



**Ameron™ uPole™**  
Utility Pole





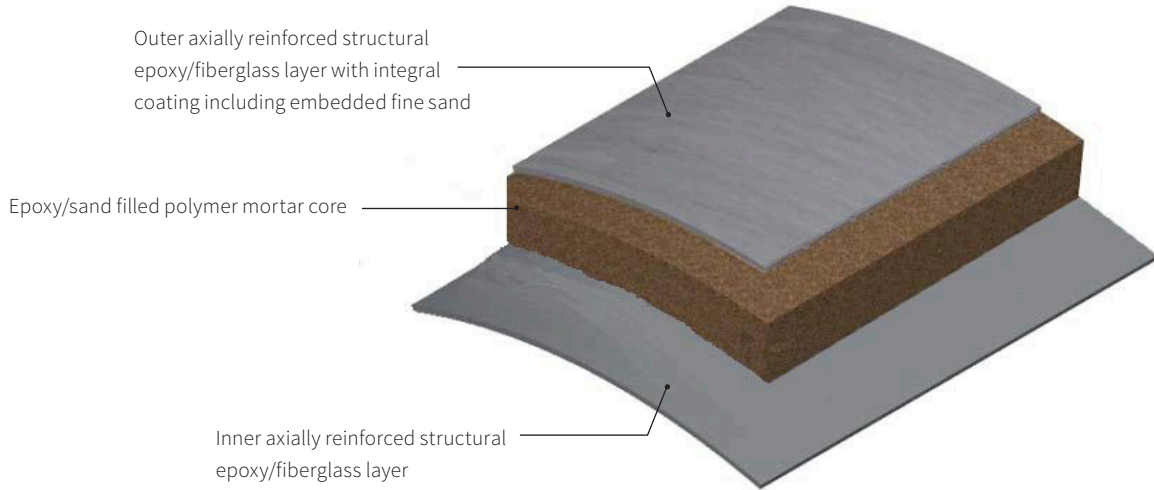
Our sand-hardened Ameron uPole utility pole is manufactured using Fiberglass Reinforced Plastic (FRP) materials. This series of distribution poles was developed in order to provide customers with a long-lasting, cost-effective alternative to distribution poles made from wood, steel and pre-stressed concrete. Since it was introduced to the utility market in 2008 it has been accepted on standards at over 100 IOUs, municipalities and electric cooperatives and the list is growing.

# Ameron uPole Utility Pole

## Sand Hardened FRP Pole Wall

Using a patent-pending continuous process, we are able to do unique things in the construction of the structural pole wall and outer layer of its Ameron uPole series pole shafts. Our approach is to build hoop and axial strength and stiffness in the pole wall using strong and durable epoxy resins, and by employing a proprietary sand filled polymer mortar core to thicken the wall, thereby providing strength and stiffness at relatively low cost compared to other FRP poles.

The final step is to apply the thick outer layer epoxy-based coating resin with strong UV absorbers and with fine sand embedded in the surface to provide an outer barrier that is nearly impervious to the elements. The final result is a sand-hardened FRP pole wall that feels solid like concrete, but has the performance and toughness of fiberglass.



## Average Strength Surpasses New Wood

### Bending strength

Cantilever bending testing at EDM International in Ft. Collins, CO and Fiber Glass Systems EDC (Engineering Development Center) in South Gate, CA confirmed the uPole utility pole AUP45-1/3-15 meets ANSI O5.1 and NESC C2-2007 requirements.

Pole Number	Strength (lb)	Test Location
060615-1	3,221	EDC
060615-2	3,291	EDC
060615-3	3,223	EDC
060906-6	3,392	EDM
060906-7	3,087	EDM





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Available In Classes From 30' To 55'

Catalog Number	Length (ft)	Bending Strength (ft-lb)	Actual OD (in)	Approx. Weight (lb)	Typical Class Range of Application
AUP30-1/3-11	30	75,000	11.2	360	1, 2, 3
AUP30-1/3-13	30	100,000	13.1	440	H1, 1, 2
AUP35-2/4-11	35	75,000	11.2	415	2, 3, 4
AUP35-1/3-13	35	100,000	13.1	515	1, 2, 3
AUP40-3/5-11	40	75,000	11.2	475	3, 4, 5
AUP40-1/3-13	40	100,000	13.1	585	1, 2, 3
AUP45-2/4-13	45	100,000	13.1	655	2, 3, 4
AUP45-1/3-15	45	120,000	14.9	730	1, 2, 3
AUP50-2/4-15	50	120,000	14.9	810	2, 3, 4
AUP55-2/4-15	55	120,000	14.9	890	2, 3, 4

## Exceptional Fire Resistance

### Fire test results

uPole utility pole fire/flame testing was done at EDC using a 1,800°F propane fired flame directed at the pole surface for a full 2 minutes from a distance of approximately 3¼ inches.

