will not give the desired results.

- Only use a paver saw with a wet cut porcelain blade to wet cut porcelain pavers.
- Before installing your porcelain pavers in sand set installations, pre-compact and strike off your sand leveling course.
- Plastic  $\frac{3}{16}$ " (4 mm) spacers ( $\frac{1}{4}$ " - 6mm for MPD installation) must always be used to install pavers on sand set and permeable installations. The photo on the right illustrates the use of the  $\frac{3}{16}$ " spacer to support and space the 4 paver corners.
- Never install pavers with porcelain to porcelain contact.
- The use of plate compactors is not recommended to be used on the porcelain pavers.

## JOINT FILLING

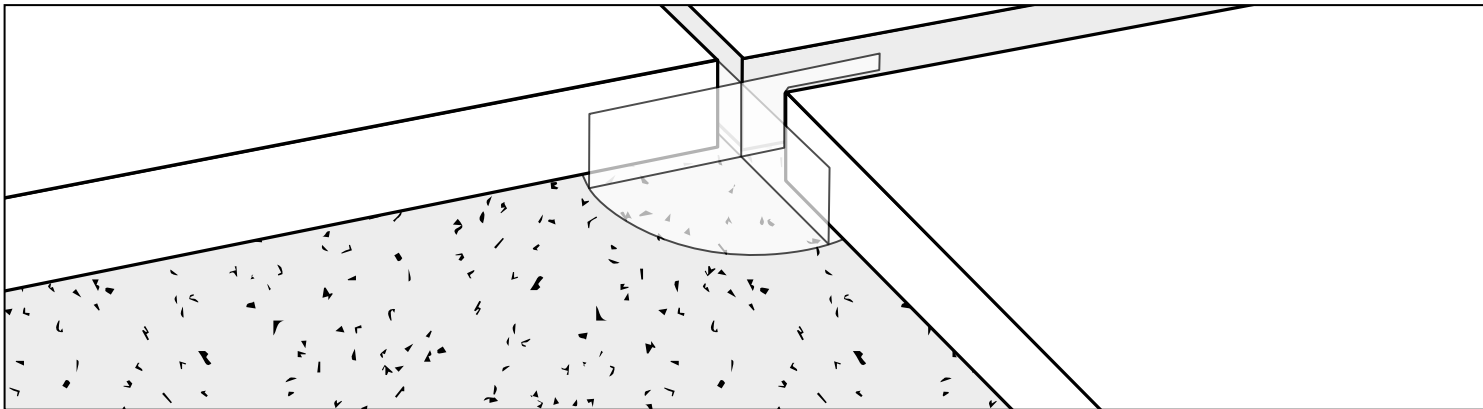
When installing porcelain paver on sand set base, fill the paver joints with these options:

### Traditional sand

Fill the open joints with traditional dry sand until completely filled. Sweep any excess sand off the pavers. Refilling of the joints with sand may be needed in the future due to wind and rain erosion.

### Polymeric sand

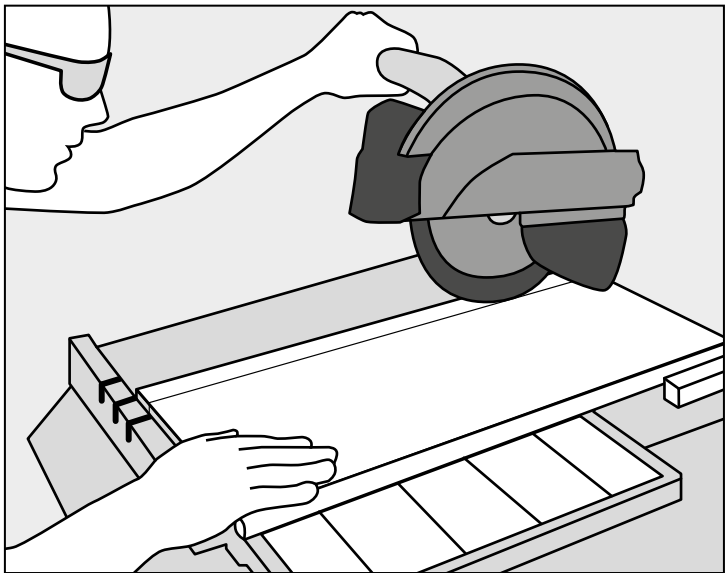
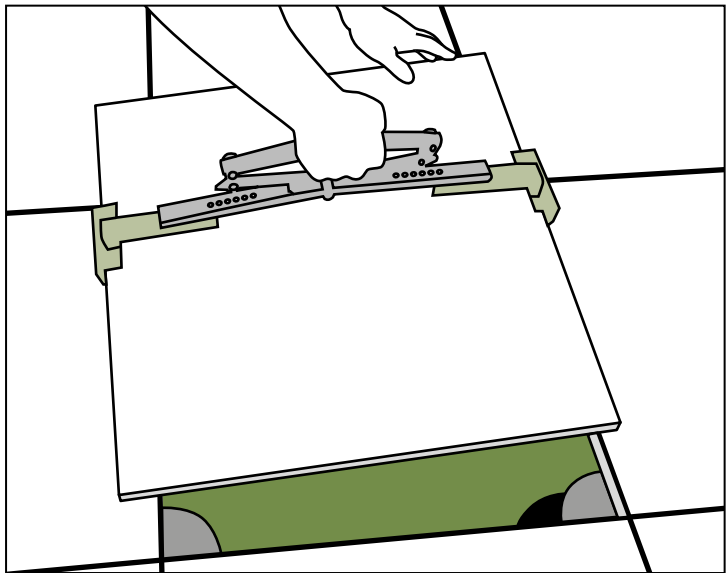
Polymeric sand is a blend of polymers which harden when subjected to moisture. Sweep the sand into the open joints until completely filled. All excess sand and dust must be swept from the surface. Use a blower for the final dust removal to make certain all excess sand is removed. Any residual sand or dust can result in staining of the surface. Once the filling of the joints and the cleaning of the surface is complete, mist the pavement with water which activates the polymer and cures the mixture.



## HANDLING AND SPECIALTY TOOLS.

Porcelain paver pallets are shipped with a very strong plastic covering and the individual units are packaged in protective cardboard boxes. The protective cardboard boxes guard them from the possibility of chipping. The handling of multiple loose stones can result in damaging or chipping of the pavers. Protect any un-used boxed pavers from the elements once the plastic shipping cover is removed. This insures the integrity of the protective cardboard boxes.

Wet cut paver saw is used to cut paver accurately and cleanly to fit around edges and corners. The saw must be equipped with a diamond blade manufactured for wet cutting porcelain and designed to safely cut a 24" (60 cm) length porcelain paver. A paver clamp to easily handle the installation and removal of pavers. Gloves are highly recommended while handling and installing porcelain slabs to protect the hands from injury. Notched trowels and grout float tools for cementitious adhesive and grout installation. Follow the adhesive and grout manufacturer's recommendations to select the appropriate tools needed for application.



**IMPORTANT NOTE: LEGAL DISCLAIMER**  
The nominal measurements include 4 mm (approx  $\frac{3}{16}$ " ) for product spacers which are sold separately. Although extreme care has been taken to ensure the accuracy of all measurements set forth herein, manufacturer assumes no liability relating thereto.

**IMPORTANT NOTES:**  
1. Use the manufacturer's instructions when choosing polymeric sand for your project.  
2. The use of cement blended sand and polymeric sand can reduce plant growth and insect infiltration within the joint infill material.  
3. Whether using traditional sand or a cemented blended sand, ensure the gradation of the sand is fine enough to pass through and fill the joints.

LINEAR CUT.

The videos linked below show how to properly cut thick porcelain pavers (porcelain tiles with 20 mm thickness) currently used for outdoor installations. Cutting these porcelain thick pavers is very different than cutting standard thickness tiles. The extreme hardness of the material, combined with its thickness, are the main factors that will put cutting tools to the test. Based on the experience of many professional tile installers, what often happens is that the basic blades make one or two good cuts on very thick tiles and then lose their cutting power. This causes the diamond blade to be so ruined that it can't even be recovered with common abrasive stones. Many tile and brick installers have found a first solution for this: using segmented blades to cut these thicker tiles. These are more aggressive blades that easily cut this type of ceramics leaving though a very poor cutting finish. There is then the need to spend time after each cut to finish the cut edge of the tile, especially if it is going to be laid in a position that leaves that edge visible after installation. It is important that the cut is made using a professional wet saw cutting machine and that is it made by pushing (or pulling, depending on how the cutting saw is built) the blade parallel to the plane from the beginning of the cut, applying a horizontal force (figure 1 and 2) to the trolley while avoiding to push (or pull) with excessive force. **Please note that the cut has to be performed at once with one passage. It is very important to pull down the blade without touching the tile and then pull/push the disc to cut the entire paver all at once.**



FIGURE 1



FIGURE 2

**It is not recommended (figure 3)** to carry out the cut by applying a force perpendicular to the side of the cutting plane (basically pushing down the saw into the tile). In fact, performing a vertical cut could affect the internal tensions of the product and lead to tile breakage.



FIGURE 3

Another cutting method consists in making a groove about 2 / 3mm deep (figure 4) by applying a very light force perpendicular to the paver surface first and then making the final cut at once with one passage, as above reported in figure 1 and 2.



FIGURE 4

In both cases, it is always recommended to use high quality disc blades and to perform the revitalization operations of the latter whenever necessary to achieve a proper cut. recommend using a high quality blade specific for porcelain and revive it often. By using a low quality blade, or a blade not specifically made for porcelain, it might need to be revived 2 or even 3 times during the same cut. This can lead to extra costs related to the use of many diamond abrasive stones or, even worse, it can significantly increase the likelihood of breaking the paver during the cutting process. During cutting, always recommends the use of abundant water before, during, and after the cutting phases to minimize the presence or dispersion of ceramic powder and to cool down the blade. Once the cut has been completed, clean the newly cut surface with water, in order to remove all the dust from the paver created by the cutting



ARCHITESSA

an Architectural Ceramics brand

DRILLING HOLES WITH CORE BITS.

The creation of holes in traditional 9 / 10mm thick porcelain tile is a common practice, but it is very delicate and requires experience and technique. This is even more true for 20mm thick porcelain paver, being this pArcticular tile thicker and more resistant. To carry out this specific cut, it is recommended to use drills or grinders together with high quality core bits for porcelain tile and paver. The use of low quality core bits could cause numerous breakages, together with an extremely accelerated wear of the tool due to the resistance of the 20mm porcelain stoneware. First of all, it is suggested to place the tile on a rigid support that absorbs the vibrations generated by the work (for example a panel of wood or regenerated rubber on a wooden panel).

After positioning the drill with the core bit in the desired position (remember to check that the drill is not in hammer mode) it is crucial to mark the exact point with a pencil, then proceed to place the core bit by tilting it slightly on the paver (figure 5).



FIGURE 5



FIGURE 6

Do not place the core bit perpendicularly (figure 6) to the paver surface as it could lead to the breakage of the paver itself.

Once the core bit is in place and already moving, gently (and without pushing too much) make a continual and constant oscillatory movement until the hole from top to bottom thorough the paver is complete (figure 5). Use a high quality core bit specific for porcelain.

By using a low quality core bit, or a core bit not specific for porcelain, the likelihood of breaking the paver during drilling operation could increase. During drilling, use of abundant water before, during, and after the drilling phase to minimize the presence or dispersion of ceramic powder and to cool down the cutter.

Once the hole has been made, clean the hole with water, in order to remove all the dust from the surface of the paver created by the drilling. It is also possible, whenever needed, to adjust the shape of the hole created with specific tools that soften the cut made by milling eventual sharp/irregular edges of the hole.

These tools are always made with artificial diamonds and should be specific for porcelain tiles and pavers.

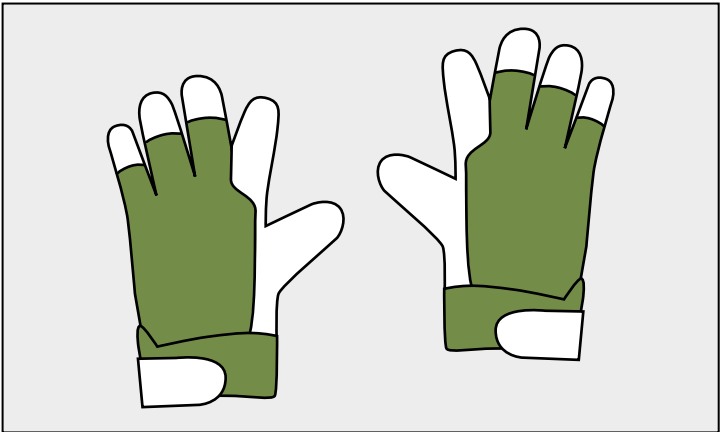
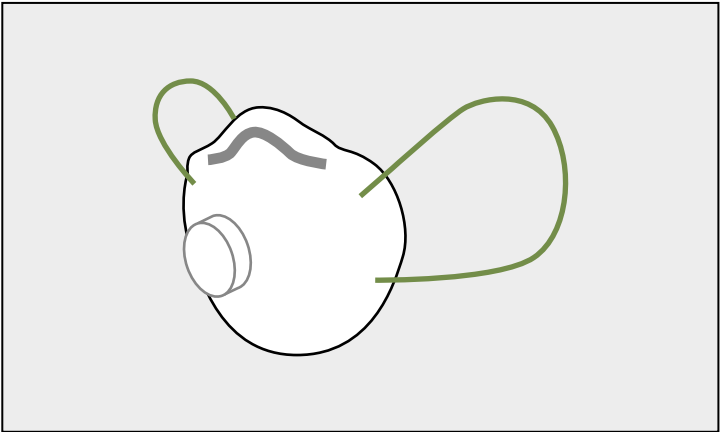
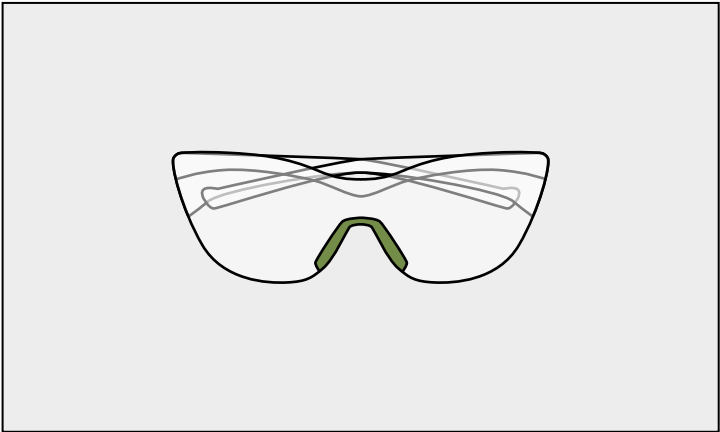
Please find below a link to a video of 20 mm porcelain pavers drilling:  
<https://www.youtube.com/watch?v=SVwzk894qdl>

GENERAL RECOMMENDATIONS.

high quality tools and blades, specifically designed for porcelain. This is because 20mm thick porcelain is very strong and compact and does not behave, during cutting and drilling operations, like traditional thickness porcelain. During cutting and/or drilling, use of abundant water before, during and after the drilling phases to minimize the presence or dispersion of ceramic powder and to cool the blade/core bit.

Use certified wet or suction tools to reduce and minimize the dispersion of ceramic powder. Once the necessary operations are finished, it is very important to clean the surface of the tile from the dust to prevent it from being trapped by the filler needed for the joints.

Use safety glasses, mask, gloves and steel toe shoes.



# CLEANING INFORMATION

## FOR PORCELAIN PAVERS INSTALLED OVER CONCRETE

### FIRST FLOOR DEEP CLEANING AFTER INSTALLATION OVER CONCRETE

After Grouting the Joints (pic. 1) It is important to remove the excess grout with a sponge and clear water (pic. 2). After 12/48 hours, the grout in the joints will have “set up” /hardened significantly. There will be a noticeable residual “haze”. Typically, a diluted acid cleaner specifically for removing “Grout Haze”, combined with a soft scrubbing pad will remove the majority if not all the “Haze”. Change your acid/water solution frequently for best results. It is also recommended to keep a bucket of clean water to remove the acid/water solution. It is recommended to keep and use clean dry towels to help remove as much residual water and keep the floor as dry as possible.

Please refer to the cleaning chemical company’s suggested methods and dilution rates. (pic. 3). For areas with excess grout or grout that becomes adhered to the face of the tile, further cleaning with an Acid/ Water Solution may be necessary. Please refer to the Cleaning Chemical Company’s instructions as not all acids or chemicals are the same.

The excess grout residue (pic. 4-5) must be removed so that it does not dry and stick on the surface. It is necessary to change the cleaning water frequently and rinse well. Care must be taken on inlayed, polished and especially Anti Slip products similar to Frontier20. The use of a floor-washing machine combined with the use of a diluted acid detergent helps reach the spaces between adjacent tiles and clean them properly. If such a cleaning procedure is not carried out, or if such cleaning is carried out too late, the grout residue creates an absorbent film, which holds dirt, making the surface difficult to clean: in this case, Architessa will not be liable for any damage caused to the surface.

### ORDINARY CLEANING

Ordinary maintenance must be carried out using specialized detergents to remove stains but these detergents must not leave a wax, film or membrane residue. Rinsing well with plenty of clean water is a fundamental part of the cleaning procedure, therefore we advise against the use of products which state that they “do not need rinsing”.

### OTHER RECOMMENDATIONS

Bright colored products, in pArcticular white and extra-white tiles, are very delicate and, although for all intent and purpose are hygienically clean, However, they can get dirty more easily than darker tiles. It is therefore necessary to remember that these pArcticular products require careful regular maintenance. Sealers are unnecessary, especially in the case of our **Frontier20** Product line. Sealing will change the D.C.O.F. (Dynamic Co-efficient of Friction) resulting in a surface that will become more slippery. Also because Porcelain has such a low absorption the sealer will unlikely stick and most likely the sealer will flake off over time.



PIC 1. Fill joint with grout.



PIC 2. Remove excess grout with clean water.



PIC 3. Add specific acid cleaning agent for porcelain tile to clean water.



PIC 4. First floor deep cleaning after 12/48 h from installation.



PIC 5. Removal of excess grout residues with hard brush.

# CLEANING AGENTS

| TYPE OF STAIN                                                                                                                                         | SOLUTION             | DETERGENTS                                        | MANUFACTURER                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| INORGANIC STAINS                                                                                                                                      |                      |                                                   |                                                                                                                                                           |
| Cement<br>Carbon<br>Calcium Efflorescence<br>Chalk<br>Metallic residues<br>Rust<br>Cement-based grout<br>Colored grout<br>Wall paint                  | Acid                 | DETERGENT WITH AN ACID BASIS *                    |                                                                                                                                                           |
|                                                                                                                                                       |                      | DETERDEK or similar                               | UNITED STATES > Fila Chemicals USA,<br>Corp.10800 N.W. 21st Street #170<br>Miami, FL 33172 USA<br>Tel. +1-305-513-0708<br>email filausa@filasolutions.com |
|                                                                                                                                                       |                      | KERANET (liquid) or similar                       | MAPEI Americas Headquarters<br>1144 E. Newport Center Drive<br>Deerfield Beach, Florida 33442                                                             |
| ORGANIC STAINS                                                                                                                                        |                      |                                                   |                                                                                                                                                           |
| Coca Cola<br>Ice Cream<br>Coffee Wine<br>Beer<br>Animal fats<br>Vegetable fats<br>Mustard Mayonnaise<br>Ketchup<br>Jam Linseed oil<br>Lipstick<br>Wax | Alkaline and neutral | LIMITED FOAM TYPE PRODUCT **                      |                                                                                                                                                           |
|                                                                                                                                                       |                      | PS87 or similar                                   | UNITED STATES > Fila Chemicals USA,<br>Corp.10800 N.W. 21st Street #170<br>Miami, FL 33172 USA<br>Tel. +1-305-513-0708<br>email filausa@filasolutions.com |
|                                                                                                                                                       |                      | FILACLEANER or similar                            | UNITED STATES > Fila Chemicals USA,<br>Corp.10800 N.W. 21st Street #170<br>Miami, FL 33172 USA<br>Tel. +1-305-513-0708<br>email filausa@filasolutions.com |
|                                                                                                                                                       |                      | Ammonium                                          | Universal                                                                                                                                                 |
| RESIDUAL RINGS<br>of organic nature                                                                                                                   | Saline solution      | Sodium hypochloride<br>(bleach for white laundry) | Universal                                                                                                                                                 |
| Silicone oils<br>Machine Oil<br>Resins and glazes<br>Coal and natural rubber<br>Encres et feutres                                                     |                      | FILASOLV or similar                               | UNITED STATES > Fila Chemicals USA,<br>Corp.10800 N.W. 21st Street #170<br>Miami, FL 33172 USA<br>Tel. +1-305-513-0708<br>email filausa@filasolutions.com |
|                                                                                                                                                       |                      | Aceton                                            | Universal                                                                                                                                                 |
|                                                                                                                                                       |                      | NITRO - THINNER                                   | Universal                                                                                                                                                 |
|                                                                                                                                                       |                      | TURPENTINE                                        | Universal                                                                                                                                                 |
|                                                                                                                                                       |                      | TRICHLORETHYLENE                                  | Universal                                                                                                                                                 |
|                                                                                                                                                       |                      | CIF AMMONIACAL                                    | Universal                                                                                                                                                 |
| Tire                                                                                                                                                  | HAND CLEANSER        | Universal                                         |                                                                                                                                                           |
| Silicone and chewin-gum                                                                                                                               | Ice+scraper          |                                                   |                                                                                                                                                           |

N.B. When using the above products, the instructions on the package should be followed.

\* **Detergent with an acid base:** a detergent with an acid basis, specifically recommended after bath floor or wall installation, for the decalcioficant cleaning and the regular maintenance.

\*\* **Limited foam type product:** a limited foam type product degreasing and general cleaning, suitable for all types of stains but especially for remove of vegetable and animals fats.

