

FIBERGLASS REINFORCED POLYMER UTILITY POLES



DISTRIBUTION & TRANSMISSION POLES ENGINEERED TO OUTPERFORM



TRANSPORTATION & UNLOADING BUNDLES

All StormStrong® pultruded composite utility poles are shipped via flatbed truck in bundles designed for safe loading, shipping and unloading at the pre-determined destination. A typical package scheme weighs less than 5,000 lbs. and consists of a bundle of 3 or 4 poles positioned on cardboard cradles and supported by wood cribbage.

The package is designed to be lifted at the center of the bundle with a tow motor, at designated picking points. Care shall be taken not to damage the poles with the tow motor forks while unloading. Never pick a pole without proper cardboard or other scuff protection, as damage to the UV protection could result from the forks rubbing the bare pole.

Always pick the poles at the center with a tow motor by positioning the forks under the cardboard that was applied during packaging.





STORAGE

Composite utility poles can be stored outdoors. Poles are delivered in bundles to assist in yard storage and to minimize pole handling and movement prior to actual delivery to job location. If it is necessary to unpack the poles from the original shipping crates, separate the poles from one another and store using the appropriate cribbage to protect the pole surface. The poles should be supported at a minimum of four locations along their length. Your cribbage should be smooth and abrasion resistant. Concrete and abrasive cribbage should be covered with HDPE plastic strips to protect the poles from abrasion.

INSPECTION AT TIME OF DELIVERY

When receiving products, all items should be inspected for damage prior to acceptance. If shipping related damage has occurred, the receiver should immediately notify the delivering carrier and complete the necessary freight damage claims. The damage report should indicate what types and level of damage has occurred and should include photos of the damage.

Manufacturing blemishes do occur during the pultrusion process. We refer to them as visual defects and categorize them as such. The pultrusion industry has a visual standard that is commonly referenced as ASTM D4385 which describes common visual defects. The level of acceptable visual defects for utility pole applications and their disposition are described as follows.



CRAZE

Multiple fine separation cracks at the pultruded surface not penetrating the reinforcement nor the equivalent depth of one ply of reinforcement. This defect is caused due to resin shrinkage in a resin rich area. This visual defect is cosmetic in nature and does not affect the structural serviceability. It is acceptable and can be over the entire length of the pole.



DIE PARTING LINE

A lengthwise flash or depression on the surface of the pole. The die parting line is associated with the area where separate pieces of the production pultrusion die join to form the cavity. The defect is cosmetic in nature and does not affect structural serviceability and it is acceptable.



GROOVING

Long narrow grooves or depressions in the surface of the pole parallel to its length. This defect is cosmetic in nature and does not affect the structural serviceability if the thickness reduction is not over 15% of the nominal wall thickness and the groove width is not over 3/8". An intermittent and continuous groove is acceptable if the dimensional requirements are met.



SCALE

A condition wherein resin plates or particles are formed on the surface of the pole. This defect is cosmetic in nature and does not affect the structural serviceability. It is permitted if removal does not expose dry fibers and the wall thickness does not go below 15% of the nominal thickness. Repair of exposed fibers is permitted if dimensional tolerances are met.



DELAMINATION

The separation of two or more layers or plies of reinforcing material within the pole wall. It will sometimes appear as a bubble on the surface of the pole. It can be caused during production or due to a significant impact. This defect is structural in nature and is not permitted. If the pole surface reveals an elevated area. Tap the area with a metal tool and listen for a change in the tone. This simple inspection method can be used to determine if a void or delamination is present. If a delamination is detected visually or by performing the tap test, notify the supplier. The pole can possibly be repaired by following the repair procedure detailed later in this document.



WRINKLE DEPRESSION

An undulation or series of undulations or waves on the surface of the pole. The condition can occur at any angle. It is caused by reinforcement shifting and crowding and folding during production. This defect is cosmetic in nature and does not affect the structural serviceability unless the depressions are more than 15% of the nominal wall thickness. In some instances, wrinkle depressions can morph into grooves and include craze lines and or sluffing. This defect is acceptable if the wall thickness does not go below 15% of the nominal.



