

## Installing E-LAM® Field Raked and Cambered Laminated Wood Structures

### Identification of Poles

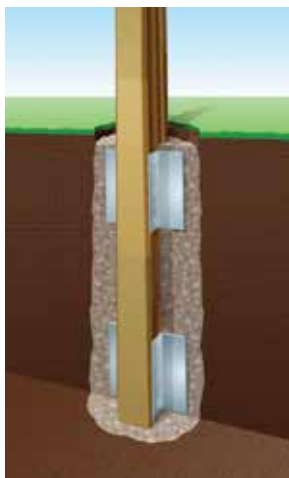
Each E-LAM® laminated wood pole is tagged with the class and length on the face and the butt. If a variety of poles are required on a project, make sure the appropriate pole is spotted at the correct structure location. Additionally, poles of the same class may be drilled for different structures, and verification of structure types should also be confirmed.

### Verify and Assemble Appropriate Foundation Reinforcement System

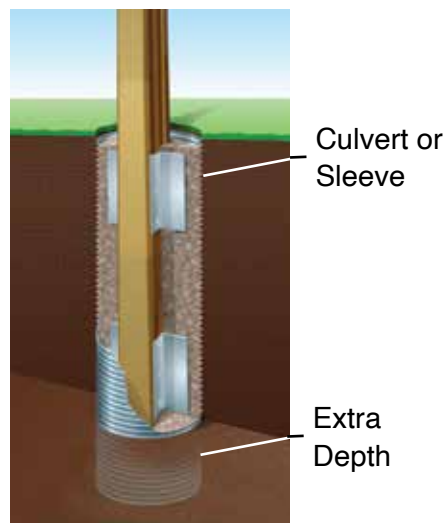
Field raked and cambered poles are drilled for and furnished with a foundation reinforcement system. The foundation systems, consisting of fabricated galvanized angles and assembly bolts, are shipped separate from the poles and need to be located and assembled prior to setting. The assemblies are application specific and require verification as to which system is used per structure location.

Our staff will assist the user in determining which foundation system is appropriate for each installation based on loading and soil conditions provided by the owner. A “standard” foundation system for each pole class can be found with the Ultimate Groundline Moment information in the catalog. The actual foundation system that is supplied could vary from the “standard” because of site conditions. Where poor soil conditions exist, steel or concrete sleeves (culverts) may be required.

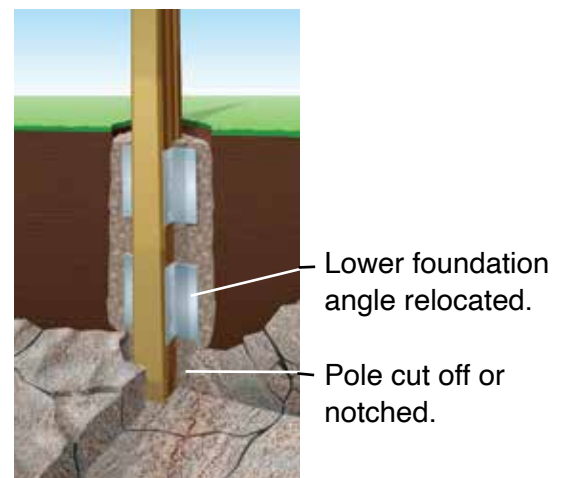
**NOTE:** It is always, however; the ultimate decision of the owner to accept final responsibility for the foundation and setting requirements.



**Standard Foundation  
for Typical Soil Type  
Class 5**



**Standard Foundation for  
Soft Soil Installations**



**Standard Foundation  
when Rock is  
Encountered**

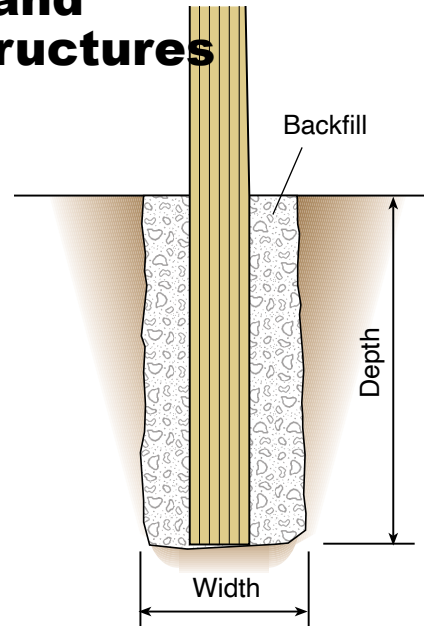
## Installing E-LAM® Field Raked and Cambered Laminated Wood Structures

### Auger Size

The size of the hole is unique to the type of soil and loading for each individual installation. Laminated Wood Systems will develop specific information or tables based on the design information supplied by the utility at time of order placement.

### Setting Depth

The setting depth of each installation has been identified prior to manufacturing (typically 10% of the nominal length plus 4 feet). Individual soil types should be confirmed to verify the setting depth.