PERFORMANCE COMPARISON PORCELAIN PAVERS VS. COMPETITOR OUTDOOR PAVING MATERIALS

| FEATURES                 | FRONTIER20<br>PORCELAIN<br>PAVERS | WOOD PAVERS                    | CLAY BRICK        | CIP<br>(CAST IN PLACE)<br>CONCRETE | CONCRETE<br>PAVERS       | NATURAL<br>STONE  |
|--------------------------|-----------------------------------|--------------------------------|-------------------|------------------------------------|--------------------------|-------------------|
| Stainable                | No                                | Yes                            | Yes (Highly)      | Yes                                | Yes                      | Yes (Highly)      |
| Freeze Thaw Proof        | Yes                               | No                             | No                | No                                 | No                       | No                |
| Salt Resistant           | Yes                               | No                             | Salt Will Degrade | No                                 | No                       | No                |
| Acid Resistant           | Yes                               | No                             | Acid Will Burn    | No                                 | No                       | No                |
| Scratch Resistant        | Highly                            | No                             | Somewhat          | No                                 | No                       | No                |
| Moisture Absorption      | < 0,5%                            | Highly Varried                 | 5%                | 5%                                 | 5-10%                    | ≥ 5%              |
| Easy To Repair           | Yes                               | Yes                            | No                | Can Not                            | No                       | No                |
| Uv Resistant             | Unaffected                        | No                             | Yes               | If Sealed                          | Yes/No                   | Unaffected        |
| Needs Sealed             | Never                             | Yes                            | Recommended       | Recommended                        | Recommended              | Recommended       |
| Pressure Washer Safe     | > 1500 PSI                        | No                             | Not Recommended   | > 1500 PSI                         | No                       | No                |
| Environmentally Friendly | Facility 98% Green                | Many Exotic Rainforest Species | No                | Large Carbon Foot Print            | Possible Fly Ash Content | Mined Or Imported |
| Recycled Content         | 20% In Each Paver                 | No                             | Not Possible      | Not Possible                       | If Possible Less Than 5% | Not Possible      |

| PHYSICAL PROPERTIES                                                                  |                                                 | TEST ASTM     | NORTH AMERICAN STANDARD A137.1* | RESULTS                 |
|--------------------------------------------------------------------------------------|-------------------------------------------------|---------------|---------------------------------|-------------------------|
|   | Water absorption *                              | C373          | ≤ 0.5%                          | COMPLY WITH ANSI A137.1 |
|   | DCOF Average dynamic coefficient of friction ** | BOT 3000 test | ≥ 0.6                           | ≥ 0.6                   |
|   | Skid Resistance                                 | DIN 51097     | -                               | A+B+C                   |
|                                                                                      |                                                 | DIN 51130     |                                 | R11                     |
|   | Resistance to freeze/thaw cycling *             | C1026         | As reported                     | RESISTANT               |
|   | Resistance to thermal shock                     | C484          | As reported                     | RESISTANT               |
|   | Warpage (edge)                                  | C485          | Warpage ± 0.4% or ± 0.05 in     | COMPLY WITH ANSI A137.1 |
|   | Warpage (diagonal)                              | C485          | Warpage ± 0.4% or ± 0.07 in     | COMPLY WITH ANSI A137.1 |
|   | Wedging                                         | C502          | ± 0.25% or ± 0.03 in            | COMPLY WITH ANSI A137.1 |
|   | Chemical resistance                             | C650          | As reported                     | UNAFFECTED              |
|   | Resistance to stain                             | C1378         | As reported                     | UNAFFECTED              |
|   | Thickness                                       | C499          | Range: 0.04 in                  | COMPLY WITH ANSI A137.1 |
|  | Breaking strength                               | C648          | 250 lbf or greater              | COMPLY WITH ANSI A137.1 |

\* Average values referred to our production and related to the matt finish of the product.  
\*\* As far as values relating to the matt finish of the product and to tests carried out by certified external laboratories whose results are available upon request at Headoffice, we are willing to check the lot you are interested in purchasing.  
- Be sure to use pavers belonging to the same caliber.  
- Test results are available on request.  
- The information provided can be subject to change. Please refer to **outdoor.landmarkceramics.com** for the latest, most accurate and up-to-date information.

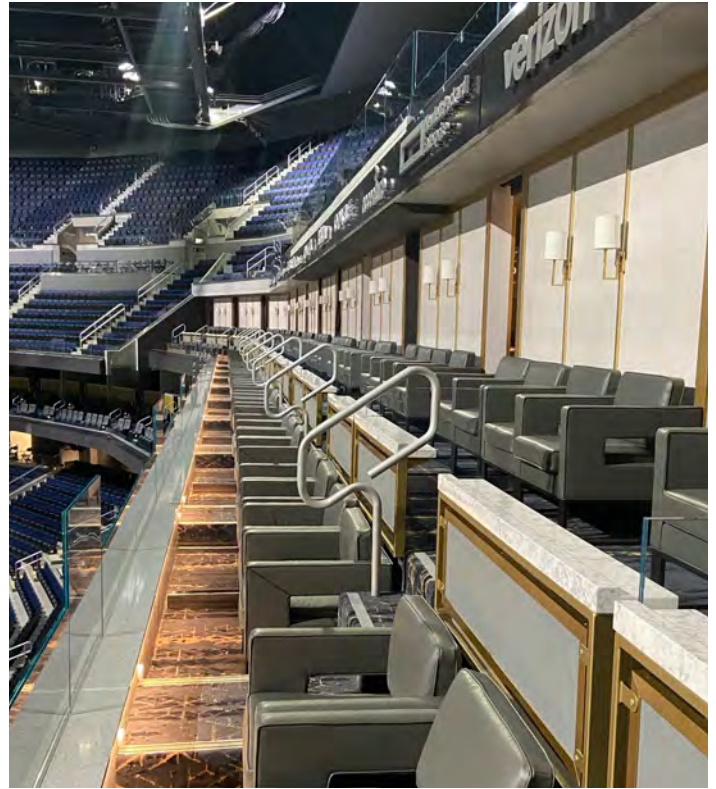
WARNINGS.

- Outdoor pavings installed unglued above the ground level are subject to the action of the wind, with the risk, in some cases, of becoming airborne.The manufacturer recommends to require the assistance of a qualified professional in order to check the suitability of the installation system above the ground adopted, in accordance with the local laws and regulations and the conditions of use. Failure to do so could result in serious injury or property damage.
- If the application of the 20 mm slabs requires the ceramic product used in structural installations, the project engineer and/or customer must carefully assess the project requirements with regard to the technical specifications of the slabs. to prevent the risk of damage or injury, the manufacturer recommends: with regard to a raised floor installation a ceramic slab may fracture on impact if a heavy object falls on it from any significant height. therefore the manufacturer recommends to check the specific intended use before starting the installation and to follow table for raised installation provided below. in certain conditions, reinforcing must be applied on the back of the slabs (double fiberglass mesh) supplied and applied by the manufacturer; with reference to any dry installation system of flooring above the ground level, the manufacturer recommends to comply with local regulations and conditions of use with regard to wind-load, loadbearing, seismic events, etc. Failure to comply with these recommendations may lead to improper use of the product and could cause serious damage or injury. Failure to adhere to the manufacturer's instructions for installation of slabs on raised pedestal systems may result in serious injury.
- For further information and recommendations concerning the installation systems please refer to **outdoor.landmarkceramics.com** website.



Griprail™ pipe and tube railing system is designed and constructed using round pipe and tube providing a graspable handrail for stairs, ramps and crowd control applications. A variety of materials, finishes and colors are available to meet your project requirements.





## Specifications

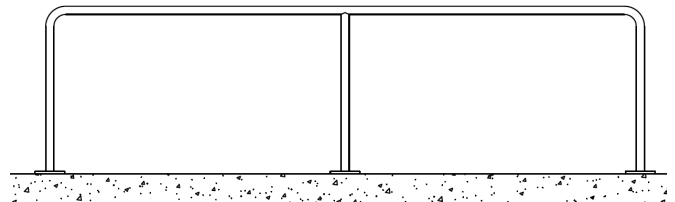
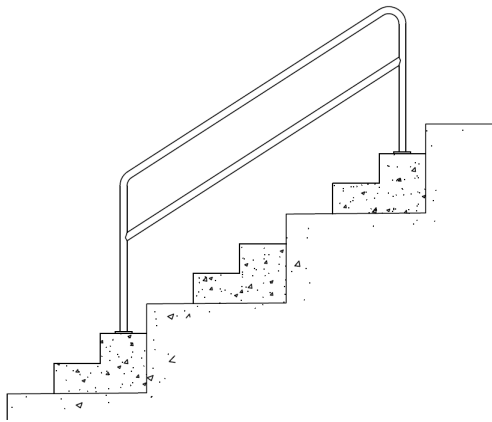
|               |                                                                                                                                                                                      |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material:     | Aluminum, Stainless Steel, Steel                                                                                                                                                     |
| Finishes:     | Aluminum: Anodized/High Performance Coatings/Architectural Powder Coat<br>Stainless Steel: Brushed/Polished<br>Steel: Galvanized/High Performance Coatings/Architectural Powder Coat |
| Height:       | 34" - 38" - A.F.F.                                                                                                                                                                   |
| Post Spacing: | Variable (centered on steps)                                                                                                                                                         |
| Mount Type:   | Top, Fascia, or Wall mount                                                                                                                                                           |
| Top Rail:     | Round pipe (Typical)                                                                                                                                                                 |
| Post:         | Round pipe (matches top rail material)                                                                                                                                               |
| Corners:      | Bent/eased or mitered                                                                                                                                                                |

\*Custom Options Available

Aisle Rail



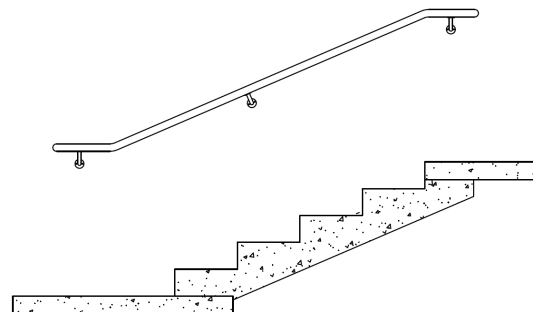
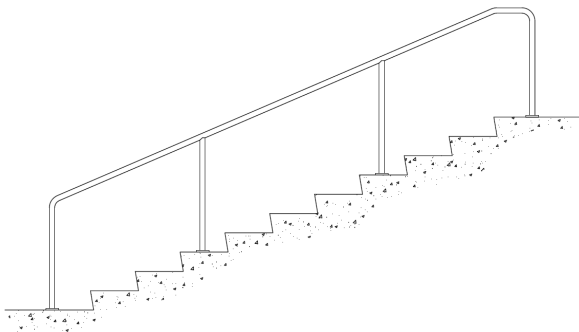
Courtesy Rail



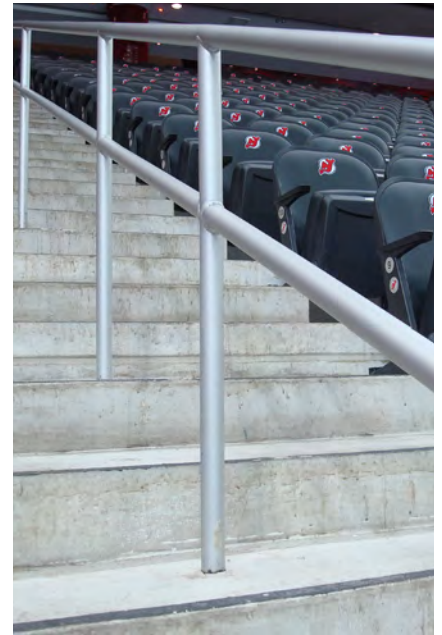
Center Handrail



Wall Handrail



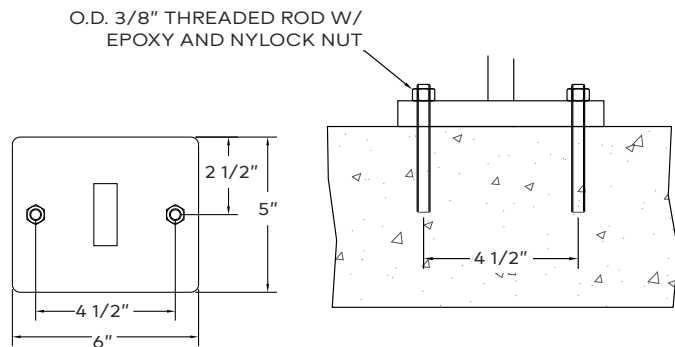
#### Top Mount



#### Fascia Mount

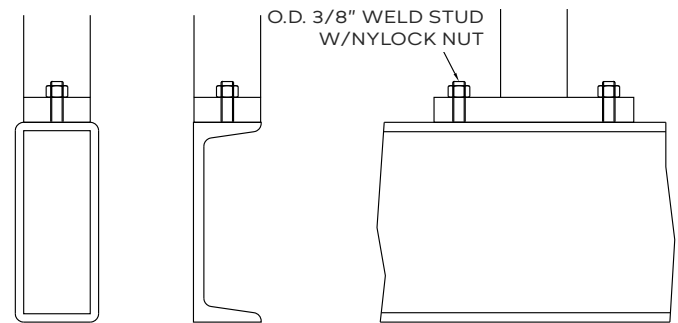


## Pipe & Tube Handrail Top Mount Base Plate



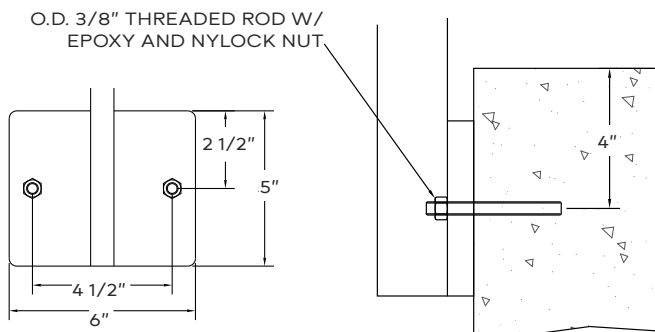
Dimensions dependent on geometry.

## Stringer Mount



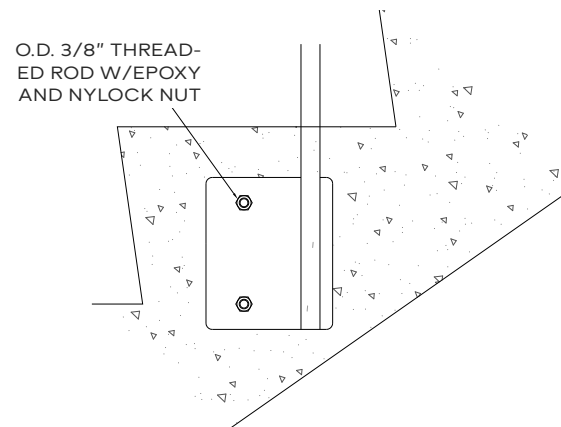
Dimensions dependent on geometry.

## Fascia Mount Base Plate



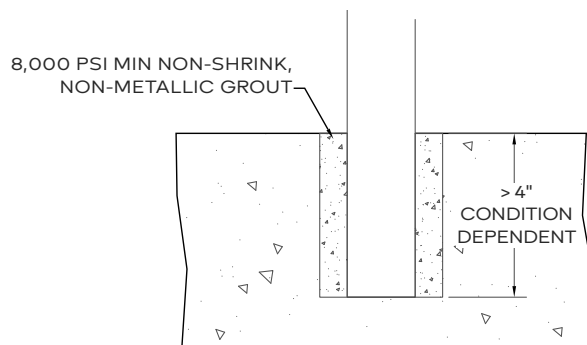
Dimensions dependent on geometry.

## Fascia Mount Stair Base Plate



Dimensions dependent on geometry.

## Core Mount



### Notes:

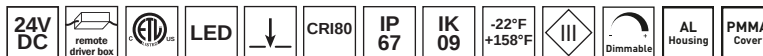
Handrails can be mounted to concrete or steel.

Anchor size/Type may vary due to field conditions.



- . Continuous light for paths and squares
- . Homogenous light without visible dots
- . Linear rigid body
- . Protection class IP67
- . Small dimensions
- . Easy serial connection

# SLIM GROUND LINER

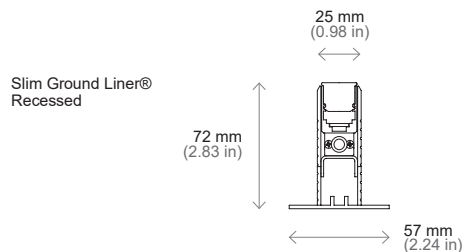
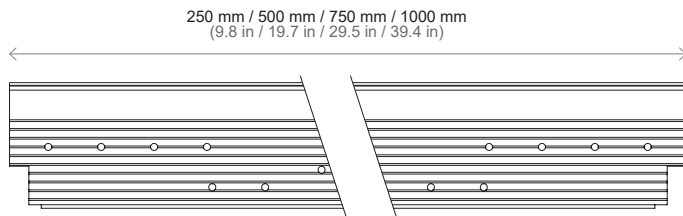


| Family | Model / Length |             | Color temp |       | Driver |         | Input voltage |             | Run Length               |
|--------|----------------|-------------|------------|-------|--------|---------|---------------|-------------|--------------------------|
| SGL    |                |             |            |       |        |         |               |             |                          |
|        | 7101211        | 39.4in 1000 | /80/2K8    | 2800K | N      | NON-DIM | 24            | 24VDC input | *** advise on run length |
|        | 7101212        | 29.5in 750  | /80/4K     | 4000K | A      | 0-10V   |               | 120/227V    |                          |
|        | 7101213        | 19.7in 500  | /80/5K5    | 5500K | D      | DMX     |               |             |                          |
|        | 7101214        | *9.84in 250 | /11        | **RGB |        |         |               |             |                          |

| example... | Family | Model / Length |             | Color temp |       | Driver |  | Input voltage |  |
|------------|--------|----------------|-------------|------------|-------|--------|--|---------------|--|
|            | SGL    | 7101211        | 39.4in 1000 | /80/2K8    | 2800K | A      |  | 24            |  |

**Notes:**

- (\*) only suitable for end of the run
- (\*\*) only available for sizes 3 (19.7") & 1 (39.4")
- (\*\*\*) max continuous run cannot exceed 96 watts



# SLIM GROUND LINER

| Slim Ground Liner® 1000 |                     |              |              |              |            |             |            |
|-------------------------|---------------------|--------------|--------------|--------------|------------|-------------|------------|
|                         | (with recessed box) |              |              |              |            |             |            |
| Measures                | 25 x 72 x 1000 mm   |              |              |              |            |             |            |
| Weight                  | 2,1 kg              |              |              |              |            |             |            |
| Color temperatures      | <b>2800K</b>        | <b>4000K</b> | <b>5500K</b> | <b>Amber</b> | <b>Red</b> | <b>Blue</b> | <b>RGB</b> |
| Power                   | 11.6 W              | 11.6 W       | 11.6 W       | 5.8 W        | 5.8 W      | 11.6 W      | 22 W       |
| Lumens output           | 253 lm              | 270 lm       | 310 lm       | 63 lm        | 32 lm      | 28 lm       | 275 lm     |
| N° LEDs                 | 120 LEDs            | 120 LEDs     | 120 LEDs     | 120 LEDs     | 120 LEDs   | 120 LEDs    | 90 LEDs    |
| Luminaire efficiency    | 32 lm/W             | 34 lm/W      | 39 lm/W      | 11 lm/W      | 6 lm/W     | 4 lm/W      | 13 lm/W    |

| Slim Ground Liner® 750 |                     |              |              |              |            |             |                                |
|------------------------|---------------------|--------------|--------------|--------------|------------|-------------|--------------------------------|
|                        | (with recessed box) |              |              |              |            |             |                                |
| Measures               | 25 x 72 x 750 mm    |              |              |              |            |             |                                |
| Weight                 | 1,6 kg              |              |              |              |            |             |                                |
| Color temperatures     | <b>2800K</b>        | <b>4000K</b> | <b>5500K</b> | <b>Amber</b> | <b>Red</b> | <b>Blue</b> | <b>RGB</b>                     |
| Power                  | 8.7 W               | 8.7 W        | 8.7 W        | 4.4 W        | 4.4 W      | 8.7 W       | Not available<br>No disponible |
| N° LEDs                | 90 LEDs             | 90 LEDs      | 90 LEDs      | 90 LEDs      | 90 LEDs    | 90 LEDs     |                                |
| Lumens output          | 190 lm              | 203 lm       | 240 lm       | 48 lm        | 24 lm      | 21 lm       |                                |
| Luminaire efficiency   | 32 lm/W             | 34 lm/W      | 39 lm/W      | 11 lm/W      | 5 lm/W     | 4 lm/W      |                                |

| Slim Ground Liner® 500 |                     |              |              |              |            |             |            |
|------------------------|---------------------|--------------|--------------|--------------|------------|-------------|------------|
|                        | (with recessed box) |              |              |              |            |             |            |
| Measures               | 25 x 72 x 500 mm    |              |              |              |            |             |            |
| Weight                 | 1,1 kg              |              |              |              |            |             |            |
| Color temperatures     | <b>2800K</b>        | <b>4000K</b> | <b>5500K</b> | <b>Amber</b> | <b>Red</b> | <b>Blue</b> | <b>RGB</b> |
| Power                  | 5.8 W               | 5.8 W        | 5.8 W        | 2.9 W        | 2.9 W      | 5.8 W       | 11 W       |
| N° LEDs                | 60 LEDs             | 60 LEDs      | 60 LEDs      | 60 LEDs      | 60 LEDs    | 60 LEDs     | 45 LEDs    |
| Lumens output          | 125 lm              | 131 lm       | 153 lm       | 32 lm        | 16 lm      | 14 lm       | 134 lm     |
| Luminaire efficiency   | 31 lm/W             | 33 lm/W      | 39 lm/W      | 11 lm/W      | 6 lm/W     | 4 lm/W      | 12 lm/W    |

| Slim Ground Liner® 250 |                     |              |              |              |            |             |                                |
|------------------------|---------------------|--------------|--------------|--------------|------------|-------------|--------------------------------|
|                        | (with recessed box) |              |              |              |            |             |                                |
| Measures               | 25 x 72 x 250 mm    |              |              |              |            |             |                                |
| Weight                 | 0,6 kg              |              |              |              |            |             |                                |
| Color temperatures     | <b>2800K</b>        | <b>4000K</b> | <b>5500K</b> | <b>Amber</b> | <b>Red</b> | <b>Blue</b> | <b>RGB</b>                     |
| Power                  | 2.9 W               | 2.9 W        | 2.9 W        | 1.5 W        | 1.5 W      | 2.9 W       | Not available<br>No disponible |
| N° LEDs                | 30 LEDs             | 30 LEDs      | 30 LEDs      | 30 LEDs      | 30 LEDs    | 30 LEDs     |                                |
| Lumens output          | 62 lm               | 67 lm        | 78 lm        | 16 lm        | 8 lm       | 6 lm        |                                |
| Luminaire efficiency   | 31 lm/W             | 34 lm/W      | 39 lm/W      | 11 lm/W      | 6 lm/W     | 4 lm/W      |                                |