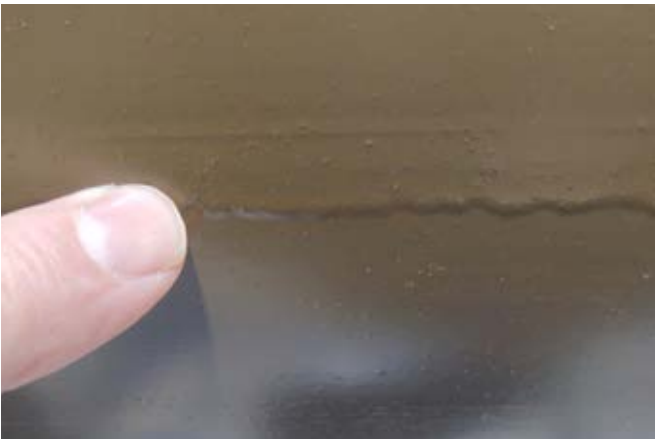
REINFORCEMENT RICH AREA

An over concentration of reinforcement, in the pole, causing a rough surface to form on the exterior. This defect can be caused when mats are overlapped during manufacturing. The visual defect is cosmetic in nature and does not affect the structural serviceability. This defect is acceptable.



SLUFFING

A condition wherein resin scales peel off or become loose, either partially or entirely, from the pole surface. This defect is cosmetic in nature and does not affect the structural serviceability if the dimensional requirements are met. The sluff can morph into a groove in which case the grooving criteria must be met. This defect is acceptable if the wall thickness does not go below 15% of the nominal wall thickness.



UV COATING DRIP

This defect is caused by an overabundance of UC coating that started to “run” before reaching full cure. This defect is cosmetic in nature and will not affect the structural integrity.



MAT SPLICE

This defect is a result of a mat splice. This defect is cosmetic in nature and will not affect the structural integrity of the pole.

DIMENSIONAL INSPECTIONS

All fabrication tolerances can be inspected by the manufacturer, receiver and owner per the drill guide and pole drawings specific to each pole size and class that was developed for your company.

LIFTING, HANDLING & TRANSPORTING FRP POLES

All composite utility poles can be handled utilizing single pick points. The center of gravity on an unframed pole is typically at mid-point of the overall length due to its non-taper design. Poles with fire protection sleeves attached will have slightly off-center balance points. Nylon slings should always be used. Never use chains, cables or other metal hardware when lifting composite utility poles.

The lifting weight of each pole is identified on the ID tag positioned approximately 10 or 13 feet from the bottom of the pole. This will position the tag at eye level once the pole has been set.



PICKING THE POLE

The pole should be picked with a nylon sling with a neoprene backing to keep the choker from slipping. If you are concerned about the pole slipping, drill a hole through the pole and place a machine bolt through the pole to keep the choker from slipping.



Poles can be picked with a utility truck utilizing a nylon sling. Care must be taken to properly choke the poles with a nylon sling to keep the poles from sliding. Neoprene/rubber coated slings are available from multiple suppliers and are recommended to prevent sliding of the poles during lifting. When loading and unloading individual poles, use a sling and choke the pole at the center of the pole. The center of gravity is located at the center of the pole. FireStrong poles with protective fire resistant sleeves do not have a center of pole balance point.

TRANSPORTING THE POLE

Many utilities utilize rubber mats that have been designated specifically to protect FRP poles from abrasion during transport and setting. Some utilities, that have adopted FRP poles as part of their program, add HDPE protection pads to their pole trailers to protect the poles from abrasion. This is an important step, and it is highly recommended to adapt your equipment to transport FRP poles with minimal abrasion. Do not use cleated light bars or any other cleated apparatus when transporting FRP poles.



Composite utility poles are NOT solid in cross section. Care should be taken in the lowering of the pole to the ground to facilitate the removal of the handling slings. Poles should not be dropped from distances or freely dumped from transportation trailers. Poles should be positioned on a firm surface with clearance to allow removal of the sling. Caution should be taken when walking on a wet or frosted pole as the surface will be slippery.



The minimal weight of the pole should eliminate the need to drag or skid the pole for any significant distance. If dragging of the pole is necessary for extended lengths due to difficult terrain, the butt of the pole should be protected to avoid excessive damage to the FRP and thermoplastic base plug. It is advisable to transport the pole and locate it next to the set point via a pole trailer, flatbed, digger derrick, or pole dinky that has been slightly modified to protect the UV surface of the Fiberglass Reinforced Polymer (FRP) pole from abrasion.