### Lifting

All poles are identified with “BP” on the face of the width (constant dimension) to identify the approximate balance point before any framing materials are added. The approximate weight of the treated pole will also be located at this point. The poles should be lifted with a steel choker or gut line rather than a flat nylon strap. The choker will slightly indent the edges on the radiused corners insuring a firm hold without slipping.

### Handling

Poles can be handled just like any other wood pole. If rotation is required to bisect the angle, a regular cant hook for round poles can be used. Any field drilling and preservative treatment application should be consistent with the practice for other wood products acceptable to the individual utility.

**These are general recommendations and in no way should be given precedence when they come in conflict with an individual utility’s accepted and established working practice.**

### Setting Recommendations

Follow general installation and handling recommendations as described on page 2. Install appropriate foundation system and auger hole to diameter and depth as recommended by LWS.



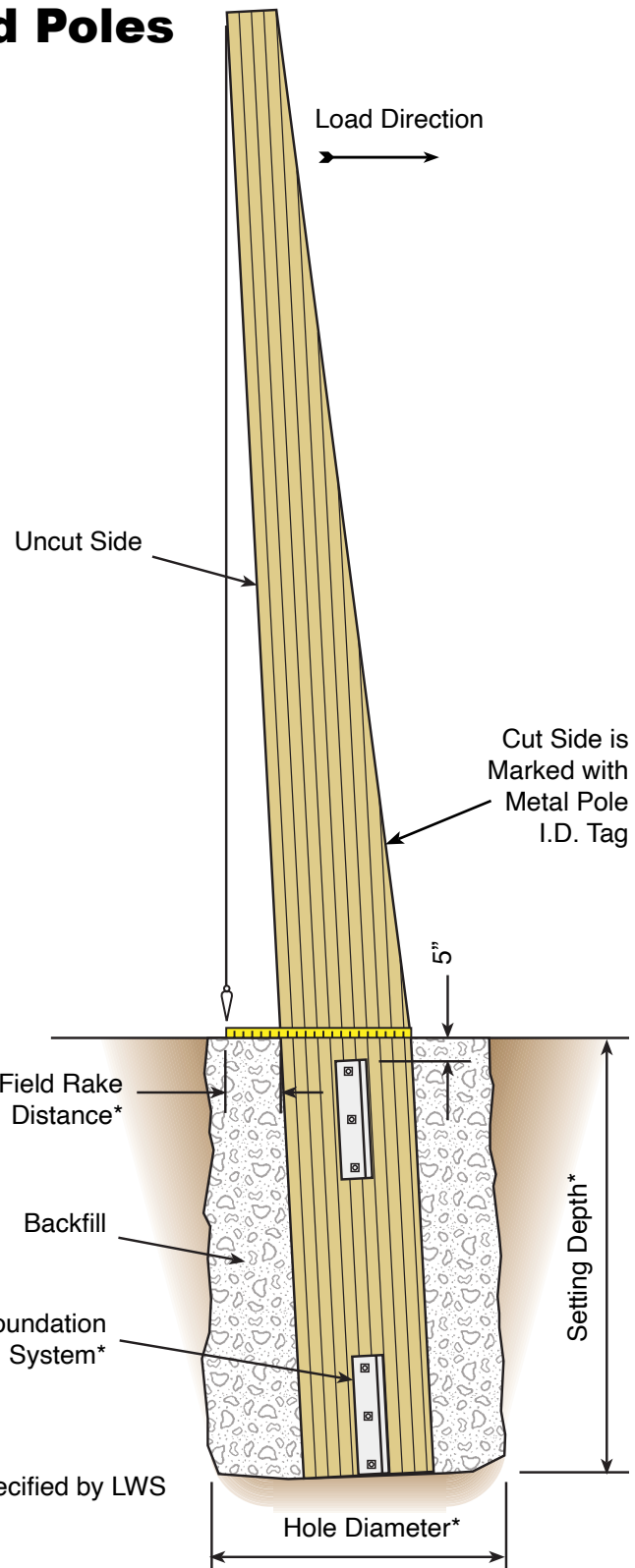
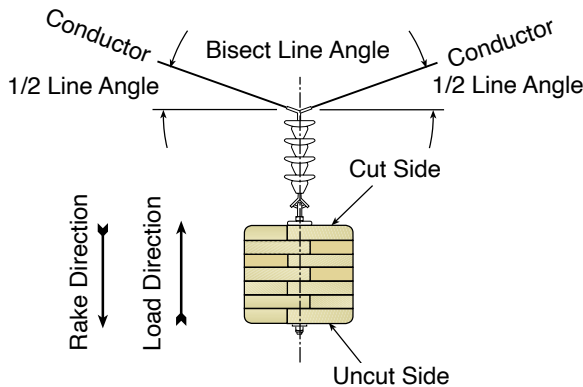
Adjust and align structure using a cant hook or similar tool.