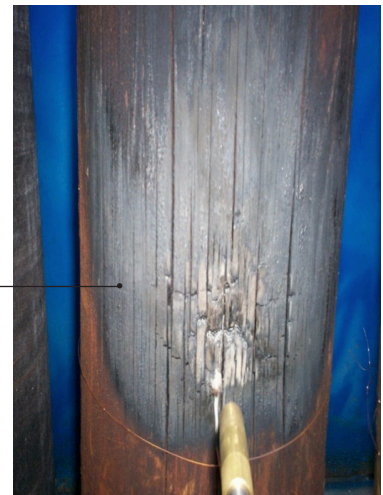
The uPole's integral sand-hardened pole coating did not support combustion and exhibited only minor charring compared to other pole sections made of wood and FRP poles made by others. The treated wood pole section exhibited the most damage.

The uPole's superior coating performance comes from the inert polymer sand mortar core and the embedded fine sand in the outer coating that act in concert to dissipate heat.

The sand-hardened FRP uPole surface is highly resistant to direct flame which may address wildfire or city fire challenges.



The treated wood pole exhibited the most damage.



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### Long-term Weathering

#### UV and corrosion protection

The sand-hardened FRP construction of the uPole structural wall is protected with a break-through integral resin/sand polymer mortar outer coating layer filled with strong UV absorbers that has been lab tested to withstand the effects of harmful UV ray exposure.

The coating has been subjected to over 70,000 hours accelerated weathering exposure in a QUV chamber under aggressive UV-B bulbs without any coating crazing, cracking, peeling or other significant degradation.

There is no corrosion with the uPole utility poles. Designed with tough conditions in mind, our poles resist the effects of harmful UV exposure.

### Environmentally Green

#### They are an environmentally attractive alternative to wood.

The poles are non-toxic and can be reused or disposed of in a standard landfill. It contains no pesticides, preservatives or other harmful chemicals that can leach into the ground. Once properly installed for the line design requirements, unlike wood or steel poles, no further maintenance of the uPole should be required.

### Quality ISO 9001-2000

#### Quality tested

The uPole utility pole is manufactured in our plant in its Burkburnett, Texas plant which is certified to ISO-9001-2000. This plant has been in operation making world-class FRP pipe for over 40 years. Material and processes are rigorously tested to strict standards.

Testing conditions proved a uPole pole with through-bolt fasteners was able to withstand bolt-torque loads well in excess of the 50 ft-lbs requirement in most specifications. Bolt down-load bearing tests prove over 5,000 lbs. capacity. In addition to the excellent performance against UV radiation, the uPole pole is virtually impervious to thermal shock, humidity, freeze and wet-dry test cycles.



## Ameron uPole Utility Pole

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### Attributes

- Excellent alternative to wood distribution poles with a number of significant advantages
- Strength and durability of uPole utility poles provide dependable and cost-effective defense against weather related threats to an electric utility's ability to deliver power to its customers
- Resistant to all known mechanisms of degradation thus eliminating maintenance costs related to:
  - Rust and corrosion
  - Rot
  - Woodpeckers
  - Termites
  - Water absorption
  - Long-term creep
  - Snow & Ice
  - Hot arid exposures
- High BIL (Basic Impulse Level) compared to wood per NEETRAC testing
  - 600 kV dry
  - 455 kV wet
  - 75 impulses no damage
  - Fire Resistant
- Less than 2/3 the weight of wood

### Hole drilling and steps

- Factory drilled holes available on request.
- uPole utility poles can be field drilled without special tools other than standard carbide coated steel bits or masonry bits
- Approximately 40 or more holes per bit
- Removable or permanent step attachments available on request from outside suppliers or customer supplied.
- We can factory drill step attachment holes as necessary
- Can attach clips and riv-nuts to hold ground wire and small boxes, etc.