CLAMPING POLES WITH LINE TRUCK "CLAWS"

The pole should be picked as described earlier. When the pole is positioned into the digger derrick's pole guides, care must be taken not to over tighten the guides and risk damaging the poles. Such damage could be scuffing of the advanced UV protective coating or crushing the pole if the clamps are positioned incorrectly. Simply use the pole guides to cradle the pole by lightly touching the pole with the clamping guides. Added protection applied to the digger derrick pole guides is recommended. Altec has recently developed a tough Urethane guard for digger derrick pole guides. This innovative form of protection was developed to reduce damage to utility poles, as well as damage to the derrick pole guides. By utilizing three points of contact with the Urethane, this feature reduces frictional forces between the pole and the guides. The three points of contact allow the operator to manipulate the pole more easily, without causing damage to the pole guides.



FRAMING & RECOMMENDED BOLT TORQUES

Most standard, **non-cleated** line hardware can be used on composite utility poles with conventional hardware and practices. In general, the poles will accept most of the hardware that is used on wood, steel, or concrete poles. However, washers that conform to the pole surface should be used beneath the bolt head and nut. CCG recommends washers matching the contour of the poles be used for all installations. Washer sizes should be selected by reviewing the StormStrong Composite Utility Poles Brochure or as detailed in your organizations work methods standards.

CCG recommends oversize washers in lieu of standard 3" radius washers on all connections in which the force is being applied perpendicular to the length of the pole. Such forces would be caused by dead end terminations and guying of the poles. CCG's standard oversized washer is approximately 6" square by 3/8" to 1/2" in thickness. Note that standard 3" or 3.5" or 4" radius washers can be used on all connections that will be exposed to a vertical load. An example is hanging a transformer on the pole or tangent communication wire connections with no angles. If angle loads are present, they cause a perpendicular force on the pole. Therefore, an oversized washer should be used.

The preferred method of attachment is with through bolts. Most, if not all, connections to FRP poles are bearing connections and not slip critical. Therefore, there is no need to over torque the nuts as the dimensional characteristics of the composite utility pole will not change significantly due to moisture or temperature. The maximum torque applied is recommended not to exceed 25 ft-lbs. A good rule of thumb is a lineman should tighten the nut until the spring washer is compressed. The torque required to compress a single coil spring washer is approximately 25 ft-lbs. If over tightening occurs, the pole will oval shape and structural failure may occur. If no spring washers are used, hand tighten the nut and turn it another 1/2 to 3/4 turn to make the connection snug fit.

The following hardware features are not compatible with CCG composite utility poles:

- **Lag bolts:** Use a through bolt instead.
- **Teeth or shear transfer spikes:** Hardware that is drawn into a wood pole to transfer shear should not be used on a composite utility pole. Most utilities sandwich a CCG oversized washer between the pole and the cleated hardware.
- **Nails and Staples will not work:** Use self-drilling screws with the appropriate clips.

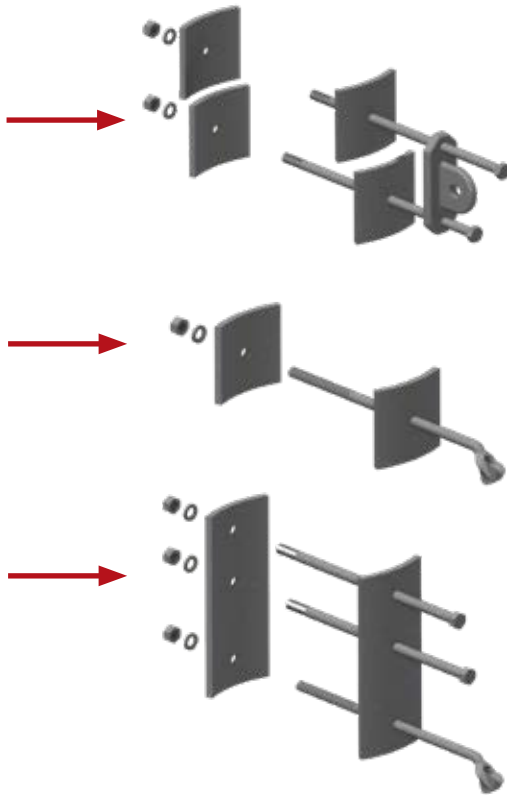


TYPICAL GUY ATTACHMENT DETAILS

The following typical guy attachment details demonstrate typical dead end and guy attachment connection details. The capacities and technical details are identified in the StormStrong Composite Utility Poles Brochure. Note: the oversized washers shall be used on all connections that will experience a perpendicular force or component thereof.



