Fire Harden Your Infrastructure

Protecting Wood Utility Poles from Fire

Safety is a choice we make, not a chance we take

- Wildfires and or Control Burns continue to damage utility poles and have the potential to cause outages, lost revenue and increased liability.
- Fire behavior:
  - Fire progression varies greatly
  - Difficult to predict
  - Flying embers
  - Intense heat

Florida

- History of wildfire events in the state of Florida in 2020?
  - 2,381 Fire events
  - Burning 99,413 acres
- How many wildfires would you guess have occurred in the state of Florida in 2021?
  - By April of 2021, 650 wildfires have burned since Jan 1, 2021
  - In May it was reported that there were 46 wildfires burning

Wood Utility Pole Treatments

- Creosote
- Penta*
- DCOI
- Copper Naphthenate
- CCA
- ACZA

How can a utility mitigate the risk of fire?

- Developing a plan that considers the following:
- Fire prevention
  - Remove vegetation from around the pole that could become fuel
  - Educate the community about the dangers of controlled burns
  - Setup lines of communication
- Fire protection
  - Identify critical poles within your system and or poles that are hard to access
  - Provide some form of fire protection for the pole in the event of a fire

Fire Protection Products

- Pressure Treatments
  - ACZA treated poles have good fire resistant properties
  - There is an exterior fire retardant treatment for residential decking
- Coatings
  - There are a number of coatings available on the market claiming the ability to protect
  - Many are intumescent coatings
- Wraps
  - Steel
  - Blanket types
  - Fire Mesh™

ASTM WK 63252

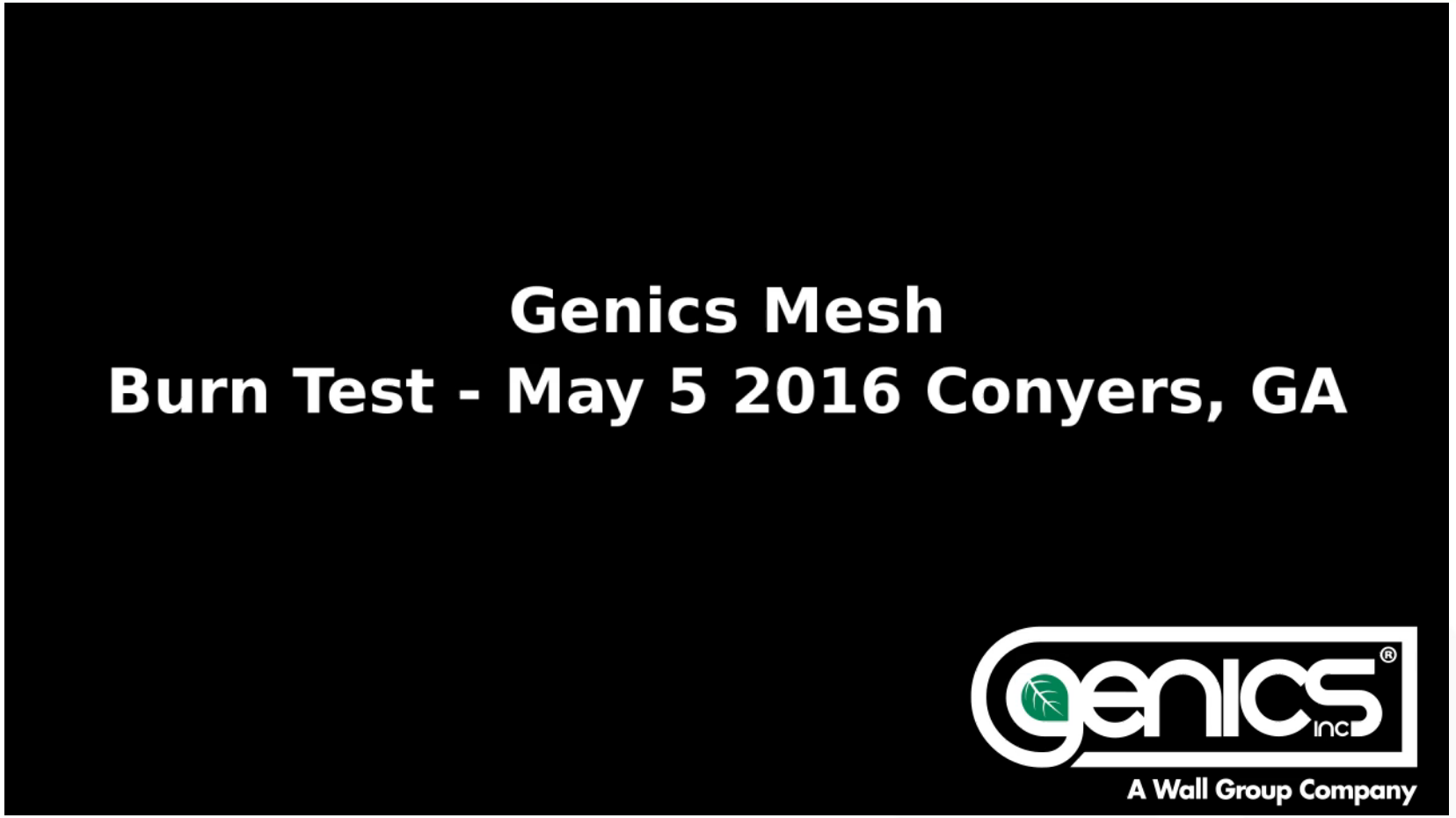
- New Test Method for Determination of Charring Depth of Wood Utility Poles Exposed to Simulated Wildland Fires
- Sample is exposed to heat panel with heat flux of 50 kw/m2 (935℃) for 5 minutes
- Ring burner is ignited for 5 minutes with heat flux of 40 kw
- At 10 minutes from the start of the test the heat sources are removed and the sample is placed in front of a fan and exposed to a wind of 2 m/sec.
- Test is completed when sample burns down or when temp of the sample is less than 50℃.