# Streetscape Elements

## TRASH CAN

### Description

Trash can - black in color; style to match Old Town Square can or City Park can  
Recycling can - blue in color; style to match Old Town Square can or City Park can

### Style

- Side opening
- Logo banding optional

### Size

- 24" diameter
- 39" height
- 36 gallon side-opening, stainless steel hinge and latch, surface mounted

### Materials and Color

- Cast aluminum, spun aluminum top
- Cast iron base
- Stainless steel fasteners
- Matte Black for trash; blue for recycling
- Polyester powder-coat

### Location and Setbacks

- Minimum 24 inches setback from face of curb
- Do not exceed 1 receptacle (or 2 if waste/recycling combination) per 300 linear feet (LF) of streetscape

### Requirements

- Landscape Forms Chase Park Litter and Recycling Receptacles or equal
- Global Industries Outdoor Steel with Rain lid or equal

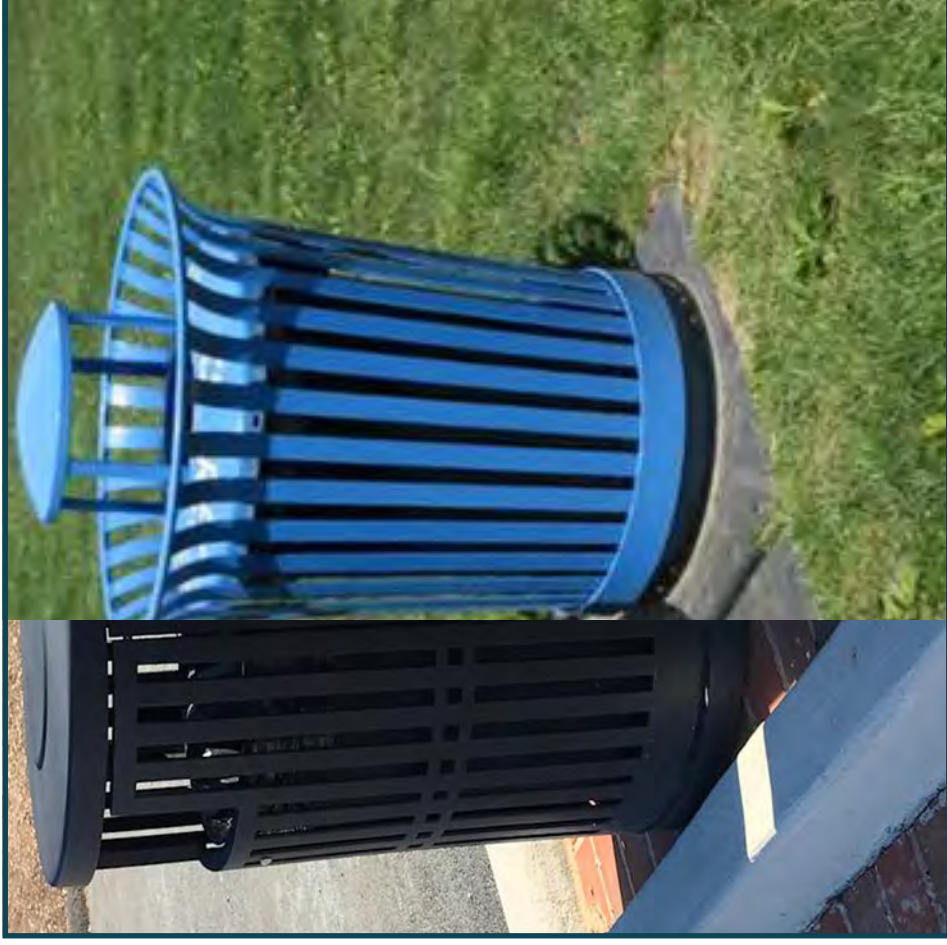
### Sources

Landscape Forms, Inc.  
7800 E. Michigan Ave.  
Kalamazoo, MI 49048  
[www.landscapeforms.com](http://www.landscapeforms.com)

Keystone Ridge Designs, Inc.  
670 Mercer Road  
Butler, PA 16001  
[www.keystoneridgedesigns.com](http://www.keystoneridgedesigns.com)

Victor Stanley  
PO Drawer 330  
Dunkirk, MD 20754  
[www.victorstanley.com](http://www.victorstanley.com)

Global Industrial  
1.888.978.7759  
[www.globalindustrial.com](http://www.globalindustrial.com)



City of Fairfax trash can at Old Town Square, left and recycling trash can from City Park, right

L5

# Streetscape Elements

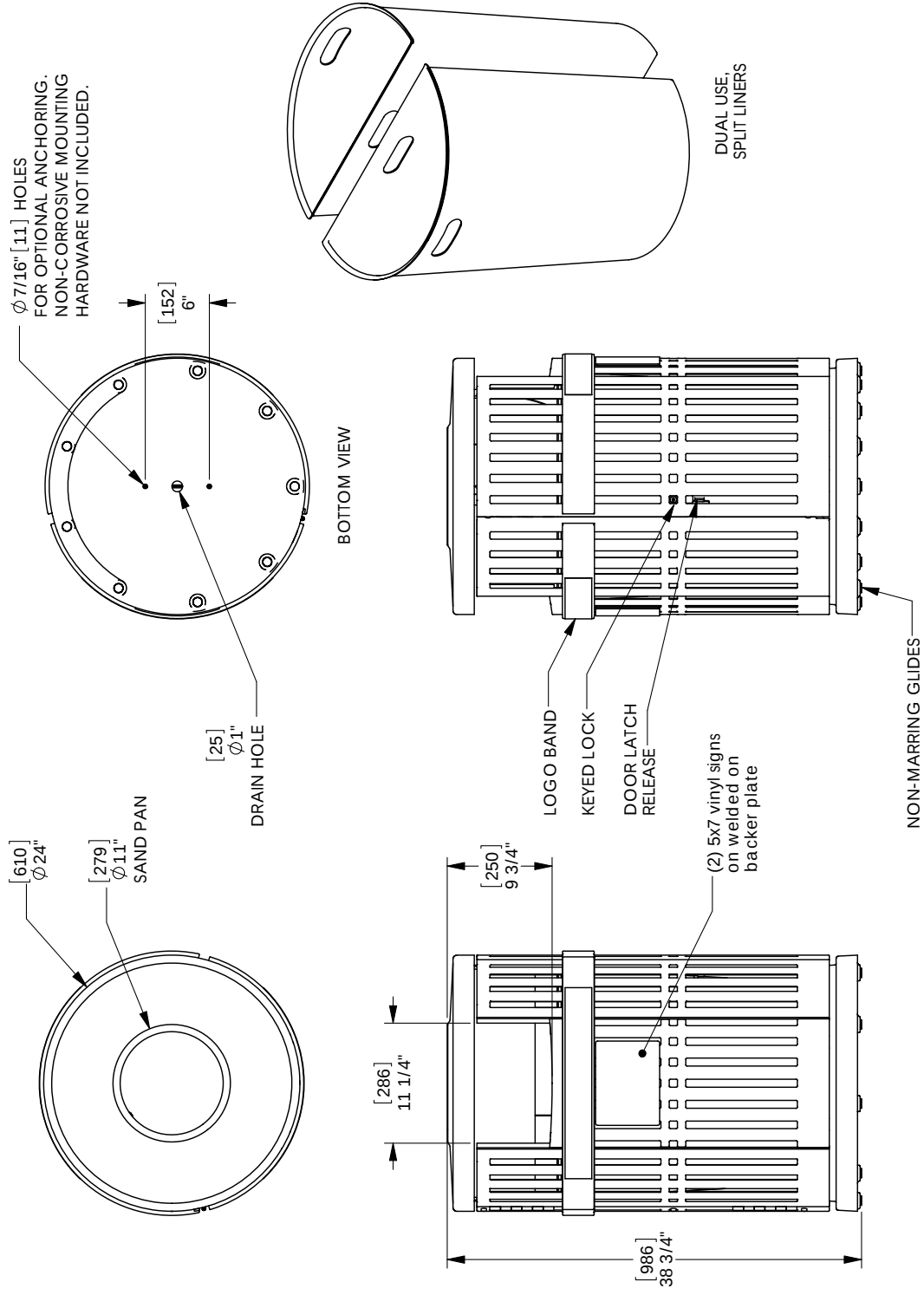
Chase Park®

Product Drawing

Side Opening Litter Receptacle, Dual use, with sand pan, logo band, lock, 2 standard 5x7 signs

Date: 7/17/2014

www.landscapiforms.com Ph: 800.521.2546



Drawing: CP362-16  
Dimensions are in inches [mm]  
U.S. Patent Nos.: D472,357; D481,507; D489,502

landscapiforms®

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RETURN TO TOC

OLD TOWN FAIRFAX HISTORIC OVERLAY DISTRICT STREETScape STANDARDS

# Streetscape Elements

## BENCH

### Description

Benches to match those located in Old Town Square

### Style

- Slatted seat back and seat
- End armrests, optional center armrest
- Plaque can be included

### Size

- Six foot length

### Materials and Color

- Powder-coated metal
- Black

### Location and Setbacks

- 36" minimum setback from face of curb
- Minimum 1 bench per 350 linear feet (LF)/2 per block where space permits
- Bench face to be determined dependent upon site conditions

### Requirements

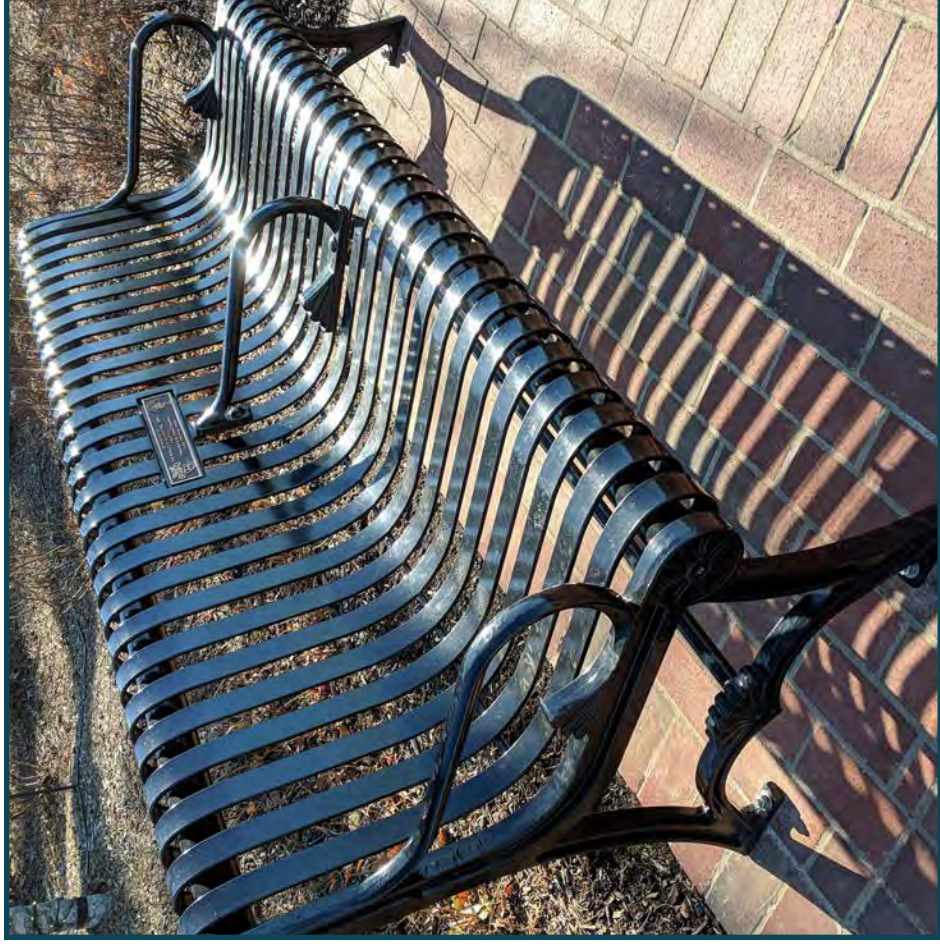
- DuMor Site Furnishings, Bench 58 or equal
- Anchor with pin in footer located beneath paving surface

### Sources

DuMor Site Furnishings  
Bench 58, with optional mid-arm  
P.O. Box 142  
Mifflintown, PA 17059  
[www.dumor.com](http://www.dumor.com)

Landscape Forms, Inc.  
Scarborough Bench  
7800 E. Michigan Ave.  
Kalamazoo, MI 49048  
[www.landscapeforms.com](http://www.landscapeforms.com)

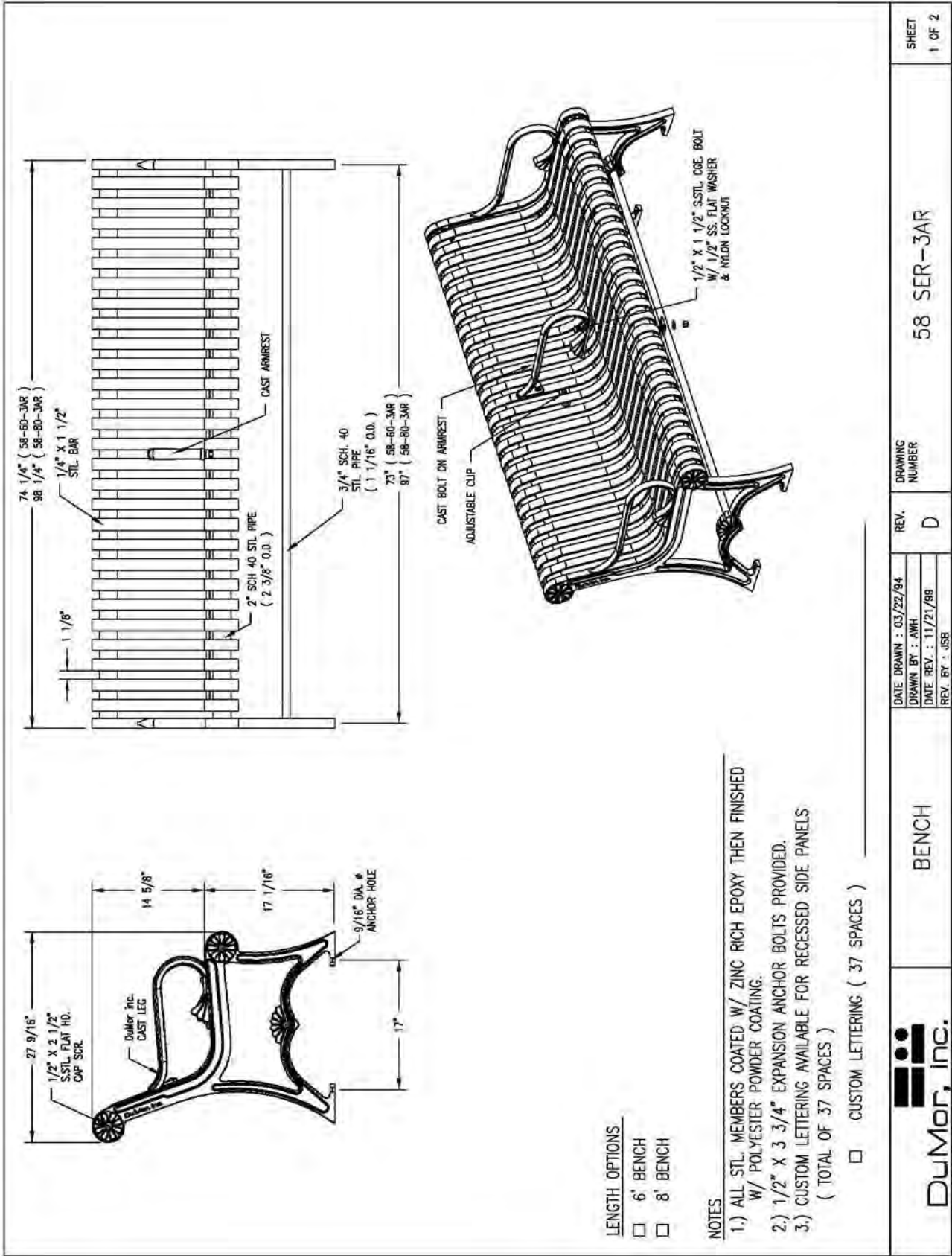
Keystone Ridge Designs, Inc.  
Schenley Bench  
670 Mercer Road  
Butler, PA 16001  
[www.keystoneridgedesigns.com](http://www.keystoneridgedesigns.com)



City of Fairfax bench in Old Town Square

L6

# Streetscape Elements



# Streetscape Elements

| <div><div>1</div><div>ATTACH STL SEAT &amp; PIPE BRACE TO CAST IRON BENCH SUPPORTS.</div><div></div></div> |     |              |                                   | <div><div>1A</div><div></div><div>PLACE SEAT ASSEMBLY ON WORK SURFACE ALLOWING ACCESS TO ENDS. PLACE RATCHET STRAP AROUND SEAT ASSEMBLY AS SHOWN ABOVE.</div></div> |  |  |  | <div><div>1B</div><div></div><div>TIGHTEN STRAP UNTIL SHIPPING BRACKET BECOMES LOOSE. THEN REMOVE AND DISCARD BOLTS &amp; SHIPPING BRACKET.</div></div> |  |  |  | <div><div>1C</div><div></div><div>ATTACH CAST SUPPORT TO SEAT ASSEMBLY. IF HOLES IN CASTING DO NOT ALIGN WITH THE SEAT ASSEMBLY, ADJUST BY USING THE RATCHET STRAP.</div></div> |  |  |  | <div><div>1D</div><div></div><div>TIGHTEN HARDWARE THEN REMOVE RATCHET STRAP AND REPEAT THIS PROCEDURE ON THE OTHER END OF BENCH.</div></div> |  |  |  | <div><div>2</div><div>ATTACH CAST IRON ARMREST TO STEP 1.</div><div></div></div> |  |  |  | <div><div>NOTES:</div><div>1.) DURING ASSEMBLY PROCEDURE, DO NOT COMPLETELY TIGHTEN HARDWARE.</div><div>2.) THE ACTUAL PARTS WILL NOT BE NUMBERED. NUMBERS ONLY APPLY TO DRAWING.</div><div>3.) UPON COMPLETION OF ASSEMBLY SQUARE ALL COMPONENTS THEN TIGHTEN ALL HARDWARE.</div><div>4.) MOUNT AND ANCHOR AS SPECIFIED.</div><div><div>TOOLS REQ'D</div><div>3/4" WRENCH</div><div>5/16" ALLEN WRENCH</div><div>1/2" MASONRY DRILL BIT</div><div>DRILL</div><div>RATCHET STRAP (PROVIDED)</div></div></div> |  |  |  | <table><tr><th colspan="4">PARTS LIST</th></tr><tr><th>ITEM</th><th>QTY</th><th>PART NO</th><th>DESCRIPTION</th></tr><tr><td>1</td><td>2</td><td>0-57-00-02</td><td>CAST IRON BENCH SUPPORT</td></tr><tr><td>2</td><td>1</td><td>0-57-60-04</td><td>71 3/4" PIPE BRACE</td></tr><tr><td>3</td><td>1</td><td>0-58-00AR-03</td><td>CAST IRON BOLT ON ARMREST</td></tr><tr><td>4</td><td>2</td><td>0-58-00AR-04</td><td>ARMREST BOLT CLIP MACHINED</td></tr><tr><td>5</td><td>1</td><td>0-58-60-01</td><td>6" STL SEAT</td></tr><tr><td>6</td><td>2</td><td>1-11-042</td><td>1/2" X 1 1/2" SS COE BOLT</td></tr><tr><td>7</td><td>6</td><td>1-12-065</td><td>1/2" X 2 1/2" FLT SKT HD CAP SCR</td></tr><tr><td>8</td><td>2</td><td>1-20-015</td><td>1/2" SS NYLON LOCKNUT</td></tr><tr><td>9</td><td>2</td><td>1-22-015</td><td>1/2" SS FLAT WASHER</td></tr><tr><th colspan="4">KITS PROVIDED</th></tr><tr><th>ITEM</th><th>QTY</th><th>PART NO</th><th>DESCRIPTION</th></tr><tr><td>10</td><td>1</td><td>K-ANC0860-4</td><td>1/2" X 3 3/4" SS ANCHOR KIT (4PC)</td></tr><tr><td>11</td><td>1</td><td>K-COE0824-2L</td><td>1/2" COE BOLT HARDWARE KIT (2PC)</td></tr><tr><td>12</td><td>1</td><td>K-FD0840-6</td><td>1/2" CAP HARDWARE KIT (6PC)</td></tr></table> |  |  |  | PARTS LIST |  |  |  | ITEM | QTY | PART NO | DESCRIPTION | 1 | 2 | 0-57-00-02 | CAST IRON BENCH SUPPORT | 2 | 1 | 0-57-60-04 | 71 3/4" PIPE BRACE | 3 | 1 | 0-58-00AR-03 | CAST IRON BOLT ON ARMREST | 4 | 2 | 0-58-00AR-04 | ARMREST BOLT CLIP MACHINED | 5 | 1 | 0-58-60-01 | 6" STL SEAT | 6 | 2 | 1-11-042 | 1/2" X 1 1/2" SS COE BOLT | 7 | 6 | 1-12-065 | 1/2" X 2 1/2" FLT SKT HD CAP SCR | 8 | 2 | 1-20-015 | 1/2" SS NYLON LOCKNUT | 9 | 2 | 1-22-015 | 1/2" SS FLAT WASHER | KITS PROVIDED |  |  |  | ITEM | QTY | PART NO | DESCRIPTION | 10 | 1 | K-ANC0860-4 | 1/2" X 3 3/4" SS ANCHOR KIT (4PC) | 11 | 1 | K-COE0824-2L | 1/2" COE BOLT HARDWARE KIT (2PC) | 12 | 1 | K-FD0840-6 | 1/2" CAP HARDWARE KIT (6PC) | <div>DRAWING NUMBER</div> <div>58 SER-3AR</div> <div>REV. A</div> <div>DATE DRAWN : 11/21/99</div> <div>DRAWN BY : JSB</div> <div>DATE REV. : 00/00/00</div> <div>REV. BY : XXX</div> <div>ASSEMBLY INSTRUCTIONS</div> <div>DuMor, inc.</div> <div>SHEET 2 OF 2</div> |  |  |  |
|------------------------------------------------------------------------------------------------------------|-----|--------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|----------------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|------------|--|--|--|------|-----|---------|-------------|---|---|------------|-------------------------|---|---|------------|--------------------|---|---|--------------|---------------------------|---|---|--------------|----------------------------|---|---|------------|-------------|---|---|----------|---------------------------|---|---|----------|----------------------------------|---|---|----------|-----------------------|---|---|----------|---------------------|---------------|--|--|--|------|-----|---------|-------------|----|---|-------------|-----------------------------------|----|---|--------------|----------------------------------|----|---|------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| PARTS LIST                                                                                                 |     |              |                                   |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| ITEM                                                                                                       | QTY | PART NO      | DESCRIPTION                       |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 1                                                                                                          | 2   | 0-57-00-02   | CAST IRON BENCH SUPPORT           |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 2                                                                                                          | 1   | 0-57-60-04   | 71 3/4" PIPE BRACE                |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 3                                                                                                          | 1   | 0-58-00AR-03 | CAST IRON BOLT ON ARMREST         |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 4                                                                                                          | 2   | 0-58-00AR-04 | ARMREST BOLT CLIP MACHINED        |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 5                                                                                                          | 1   | 0-58-60-01   | 6" STL SEAT                       |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 6                                                                                                          | 2   | 1-11-042     | 1/2" X 1 1/2" SS COE BOLT         |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 7                                                                                                          | 6   | 1-12-065     | 1/2" X 2 1/2" FLT SKT HD CAP SCR  |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 8                                                                                                          | 2   | 1-20-015     | 1/2" SS NYLON LOCKNUT             |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 9                                                                                                          | 2   | 1-22-015     | 1/2" SS FLAT WASHER               |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| KITS PROVIDED                                                                                              |     |              |                                   |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| ITEM                                                                                                       | QTY | PART NO      | DESCRIPTION                       |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 10                                                                                                         | 1   | K-ANC0860-4  | 1/2" X 3 3/4" SS ANCHOR KIT (4PC) |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 11                                                                                                         | 1   | K-COE0824-2L | 1/2" COE BOLT HARDWARE KIT (2PC)  |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |
| 12                                                                                                         | 1   | K-FD0840-6   | 1/2" CAP HARDWARE KIT (6PC)       |                                                                                                                                                                     |  |  |  |                                                                                                                                                         |  |  |  |                                                                                                                                                                                 |  |  |  |                                                                                                                                               |  |  |  |                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |            |  |  |  |      |     |         |             |   |   |            |                         |   |   |            |                    |   |   |              |                           |   |   |              |                            |   |   |            |             |   |   |          |                           |   |   |          |                                  |   |   |          |                       |   |   |          |                     |               |  |  |  |      |     |         |             |    |   |             |                                   |    |   |              |                                  |    |   |            |                             |                                                                                                                                                                                                                                                                       |  |  |  |