Round Pole - TU460 16" dia.*



Two Bolt Guy Attachment BOM:

- (1) FAB887 - Dead End Tee
- (2) 20" x 3/4" Bolt A325 or 5 SAE Grade
- (2) FAB186 - 3/4" Nuts A325 or 5 SAE Grade
- (2) FAB187 - 3/4" Lock/Spring Washers
- (4) FAB449 - 6" x 5.75" x 1/2" Curved Washer

Single Bolt Guy Attachment BOM:

- (1) Bent Thimble Bolt, 3/4" Diameter
- (1) FAB186 - 3/4" Nuts A325 or 5 SAE Grade
- (1) FAB187 - 3/4" Lock/Spring Washers
- (2) FAB449 - 6" x 5.75" x 1/2" Curved Washer

Three Bolt Guy Attachment BOM:

- (1) Bent Thimble Bolt, 3/4" Diameter
- (2) 20" x 3/4" Bolt A325 or 5 SAE Grade
- (2) FAB461 - 16" Round Pole Guy Support Plate
- (3) FAB186 - 3/4" Nuts A325 or 5 SAE Grade
- (3) FAB187 - 3/4" Lock/Spring Washers

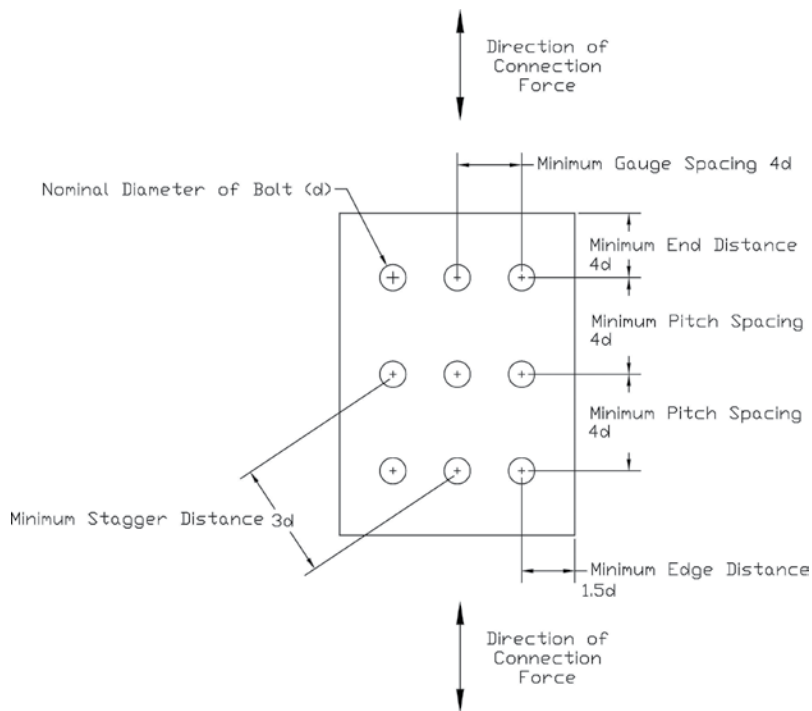
*NOTE: Detail shown with 16" round pole for clarification purposes. Similar hardware is available for the other diameter round poles offerings. Likewise, similar guy hardware can be used with the octagonal poles by substituting FAB195 - 4" x 4" x 3/8" Washer and FAB459 - Octagonal Pole Guy Support Plate for the FAB449 and FAB461 respectively. Hardware items can be viewed on page 23 in the StormStrong Composite Utility Poles Brochure.

FIELD DRILLING HOLES

CCG will pre-drill holes per customer specifications in the production plant with Computer Numerical Control (CNC) equipment. Holes can be drilled in the field with either hardened high-speed steel (HSS) twist drills, carbide tipped twist drills or self-centering hole-saws. Diamond coated hole saws, carbide tipped twist drill bits and brad-point HSS twist drills perform best. The number of holes needed determines the drill selection. Carbide or diamond type drills are recommended for quantities above 20. CCG recommends Milwaukee SHOCKWAVE Impact Duty™ Lineman's Fiberglass Drill Bits, for applications that require multiple holes in a short period of time. The carbide tip reduces friction, helping you to make faster, cleaner cuts while maintaining best life. (<https://www.milwaukeetool.com/Products/Accessories/Wood-Drilling/SHOCKWAVE-Impact-Duty-Linemans-Fiberglass-Drill-Bits>)

EDGE DISTANCE CHART

Minimum hole spacing shall be selected by referencing the Edge Distance Chart. As a rule, keep the gauge, end and pitch spacing greater than four bolt diameters apart.