ASTM E 84

- Measures Flame Spread and Smoke Development
- Smoke Development Index
  - Monitors smoke density
- Flame spread Classifications
  - Class 1 or Class A = 0-less than 25
  - Class 2 or Class B = 26-less than 75
  - Class 3 or Class C = 76 and higher

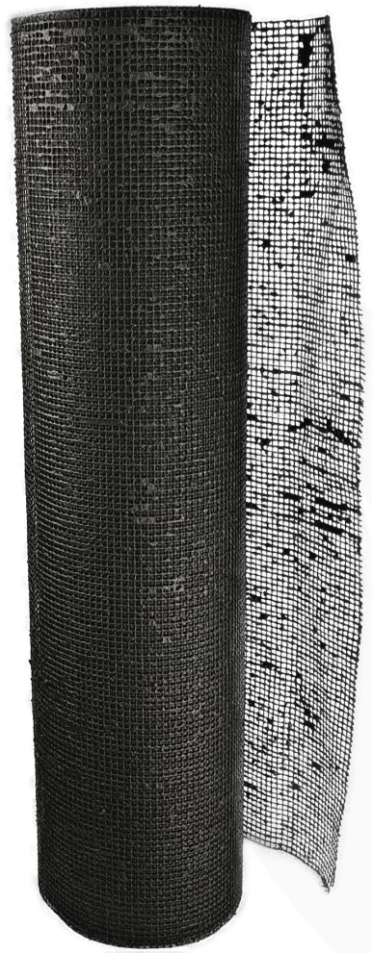
Australian Test

- Brushfire testing
- Testing conducted at Timber Products Inspection in Conyers Georgia



Fire Mesh™

- Patented Technology
- Galvanized and Fiberglass substrate
- 3’ x 50’ roll
- Allows utilities to fire harden their systems without searching for expensive alternatives to wooden poles
- One time fire event
- Not a hazardous material
- Can be applied in a single or double wrap



