

Cordia Bollards utilize energy efficient LEDs, are low maintenance and easy to disassemble. Aluminum, stainless steel and acrylic components are 100% recyclable. Aluminum and stainless steel components have a high recycled content. The powdercoat finish is a low- or no-VOC finish, depending on color.

Recycled Content & Certifications

Configurations	Post-Industrial Recycled Content	Post-Consumer Recycled Content	Total Recycled Content	3 rd Party Certifications
Cordia Bollard – no shield	53%	10%	63%	-
Cordia Bollard – shield	Contact	Contact	Contact	-

Green Building Standards

LEED® v3
<p>SS8: <i>Light Pollution</i> – full light output data is available on Product Data Sheets. Contact for details.</p> <p>MR2: <i>Construction Waste Management</i> – packaging is designed to be reusable or recyclable. See below for details.</p> <p>MR4: <i>Recycled Content</i> – this product contains recycled material. Recycled content is shown above for all standard options.</p> <p>MR5: <i>Regional Materials</i> – this product is manufactured in Pittsburgh, PA. Contact for extraction information.</p>
LEED v4
<p>SS6: <i>Light Pollution Reduction</i> - full light output data is available on Product Data Sheets. Contact for details.</p> <p>MRp2/MR5: <i>Construction Waste Management</i> – packaging is designed to be reusable or recyclable. See below for details.</p> <p>MR3: <i>Sourcing of Raw Materials (recycled content)</i> – this product contains recycled material. Recycled content is shown above. (regional materials) – this product is manufactured in Pittsburgh, PA. Contact for extraction information.</p> <p>MR4: <i>Material Ingredients</i> – this product has a Health Product Declaration. Contact for details.</p> <p>EQ2: <i>Low-emitting Materials</i> – inherently non-emitting sources. Contact for details.</p>
Green Globes™
<p>3.2.5 <i>Exterior Light Pollution</i> - full light output data is available on Product Data Sheets. Contact for details.</p> <p>3.3.5.6 <i>Exterior Luminaires and Controls</i> – this fixture utilizes energy efficient LEDs. LEDs do not contain mercury. Contact for details.</p> <p>3.5.4.1 <i>Construction Waste</i> – packaging is designed to be reusable or recyclable. See below for details.</p> <p>3.5.6.3 <i>Deconstruction and Disassembly</i> – this product can be disassembled to separate recyclable components</p> <p>3.7.2.1 <i>Volatile Organic Compounds</i> - inherently non-emitting sources. Contact for details.</p>
Estidama Pearl Rating System: Design & Construction, Version 1.0
<p>LBo-10: <i>Light Pollution Reduction</i> – full light output data is available on Product Data Sheets. Contact for details.</p> <p>LBi-2.5: <i>Material Emissions: Formaldehyde Reduction</i> – inherently non-emitting sources. Contact for details.</p> <p>SM-R1: <i>Hazardous Material Elimination</i> – product contains no ACMs and no CCA-treated timber</p> <p>SM-R2/SM-13: <i>Construction Waste Management</i> - packaging is designed to be reusable or recyclable. See below for details.</p> <p>SM-4: <i>Design for Disassembly</i> - this product can be disassembled to separate recyclable components</p>

Product Materials

Material	Description	Maintenance (0-5)*	Inherent Value (0-5)**	Biodegradable	Corrosion/Wear Resistant	Rapidly Renewable	Recyclable	Scratch Resistant
Acrylic	Thermoplastic, petroleum-based polymer often used as a substitute for glass because of its high impact strength and clarity.	4	0		x		x	

Product Materials continued

Material	Description	Maintenance (0-5)*	Inherent Value (0-5)**	Biodegradable	Corrosion/Wear Resistant	Rapidly Renewable	Recyclable	Scratch Resistant
Aluminum	Corrosion-resistant metal that is suitable for many fabrication methods.	3	3		x		x	
Stainless Steel	Steel that is alloyed with chromium and other metals to improve corrosion-resistance.	3	4		x		x	