CUTTING POLES

Composite utility poles can be field cut with a concrete, circular, or reciprocating saw. An abrasive blade should always be used. During drill and sawing operations dust will be emitted. Inhalation of the dust from a composite pole can cause irritation of the respiratory system. OSHA considers these dusts to be “Inert/Nuisance Dusts” or “Particulates Not Otherwise Regulated (PNOR)” and has established a workplace Permissible Exposure Limit (PEL) of 5 mg/m³ for the PNOR respirable fraction and 15 mg/m³ for PNOR as total dust¹. For dust comprised of the continuous filament glass fibers used to manufacture composite poles, the American Conference of Governmental Industrial Hygienists has established a Threshold Limit Value (TLV, a recommended workplace exposure limit) of 1 fiber/cm³ for respirable fibers and 5 mg/m³ for inhalable glass fiber dust.² Cal-OSHA has adopted the TLV in their state plan as a state permissible exposure limit.³ Glass fiber potentially contained in FRP dust can cause irritation or itching if it is in contact with skin or mucus membranes. This is due to mechanical abrasion and is not an allergic effect⁴.

RECOMMENDED PPE

When cutting and drilling composite poles, composite utility pole manufacturers recommend use of the following personal protective equipment (PPE): A particle mask, safety glasses, gloves, long sleeve shirt and long pants, safety footwear and a hard hat.

1. OSHA Occupational Chemical Database: Fibrous Glass Dust; <https://www.osha.gov/chemicaldata/805>; see note in Exposure Limits table: “For General Industry, please see 29 CFR 1910.1000 Table Z-3, Mineral Dusts for Inert or Nuisance Dust”. Also see OSHA Occupational Chemical Database: Particulates Not Otherwise Regulated, Total and Respirable Dust; <https://www.osha.gov/chemicaldata/801>

2. <https://www.acgih.org/synthetic-vitreous-fibers/>

3. Table AC-1. https://www.dir.ca.gov/title8/5155table_ac1.html

4. “Continuous Filament Glass Fiber and Human Health”, Glass Fiber Europe. https://www.glassfibreeurope.eu/wp-content/uploads/2022/09/GFE_leaflet-Human-Health-November-2021.pdf



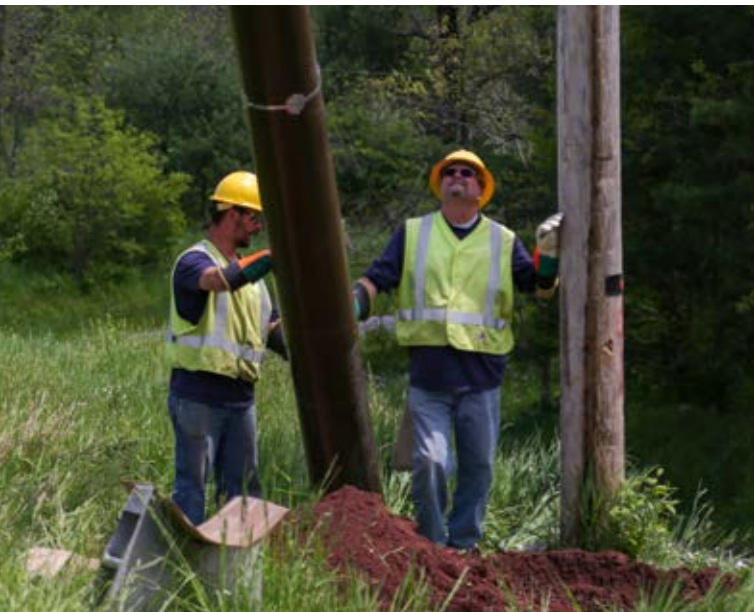
Ground Wire Clip



Self-Drilling Screw

POLE GROUNDING

Ground wires can be fastened to the pole with metal ground clips and self-tapping screws. Plastic wire molding strips can also be used to secure the ground wire to the pole. These strips contain the ground wire and are easily secured to the pole with a self-drilling screw. Ground wires can also be positioned inside of the pole to discourage theft. Some utilities elect to run the ground wire in the pole two feet below the ground line up a distance of approximately 10' above the ground line to mitigate theft while still having the option of visually inspecting the ground wire.