Fire Mesh™

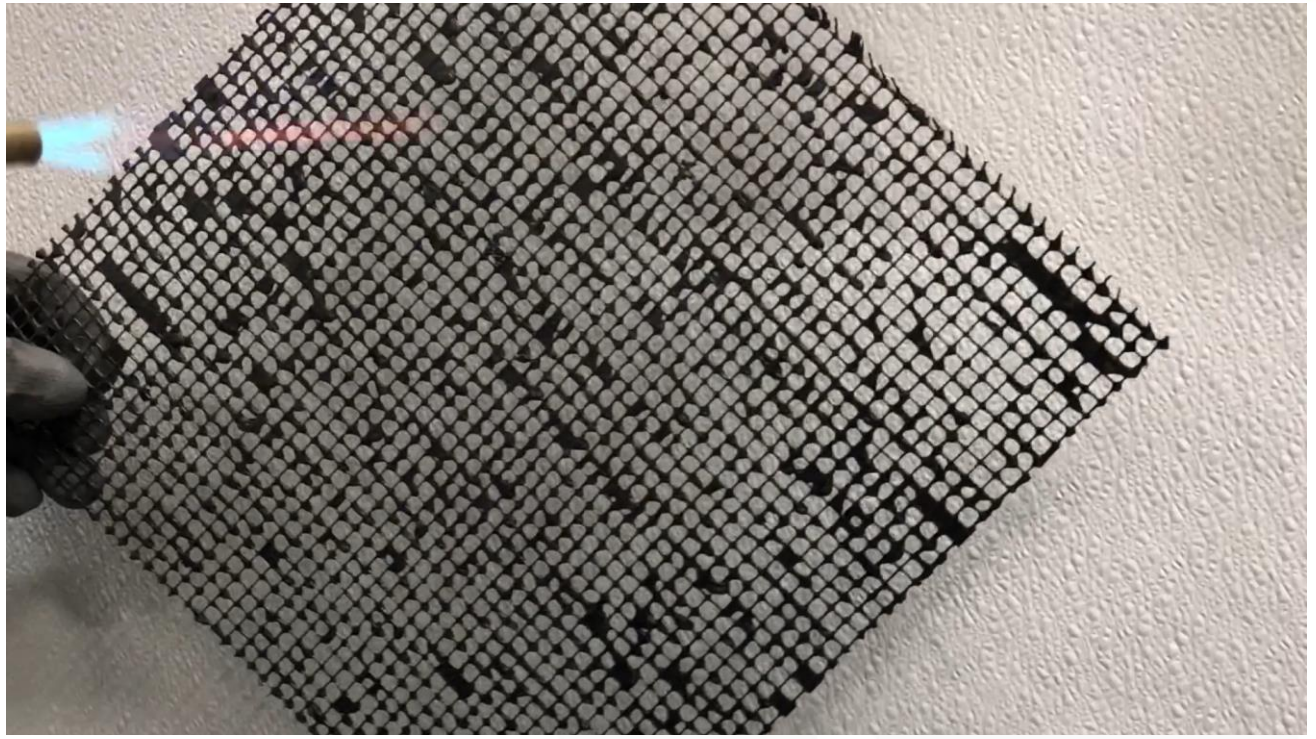
- Durability allows for installation to occur at the site of the pole provider.
- The Mesh can also be installed in the field on poles that are considered critical to the system.

Fire Mesh™

- Installation in the field is simple and accomplished with simple hand tools.

Fire Mesh™

- Fire Mesh™ forms a barrier by expanding at temperatures greater than 300°F shielding the wooden structure
- The intumescent grid is coated with a flexible and very durable intumescent polymer
- Allows for the wooden structure to breathe and does not trap moisture
- The intumescent coating expands rapidly as radiant heat or flame threatens the structure, preventing any strength loss or damage to the wood



Fire Mesh™ & ASTM WK 63252

- The results of poles wrapped in Fire Mesh indicated that no flame was sustained beyond the removal of the ring burner
- Damage to the poles were so minimal that there was no effect to the overall strength of the pole
- The temperature of a pole wrapped in Fire Mesh fell below 50℃ only 8 minutes after the removal from the flame and 1800℉ panel

Fire Mesh™ & ASTM E 84

- Flame Spread of 5 which is a Class 1 or Class A rating
- Smoke Development Index of 40

Fire Mesh™

- The Fire Mesh™ is extremely durable and weatherable
- Fire Mesh™ is gaff-able and climbable without any additional requirements for tools or gear
- Gaffs can easily penetrate through the 23 gauge mesh and make solid contact with the wooden pole
- Designed to handled without any changes to current working and handling standards and procedures

Fire Mesh™ Durability

- Fire Mesh™ is currently undergoing accelerated weathering testing under ASTM G154 guidelines
- The use of this apparatus is to induce property changes associated with the end use conditions, including the effects of the UV portion of sunlight, moisture, and heat
- At determined intervals, samples are removed and analyzed for physical degradation while surface characteristics are assessed and documented. After a sample observation is completed, flame spread is determined as per ASTM D3806 to assess the quality and performance of the intumescent.
- **To date we have accelerated weathering data that supports no degradation for 25 years.**

Fire Mesh™ Safety

- Favorable environmental profile
- Under RCRA guidelines, no ingredients in the Fire Mesh is considered hazardous and can be disposed of in municipal landfills.
- US Federal Regulations: This product is not known to be a “Hazardous Chemical” as
- defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
- Poles with Fire Mesh will add very little weight to the utility pole. (variability due to size of pole (7-lbs for distribution, 60 lbs for transmission wrapping up 20’)
- Easy and safe to climb
- It can also be sounded after the mesh is applied to the pole
- Always stay within the Utilities “limits of approach”

Thank you

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