# Streetscape Elements

## BICYCLE RACK

### Description

Simple bike rack, located parallel to curb or building face and suitable for supporting two bicycles

### Style

- Simple hoop, minimum 2 bike capacity

### Size

- Approximately 1'-8" high (above grade)
- Approximately 1'-2" wide

### Installation

- In ground mount embedded in concrete base

### Materials and Color

- Powder-coated metal
- Black or 304 grade stainless steel finish

### Location and Setbacks

- Parallel to wall: 24" minimum setback from wall, 36" recommended
- Parallel to curb: 36" minimum setback from face of curb

### Requirements

- Dero Hoop Bicycle Rack or equal; embedded mounting

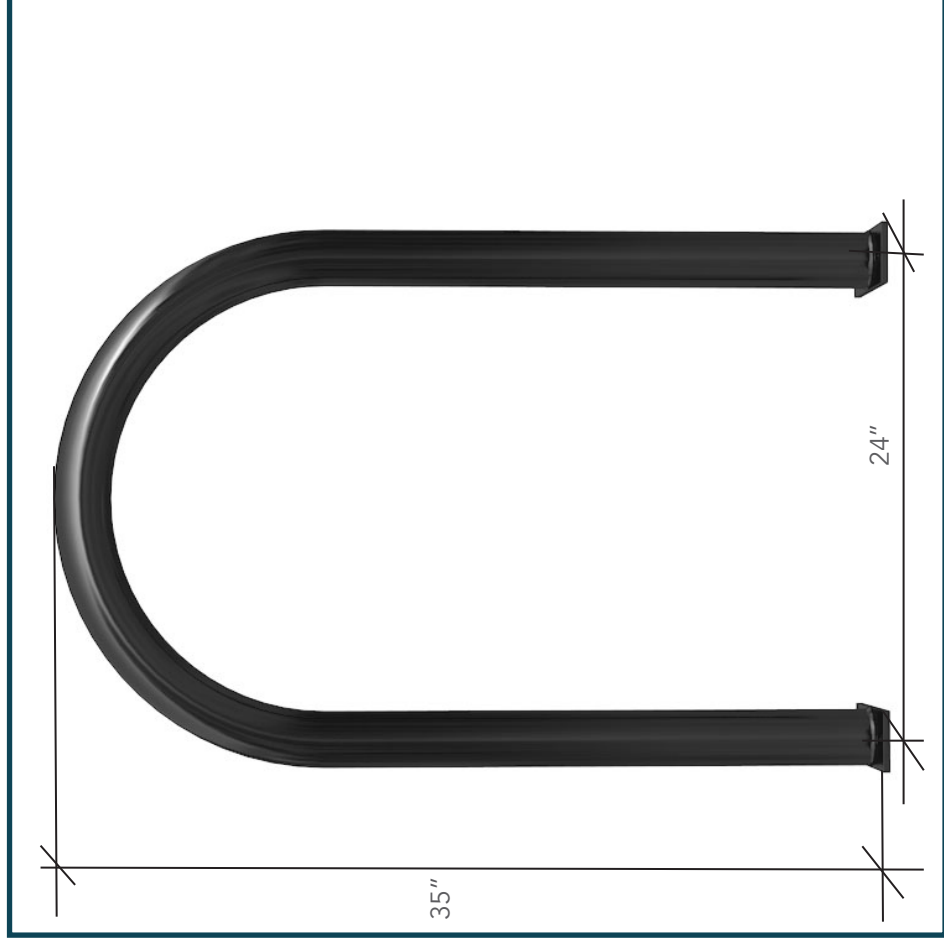
### Sources

Dero  
Hoop Bicycle Rack  
52 Northern Stacks Drive  
Minneapolis, MN 55421  
[www.dero.com](http://www.dero.com)

Landscape Forms, Inc.  
Bolo Bicycle Rack, embedded mounting  
431 Lawndale Ave.  
Kalamazoo, MI 49048

The Park and Facilities  
Catalog  
[www.parkcatalog.com](http://www.parkcatalog.com)

Belson Outdoors, LLC.  
627 Amersale Dr.  
Naperville, IL 60563



Bike rack

Photo Credit: Dero

L7

# Streetscape Elements

## GUIDE SPECIFICATIONS FOR THE DERO HOOP BIKE RACK

### SECTION 02871 BIKE RACKS

These specifications were current at the time of publication but are subject to change at any time without notice. Please confirm the accuracy of these specifications with the manufacturer and/or distributor prior to installation.

#### PART 1 GENERAL

##### 1.1 Summary

- A. This section includes specifications for the Hoop Bike Rack.

1. Bikes parked per unit: 2

##### 1.2 Quality Assurance

- A. Installer Qualifications: An experienced installer who has completed installation of bicycle racks similar in material, design, and extent to that indicated for this project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing bicycle racks similar to those required for this project and with a record of successful in-service performance.
- C. Source Limitations: Obtain each color, finish, shape and type of bicycle rack from a single source with resources to provide components of consistent quality in appearance and physical properties.
- D. Product Options: Drawings indicate size, shape and dimensional requirements of bicycle racks and are based on the specific system indicated.

##### 1.3 Submittals

- A. Product Data: Include physical characteristics such as shape, dimensions, bicycle, material parking capacity and finish for each bicycle rack.
- B. Shop Drawings: Show installation details for each bicycle rack.
- C. Samples for Verification: Submit finish samples for review and verification.
- D. Maintenance Data: For each bicycle rack.

1. Include recommended methods for repairing damage to the finish.

##### 1.4 Delivery, Storage and Handling

- A. Upon delivery, before signing for shipment, inspect for any damages and notate on the B.O.L.
- B. Store bicycle racks in original undamaged packages and containers until ready for installation. Handle bicycle racks with sufficient care to prevent any scratches or damage to the finish.

#### PART 2 PRODUCTS

##### 2.1 Acceptable Manufacturers

- A. Provide bicycle racks manufactured by DERO BIKE RACK CO., 42 Northern Stacks Drive, Suite 100, Minneapolis, MN 55421, 1-888-337-6729. Fax: 612-331-2731  
Website: www.dero.com

##### 2.2 Materials

- A. 1.5" schedule 40 uncoated pipe (1.90" OD)
- B. Installation Methods: In-ground mount is embedded into concrete base. Flange mount has two 2.5" x 6" x .25" feet - 4 anchors. In-ground mount, foot mount, and rail mount models are available.
- C. Rail Racks: Hoops are bolted to two parallel rails. Hoops can be left free standing or anchored to the ground. See Rail Racks section below. Rail material is AISI C3 x 4.1 steel channel.

##### 2.3 Finishes

- A. A hot-dipped galvanized finish performed after fabrication is standard.
- B. Over 250 high quality TGIC powder-coated colors are available from Dero Bike Rack Co.
  1. A TGIC powder coat finish is available.
  2. For powder coated/ painted racks, the following specifications are required: Part is prepared for painting with hard sandblasting. An epoxy primer is electrostatically applied. A final TGIC, UV resistant polyester powder coat is applied. Final coating mil thickness shall be no less than 6 mils.
- C. A 304 grade stainless steel finish is also available. Either a satin #4 finish or high luster electropolish finish. Both finish options include the Spectra Shield finish for maximum corrosion protection.
- D. Six durable thermoplastic colors are available.
- E. A rubbery PVC dip is available in many colors. Black is standard.

##### 2.4 Hoop Bike Rack

###### A. Setbacks

1. Wall Setback: For Hoops set parallel to the wall, a minimum of 24" should be left between the wall and the rack. 36" is the recommended setback. For Hoops installed perpendicular to the wall, a 28" setback is the minimum distance. 36" is recommended.
2. Distance Between Racks: 24" is the minimum distance between racks. 36" is recommended.
3. Street Setback: 24" is the minimum distance between the street and the rack. 36" is recommended.
4. The foot-mounted Hoop Rack has a 2.5" x 6" x .25" foot which is installed onto a concrete base with 4 masonry anchors. The foot-mounted Hoop Rack is generally less expensive to install and easier to remove than the in-ground mount model, while still maintaining the same degree of security.

###### C. Rail Racks

# Streetscape Elements

1. Rail-mounted Hoops are standard foot-mounted Hoop Racks attached with bolts to a rail in the configurations from 3 to 7 Hoops. Rail racks provide more flexibility than mounted racks, but still provide the same degree of security.
2. Rail-mounted Hoops can be left either free-standing or can be anchored to the ground using several anchors. This portability allows for easy snow-removal or sweeping. It also means installation is much less expensive than imbedded bike racks.
3. The Advantages to rail-mounted racks are:
  1. Easier and inexpensive installation
  2. Can be left freestanding or anchored to the ground
  3. Can be easily removed
4. Rail Racks are commonly used where snow removal/sweeping is an issue, or when no suitable base material is available.

## PART 3 EXECUTION

### 3.1 Installation

- A. Installation Method
  1. In ground mount
  2. Surface mount
  3. Rail-mounted (free standing)
  4. It is the responsibility of the installer to ensure that all base materials into which the rack will be installed can support the rack and will not be damaged by any required installation procedures.

### 3.2 Ordering Information

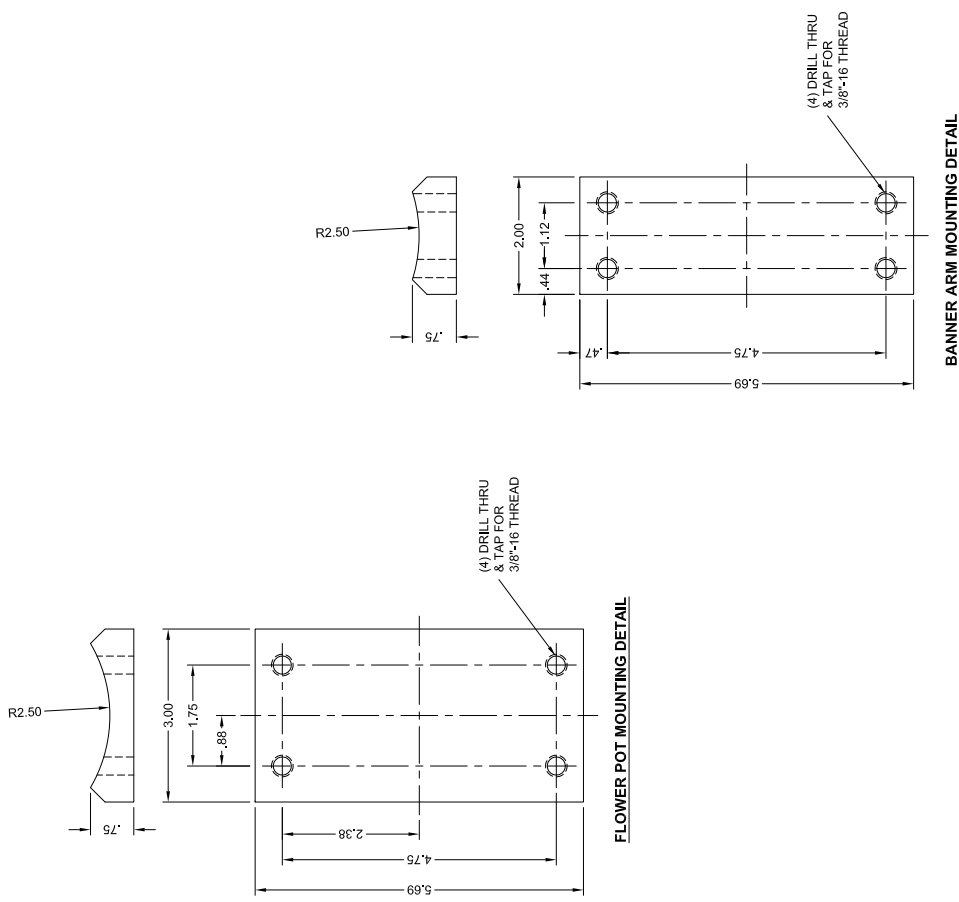
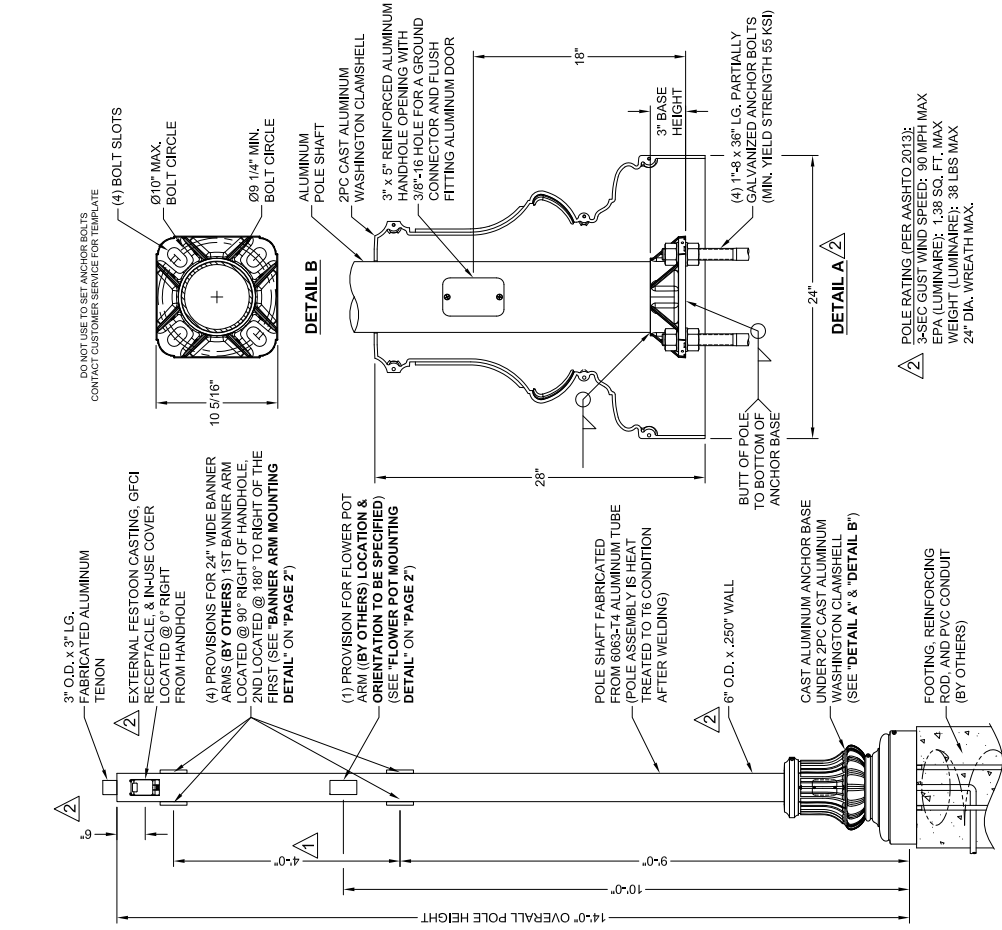
- A. When ordering or specifying this rack, make sure the product type, finish and fastener type (if applicable) are included. Contact your Dero representative for a current price list or to place an order.
- B. Included in the price is either a hot-dipped galvanized finish, a TGIC powder coat finish, or a stainless steel finish. The foot-mounted and Rail Rack Hoops include 4 wedge anchors or concrete spikes.

### 3.3 Freight

- A. Call 1-888-337-6729 for freight quotes.



# Streetscape Elements



| TITLE:     |  | QTY:                 | 27        | Catalog #s:                         |  |
|------------|--|----------------------|-----------|-------------------------------------|--|
| S          |  | OWN BY:              | HJT/MAB   | (See Complete Cat. Nos. on Sheet 3) |  |
| MODEL NO.: |  | CHKD BY:             |           | Customer Signature & Date:          |  |
| MATERIAL:  |  | APPR BY:             |           |                                     |  |
| FINISH:    |  | DATE:                | 12/11/18  |                                     |  |
| PROJECT:   |  | DWG NO.:             | TSG011140 |                                     |  |
| CITY TO:   |  | PTP:                 |           |                                     |  |
| SHIP TO:   |  | REV:                 |           |                                     |  |
| P.O. NO.:  |  | BY:                  | 1/3       |                                     |  |
| REP:       |  | REVISION DESCRIPTION |           |                                     |  |
|            |  |                      |           |                                     |  |

**HOLOPHANE**  
LEADER IN LIGHTING SOLUTIONS  
3825 Columbus Rd., Granville, Ohio 43023

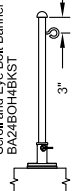
**\*\*CONFIDENTIAL\*\***  
The information contained in this drawing is privileged and confidential. It is to be used solely for the project and location specified. Any dissemination of this drawing may be subject to legal restriction or sanction.

| TITLE:     |  | QTY:                 | 27        | Catalog #s:                         |  |
|------------|--|----------------------|-----------|-------------------------------------|--|
| S          |  | OWN BY:              | HJT/MAB   | (See Complete Cat. Nos. on Sheet 3) |  |
| MODEL NO.: |  | CHKD BY:             |           | Customer Signature & Date:          |  |
| MATERIAL:  |  | APPR BY:             |           |                                     |  |
| FINISH:    |  | DATE:                | 12/11/18  |                                     |  |
| PROJECT:   |  | DWG NO.:             | TSG011140 |                                     |  |
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| REP:       |  | REVISION DESCRIPTION |           |                                     |  |
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# Streetscape Elements