BURIAL DEPTH

The burial depth is the same as a wood pole which is typically 10% of the pole length plus an additional two feet. Or in line with your organizations work instructions for wood poles.

SETTING THE POLE

Set the pole and plumb or rake the pole accordingly. The pole can be directly buried the same as a wood pole. Backfill the pole with reasonably clean backfill. Avoid rebar and other sharp items that could damage the pole. The pole can be backfilled with polecrete, gravel, ballast, dirt, shale or other fill material. Tamp the backfill materials as you would tamp when installing a wood pole. Creating excessive point loads at the pole bottom and ground line with large, pointed rocks should be avoided.

CLIMBING

Climbing provisions are available as permanent or removable steps. CCG offers an array of step options that can be viewed in CCG's Stormstrong Composite Utility Poles Brochure. Many pole steps are available via vendors that supply steps specifically for FRP poles.

Climbing positions are usually vertically spaced every 15 to 18 inches and are oriented at 180 degrees (each side of a pole) to each other. "Stepping" positions and "working" positions (steps at the same elevation) can be specified by the user at the time of order. The holes can then be factory drilled and steps attached prior to delivery of the poles. Consult your utilities work methods group for their approved steps.



VISUAL INSPECTION – POST INSTALLATION

Visual inspection is a reliable method for damage assessment of a composite utility pole. It can roughly map out an area of concern but will not necessarily reveal information about the extent of any underlying damage. Visual inspection of FRP structures by maintenance personnel should include inspection for the following:

- Tracking on material surface
- Fire Damage
- Lightning damage
- Vandalism damage
- Mechanical impact damage
- Delamination or cracking

Items such as scratches, minor nicks and discoloration may be visually evident, but are not considered to have an impact on the structural integrity of the structure.

TAP TEST

A tap test can be used as a routine test to further check for any suspected localized damage. The test requires the inspector to use a small hammer to tap all around the area of suspected damage. This is a fast, inexpensive, and easy way to roughly evaluate the condition of the material and locate suspected delamination or cracks. Any area of the composite utility pole that has suffered an impact and has internal damage will be evident by a low – shallow sound given off by a tap test. Adversely, areas that are unaffected and structurally sound will be evident by a high pitch sound given by a tap test.

If you suspect the pole is damaged, tap test the surrounding area to determine the extent of the damage. Depending on the size of the damaged area, the pole can possibly be repaired by following the subsequent repair instructions.

MINOR COATING OR POLE DAMAGE REPAIR

Minor surface scrapes and gouges, cosmetic in nature, can be repaired with surface treatments such as acrylic, or polyurethane paints. Spray-can applied polyurethane paint is available from the manufacture and should be kept on hand for minor repairs of scraps and abrasions that may occur during transport and setting of the poles. Spray touchup paint that matches the color of your pole can be ordered from select Sherwin Williams locations. If your pole is CCG Sepia Brown, which is our most common color, use part #04362 728080 Aerosol color to match Polane S+ R63RXN12557-1497 RAL 8014 Sepia Brown. If your pole is light gray, use part #04362 733087 Aerosol color to match Polane S+ F63RXA8459-1497 Gray.

If deep gouges are observed, they can be filled with Evercoat Rage ultra XTRA filler. The filler is fire retardant and will pass UL94 with a VO rating.

Apply the filler to the gouge with a plastic putty spreader, allow to dry according to the directions and lightly sand. Then apply the touch up paint.



Rage Ultra Xtra - evercoat.com

MODERATE COATING OR POLE DAMAGE REPAIR

For moderate scuffs and cosmetic damage caused by severe abrasion or light impacts in which there is less than 15% wall thickness loss over a six inch by six square section, Bullseye UV light activated fiberglass reinforced self-adhesive protective patches can be applied directly to the surface of the fiberglass pole. For example, if the nominal wall thickness is 0.5" then the maximum damage depth can be $0.5 \times 15\% = .075$ " (slightly more than 1/16").