## Installing E-LAM<sup>®</sup> Field Raked Poles

**Raking:** The field rake amount is typically designed to resist the 60 degree F load which is induced by the line angle or dead-end. The field rake amount will be calculated by the LWS engineering staff. A maximum field rake of 3% of the above-ground height is recommended on any installation.

**Angle:** In most cases, the pole needs to be oriented so the face of the pole bisects the line angle equally.

**Plumbing:** The back face of each pole has a straight edge which can be used for plumbing and raking the pole. A field Raking Detail is included within the drawings for each field raked pole.



### Backfill

Compacted aggregate tamped in 6" lifts, slurry, or concrete should be used. Concrete and slurry backfill require set time. Native soil shall not be used.

### Tensioning

After pulling the conductor and/or shield wires to "every day" design tensions, allow the poles to set for a minimum of 30 minutes to reach a point of equilibrium. Verify tensions or bring back to design loads prior to clipping.

## Installing E-LAM® Cambered Poles

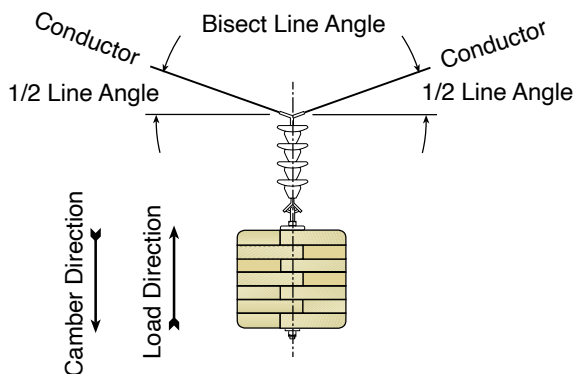
### Setting Recommendations

Follow general installation and handling recommendations as described on page 2. Install appropriate foundation system and auger hole to diameter and depth as recommended by LWS.

Generally, E-LAM® cambered poles should be set to a depth of 10% + 4 ft. (unless soil type and / or load conditions require additional depth - contact LWS for recommended setting depth).

**Angle:** In most cases, the pole needs to be oriented so the face of the pole bisects the line angle equally.

**Plumbing:** E-LAM® cambered poles have a constant dimension that continues from the butt to above the groundline.



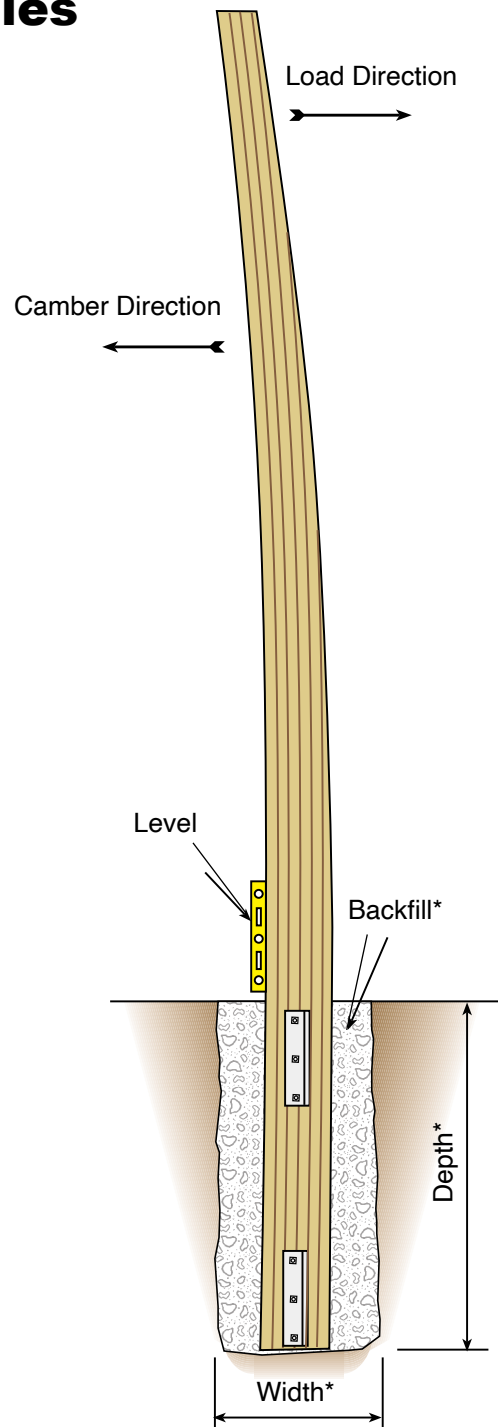
Plumb the pole by placing a level on the constant surface just above the groundline. Since the camber is designed to support the load of the angle, there is no need to rake the pole in the field.

### Backfill

Compacted aggregate tamped in 6" lifts, slurry, or concrete should be used. Concrete and slurry backfill require set time. Native soil shall not be used.

### Tensioning

After pulling the conductor and/or shield wires to "every day" design tensions, allow the poles to set for a minimum of 30 minutes to reach a point of equilibrium. Verify tensions or bring back to design loads prior to clipping.



\*Specified by LWS