Laurium Manor Turntable Restoration Project

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Background:
The Laurium Manor Inn Carriage House Turntable was built in the early 1900’s. The turntable allowed the rotation of a single automobile placed upon its surface. The turntable is not motorized or assisted in any way. Therefore, it was designed to allow operation by one person. The turntable was in operation up until the early 1970’s, and has not moved since that time.

Original Framework as Found

Degradation of Original Framework

Laurium Manor Inn Carriage House Turntable

3-D Rendering of Original Design

Finite Element Analysis
- Design Verification
- Load Bearing Analysis
- Stress Analysis
- Material Performance

Challenges:
- Weather
  - Temperature
  - Snow/Ice
  - Travel Conditions
- Excessive Corrosion
- Rusted Fasteners
- Debris
- Budget Limitations

Customer Requirements:
- Restore turntable to operating condition
- Keep the original appearance
- More resistant to corrosion
- Reuse as many parts as possible
- Use more robust materials where possible

Original Design

Design Changes:
The original design of the support arms (above) needed to be changed due to the increased weight of modern vehicles. The new design (below) incorporates an I-Beam design and is much more robust.

The original design of the cover plate also needed reinforcement. This was accomplished by increasing the thickness of the plate and changing the layout of the stiffeners.

Overall, the new proposed design reduces the amount of materials needed, fabrication time, and the potential for assembly/fabrication errors.

New Design

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