For Bullseye product details or sales, call or contact Wes Wolfert at wes@ospspecialties.com or call 215-870-7008.



Before



Patch Applied



After

In this example a section of the Stormstrong 10" diameter pole was damaged with the use of a diamond blade installed on a circular saw.

The Bullseye UV activated quick patch was applied directly to the surface of the pole. The material comes prepackaged and pre-impregnated with the UV curable polyester resin. Simply clean the surface of the pole with a clean cloth, remove the pre-impregnated fiberglass material from its package, cut the material to size large enough to cover the damaged area with an additional 2" overage. Place the white backing towards the pole. Remove the white backing to expose the adhesive. Apply the Bullseye quick patch to the surface of the pole, apply some pressure to remove any air or voids and then remove the thin clear plastic front and allow the sun to cure the resin in approximately 5 to 50 minutes. You can repeat the process and layer the patch. Adequate cure time between layers is essential since the patch is cure via sunlight.

After the patch has cured for at least 30 minutes apply spray paint. Spray touchup paint that matches the color of your pole can be ordered from select Sherwin Williams locations. If your pole is CCG Sepia Brown, which is our most common color, use part #04362 728080 Aerosol color to match Polane S+ R63RXN12557-1497 RAL 8014 Sepia Brown. If your pole is light gray, use part #04362 733087 Aerosol color to match Polane S+ F63RXA8459-1497 Gray.

Begin by applying a light coating of paint to the surface of the patch. Wait approximately 10 minutes and apply another coat. Then apply a final coat after another 10 minutes.

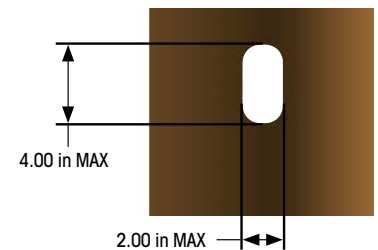
SEVERE COATING OR POLE DAMAGE REPAIR

Fiberglass wrap systems can be used for structural and aggressive cosmetic repairs. Osmose moisture activated fiberglass pole wrap systems or BullsEye fiberglass UV cure pole wraps can be applied to the pultruded fiberglass poles. Severe damage resulting in splintering, cracking, delaminations and section loss of the pole caused by vehicle impacts or other incidents will require a structural splint. Damage due to vehicle impact is inevitable. The extent of damage will determine if the pole should be replaced or if the pole can be repaired.



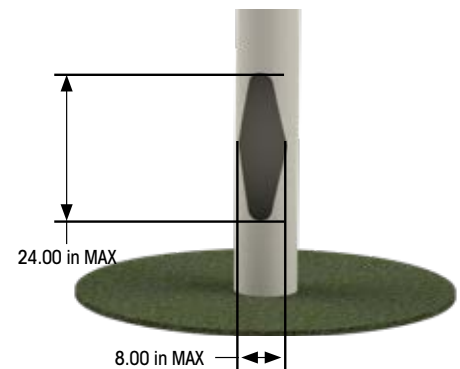
WHEN SHOULD A POLE BE REPAIRED WITH BULLSEYE UV QUICK PATCH FIBERGLASS REINFORCED POLYESTER WRAP?

A pole with a hole no larger than 2" wide by 4" long measured on the radius can be wrapped with Bullseye. The repair shall be performed with three layers of the Pole Wrap placed over the center of the damaged section. Be sure to repair by placing the Bullseye quick patch on one layer at a time allowing for full cure 5 to 50 minutes between wraps. Note: a splint will be required to fix poles with defects greater than 2" wide by 4" long measured on the radius.



WHEN SHOULD A POLE BE REPAIRED WITH THE FRP SPLINT SYSTEM?

An FRP splint should be used to repair a pole in instances when more severe damage has occurred. A splint can be used as a repair method provided the damage does not exceed 24 inches along the length of the pole and is less than 8 inches around the circumference of the pole. The splint is attached to the pole by bonding to the pole surface and using steel bands for clamping purposes. In cases where the damaged area extends beyond these dimensions, the pole should be replaced.