*Maintenance ratings are assigned as follows: 0 – High level of maintenance required to keep up product performance and aesthetics; 5 – Absolutely no maintenance required to keep up product’s visual appearance and performance characteristics;

**Inherent value ratings are assigned based on the material’s scrap value: 0 – No scrap value, or negative scrap value, and/or no scrap market; 5 – High scrap value, accompanied by robust scrap market

Processes

Process	Description
Aluminum Making	A two-step process by which the aluminum is first dissolved in a caustic bath and then precipitated out in crystals. This two-step process can be circumvented by using recycled scrap that is melted down to form new parts.
Anodizing	An electrolytic passivation process used to increase the thickness of the natural oxide layer on aluminum. Produces a protective surface that inhibits further oxidation (corrosion).
Casting	The process of creating a solid object by pouring molten metal into a mold and allowing it to cool.
Cutting	A variety of methods may be used to cut through various materials.
Extruding	Process in which heated metal is pushed through a cross-sectional die to create a linear part with a specific shape.
Forming	A mechanical process used to alter the shape of metal.
Machining	A form of subtractive or additive manufacturing often requiring specialty tooling to physically remove or add material to achieve a desired geometry.
Metal Finishing	Applied using grinding/sanding wheels. Finishing produces a grained or brushed finish on the surface, and depending on the material will increase corrosion resistance.
Metal Protection	A process in which metal receives a thin layer of coating to improve corrosion resistance and coating adhesion.
Plastics Manufacture	Plastic is the common term for a wide range of synthetic or semi-synthetic organic solid materials used in industrial applications. Plastics are typically polymers of high molecular weight, and may contain other substances to improve performance or reduce costs.
Powdercoating	A solvent-free finishing method in which electrically charged particles of pigmented resins are sprayed onto a product. Electrical grounding of the coated object causes the charged powder to adhere to the surface. When baked in a curing oven the deposited powder melts and fuses together to form a durable, cross-linked coating
Sand Blasting	The process of smoothing, shaping and cleaning a hard surface by forcing solid particles across that surface at high speeds to provide an even finish.
Steel Making	Steel and stainless steel are made in one of two types of furnace: a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). A BOF is used to make steel from iron ore or from scrap steel; an EAF is used primarily to reprocess scrap steel.
Welding	A process that joins two similar metals by causing coalescence. Usually accomplished by melting the work pieces and adding a filler material to form a pool of molten metal that cools to become a strong joint.

Packaging Materials

Material	Type	Description	Disposal
Cardboard	Box	Small or light products are packaged in cardboard boxes. Reused for shipping, then recycled.	Reuse/Recycle
Foam	Sheets	Micro foam sheets are used to protect the finish on products.	Reuse
Foam	Soy Sheets	Soy foam sheets are used to protect the finish on products.	Biodegradable
Plastic	Shrink wrap	Shrink wrap is used to protect the finish on products and also to hold padding to products.	Recyclable
Wood	Pallet	Used in shipping. Reused onsite until no longer serviceable, then recycled.	Reuse/Recycle

Transport

Method	Type	Description
Boat	Overseas	Some product components are shipped by cargo ship from overseas
Ground	Truck/Rail	Some incoming shipments and almost all outgoing shipments to customers are sent via ground transportation. This can include truck and often rail transport depending on the final destination.

Maintenance & Use

Maintenance or Use	Description	Chemicals Required
Clean with Water and Mild Cleaner	This product requires a damp cloth and a mild, nontoxic cleaner for maintenance.	Mild, water-based cleaner
Electricity – LED	Product is available with LED lamping.	NA

Disposal

Method	Description
Disassemble	Product can be disassembled to separate recyclable components
Recyclable - Partially	Metal and acrylic components are recyclable. LEDs may be recyclable in some areas.
Recycling - Scrap	Materials can be sold for scrap

Forms+Surfaces is dedicated to environmental responsibility. We maintain an Environmental Management System and are continually working to improve our impact through efficiency, material selection, vendor education, employee involvement, and an unwavering commitment to being exemplary corporate citizens. If you would like additional information, please contact our Sustainability Team at green@forms-surfaces.com.