ARK ENCOUNTER

THE TROYER GROUP, MISHAWAKA, IN
HOSPITALITY & ENTERTAINMENT

WILLIAMSTOWN, KY • WWW.ARKENCOUNTER.COM

How do you build an Ark? Two Elephants at a time! Tamarack Grove provided structural engineering design for the bow and stern of the Ark Encounter - the largest timber framed structure in the world. This life-Size replica of Noah's ark, a biblical museum, used over 3.1 million board feet of timber is currently a biblical museum facility.

COMMERCIAL STRUCTURAL ENGINEERING & DESIGN

CHALLENGE

The ark encounter was created using steel, masonry, concrete, light-gauge steel, and wood. Designing something of this scale took out of the box thinking and teamwork. As you can imagine, there aren't any example plans in the bible other than a few rough dimensions. While some of these elements were unlikely used by Noah, they were required as this was designed as a building for public use. The double curvature of the bow and stern of the Ark brought another significant challenge to this design.

SOLUTION

Tamarack Grove's background in designing with a variety of structural materials allowed us a strong foundation. Throughout the curvature of the bow and stern each section required unique detailing. We used 3d modeling to visualize each section in addition to structural analysis. Glulam members were used to create the curvature of the ark and connections throughout the ark consisted of a mixture of wood-to-wood connections of conventional mortise and tenon joinery and steel plates, angles, bolts, and screws. Because timber is living and continues expand and contract dependent on moisture content, we constantly evaluated each connection throughout the project.

TEAM MEMBERS

BRIAN SIELAFF, M.S.C.E., S.E., P.E., P. ENG.
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SERVICES

PRELIMINARY STRUCTURAL DESIGN

STRUCTURAL DESIGN & ANALYSIS

3D MODELING

CONSTRUCTION OBSERVATION

CONSTRUCTION ADMINISTRATION

CONSTRUCTION ENGINEERING

510' long or 1.5 football fields (300 cubits)

85' wide or two school buses (50 cubits)

51' high or 3 stacked giraffes (30 cubits)

3 years to get through plans and construction

1.5 years to build... and no, it does not float.