THE SPLINT KIT INCLUDES:

- (1) FRP splint
- (4) Band clamp assemblies
- (1) Disposable notch trowel
- (2) Sanding Sponges
- (2) Dusk mask
- Marker
- Disposable Gloves
- Rags
- Installation Instructions

The adhesive is not supplied with the kit and must be purchased separately. The recommended adhesives are:

- SET-3G, Simpson Strong-Tie – Recommended for standard installation conditions at temperatures from 40-90°F. Temperatures must remain above 40°F throughout the curing period to ensure cure. At temperatures above 95°F the gel time of the adhesive is not sufficient to complete the assembly.
- AC100+ Gold, Dewalt – Recommended for standard installation conditions at temperatures from 14-41°F. Temperatures must remain above 14°F throughout the curing period to ensure cure. At temperatures above 41°F the gel time of the adhesive is not sufficient to complete the assembly.

In addition, the following equipment is necessary during the installation:

- Eye protection and/or face shield
- Angle grinder equipped with a 30-50 grit wheel.
- Adhesive dispenser. Note: adhesives are typically available in single or double cartridge configurations. The dispenser must be compatible with the adhesive cartridge purchased for the project. A powered adhesive dispenser is not required but can be used. DeWalt Model DCE560D1 or DCE591D1 or similar are recommended.
- 5/8" wrench
- Touchup paint
- Recommended: Power sander/grinder with 100 grit sanding paper or aggressive nylon mesh sanding disks for use with angle grinder. Finer or coarser sanding grades could be used, but care must be taken to avoid gouging the FRP material.

SPLINT INSTALLATION

1. The pole must be dry and no rain during the splint installation process.
2. Using the 30-50 grit wheel, grind any high material around the damaged area to create a flush surface. The splint should fit closely against the pole surface without rocking.
3. Place the FRP splint into position. The splint should be centered on the damaged area both vertically and circumferentially. Depending on the above ground height of the pole damage, soil may need to be removed around the groundline to allow the splint to be located properly. Once in position, mark the pole around the outside edges of the splint using the provided marker.
4. Use the sanding sponges and/or power sander to remove all paint within the marked area. The pole surface should have a uniform dull finish when correctly sanded. Take care not to gouge the surface of the pole when sanding.
5. The splint is supplied with peel ply on the bonding surface. The tip of a knife can be used to lift the peel ply near the edge. Once started, the peel ply can be removed by hand. Remove any loose material and peel ply strands from the surface.
6. Clean the sanded pole surface and the peel ply surface using rags soaked with IPA.
7. After the IPA has evaporated, apply the adhesive to the bonding surface of the splint. Using the included disposable notch trowel, spread the adhesive uniformly across the entire surface with the ¼" x 1/8" notched edge.
8. Position the splint onto the pole.
9. Use the included band clamp assemblies to clamp the splint into position. The clamps should be positioned 6 inches from both ends of the splint and at 16in spacing. When tightened correctly there should be about 1" of space between the two aluminum fittings of the clamp assembly.
10. Any excess adhesive squeeze out can be cleaned with a putty knife and IPA-soaked rags.
11. Apply touchup paint around the edges of the repair to seal sanded areas not covered by the splint.



WHEN SHOULD THE POLE BE REPLACED?

- The pole should be replaced if the pole has buckled and or split.



Photo of ruptured pole due to severe bending stress

- If the pole has been sheared off.



Photo of pole sheared by high velocity impact

- If the pole has a permanent bow caused by the pole buckling and failing in buckling.



Photo of buckled pole, while its structural integrity appears to be intact, the pole should be replaced

- If pole has burnt or been exposed to a burning structure to the point the internal pole temperature exceeded 400°F the pole should be replaced.



Photo of burnt pole identifiable by the black char

END OF SERVICE LIFE DISPOSAL

CCG composite utility poles have several disposal options, including:

- Recycle into FRP fillers (Not commonly practiced in the USA)
- Recycle into fiberglass mat to be used in the production of new poles. (Not commonly practiced in the USA in a widespread commercial process) it is anticipated to be available in late 2023
- Repurpose for drainpipes, bollards.....
- Landfill (Toxicity Characteristic Leaching Procedure or TCLP) classification indicates the end-of-life poles will not leach and can be discarded as residual waste

This page intentionally left blank.

This page intentionally left blank.



Creative Composites Group

888-274-7855

214 Industrial Lane
Alum Bank, PA 15521

CreativeCompositesGroup.com

Uncontrolled Document - DLR05222023R1
©2023 Creative Composites Group
All Rights Reserved Worldwide