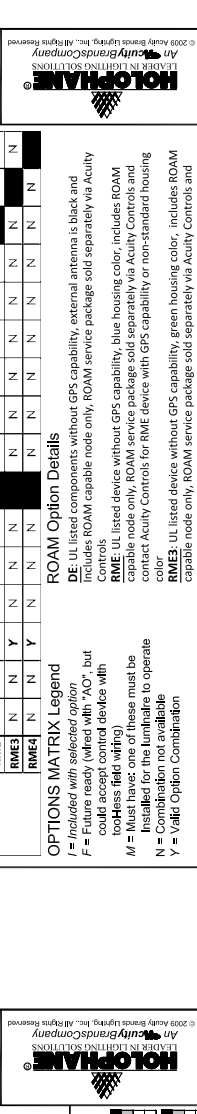
| <h2>Banner Arms</h2>  <p>Standard Banner Arm</p>  <p>SteelLink Banner Arm</p> | <h2>Options</h2>  <p>Scroll and Eye Bolt Banner Arm<br/>BA24BOH4BKST</p>  <p>Eye Bolt Banner Arm<br/>BA24BOH5BKHF</p> | <h2>Finial Options</h2> <p>Cast Aluminum</p>  <p>A = Acorn</p>  <p>B = Ball</p>  <p>H = Half Sphere</p>  <p>R = Raleigh</p> | <h2>ORDERING GUIDE</h2> <p>Banner arms can add substantial wind loading to the post you select. Please coordinate the correct post size and style with the factory.</p> <table> <tr> <th>Customer Catalog #:</th><th>Customer Catalog Number:</th><th>Step 1</th><th>Step 2</th><th>Step 3</th><th>Step 4</th><th>Step 5</th><th>Step 6</th><th>Step 7</th></tr> <tr> <td>BA24BOH4BK</td><td>BA</td><td>24</td><td>BO</td><td>4</td><td>BK</td><td>F</td><td></td><td></td></tr> </table> <p><b>Step 1 Banner:</b><br/>BA = Acorn<br/>H = Half Sphere<br/>R = Raleigh</p> <p><b>Step 2 Length:</b><br/>12 = 12" 23 = 23" 31 = 31" 39 = 39"<br/>16 = 16" 24 = 24" 32 = 32" 40 = 40"<br/>14 = 14" 25 = 25" 33 = 33"<br/>18 = 18" 26 = 26" 34 = 34"<br/>20 = 20" 28 = 28" 36 = 36"<br/>21 = 21" 29 = 29" 37 = 37"<br/>22 = 22" 30 = 30" 38 = 38"</p> <p><b>Step 3 Arm Diameter:</b><br/>9 = 3/4 Pipe (1.05 dia, nominal)<br/>12 = 1" Pipe (1.315 dia, nominal)<br/>14 = 1.25" Pipe (1.68 dia, nominal)<br/>16 = 1.50" Pipe (1.90 dia, nominal)</p> <p><b>Step 4 Finial:</b><br/>A = Acorn<br/>H = Half Sphere<br/>R = Raleigh</p> <p><b>Step 5 Color:</b><br/>BK = Black<br/>BL = Dark Blue<br/>GR = Graphite<br/>GN = Green<br/>GP = Gray<br/>PP = Prime Paint<br/>SL = Silver<br/>TDC = Customer Matching Color<br/>TDC = Tiger Drylac</p> <p><b>Step 7 Options:</b><br/>F = Single Eye Bolt,<br/>S = Scroll Attachment,<br/>T = Two Eye Bolts.</p> | Customer Catalog #: | Customer Catalog Number: | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 | Step 6 | Step 7 | BA24BOH4BK | BA | 24 | BO | 4 | BK | F |  |  | <h2>Specifications</h2> <p><b>FEATURES:</b><br/>Tox-Hess banner installation and or replacement. As a safety feature the break-away couplings are fitted with 3/32" 7x7 strand stainless steel aircraft cable.</p> <p><b>DESCRIPTION</b><br/>The banner arm shall consist of an aluminum 6061 schedule 80 pipe or aluminum extrusion, an aluminum channel mounting plate, and a cast aluminum coupling. Stainless steel eyebolts, scrolls, and breakaway banner arms are optional.<br/>Breakaway banner arms may be recommended for some types of banners.</p> <p><b>CONSTRUCTION</b><br/>The banner arm shall be installed into a cast aluminum coupling with a stainless steel latch-pin.</p> <p><b>MATERIALS</b><br/>The finial shall be cast aluminum, produced from certified ASTM 356 Ingot per ASTM B-79-95a or ASTM B26-95 and welded to the end of the banner arm. The banner arm, mounting plate shall be aluminum, ASTM 356 alloy, heat treated to a T6 temper. All hardware shall be stainless steel.</p> <p><b>INSTALLATION</b><br/>Bolt the banner arm coupling to the mounting channel (welded to the side of the pole) using 3/8-16 stainless screws. Slip the banner arm into the coupling and secure in place with 1/4" stainless steel latch pin.<br/>Note: Arms are not designed for pedestrian interference. Banners to be provided by others.</p> <p><b>DIMENSIONS</b><br/>The banner arms shall be available in 1.05", 1.32", 1.68" or 1.9" O.D. with length to be specified in whole inch increments.</p> <p>*CAUTION<br/>EYE BOLT LOAD LIMIT<br/>= 100 LB MAXIMUM</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------|--------|--------|--------|--------|--------|--------|--------|------------|----|----|----|---|----|---|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer Catalog #:                                                                                                                                                                                                                                 | Customer Catalog Number:                                                                                                                                                                                                                                                                    | Step 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Step 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Step 3              | Step 4                   | Step 5 | Step 6 | Step 7 |        |        |        |        |            |    |    |    |   |    |   |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| BA24BOH4BK                                                                                                                                                                                                                                          | BA                                                                                                                                                                                                                                                                                          | 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | BO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4                   | BK                       | F      |        |        |        |        |        |        |            |    |    |    |   |    |   |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <h2>Banner Arms</h2>                                                                                                                                                                                                                                | <h2>Banner Arms</h2>                                                                                                                                                                                                                                                                        | <p>ORDER #:</p> <p>REVISION:</p> <p>DRAWN: KRW</p> <p>TYPE:</p> <p>REVISION DATE: 10/30/14</p> <p>ORIGINAL DATE: 5/7/13</p>                                                                                                                                                                                                                                                                                                                                             | <p>DRAWING #:</p> <p>US-2410</p> <p>PAGE: 1 of 1</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                          |        |        |        |        |        |        |        |            |    |    |    |   |    |   |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

THIS DRAWING, WHEN APPROVED, SHALL BECOME THE COMPLETE SPECIFICATION FOR THE MATERIAL TO BE FURNISHED BY HOLOPHANE ON THE ORDER NOTED ABOVE, A UNIT OF SIMILAR DESIGN MAY BE SUPPLIED, BUT ONLY AFTER APPROVAL BY THE CUSTOMER IN WRITING. ON POLE ORDERS AN ANCHOR BOLT TEMPLATE PRINT WILL BE SUPPLIED WITH EACH ANCHOR BOLT ORDER TO MATCH THE POLE PROVIDED. THIS PRINT IS THE PROPERTY OF HOLOPHANE AND IS LOANED SUBJECT TO RETURN UPON DEMAND AND IRON EXPRESS CONDITION THAT IT WILL NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS, AND ONLY IN CONNECTION WITH MATERIAL FURNISHED BY HOLOPHANE.

## 10

| Performance Data |              |              |                      |     |      |                      |       |      |                      |     |       |                      |     |      |       |     |   |   |   |   |
|------------------|--------------|--------------|----------------------|-----|------|----------------------|-------|------|----------------------|-----|-------|----------------------|-----|------|-------|-----|---|---|---|---|
| LED Package      | Distribution | System Watts | 27W (2700K, 20 C.U.) |     |      | 30K (3000K, 20 C.U.) |       |      | 40K (4000K, 20 C.U.) |     |       | 50K (5000K, 20 C.U.) |     |      |       |     |   |   |   |   |
|                  |              |              | Lumens               | LPW | B.U. | Lumens               | LPW   | B.U. | Lumens               | LPW | B.U.  | Lumens               | LPW | B.U. |       |     |   |   |   |   |
| P10              | GL3          | 35           | 3,168                | 91  | 1    | 3                    | 3,376 | 96   | 1                    | 3   | 3,649 | 101                  | 1   | 3    | 3,859 | 105 | 2 | 3 | 3 | 3 |
|                  | AV3          | 35           | 3,227                | 92  | 1    | 3                    | 3,439 | 98   | 1                    | 3   | 3,650 | 103                  | 1   | 3    | 3,870 | 107 | 2 | 3 | 3 | 3 |
|                  | AV5          | 35           | 3,007                | 86  | 2    | 3                    | 3,204 | 92   | 2                    | 3   | 3,363 | 96                   | 2   | 3    | 3,520 | 100 | 2 | 3 | 3 | 3 |
|                  | PV3          | 35           | 2,823                | 81  | 1    | 3                    | 3,009 | 86   | 1                    | 3   | 3,157 | 90                   | 1   | 3    | 3,287 | 94  | 1 | 3 | 3 | 3 |
|                  | PV5          | 35           | 2,628                | 75  | 2    | 3                    | 2,801 | 80   | 2                    | 3   | 2,959 | 84                   | 2   | 3    | 3,086 | 87  | 2 | 3 | 3 | 3 |
| P20              | GL3          | 55           | 5,917                | 89  | 2    | 3                    | 6,240 | 95   | 2                    | 3   | 6,569 | 100                  | 2   | 3    | 6,768 | 104 | 2 | 4 | 4 | 4 |
|                  | AV3          | 55           | 6,028                | 90  | 2    | 3                    | 6,351 | 96   | 2                    | 3   | 6,680 | 102                  | 2   | 3    | 6,900 | 106 | 2 | 4 | 4 | 4 |
|                  | AV5          | 55           | 5,486                | 84  | 3    | 3                    | 5,727 | 90   | 3                    | 4   | 5,975 | 95                   | 3   | 4    | 6,224 | 99  | 3 | 4 | 4 | 4 |
|                  | PV3          | 55           | 4,683                | 80  | 2    | 3                    | 4,970 | 85   | 2                    | 3   | 5,258 | 90                   | 2   | 3    | 5,544 | 93  | 2 | 3 | 4 | 4 |
|                  | PV5          | 55           | 4,381                | 80  | 2    | 3                    | 4,670 | 85   | 2                    | 3   | 4,900 | 89                   | 2   | 3    | 5,102 | 93  | 2 | 3 | 4 | 4 |
| P30              | GL3          | 76           | 6,749                | 74  | 2    | 3                    | 7,188 | 79   | 2                    | 3   | 7,562 | 83                   | 2   | 3    | 7,750 | 86  | 3 | 4 | 3 | 3 |
|                  | AV3          | 76           | 6,870                | 90  | 4    | 4                    | 7,322 | 96   | 2                    | 4   | 7,543 | 99                   | 3   | 4    | 7,754 | 103 | 3 | 4 | 4 | 4 |
|                  | AV5          | 76           | 6,401                | 84  | 2    | 3                    | 6,832 | 90   | 2                    | 4   | 7,083 | 94                   | 3   | 4    | 7,354 | 98  | 3 | 4 | 3 | 3 |
|                  | PV3          | 76           | 6,010                | 79  | 2    | 4                    | 6,445 | 84   | 2                    | 4   | 6,722 | 88                   | 2   | 4    | 6,959 | 92  | 2 | 4 | 4 | 4 |
|                  | PV5          | 76           | 5,386                | 76  | 3    | 4                    | 5,645 | 78   | 3                    | 4   | 5,828 | 82                   | 3   | 4    | 6,036 | 86  | 3 | 4 | 3 | 3 |
| P40              | GL3          | 102          | 9,010                | 88  | 3    | 4                    | 9,394 | 93   | 3                    | 4   | 9,658 | 97                   | 3   | 4    | 9,916 | 101 | 3 | 5 | 4 | 4 |
|                  | AV3          | 102          | 9,010                | 88  | 3    | 4                    | 9,394 | 93   | 3                    | 4   | 9,658 | 97                   | 3   | 4    | 9,916 | 101 | 3 | 5 | 4 | 4 |
|                  | AV5          | 102          | 8,395                | 82  | 3    | 4                    | 8,948 | 88   | 3                    | 4   | 9,360 | 92                   | 3   | 4    | 9,776 | 96  | 3 | 5 | 4 | 4 |
|                  | PV3          | 102          | 7,536                | 82  | 3    | 4                    | 7,854 | 84   | 3                    | 4   | 8,170 | 88                   | 3   | 4    | 8,492 | 92  | 3 | 5 | 4 | 4 |
|                  | PV5          | 102          | 7,010                | 88  | 3    | 4                    | 7,345 | 84   | 3                    | 4   | 7,607 | 90                   | 3   | 4    | 7,869 | 95  | 3 | 5 | 4 | 4 |

**Utility Postop LED**  
**Series Luminaire**

[illegible]

|                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>contact. Acuity Controls for RWL device with GPS capability or non-standard housing color.</p> <p><b>RM64:</b> UL listed device without GPS capability, white housing color, includes ROAM capable only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RWL device with GPS capability or non-standard housing color.</p> | <p><b>Projected LED Lumen Maintenance</b></p> <p>Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 6500 hours of LED testing (tested per IESNA LM-79-08 and projected per IESNA TM-21-11).</p> <p>Use these factors to determine relative lumen output for average ambient temperatures from -40°C to 32°C (104°F).</p> <p><b>Lumen Multiplier</b></p> <p><b>Average Lumen Ambient Temperature</b></p> |
| <p>contact. Acuity Controls for RWL device with GPS capability or non-standard housing color.</p> <p><b>RM64:</b> UL listed device without GPS capability, white housing color, includes ROAM capable only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RWL device with GPS capability or non-standard housing color.</p> | <p><b>Projected LED Lumen Maintenance</b></p> <p>Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 6500 hours of LED testing (tested per IESNA LM-79-08 and projected per IESNA TM-21-11).</p> <p>Use these factors to determine relative lumen output for average ambient temperatures from -40°C to 32°C (104°F).</p> <p><b>Lumen Multiplier</b></p> <p><b>Average Lumen Ambient Temperature</b></p> |

|          |       |            |                  |                 |
|----------|-------|------------|------------------|-----------------|
| ORDER #: | TYPE: | DRAWN: MRP | DATE: 02/01/2018 | DWG #: LUM_PTE2 |
|----------|-------|------------|------------------|-----------------|

contact factory.

| Lumen Maintenance - LD (same for all LED packages) |        |
|----------------------------------------------------|--------|
| Hours                                              | Factor |
| 0                                                  | 1.00   |
| 25,000                                             | 0.99   |
| 36,000                                             | 0.91   |
| 50,000                                             | 0.87   |
| 60,000                                             | 0.85   |
| 75,000                                             | 0.82   |
| 100,000                                            | 0.77   |

The italicized data is extrapolated beyond the TM-21 standard.

$E = (LM) \times (CU) \times (LAT) \times (LD)$

LM and CU are obtained from published photometry.

| Temp. (°C) | T <sub>1</sub> | Multiples | LED Packages |
|------------|----------------|-----------|--------------|
| 0          | 32             | 1.04      | P20          |
| 5          | 41             | 1.03      | P30, P40     |
| 10         | 50             | 1.02      | P50          |
| 15         | 59             | 1.01      | P10 P20      |
| 20         | 68             | 1.01      | P30, P40     |
| 25         | 77             | 1.00      | P50          |
| 30         | 86             | 0.99      |              |
| 35         | 95             | 0.98      |              |
| 40         | 104            | 0.98      |              |

|          |       |            |                  |                 |
|----------|-------|------------|------------------|-----------------|
| ORDER #: | TYPE: | DRAWN: MRP | DATE: 02/01/2018 | DWG #: LUM_PTE2 |
|----------|-------|------------|------------------|-----------------|

| FPDxx Data Table |         |         |      |      |         |       |       |         |       |       |                |       |
|------------------|---------|---------|------|------|---------|-------|-------|---------|-------|-------|----------------|-------|
| FPDxx<br>Setting | Voltage | FPD 12K |      |      | FPD 15K |       |       | FPD 20K |       |       | FPD<br>Setting |       |
|                  |         | CS      | VS   | PS   | CS      | VS    | PS    | CS      | VS    | PS    |                |       |
| Standard         | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD01            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD02            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD03            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD04            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD05            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD06            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD07            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD08            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD09            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD10            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD11            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD12            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD13            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD14            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD15            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD16            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD17            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD18            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD19            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD20            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD21            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD22            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD23            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD24            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD25            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD26            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD27            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471   | 3.024 | 1.001 | 1.821          | 1.000 |
| FPD28            | 30      | 1.16    | 3.27 | 1007 | 2.821   | 2.621 | 1.375 | 4.471</ |       |       |                |       |

THE ABOVE INFORMATION IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT A CONTRACT. THE COMPLETE INFORMATION IS AVAILABLE IN THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS ARE THE ONLY SOURCE OF INFORMATION FOR THE PROJECT. THE CONTRACT DOCUMENTS ARE THE ONLY SOURCE OF INFORMATION FOR THE PROJECT. THE CONTRACT DOCUMENTS ARE THE ONLY SOURCE OF INFORMATION FOR THE PROJECT.

| Parameters              |     | SELECTED OPTION (start here) |    |       |    |     |    |     |     |     |      |     |     |     |     |      |      |
|-------------------------|-----|------------------------------|----|-------|----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|------|------|
|                         |     | AO                           | DE | PIDxx | P3 | P3E | P7 | P7E | P3A | P4B | PCLL | PCS | PND | PSC | RME | RME3 | RME4 |
| LED Performance Package | P10 | Y                            | Y  | Y     | Y  | Y   | Y  | Y   | Y   | Y   | Y    | Y   | Y   | Y   | Y   | Y    |      |
|                         | P20 | Y                            | Y  | Y     | Y  | Y   | Y  | Y   | Y   | Y   | Y    | Y   | Y   | Y   | Y   | Y    |      |
|                         | P30 | Y                            | Y  | Y     | Y  | Y   | Y  | Y   | Y   | Y   | Y    | Y   | Y   | Y   | Y   | Y    |      |
|                         | P40 | Y                            | Y  | Y     | Y  | Y   | Y  | Y   | Y   | Y   | Y    | Y   | Y   | Y   | Y   | Y    |      |
|                         | P50 | Y                            | N  | Y     | Y  | Y   | Y  | Y   | Y   | Y   | Y    | Y   | N   | Y   | Y   | Y    |      |
| Voltage                 | A5  | Y                            | Y  | Y     | Y  | Y   | Y  | N   | N   | Y   | Y    | Y   | Y   | N   | N   | Y    |      |
| Final                   | B   | Y                            | Y  | Y     | Y  | N   | Y  | N   | Y   | Y   | Y    | Y   | Y   | N   | N   | N    |      |
|                         | S   | Y                            | Y  | Y     | Y  | N   | Y  | Y   | Y   | Y   | Y    | Y   | Y   | N   | N   | N    |      |
|                         | M   | N                            | Y  | Y     | Y  | M   | Y  | Y   | Y   | Y   | Y    | Y   | Y   | M   | M   | M    |      |
| PPDxxx                  | AO  | N                            | N  | Y     | Y  | Y   | F  | Y   | Y   | Y   | Y    | Y   | N   | N   | N   | N    |      |
|                         | DE  | N                            | N  | N     | Y  | N   | N  | N   | N   | N   | N    | N   | N   | N   | N   | N    |      |
|                         | P30 | Y                            | Y  | Y     | Y  | Y   | Y  | Y   | Y   | Y   | Y    | Y   | Y   | Y   | Y   | Y    |      |
|                         | P3  | Y                            | Y  | Y     | Y  | N   | N  | M   | M   | M   | M    | M   | I   | M   | N   | N    |      |

DECORATIVE  
OUTDOOR

[illegible]

|            |            |
|------------|------------|
| ORDER #:   |            |
| TYPE:      |            |
| DRAWN: MRP |            |
| DATE:      | 02/01/2018 |
| DWG #:     | LUM PTUE2  |

|                                                                                                                                            |                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OPTIONS MATRIX Legend</b>                                                                                                               | <b>ROAM Option Details</b>                                                                                                                                                                                                                                         |
| I = Included with selected option<br>F = Future ready (filled with "XO")<br>? = Not available for some devices with tool-less field wiring | <b>DE:</b> UL listed components without GPS capability, external antenna is black and includes ROAM capable node only, ROAM service package sold separately via Acuity contact Acuity Controls for RME device with GPS capability or non-standard housing color    |
| M = Must have; one of these must be installed for the luminaire to operate                                                                 | <b>RME:</b> UL listed device without GPS capability, blue housing color, includes ROAM capable node only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RME device with GPS capability or non-standard housing color    |
| N = Combination not available                                                                                                              | <b>RMES:</b> UL listed device without GPS capability, green housing color, includes ROAM capable node only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RME device with GPS capability or non-standard housing color  |
| Y = Valid Option Combination                                                                                                               | <b>RMEX:</b> UL listed device without GPS capability, yellow housing color, includes ROAM capable node only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RME device with GPS capability or non-standard housing color |
| <b>Lumen Ambient Temperature (LAT) Multipliers</b>                                                                                         | <b>Projected LED Lumen Maintenance</b>                                                                                                                                                                                                                             |
| Use these factors to determine relative lumen output for average ambient temperatures from -40°F (-20°C) F.                                | Data references the extrapolated performance projections for the platforms noted in a 25 °C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-60-08 and projected per IESNA TM-21-11).                                                             |
| <b>Average Lumen Ambient Temperature</b>                                                                                                   | To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, test data will be provided upon request.                                                                   |

**LED:** Used components without GPS capability, external antenna is black and contact Acuity Controls ROAM capable only, ROAM service package sold separately via Acuity Controls

**RME1:** UL listed device without GPS capability, blue housing color, includes ROAM capable only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RME device with GPS capability or non-standard housing color

**RME3:** UL listed device without GPS capability, green housing color, includes ROAM capable only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RME device with GPS capability or non-standard housing color

**RME4:** UL listed device without GPS capability, yellow housing color, includes ROAM capable only, ROAM service package sold separately via Acuity Controls and contact Acuity Controls for RME device with GPS capability or non-standard housing color

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### Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25 °C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-60-08 and projected per IESNA TM-21-11).

To calculate LUF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, test to determine.

| Lumen Ambient Temperature (LAT) Multiplier                                                                      |
|-----------------------------------------------------------------------------------------------------------------|
| Use these factors to determine relative lumen output for average ambient temperatures from 0-40 °C (32-104 °F). |
| Average Lumen Ambient Temperature                                                                               |

| Lumen Ambient Temperature (LAT) Multipliers                                                                                                                                                                                                                                                                                                                                 | Projected LED Lumen Maintenance |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <p>Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 6,000 hours of LAT testing (tested per IESNA LM-40-08 and projected per IESNA TM-21-11).</p> <p>To calculate LUF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values,</p> |                                 |
| <b>Average Lumen Ambient Temperature</b>                                                                                                                                                                                                                                                                                                                                    |                                 |

**(LAI) Multipliers**

Use these factors to determine relative lumen output for average ambient temperatures from 0-40 °C (32-104 °F).

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-60-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values,

**Average lumen Ambient temperature**

**Average Lumen Ambient Temperature**

| °C | Multiplier | Packages |
|----|------------|----------|
| 0  | 32         | 1,04     |
| 5  | 41         | 1,09     |
| 10 | 50         | 1,14     |
| 15 | 59         | 1,20     |
| 20 | 68         | 1,27     |
| 25 | 77         | 1,34     |
| 30 | 86         | 1,41     |
| 35 | 95         | 1,48     |
| 40 | 104        | 1,56     |

The italicized data is extrapolated beyond the Tm-21 standard.

$E = LM \times (CU) \times (LAT) \times (LLD)$

LM and CU are obtained from published photometry.

| Hours  | D | 25,000 | 36,000 | 45,000 | 50,000 | 55,000 | 60,000 | 65,000 | 70,000 | 75,000 | 80,000 | 85,000 | 90,000 | 95,000 | 100,000 |
|--------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Factor | 1 | 0.93   | 0.91   | 0.87   | 0.85   | 0.82   | 0.77   |        |        |        |        |        |        |        |         |

Linear Maintenance - LLD (same for all LED packages)

10

|                |      |
|----------------|------|
| Catalog Number |      |
| Notes          | Type |

## PTE3

### Taft Posttop LED



#### SPECIFICATIONS

##### General Description

The decorative post top lantern is ideal for lighting city streets, residential areas, campuses, parking lots, and walkways. The architectural luminaire consists of a luminaire housing, a prismatic optic, and a decorative cover.

##### Optical Assembly

The optical assembly consists of a prismatic glass or acrylic refractor to precisely distribute light with excellent visual comfort and reduced glare. Configurable with CCT options of 2700K, 3000K, and 4000K. CRI is 70 minimum. Available in symmetric and asymmetric distributions.

##### Electrical Assembly

The programmable LED driver includes 0-10V dimming with optional DALI dimming. Driver is available in 120-277V, 347-480V, and 277V-480V options (50/60 Hz). Driver life is rated to at least 100,000 hours. The 277V-480V (XVOLT) option includes enhanced power quality protection for maximum robustness against loss of neutral, voltage transients, harmonic disturbances, and other real-world power quality disturbances.

