Pedestrian Bridge for Mexican Ministry Center

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Thirteenth Annual School of Science, Engineering, and Health Symposium
April 29, 2016
Vision Statement

We believe access to food, water, education, and healthcare is a basic human right and therefore are committed to constructing appropriate, quality infrastructure...
Empowering Trigo y Miel
A ministry of Forward Edge International
Where is Oaxaca, Mexico?
Where is Trigo y Miel
Empowering *Trigo y Miel*

A ministry of Forward Edge International
VWOS Connection
What is the Need?
Site Challenges

- Floodplain
- Neighboring Property
Fall Survey Trip

Obtained: Material and Soil Data
Proposed Profile and Placement
Proposed Profile and Placement
## Decision Matrix

<table>
<thead>
<tr>
<th>Selection Criteria</th>
<th>Criteria Weight</th>
<th>Timber Beam Single Span</th>
<th>Timber Beam Triple Span</th>
<th>Arched Timber Beam</th>
<th>Arched Timber Truss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rating (0-10)</td>
<td>Rating (0-10)</td>
<td>Rating (0-10)</td>
<td>Rating (0-10)</td>
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<td>Material Availability</td>
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<td>7</td>
<td>9</td>
<td>4</td>
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<tr>
<td>Aesthetics</td>
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<td>6</td>
<td>6</td>
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<td>8</td>
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<td>Constructability</td>
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<td>5</td>
<td>4</td>
<td>5</td>
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<tr>
<td>Cost</td>
<td>40%</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>7</td>
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</table>

| Total                    |                 | 30                      | 33                      | 38                | 45                 |
| Weighted Total           | 100.0%          | 4.25                    | 3.625                   | 5.45              | 6.575              |

Selected Alternative: Arched Timber Truss
Timber Beam – Single Span

Arched Timber Beam

Timber Beam – Triple Span

Arched Concrete Beam
Chosen Structure Type – Arched Timber Truss
Design Development

* Initial Truss layout developed with advisors

* Design according to AASHTO

* Framework for design of Timber Truss

Figure 1: Live Loads on Risa Model
Foundation Considerations

* Designed for variable depth of excavation
* Geometric constraints drove the design
Timber Design Takeaways

* Use doubled members for constructability & strength
* Use common size boards
Connection Considerations

* Steel gusset plates between truss layers

* 7 Unique Plates
Final Design
Site Team Trip

Mexico 2017 Site Team
Construction Planning

* Compiling a construction manual
* Finalizing the construction schedule and sequence
* Complete a final material list
Site Preparations

* Forward Edge is dredging the ditch before we arrive.
* Forward Edge will procure the materials and tools necessary for construction.
Acknowledgements

**Project Advisers**
- Dr. Brian Swartz
- Tim Zimmerman
- Russel Woleslagle

**Student Volunteers**
- Benjamin Reinert
- Zachary Engle
- Nathan Yeoman
- Conner Reyer
- Erin Brennerman
- Erika Boice

**Site Trip Advisers**
- Dr. Brian Swartz
- Scott Heisey
- Douglas Stumpp
Acknowledgements

**Corporate Sponsors**

NTM Engineering
CS Davidson
McMahon Associates
Olympic Steel
Dawood Engineering
Pennsylvania Society of Professional Engineers

**Project Partner**

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Questions?