

Eversource has moved away from round wood poles for a number of reasons including cost, maintenance requirements and supply and delivery issues. It has become increasingly difficult to insure a reliable supply of round wood poles that meet the required loading classes.

The standard pole is self-weathering steel which is a steel alloy specifically designed to form a patina to seal out atmosphere impacts and reduce corrosion. The poles are coated with a polyurethane corrosion coating from the base of the pole to approximately 4 ft above the ground line. It is the same coating used on steel pipelines, water mains and steel pilings used within the water table and in surface waters.

The polyurethane coating provides additional protection to the pole and does not leach once cured. It is purposely inert to protect the pole. The application and curing of the coating are done at the factory so the coating is fully cured by the time the pole is on site. The weathering steel builds up its patina during the first few months after being exposed to the elements. Once the patina has formed it protects the pole from further degradation and the leaching stops. Weathering steel is a very common form of construction material used commonly in bridge light pole and other construction where steel is exposed to the elements.

Weathering steel needs to go through a series of wetting and drying cycles in order to form the proper patina and stop the corrosion process. Sections of the poles that remain completely submerged are not exposed to oxygen and thus cannot oxidize and rust. It is transition areas where the pole gets wet, is then exposed to air but cannot fully dry where most issues have been seen in the industry.

There is a study that was produced by American Electric Power on Weathering Steel poles in Virginia. Several lessons have been learned on weathering steel poles as a result of that study, other utility knowledge, and history of these poles on the Eversource System. As new knowledge is obtained it has been applied to all new installations. The American Electric Power study was in an area with extremely high humidity most of the year along with dense vegetation that was allowed to grow directly against the poles soon after they were installed so the poles and vegetation would be saturated by rain and dew and never be allowed to fully dry to form the patina. In areas where dense vegetation is present near the poles Eversource uses the polyurethane corrosion coating mentioned above to protect the pole. We also add additional thickness at the bottom of the pole near the ground line to provide extra protection in case the coating is damaged for some reason and do not allow vegetation to continuously grow against the poles. The poles are also inspected every 10 years to check for degradation and any issues are addressed.

Eversource, including NH, has successfully had weathering steel structures installed in wetlands and other environments for over 40 years with no environmental or structural issues. The steel poles are typically made from 40% recycled steel and have been used in a variety of environmental conditions.

Some benefits of the weathering steel poles as opposed to wood or laminate wood are:

- The use of weathered steel poles will result in easier handling of material and less damage to the right-of-way (ROW).
- A weathering steel structure is also easier for crews to install in the field and smaller equipment can be utilized, due to the reduced size and weight of material to be handled.

- The Lee, Durham, Madbury areas have a very active and healthy population of pileated woodpeckers. These birds frequently utilize wood transmission poles (both natural and laminated) for their nesting locations. They will create very large cavities inside the poles where they nest and raise their young. However, these nesting holes degrade the integrity of the structure, increase risk to the reliability of the line and need to be addressed. To date Eversource has spent, and continues to spend, a considerable amount of money across its service territory to replace poles damaged by wood peckers. Eversource recently installed a laminated wood pole line in the Lee and Madbury area in 2009 which has already seen damage caused by wood peckers. Typically, Eversource replaces woodpecker damaged poles that are less than 15 years old; the expected life of a wood pole is 40 years and the life expectancy of a steel pole is 60+ years.
- Recent experience has shown steel structures to be less costly to purchase and maintain than their equivalent laminated wood product.
- The use of steel structures aligns with Eversource's environmental policy. A typical steel structure utilizes over 40% recycled steel. The laminated wood structures do not use recycled material.