##### Finish

The luminaire housing is low copper cast aluminum and finished with corrosion resistant super durable powder coat paint for maximum durability. Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5,000 hours exposure to salt fog chamber (operated per ASTM B117)

##### Mounting

Luminaire includes an integral slipfitter that accepts a 3" tall by Ø2-7/8" - 3-1/8" O.D. tenon. Secured to the tenon by 6 set screws

##### Control Options

Optional controls include:

- Industry standard 3-pin and 7-pin NEMA photocontrols, mounted externally in place of the finial
- - "nLight AIR enabled" for connection to nLight AIR wireless control networks via internally mounted antenna (NLTAIR2)
- DALI compatible drivers. Contact factory for details.
- Customization of lumen packages is possible. Consult factory for details.

##### Listing

The luminaire is CSA certified to US and Canadian standards. 20kV/10kA extreme surge protection per ANSI/IEEE C136.2. Suitable for operation in ambient temperatures from -40°C to 40°C. Optical chamber is sealed to IP66. DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at [www.designlights.org/QPL](http://www.designlights.org/QPL) to confirm which versions are qualified.

##### Buy American Act

This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to [www.acuitybrands.com/resources/buy-american](http://www.acuitybrands.com/resources/buy-american) for additional information.

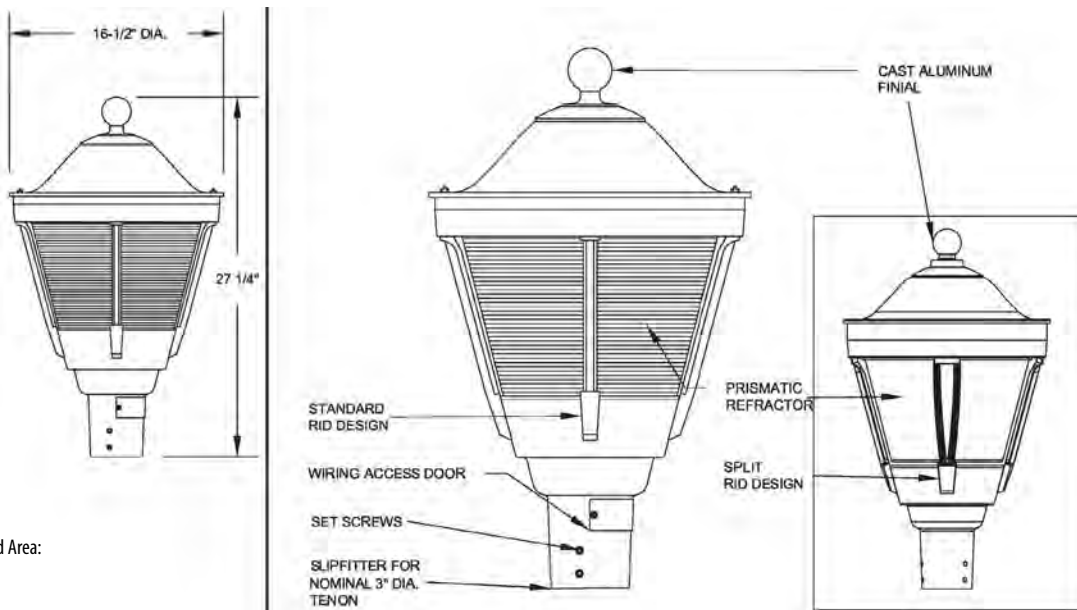
##### Warranty

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: [www.acuitybrands.com/support/warranty/terms-and-conditions](http://www.acuitybrands.com/support/warranty/terms-and-conditions)

**Note:** Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



#### DIMENSIONAL DATA



Maximum Weight - 32 lbs  
Maximum Effective Projected Area:  
1.3 sq. ft.

ORDERING INFORMATION

EXAMPLE: PTE3 P30 30K MVOLT GL3 BK BL SR

| Housing Style          | LED Performance Package | Color Temperature | Voltage                                               | Optics                       | Color                                                                                             | Finial  | Ribs          |
|------------------------|-------------------------|-------------------|-------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------|---------|---------------|
| PTE3 Taft LED Post Top | P10 30W nominal         | 27K 2700K CCT     | MVOLT 120-277V                                        | Acrylic Refractor            | BK Black                                                                                          | BL Ball | SR Solid rib  |
|                        | P20 40W nominal         | 30K 3000K CCT     | HVOLT 347-480V                                        | AL3 Acrylic refractor type 3 | BZ Bronze                                                                                         | NF None | SRS Split rib |
|                        | P30 50W nominal         | 40K 4000K CCT     | XVOLT 277-480V with enhanced power quality protection | AL5 Acrylic refractor type 5 | CMC Custom Match Color                                                                            |         |               |
|                        | P40 60W nominal         |                   |                                                       | Glass Refractor              | GH Graphite                                                                                       |         |               |
|                        | P50 70W nominal         |                   |                                                       | GL3 Glass refractor type 3   | GN Green                                                                                          |         |               |
|                        | P60 80W nominal         |                   |                                                       | GL5 Glass refractor type 5   | GR Grey                                                                                           |         |               |
|                        | P70 90W nominal         |                   |                                                       |                              | RALxxxxSDCR RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number. |         |               |
|                        | P80 100W nominal        |                   |                                                       |                              | WH White                                                                                          |         |               |

Options

Control Options:

|         |                                                             |
|---------|-------------------------------------------------------------|
| NLTAIR2 | nLight AIR rIO 2.0 antenna                                  |
| PR3E    | 3-pin NEMA twistlock receptacle, replaces finial            |
| PR7E    | 7-pin NEMA twistlock receptacle, replaces finial            |
| P34     | Long Life DTL Twistlock Photocontrol for Solid State, 347V  |
| P48     | Long Life DTL Twistlock Photocontrol for Solid State, 480V  |
| PCLL    | Long Life DTL Twistlock Photocontrol for Solid State, MVOLT |
| SH      | Shorting cap                                                |
| DALI    | DALI driver (RFD Required)                                  |

NEMA Label Options:

|       |                          |
|-------|--------------------------|
| NL1x1 | 1"x1" ANSI wattage label |
| NL2x2 | 2"x2" ANSI wattage label |

Prewire Lead Options:

|     |                       |
|-----|-----------------------|
| L1H | 1.5' of prewire leads |
| L03 | 3' of prewire leads   |
| L10 | 10' of prewire leads  |
| L20 | 20' of prewire leads  |
| L25 | 25' of prewire leads  |
| L30 | 30' of prewire leads  |

Accessories: Order as separate catalog number.

House Side Shield Field Installed Options:

|         |                                    |
|---------|------------------------------------|
| PHSS90  | House side shield solid 90 degree  |
| PHSS120 | House side shield solid 120 degree |
| PHSS180 | House side shield solid 180 degree |

Decorative field installed options

|        |                                            |
|--------|--------------------------------------------|
| RPCP** | Decorative Cupola (** =select color)       |
| RPFG** | Decorative filligree (** = select color)   |
| RPSC** | Decorative cast scroll (** = select color) |

Surge Replacement Field Installed Options:

|                      |                                     |
|----------------------|-------------------------------------|
| SPDPLUGIN-MVOLT-20KV | Replacement for 120-277V 20KV/ 10KA |
| SPDPLUGIN-HVOLT-20KV | Replacement for 347-480V 20KV/ 10KA |

Photocontrol kit field installed options

|          |                                                   |
|----------|---------------------------------------------------|
| RPB12**  | Photocontrol kit for 120V (**=select color)       |
| RPB27**  | Photocontrol kit for 208-277V (** = select color) |
| RPB347** | Photocontrol kit for 347V (**=select color)       |

MARK APPROPRIATE BOX FOR FINIAL AND RIB OPTIONS

FINIALS

☐

No Finial (NF)

☐

Ball (BL)

RIB OPTIONS

☐

Standard Ribs (SR)

☐

Split Ribs (SRS)

## PERFORMANCE DATA

| Performance Package | System Watts | Optical Distribution | 27K (2700K, 70 CRI) |     | 30K (3000K, 70 CRI) |     | 40K (4000K, 70 CRI) |     |
|---------------------|--------------|----------------------|---------------------|-----|---------------------|-----|---------------------|-----|
|                     |              |                      | Lumens              | LPW | Lumens              | LPW | Lumens              | LPW |
| P10                 | 31           | GL3                  | 3,526               | 113 | 3,806               | 122 | 3,876               | 125 |
|                     |              | GL5                  | 3,437               | 110 | 3,709               | 119 | 3,777               | 121 |
|                     |              | AL3                  | 3,542               | 114 | 3,823               | 123 | 3,893               | 125 |
|                     |              | AL5                  | 3,545               | 114 | 3,826               | 123 | 3,896               | 125 |
| P20                 | 40           | GL3                  | 4,617               | 114 | 4,983               | 123 | 5,075               | 125 |
|                     |              | GL5                  | 4,500               | 111 | 4,856               | 120 | 4,946               | 122 |
|                     |              | AL3                  | 4,638               | 115 | 5,006               | 124 | 5,098               | 126 |
|                     |              | AL5                  | 4,641               | 115 | 5,009               | 124 | 5,101               | 126 |
| P30                 | 51           | GL3                  | 5,692               | 112 | 6,144               | 121 | 6,257               | 124 |
|                     |              | GL5                  | 5,548               | 110 | 5,987               | 118 | 6,097               | 120 |
|                     |              | AL3                  | 5,718               | 113 | 6,171               | 122 | 6,285               | 124 |
|                     |              | AL5                  | 5,722               | 113 | 6,176               | 122 | 6,289               | 124 |
| P40                 | 59           | GL3                  | 6,869               | 116 | 7,413               | 125 | 7,550               | 127 |
|                     |              | GL5                  | 6,694               | 113 | 7,225               | 122 | 7,358               | 124 |
|                     |              | AL3                  | 6,900               | 116 | 7,447               | 126 | 7,584               | 128 |
|                     |              | AL5                  | 6,905               | 117 | 7,452               | 126 | 7,589               | 128 |
| P50                 | 70           | GL3                  | 7,873               | 113 | 8,497               | 122 | 8,653               | 124 |
|                     |              | GL5                  | 7,673               | 110 | 8,281               | 119 | 8,433               | 121 |
|                     |              | AL3                  | 7,909               | 113 | 8,535               | 122 | 8,692               | 125 |
|                     |              | AL5                  | 7,914               | 114 | 8,542               | 122 | 8,699               | 125 |
| P60                 | 80           | GL3                  | 8,811               | 111 | 9,509               | 119 | 9,684               | 122 |
|                     |              | GL5                  | 8,587               | 108 | 9,267               | 116 | 9,438               | 119 |
|                     |              | AL3                  | 8,851               | 111 | 9,552               | 120 | 9,728               | 122 |
|                     |              | AL5                  | 8,857               | 111 | 9,559               | 120 | 9,735               | 122 |
| P70                 | 90           | GL3                  | 9,730               | 108 | 10,501              | 117 | 10,694              | 119 |
|                     |              | GL5                  | 9,482               | 105 | 10,234              | 114 | 10,422              | 116 |
|                     |              | AL3                  | 9,774               | 108 | 10,549              | 117 | 10,743              | 119 |
|                     |              | AL5                  | 9,781               | 109 | 10,556              | 117 | 10,750              | 119 |
| P80                 | 100          | GL3                  | 10,504              | 105 | 11,337              | 113 | 11,545              | 115 |
|                     |              | GL5                  | 10,237              | 102 | 11,048              | 110 | 11,251              | 112 |
|                     |              | AL3                  | 10,551              | 105 | 11,388              | 114 | 11,597              | 116 |
|                     |              | AL5                  | 10,559              | 105 | 11,396              | 114 | 11,605              | 116 |

OPTIONS MATRIX

|                     |         | Voltage |       |       | Optic |     |     |     | Finial |     | Control Options |         |      |      | Photocontrol |     |     |     |
|---------------------|---------|---------|-------|-------|-------|-----|-----|-----|--------|-----|-----------------|---------|------|------|--------------|-----|-----|-----|
|                     |         | MVOLT   | HVOLT | XVOLT | GL3   | GL5 | AL3 | AL5 | BL     | NF  | DALI            | NLTAIR2 | PR3E | PR7E | PCLL         | P34 | P48 | SH  |
| Performance Package | P10     | Y       | Y     | N     | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | P20     | Y       | Y     | N     | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | P30     | Y       | Y     | Y     | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | P40     | Y       | Y     | Y     | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | P50     | Y       | Y     | Y     | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | P60     | Y       | Y     | Y     | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | P70     | Y       | Y     | Y     | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | P80     | Y       | Y     | Y     | Y     | Y   | N   | N   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
| Voltage             | MVOLT   |         |       |       | Y     | Y   | Y   | Y   | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | N   | N   | Y   |
|                     | HVOLT   |         |       |       | Y     | Y   | Y   | Y   | Y      | Y   | N               | Y       | Y    | Y    | N            | Y   | Y   | Y   |
|                     | XVOLT   |         |       |       | Y     | Y   | Y   | Y   | Y      | Y   | N               | N       | Y    | Y    | Y            | Y   | Y   | Y   |
| Optic               | GL3     | Y       | Y     | Y     |       |     |     |     | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | GL5     | Y       | Y     | Y     |       |     |     |     | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | AL3     | Y       | Y     | N     |       |     |     |     | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
|                     | AL5     | Y       | Y     | N     |       |     |     |     | Y      | Y   | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
| Finial              | BL      | Y       | Y     | Y     | Y     | Y   | Y   | Y   |        |     | RFD             | Y       | N    | N    | Y            | Y   | Y   | Y   |
|                     | NF      | Y       | Y     | Y     | Y     | Y   | Y   | Y   |        |     | RFD             | Y       | Y    | Y    | Y            | Y   | Y   | Y   |
| Controls            | DALI    | RFD     | N     | N     | RFD   | RFD | RFD | RFD | RFD    | RFD |                 |         | RFD  | RFD  | RFD          | RFD | RFD | RFD |
|                     | NLTAIR2 | Y       | Y     | N     | Y     | Y   | Y   | Y   | Y      | Y   |                 |         | N    | N    | N            | N   | N   | N   |
|                     | PR3E    | Y       | Y     | Y     | Y     | Y   | Y   | Y   | N      | Y   | RFD             | N       |      |      | Y            | Y   | Y   | Y   |
|                     | PR7E    | Y       | Y     | Y     | Y     | Y   | Y   | Y   | N      | Y   | RFD             | N       |      |      | Y            | Y   | Y   | Y   |
| Photocontrol        | PCLL    | Y       | N     | Y     | Y     | Y   | Y   | Y   | N      | Y   | RFD             | N       | Y    | Y    |              |     |     |     |
|                     | P34     | N       | Y     | Y     | Y     | Y   | Y   | Y   | N      | Y   | RFD             | N       | Y    | Y    |              |     |     |     |
|                     | P48     | N       | Y     | Y     | Y     | Y   | Y   | Y   | N      | Y   | RFD             | N       | Y    | Y    |              |     |     |     |
|                     | SH      | Y       | Y     | Y     | Y     | Y   | Y   | Y   | N      | Y   | RFD             | N       | Y    | Y    |              |     |     |     |

**OPTIONS MATRIX Legend**  
Y = Option combination is available  
N = Option combination is not available  
RFD = Additional information required, consult factory

**Lumen Ambient Temperature (LAT) Multipliers**  
Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

| Luminaire Ambient Temperature (LAT) Factor |                  |                  |
|--------------------------------------------|------------------|------------------|
| Temperature (°C)                           | Temperature (°F) | Lumen Multiplier |
| 0°C                                        | 32°F             | 1.04             |
| 5°C                                        | 41°F             | 1.03             |
| 10°C                                       | 50°F             | 1.02             |
| 15°C                                       | 59°F             | 1.01             |
| 20°C                                       | 68°F             | 1.01             |
| 25°C                                       | 77°F             | 1.00             |
| 30°C                                       | 86°F             | 0.99             |
| 35°C                                       | 95°F             | 0.98             |
| 40°C                                       | 104°F            | 0.98             |

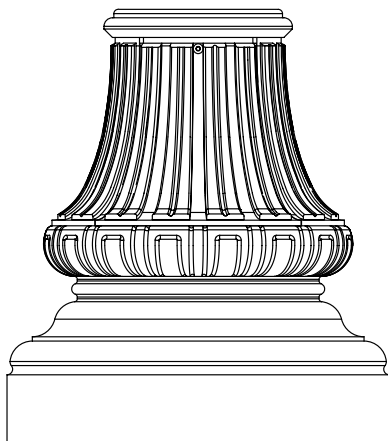
**Projected LED Lumen Maintenance**  
Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 9,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).  
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

| LED Lumen Maintenance |         |              |              |              |              |              |               |
|-----------------------|---------|--------------|--------------|--------------|--------------|--------------|---------------|
| Performance Package   | Initial | 25,000 hours | 36,000 hours | 50,000 hours | 60,000 hours | 75,000 hours | 100,000 hours |
| P10 thru P70          | 1.00    | 0.95         | 0.94         | 0.91         | 0.90         | 0.88         | 0.84          |
| P80                   | 1.00    | 0.94         | 0.91         | 0.89         | 0.86         | 0.83         | 0.79          |

*The italicized data is extrapolated beyond the TM-21 standard.*

## CLA

### Columbia Aluminum Pole



17D

#### SPECIFICATIONS

##### General Description

The lighting post shall be all aluminum, one-piece construction, with a classic tapered and fluted base design.

##### Materials

- The base and fluted tapered cast shaft shall be heavy wall, cast aluminum produced from certified ASTM 356.1 ingot per ASTM B-179 or ASTM B26.
- The straight shafts shall be extruded from aluminum, ASTM 6061 alloy.
- The tapered shaft shall be extruded from aluminum, ASTM 6063 alloy, spun to a tapered shape.
- All hardware shall be tamper resistant stainless steel.
- Anchor bolts to be completely hot dip galvanized.
- Utilize a polyester powder coat paint to ensure maximum durability.
- Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5,000 hours exposure to salt fog chamber (operated per ASTM B117) on standard and RAL finish options.
- RAL (RALxxxxSDCR) paint colors are Super Durable Corrosion Resistant, 80% gloss.

##### Construction

- The shaft shall be double welded to the base casting and shipped as one piece for maximum structural integrity.
- The shaft shall be welded inside the base casting at the top of the access door, and externally where the shaft exits the base.
- All welding shall be per ANSI/AWS.

##### Dimensions

- The post height shall range from 8' to 22' with a 17" diameter base.
- At the top of the post, an integral tenon with a transitional donut shall be provided for luminaire mounting.

##### Installation

- The post shall be provided with four, hot dip galvanized L-type anchor bolts.
- A door shall be provided in the base for anchorage and wiring access.
- A grounding screw shall be provided inside the base opposite the door.

##### Warranty

1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: [www.acuitybrands.com/support/warranty/terms-and-conditions](http://www.acuitybrands.com/support/warranty/terms-and-conditions)

##### IMPORTANT INSTALLATION NOTES:

- Do not erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Acuity Brands Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Acuity Brands Lighting is not responsible for the foundation design.

**Note:** Actual performance may differ as a result of end-user environment and application.

Specifications subject to change without notice.

#### ORDERING INFORMATION

**Example:** CLA 16 SL5 17D C03 BK GRD

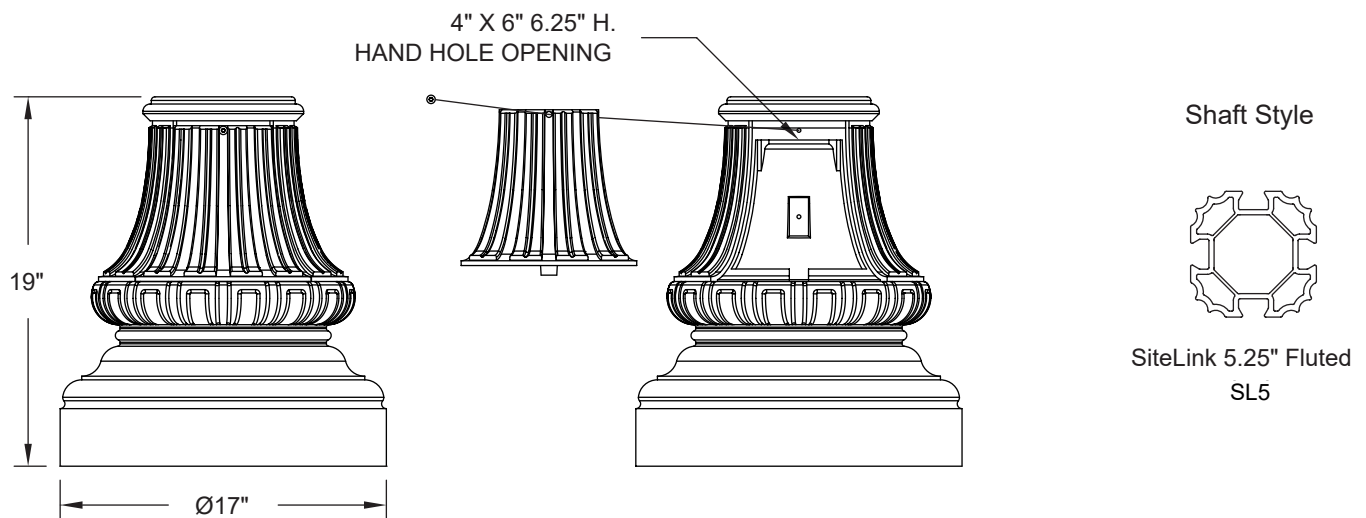
| Post         | Height                | Shaft Style                                   | Base                                      | Tenon                                             |
|--------------|-----------------------|-----------------------------------------------|-------------------------------------------|---------------------------------------------------|
| CLA Columbia | 08 8 Feet 16 16 Feet  | <b>SiteLink</b><br>SL5 5.25" Fluted, .25 Wall | 17D 17" Base, Diamond Pattern Bolt Circle | PLN Pole Cap                                      |
|              | 09 9 Feet 17 17 Feet  |                                               |                                           | C03 3X3 Tenon, (actual size 2.88 O.D. x 3" LG.)   |
|              | 10 10 Feet 18 18 Feet |                                               |                                           | C04 3X4 Tenon, (actual size 2.88 O.D. X 4" LG.)   |
|              | 11 11 Feet 19 19 Feet |                                               |                                           | C05 3X5 Tenon, (actual size 2.88 O.D. X 5" LG.)   |
|              | 12 12 Feet 20 20 Feet |                                               |                                           | C06 3X6 Tenon, (actual size 2.88 O.D. X 6" LG.)   |
|              | 13 13 Feet 21 21 Feet |                                               |                                           | C08 3X8 Tenon, (actual size 2.88 O.D. X 8" LG.)   |
|              | 14 14 Feet 22 22 Feet |                                               |                                           | C09 3X9 Tenon, (actual size 2.88 O.D. X 9" LG.)   |
|              | 15 15 Feet            |                                               |                                           | C12 3X12 Tenon, (actual size 2.88 O.D. X 12" LG.) |
|              |                       |                                               |                                           | C14 3X14 Tenon, (actual size 2.88 O.D. X 14" LG.) |
|              |                       |                                               |                                           |                                                   |