### Top caps and butt plates

- Butt plates are made from tough UV resistant polymer mortar
- Top caps are made either from UV resistant polymer mortar or glass filled UV resistant polymer
- Conical shaped top cap designed to resist bird and raptor nesting
- Butt plate is dimensioned to resist down loads with the embedment resistance area similar to a wood pole of the same class
- Top caps and butt plates come from the factory permanently bonded to the inside of the pole using structural epoxy adhesive

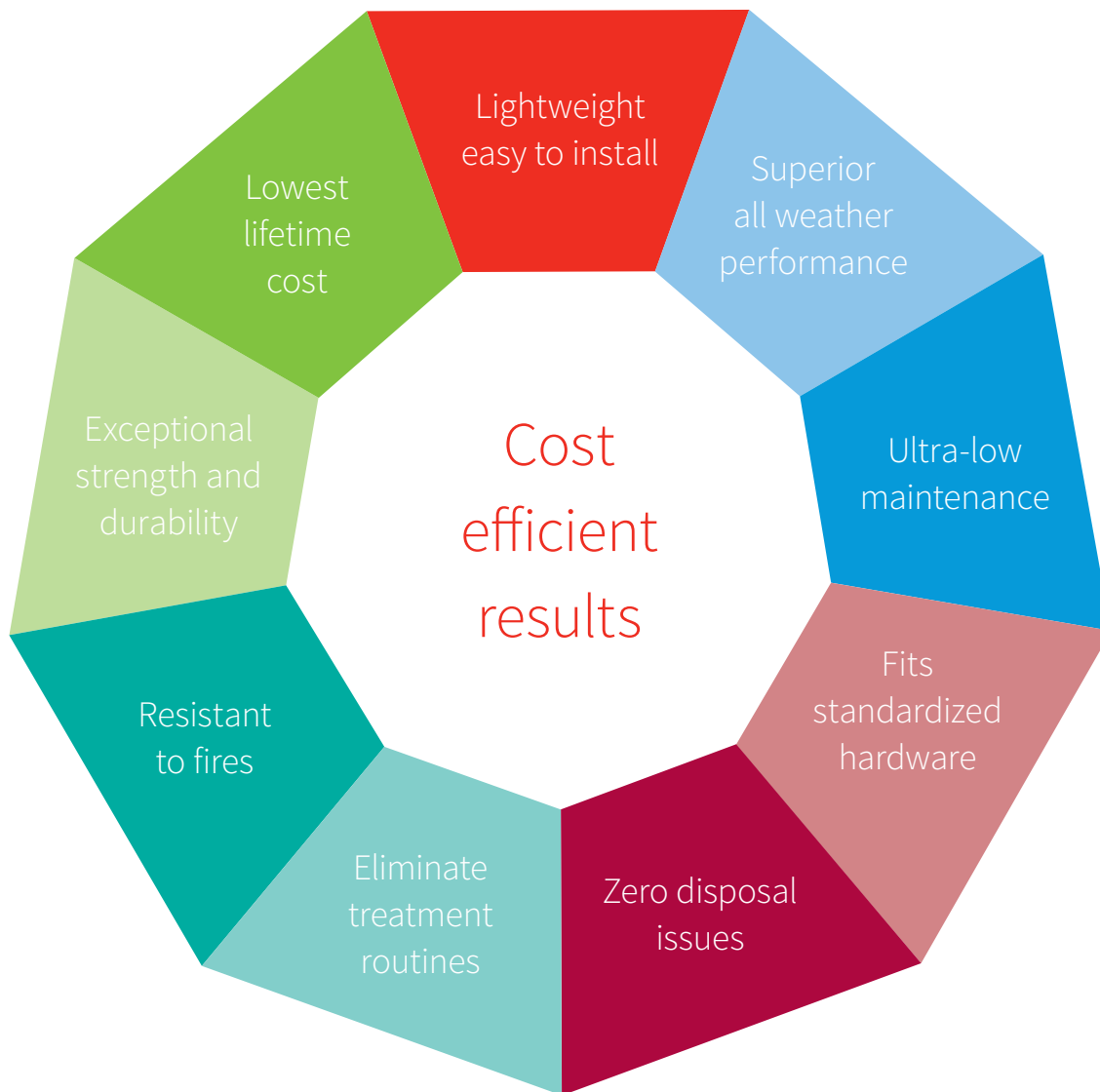
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### Installation

- Embedment same as for wood poles using standard equipment
- uPole utility poles are approximately 40% lighter than wood poles
- Standard framing and luminaires
- Standard tools can be used
- High bolt down-load bearing capability – tests prove over 5,000 lbs capacity
- Supports standard wood, steel and FRP crossarms
- Supports standard transformers and other hardware
- Bonding/grounding wire attached using standard clips and self-tapping screws, or can be run inside the uPole utility pole and out at ground line
- Supports standard guy attachments

### The uPole Advantage



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