**NOTE:** Refer to Pole Guide on page 3 for height based on Shaft Style.

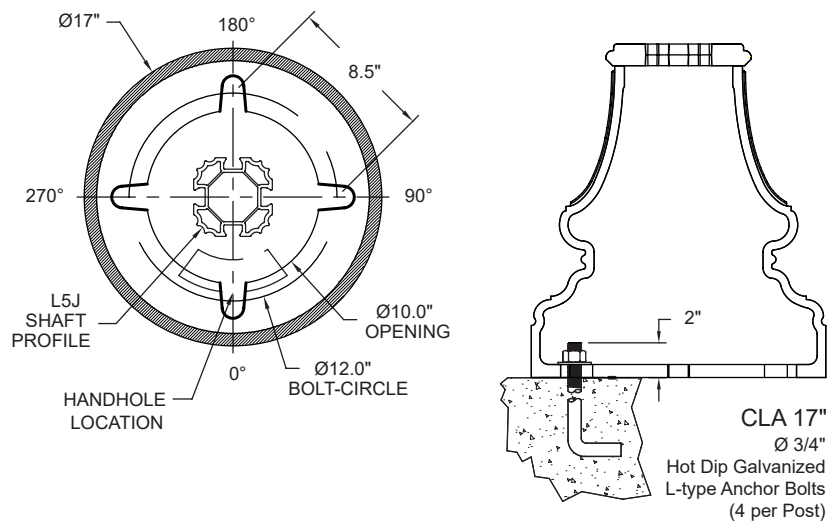
| Finish                                                                                            | Options                     | Welded Provisions           | Accessories: Order as separate catalog number                                                     |
|---------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------|---------------------------------------------------------------------------------------------------|
| BK Black                                                                                          | GRD 1/2 Brass Grounding Lug | RPXXXY Receptacle provision | AB-31-4 3/4" Anchor bolt set, galvanized steel<br>TMP40012 12" Bolt Circle; 17" Base SiteLink SL5 |
| BZ Bronze                                                                                         |                             |                             |                                                                                                   |
| CMC Customer matched color                                                                        |                             |                             |                                                                                                   |
| CTBS Standard color to be determined                                                              |                             |                             |                                                                                                   |
| DB Dark Blue                                                                                      |                             |                             |                                                                                                   |
| GH Graphite                                                                                       |                             |                             |                                                                                                   |
| GN Green                                                                                          |                             |                             |                                                                                                   |
| GR Gray                                                                                           |                             |                             |                                                                                                   |
| PP Prime Painted                                                                                  |                             |                             |                                                                                                   |
| RALxxxxSDCR RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number. |                             |                             |                                                                                                   |
| SL Silver                                                                                         |                             |                             |                                                                                                   |
| WH White                                                                                          |                             |                             |                                                                                                   |

**NOTE:** Replace "XXX" with height from grade (inches), can be up to 3 digits. Must use whole numbers. Leading zeros are not used. Replace Y with orientation from hand hole (A=0, B=90, C=180, D=270). Add multiple provisions as necessary to cover each location. Must validate EPA restrictions for banners.

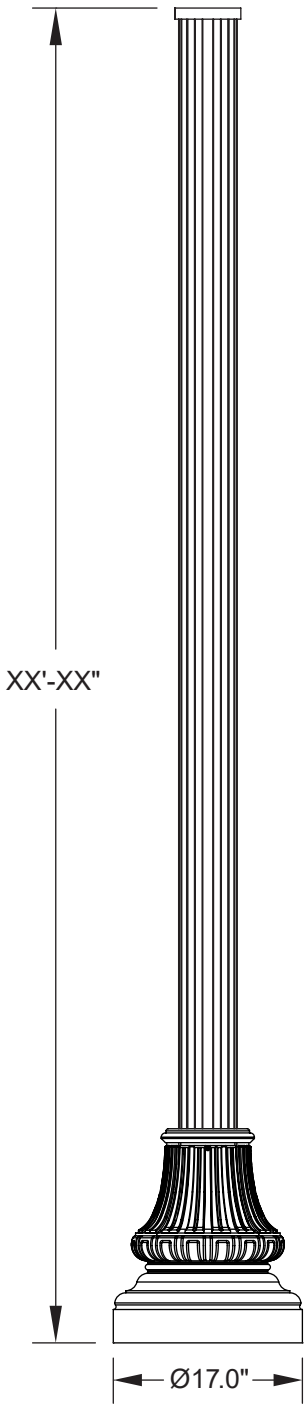
## DIMENSIONAL DATA



## ANCHORAGE GUIDE



POLE GUIDE



POLE HEIGHT RANGE (For 17" diameter base)

|             |
|-------------|
| SL5         |
| 8' thru 22' |

12060-2  
STARBURST  
Tree Grate

60" x 120" Tree grate in four sections for pedestrian loads only

3/8" Maximum slot opening for A.D.A. compliance and pedestrian safety

Cast from 100% recycled gray iron or Aluminum or Cast C854 Copper Alloy.

Tree opening: 16", 18", 28"

Grates can be ordered with or later expanded to these openings. Please specify when ordering.

Finish: Unfinished or Black Dip, or Enamel paint, or Polyurethane paint, or Powder coat.

Zinc undercoat available.

Specify finish and color

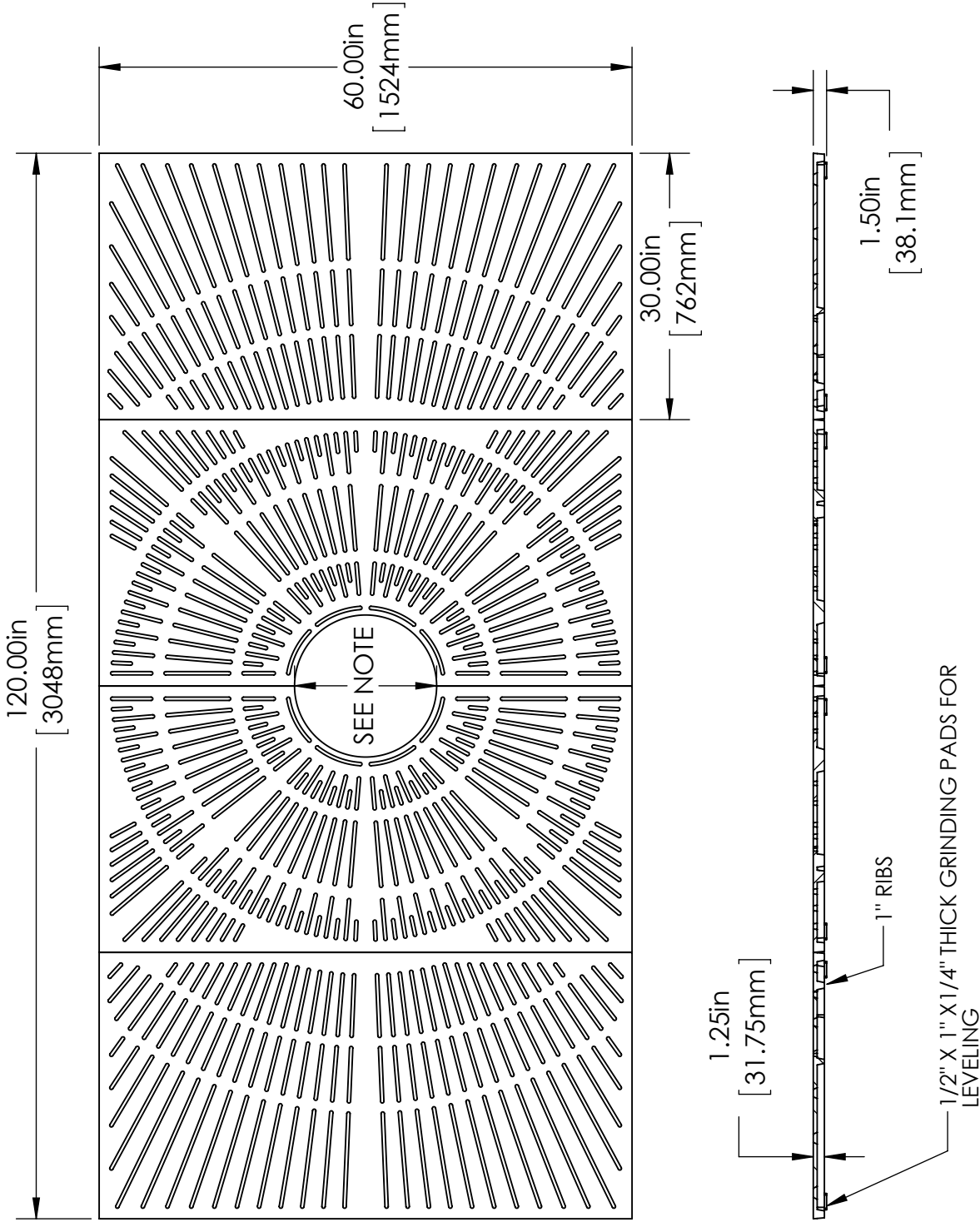
Use frame model: 60x120F

Weight: iron = 1000lb./454.5 Kg Aluminum: 334lb./151.8 Kg

DO NOT SCALE

IRONSMITH

41-701 Corporate Palm Desert, CA 91320  
(800) 338-5080  
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# C-Series LED

16209

L10

120V-277V LED Small Accent, 5W & 10W



Select Models

PROJECT:

TYPE:

ORDERING:

COMMENTS:

## APPLICATIONS

Kichler's 120V-277V LED accent lighting fixtures are designed for outdoor lighting applications requiring uniform light sources, with long life, and little maintenance requirements.

## CONSTRUCTION

Die-cast aluminum construction with durable polyester powder coating. Vandal resistant hardware, reinforced knuckle design, a water draining front end with an integrated cowl. Accent fixtures accept various lens or louver accessories.

## ELECTRICAL

ETL listed to UL and CSA Standards for 120V-277 VAC (50/60 Hz), and suitable for wet locations. Integrated surge protection (4kV) comes standard.

## OPTICS

Utilizes a single LED chip-on-board light source that provides for center-to-edge uniformity and enhances beam control. Three-step binning for tight color consistency. Available in three standard beam angles: 15, 40 or 55 degrees.

## LISTINGS

ETL wet label listed to UL and CSA Standards. IP66 rated. FCC compliant.

## ORDERING MATRIX (Model # +Finish & CCT Codes) & LUMEN INFORMATION

| Model # | Finish     | CCT (30 / 40) | Wattage | CRI    | Beam Angle | Lumen | Lm/W | L70 (hrs) |
|---------|------------|---------------|---------|--------|------------|-------|------|-----------|
| 16209   | AZT or BKT | 3000K         | 5.2     | 80 (+) | 15 Deg     | 473   | 91   | 60,000    |
| 16209   | AZT or BKT | 4000K         | 5.0     | 80 (+) | 15 Deg     | 495   | 99   | 60,000    |
| 16210   | AZT or BKT | 3000K         | 5.2     | 80 (+) | 40 Deg     | 478   | 93   | 60,000    |
| 16210   | AZT or BKT | 4000K         | 5.1     | 80 (+) | 40 Deg     | 514   | 100  | 60,000    |
| 16211   | AZT or BKT | 3000K         | 5.3     | 80 (+) | 55 Deg     | 478   | 91   | 60,000    |
| 16211   | AZT or BKT | 4000K         | 5.3     | 80 (+) | 55 Deg     | 495   | 93   | 60,000    |
| 16212   | AZT or BKT | 3000K         | 9.9     | 80 (+) | 15 Deg     | 831   | 84   | 60,000    |
| *16212  | AZT or BKT | 4000K         | 10.0    | 80 (+) | 15 Deg     | 914   | 91   | 60,000    |
| 16213   | AZT or BKT | 3000K         | 10.1    | 80 (+) | 40 Deg     | 831   | 82   | 60,000    |
| *16213  | AZT or BKT | 4000K         | 10.3    | 80 (+) | 40 Deg     | 942   | 91   | 60,000    |
| 16214   | AZT or BKT | 3000K         | 9.9     | 80 (+) | 55 Deg     | 807   | 82   | 60,000    |
| *16214  | AZT or BKT | 4000K         | 10.2    | 80 (+) | 55 Deg     | 934   | 91   | 60,000    |

**Example:** 16209BKT40 is model 16209 in Textured Black, 4000K

Each model is available with a finish in BKT - Textured Black or AZT - Textured Architectural Bronze

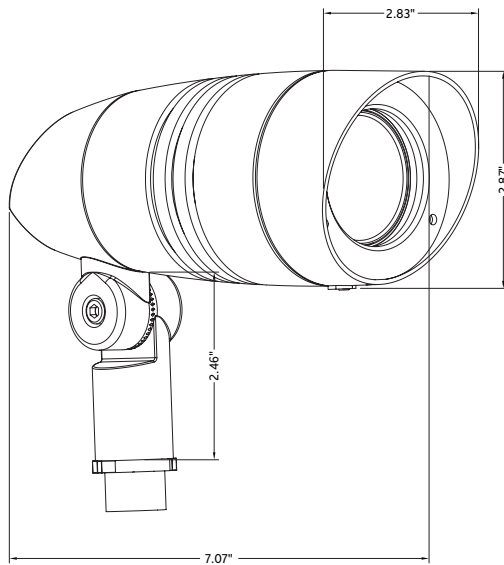
\*DLC Qualified Products. For the most current listing, visit [www.designlights.org](http://www.designlights.org)

**KICHLER**

# C-Series LED

120V-277V LED Small Accent, 5W & 10W

## DIMENSIONS



## INCLUDED ACCESSORIES

Three (3) King Innovation Gel-Filled twist-on wire connectors

## ACCESSORIES

Ordered & shipped separately (for knuckle only)

|                                  |                     |
|----------------------------------|---------------------|
| <b>15645 AZT, BKT</b> - 6" Stem  | Corrosion resistant |
| <b>15656 AZT, BKT</b> - 12" Stem | aluminum alloy with |
| <b>15657 AZT, BKT</b> - 18" Stem | baked thermoset     |
| <b>15658 AZT, BKT</b> - 24" Stem | powder coating.     |

**15276 BKT** - Power Post: A Fast, One-Step Connector

Made of Impact / Corrosion Resistant PVC

2.25" Inside Diameter to Accommodate Conduits

of Different Sizes

Accepts .50 NPSM Thread

Designed For 120V-277V Line Voltage Landscape Lighting,  
Eliminating Need For Above or Below Ground Boxes.

Built-in Stabilizer Removes Need For Concrete

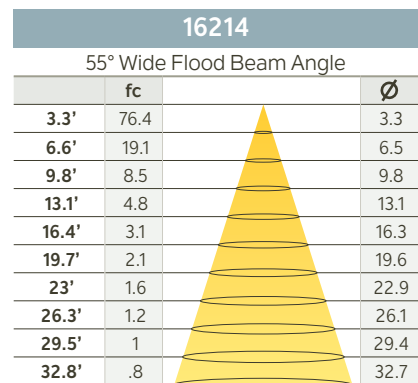
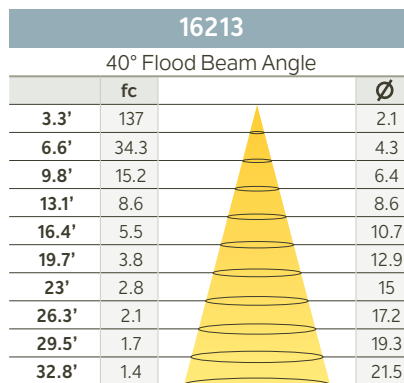
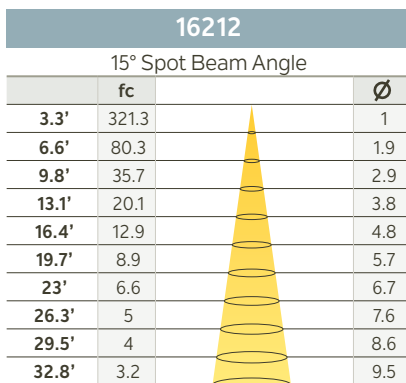
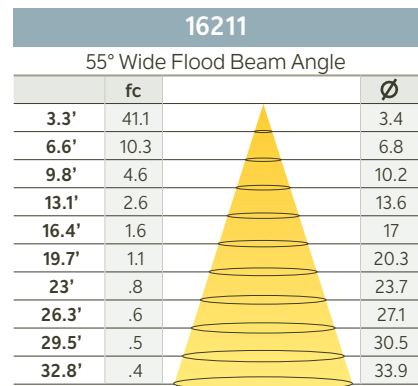
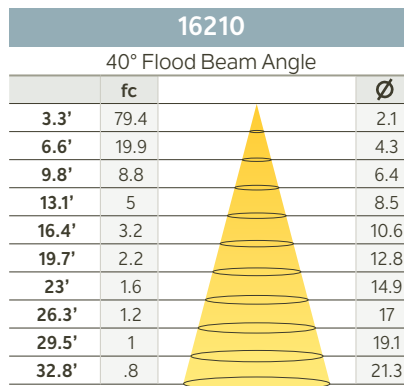
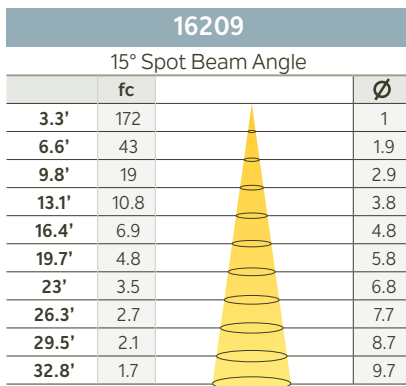
**15601 AZT, BKT** - Cast Aluminum Surface Mounting

Flange with Bronze or Black Finish, Neoprene Gasket For  
Watertight Seal

**15609 AZT, BKT** - Junction Box Mounting Bracket

Corrosion Resistant Cast Aluminum Alloy with Baked  
Thermoset Bronze or Black Powder Coat Finish

## PHOTOMETRIC DIAGRAMS



**KICHLER®**



## DETAILS

Modern outdoor planter lends effortless refinement to patios, decks and balconies with its ribbed detailing and elegantly tapered base. Crafted of a textured composite, vessel is lightweight and easy to move. Finished in soft white for a look that's light and fresh while contrasting beautifully with lush greenery. Group with the small and medium white outdoor planters for a layered display.

Zadie White Outdoor Planter Large 17.75" dia. x 30.75"H

- Cement/sand/fiberglass blend
- Includes drainage hole
- Outdoor-safe; cover or store indoors during inclement weather and when not in use
- Made in Vietnam

## DIMENSIONS

### OVERALL DIMENSIONS

Height: 30.75"

Diameter: 17.75"

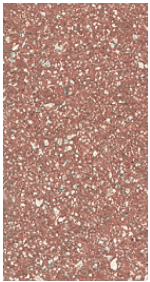
L11

L12

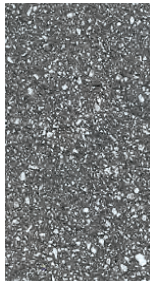


## Prest® Pavers | STANDARD COLORS WITH TUDOR® FINISH

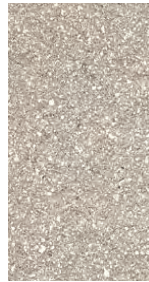
The eight standard colors shown are available in a wide range of paver sizes and thicknesses. Custom color blending can be accommodated, as well as, custom aggregate blending. Hanover's Tudor® Finish is an architectural texture which gives the surface a granite-like appearance. It is a surface equally suited to urban and municipal projects.



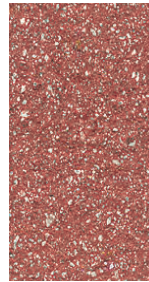
Quarry Red



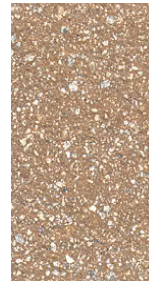
Charcoal



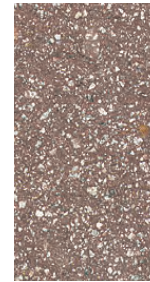
Natural\*



Red 15



Tan



Brown



Cream



Limestone Gray

\*Natural color Prest® Pavers have a tendency to vary in color within any given shipment. It may vary in shade from gray/buff to light gray, and even to a darker gray. This variance should be expected and considered normal for the Natural color Prest® Pavers.

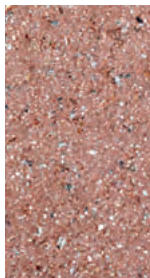
**PLEASE NOTE:** For stability of color, sealing is recommended. Two types of sealers are suggested – Hanover® Intensifying Sealer or Hanover® Natural Sealer.

## Prest® Pavers | CUSTOM COLORS WITH GROUND FINISH

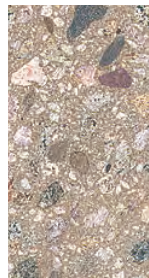
Texture is as important to the appearance of the installation as color and pattern. Hanover's Ground Finish provides a smooth surface revealing the aggregates beneath. Custom color and aggregate blending is available when quantities permit.



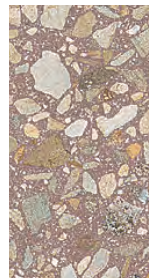
Super Black



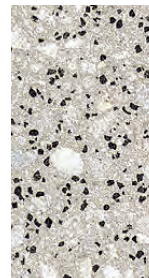
Matrix #1111



Matrix #1171



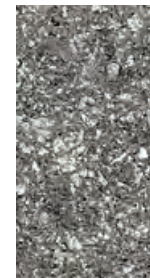
Matrix #1049



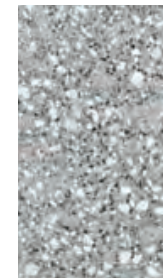
Matrix #1185



Matrix #1109



Matrix #1151



Matrix #1240

## SlateFace® Prest® Paver Colors

The SlateFace® Paver has been designed to reproduce the texture, color and appearance of natural slate. Stocked in Hanover's BlueStone and Tennessee Flagstone colors, its irregular top surface was developed from actual sections of stone.



BlueStone  
(#M2374)

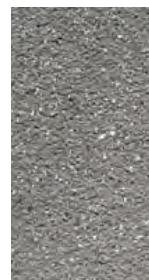


Tennessee Flagstone  
(#M2343)

**PLEASE NOTE:** The color photos shown to the left are a representation of possible color blend and texture. The actual product may vary. Hanover's blended colors consist of several shades and will include some solid and some blended pieces.

## CUSTOM COLORS WITH TUDOR® #13 FINISH

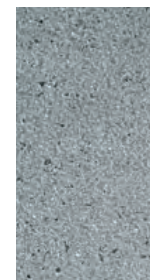
Hanover® Pavers are also produced in a Tudor® #13 finish which gives a delicate sandstone texture. A few available colors are shown below. Other custom colors can be ordered when quantities permit.



Matrix  
#1428



Matrix  
#1775



Matrix  
#2127



Matrix  
#1914

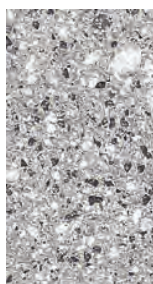
## Prest® Pavers | CUSTOM COLORS WITH TUDOR® FINISH

The blends shown below were developed by Hanover's efforts to respond to particular project requirements. Additional custom blending is available on special order when quantities permit. Hanover's Tudor® finish is a specialized texture designed to reveal the aggregates naturally. It gives the surface a granite-like appearance which adds slip resistant qualities to the paver.

9



Matrix #1458



Matrix #1025



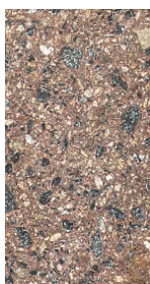
Matrix #1115



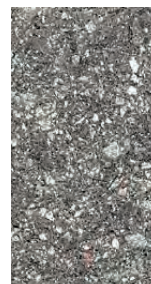
Matrix #1171\*



Antietam\*



Matrix #1119



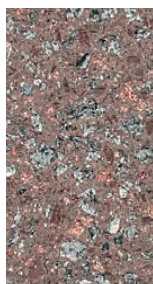
Matrix #1151\*



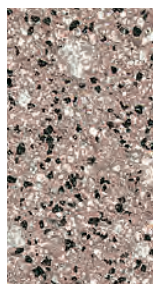
Glacier White



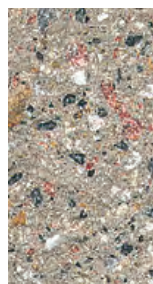
Matrix #1914



Matrix #1916\*



Matrix #1952



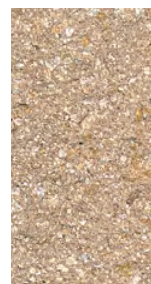
Matrix #1457



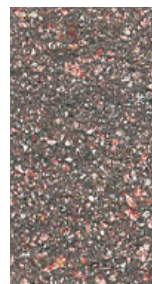
Matrix #1856



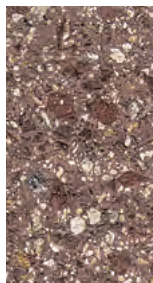
Matrix #1875\*



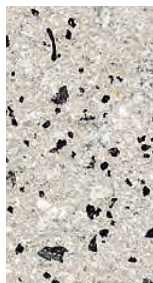
Matrix #1810



Matrix #1649



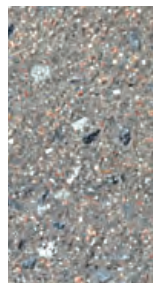
Matrix #1767



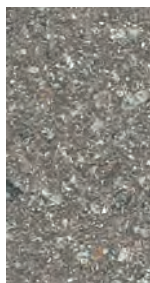
Matrix #1442



Matrix #1111\*



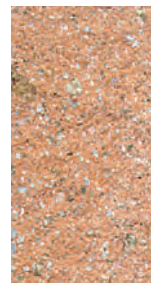
Matrix #1256



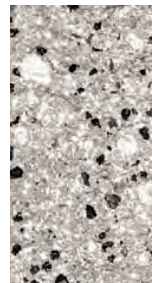
Matrix #1636



Matrix #1983



Matrix #2088



Matrix #2922



Matrix #1428



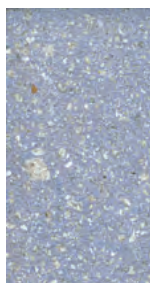
Matrix #2115



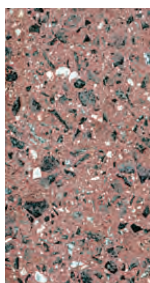
Matrix #2156



Matrix #1930



Matrix #1537



Matrix #2659



Matrix #2835

Colors shown are custom colors. Please contact a Hanover® Sales Representative for pricing.

\* Colors are available with a Heavy Tudor®, Ground or Ground Tudor® finish only.

**PLEASE NOTE:** Additional custom blending is available on special order when quantities permit. The color photos shown in this catalog were prepared with great concern for accuracy. However, it is suggested that actual samples be requested before specifying. Due to the natural variance of the raw materials used, pavers can be expected to differ slightly from sample to actual product. It is recommended that the pavers be cleaned after the installation is finished. Please contact our representatives for product suggestions.

| Dimensionally Compatible Hanover® Prest® Paver Sizes |                    |        |        |        |          |    |        |        |    |    |
|------------------------------------------------------|--------------------|--------|--------|--------|----------|----|--------|--------|----|----|
|                                                      |                    | 1 1/4" | 1 1/2" | 1 3/4" | 1 13/16" | 2" | 2 1/4" | 2 1/2" | 3" | 4" |
| 150mm x 447mm                                        | 5 7/8" x 17 5/8"   |        |        |        |          | X  | X      | X      | X  | X  |
| 150mm x 597mm                                        | 5 7/8" x 23 1/2"   |        |        |        |          | X  | X      | X      | X  | X  |
| 150mm x 897mm                                        | 5 7/8" x 35 3/8"   |        |        |        |          | X  | X      | X      | X  | X  |
| 297mm x 297mm                                        | 11 3/4" x 11 3/4"  |        | X      | X      | X        | X  | X      | X      | X  |    |
| 297mm x 447mm                                        | 11 3/4" x 17 5/8"  |        | X      | X      |          | X  | X      | X      | X  |    |
| 297mm x 597mm                                        | 11 3/4" x 23 1/2"  |        | X      | X      | X        | X  | X      | X      | X  |    |
| 297mm x 897mm                                        | 11 3/4" x 35 3/8"  |        | X      |        |          | X  | X      | X      | X  |    |
| 447mm x 447mm                                        | 17 5/8" x 17 5/8"  |        | X      | X      | X        | X  | X      | X      | X  | X  |
| 447mm x 597mm                                        | 17 5/8" x 23 1/2"  |        | X      | X      | X        | X  | X      | X      | X  |    |
| 447mm x 897mm                                        | 17 5/8" x 35 3/8"  |        | X      |        |          | X  | X      | X      | X  |    |
| 597mm x 597mm                                        | 23 1/2" x 23 1/2"  |        | X      | X      | X        | X  | X      | X      | X  | X  |
| 597mm x 897mm                                        | 23 1/2" x 35 3/8"  |        |        | X      | X        | X  | X      | X      | X  |    |
| 597mm x 1197mm                                       | 23 1/2" x 47 1/8"* |        |        |        |          |    |        | X      | X  |    |
| 897mm x 897mm                                        | 35 3/8" x 35 3/8"* |        |        |        |          |    |        | X      | X  |    |

| Additional Hanover® Prest® Paver Sizes |                                 |        |        |        |          |    |        |        |    |    |
|----------------------------------------|---------------------------------|--------|--------|--------|----------|----|--------|--------|----|----|
|                                        |                                 | 1 1/4" | 1 1/2" | 1 3/4" | 1 13/16" | 2" | 2 1/4" | 2 1/2" | 3" | 4" |
| 302mm x 302mm                          | 11 7/8" x 11 7/8"               |        | X      |        |          | X  | X      | X      | X  |    |
| 303mm x 303mm                          | 11 15/16" x 11 15/16"           |        | X      |        |          | X  | X      | X      | X  |    |
| 378mm x 378mm                          | 14 7/8" x 14 7/8"               |        | X      |        |          | X  | X      | X      | X  |    |
| 403mm x 403mm                          | 15 7/8" x 15 7/8"               |        | X      |        |          | X  | X      | X      | X  |    |
| 454mm x 454mm                          | 17 7/8" x 17 7/8"               |        | X      |        |          | X  | X      | X      | X  |    |
| 597mm x 747mm                          | 23 1/2" x 29 1/2"               |        |        |        | X        | X  | X      | X      | X  |    |
| 606mm x 606mm                          | 23 7/8" x 23 7/8"               |        | X      |        |          | X  | X      | X      | X  |    |
| 606mm x 911mm                          | 23 7/8" x 35 7/8"               |        | X      |        |          | X  | X      | X      | X  |    |
| 759mm x 759mm                          | 29 7/8" x 29 7/8"               |        |        |        |          | X  |        |        |    |    |
| 908mm x 908mm                          | 35 3/4" x 35 3/4"*              |        |        |        |          |    |        | X      | X  |    |
| 911mm x 911mm                          | 35 7/8" x 35 7/8"*              |        |        |        |          |    |        | X      |    |    |
| Hexagonal, 402mm across flats          | Hexagonal, 15 7/8" across flats |        |        |        |          | X  | X      | X      | X  |    |
| Hexagonal, 597mm across flats          | Hexagonal, 23 1/2" across flats |        |        |        |          | X  | X      | X      | X  |    |
| Octagonal, 402mm across flats          | Octagonal, 15 7/8" across flats |        |        |        |          | X  | X      | X      | X  |    |

| Miscellaneous Hanover® Roof Paver Sizes                         |                   |        |        |        |          |    |        |        |    |    |
|-----------------------------------------------------------------|-------------------|--------|--------|--------|----------|----|--------|--------|----|----|
| Lightweight Roof Ballast : 15 lbs/sf                            |                   | 1 1/4" | 1 1/2" | 1 3/4" | 1 13/16" | 2" | 2 1/4" | 2 1/2" | 3" | 4" |
| 297mm x 597mm                                                   | 11 3/4" x 23 1/2" | X      |        |        |          |    |        |        |    |    |
| 597mm x 597mm                                                   | 23 1/2" x 23 1/2" | X      |        |        |          |    |        |        |    |    |
| Pedestal® Paver : 22 lbs/sf                                     |                   |        |        |        |          |    |        |        |    |    |
| 597mm x 597mm                                                   | 23 1/2" x 23 1/2" |        |        |        |          |    | X      |        |    |    |
| Special Size Paver for Roof Ballast Application : 29 lbs/sf     |                   |        |        |        |          |    |        |        |    |    |
| 908mm x 908mm                                                   | 35 3/4" x 35 3/4" |        |        |        |          |    | X      |        |    |    |
| Special Size Paver for Pedestrian Urban Application : 32 lbs/sf |                   |        |        |        |          |    |        |        |    |    |
| 908mm x 908mm                                                   | 35 3/4" x 35 3/4" |        |        |        |          |    |        | X      |    |    |

= Standard Thickness

= SlateFace® Paver Thickness (22 lbs/sf)

= Natural Diamond Roof Paver Thickness (23 lbs/sf)

\*Note increased thickness and weight for these paver sizes.

**Please Note:** Paver weight at a 2” thickness is 25 lbs/sf.

Standard manufactured thickness for pedestrian applications is 2”. However, when utilized in urban pedestrian applications, a 2 1/2” thickness is recommended. The additional strength will help to accommodate the unpredictable circumstances and stressful situations that exist in the urban city environment. Contact Hanover® for a full list of paver sizes and their available thicknesses appropriate for the intended use.

## PEDESTRIAN VS. VEHICULAR USAGE COMPARISON

|                        |                                                                 |  PEDESTRIAN USE |  LIGHT VEHICULAR USE** |  MODERATE VEHICULAR USE** |
|------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|                        |                                                                 | use by persons on foot and any mobility impaired persons using a wheelchair                      | pedestrian use & low speed, low volume residential and light commercial vehicular use                   | pedestrian use & low speed, moderate volume residential and moderate commercial vehicular use                |
|                        | HANOVER® PRODUCT                                                | MINIMUM THICKNESS                                                                                | MINIMUM THICKNESS                                                                                       | MINIMUM THICKNESS                                                                                            |
| PREST® BRICK           | Riven                                                           | 3"                                                                                               | 3"                                                                                                      | 3"                                                                                                           |
|                        | Olde Hanover®                                                   | 2 3/8"                                                                                           | 2 3/8"                                                                                                  | NO MODERATE VEHICULAR USE                                                                                    |
|                        | Halifax® Flagstone                                              | 3"                                                                                               | 3"                                                                                                      | 3"                                                                                                           |
|                        | Appian®                                                         | 2 3/8"                                                                                           | 2 3/8"                                                                                                  | 3"                                                                                                           |
|                        | PlankStone®                                                     | 4"                                                                                               | PLANKSTONE® 3" x 9" x 4" ONLY                                                                           | PLANKSTONE® 3" x 9" x 4" ONLY                                                                                |
|                        | Traditional®                                                    | 2 3/8"                                                                                           | 2 3/8"                                                                                                  | 3"                                                                                                           |
|                        | Multisided                                                      | 2 3/8"                                                                                           | 2 3/8"                                                                                                  | 3"                                                                                                           |
|                        | Hampshire™                                                      | 3"                                                                                               | 3"                                                                                                      | NO MODERATE VEHICULAR USE                                                                                    |
|                        | Parallelogram                                                   | 3"                                                                                               | 3"                                                                                                      | NO MODERATE VEHICULAR USE                                                                                    |
|                        | Appalachia                                                      | 3"                                                                                               | 3"                                                                                                      | NO MODERATE VEHICULAR USE                                                                                    |
| PERMEABLE PAVING UNITS | Aqua-Loc®                                                       | 3"                                                                                               | 3"                                                                                                      | 3"                                                                                                           |
|                        | EcoGrid®                                                        | 4"                                                                                               | 4"                                                                                                      | NO MODERATE VEHICULAR USE                                                                                    |
|                        | Permeable 4" x 8"                                               | 3"                                                                                               | 3"                                                                                                      | 3"                                                                                                           |
|                        | Permeable 4 1/2" x 9"                                           | 3"                                                                                               | 3"                                                                                                      | 3"                                                                                                           |
|                        | Permeable 4 1/2" x 9" Scored                                    | 3"                                                                                               | 3"                                                                                                      | 3"                                                                                                           |
|                        | Permeable 3 1/4" x 18"                                          | 4"                                                                                               | NO LIGHT VEHICULAR USE                                                                                  | NO MODERATE VEHICULAR USE                                                                                    |
|                        | Permeable 12" x 18"                                             | 3"                                                                                               | NO LIGHT VEHICULAR USE                                                                                  | NO MODERATE VEHICULAR USE                                                                                    |
| PREST® PAVERS          | 11 3/4" x 11 3/4"                                               | 2"<br>All Prest® Paver sizes are applicable for pedestrian use at a 2" or greater thickness.     | 3" *                                                                                                    | NO MODERATE VEHICULAR USE                                                                                    |
| ASPHALT BLOCK          | 4" x 6", 6" x 6", 5" x 12"<br>6" x 12", 8" x 8"<br>8" Hexagonal | 1 1/4"                                                                                           | 3"                                                                                                      | 3"                                                                                                           |
|                        | 3D Diamond                                                      | 1 1/4"                                                                                           | NO LIGHT VEHICULAR USE                                                                                  | NO MODERATE VEHICULAR USE                                                                                    |
| CHAPEL STONE® PAVERS   | 6" x 12"<br>approximately                                       | 4"                                                                                               | 4"                                                                                                      | 4"                                                                                                           |

\* The 11 3/4" x 11 3/4" x 3" Prest® Paver and Brick are applicable only in limited vehicular conditions. Please contact Hanover® Technical Sales Staff for more information.

\*\* Hanover® recommends 45° and 90° Herringbone installation designs when unit paver dimensions permit. Herringbone designs are fully interlocked and resist vehicular load forces.

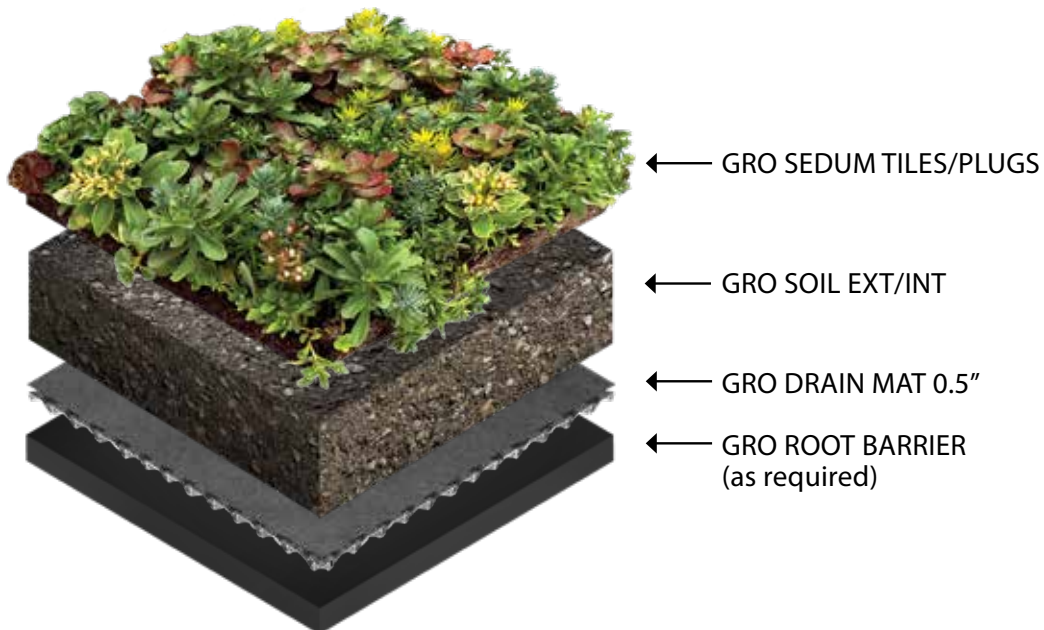
For vehicular applications, base materials must be engineered with the intended vehicular loading conditions in mind. Please contact Hanover® Technical Sales Staff for more information. • Hanover® suggests, Prest® Pavers for urban pedestrian environments have a thickness of 2 1/2". • Please Note: Not all sizes/colors are stocked materials. Some are only available through special order and when quantities permit. • Not all product styles are available in the full range of thicknesses. Please refer to Hanover's specific product information for availability.

## GRO CLASSIC

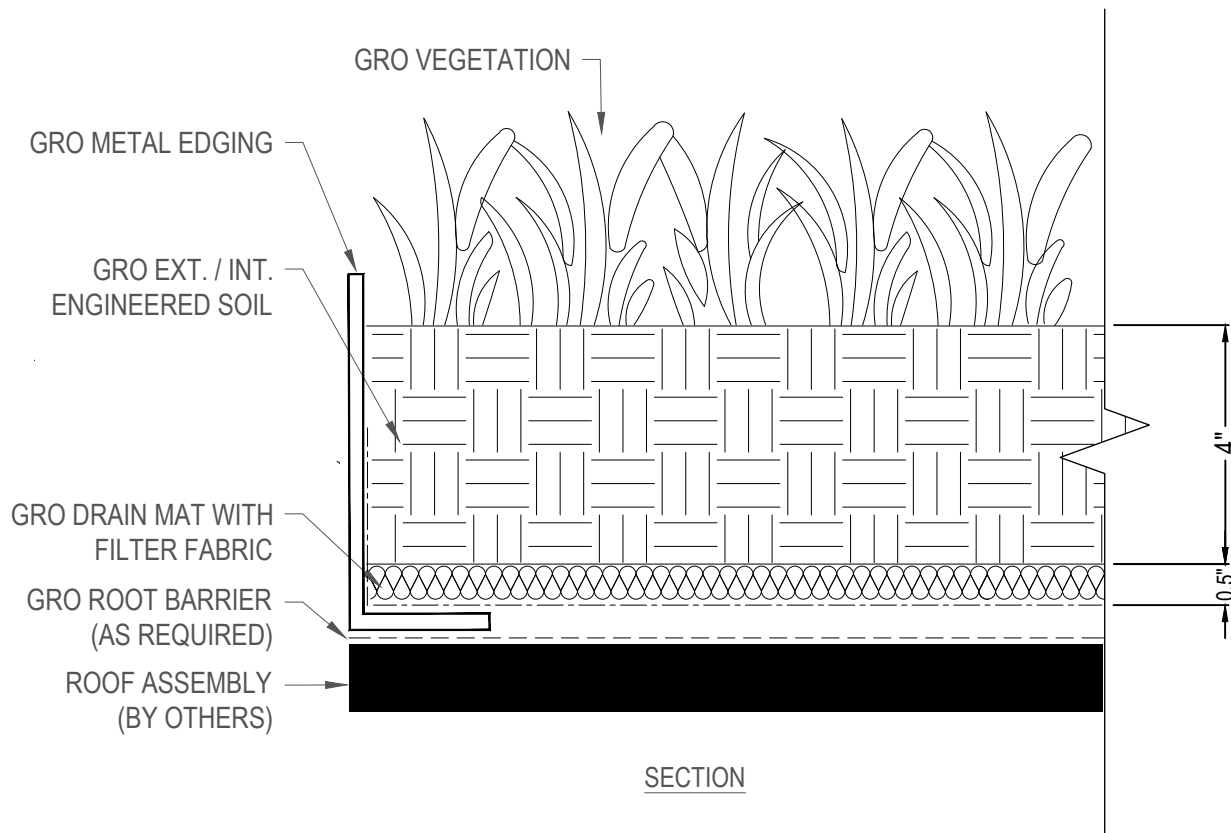
The GRO Classic is the 'tried & true' workhorse of the green roof industry. This standard composition has been proved for many years, and will continue to be specific. Our GRO Classic meets the minimum stormwater retention requirements for most U.S. cities.

|                  |               |
|------------------|---------------|
| DEPTH            | 4.5"          |
| SOIL             | 4"            |
| DRAIN MAT        | 0.5"          |
| SATURATED WEIGHT | 33 psf        |
| WATER RETENTION  | 1.3 gal/sf    |
| IRRIGATION       | Site specific |

\*soil depths can be customized

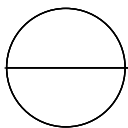


## GRO CLASSIC SYSTEM



### NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT [www.GREENRISETECH.COM](http://www.GREENRISETECH.COM).



## GRO CLASSIC LAYERED GREEN ROOF SYSTEM

