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Dock Canopy

An image of svelte timbers and taut sails

Steve Taylor

The Pine Island boat canopy provides a covered mooring for two boats along side a dock that lies parallel to the shoreline of the island. The one-acre island lies just inside U.S. waters along the Canadian Middle Channel of the St. Lawrence River.

The design entails a row of six curved laminated wooden columns supporting tapered laminated arches that cantilever 12ft. over the water. The 60ft.-wide structure is covered by a tensioned weatherproof fabric that shelters both the dock and moored boats.

Achieving the desired light, graceful appearance was made possible through laminating the wood members. We relied on the expertise of Gougeon Brothers Inc., manufacturers of boat building epoxies, to guide us through the fabricating process. We needed to achieve a compromise of making the wood components limber enough to bend to the desired shape yet stiff enough to obtain even clamping pressure. In the end, we opted for 1in. thick laminations resulting in eight layers for the columns and 13 for the arches.

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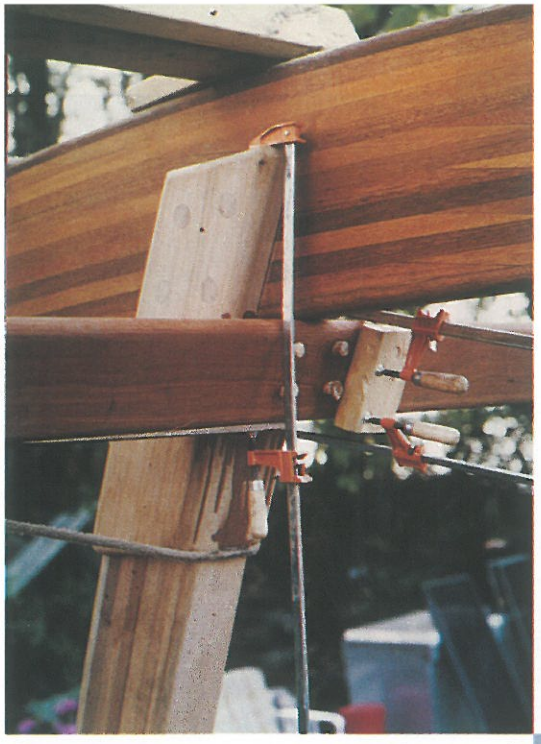
1 **The laminated and fabric canopy extends about 12ft. over the water. The base of each arch is anchored into bedrock.**

2 **The Brace-Arch-Column connection. See Detail 1, p. 55.**

3 **The mahogany frame assembled and finished with Moore's Redwood Decking Stain. The fabric consists of a PVC-coated polyester, manufactured by Ferrari.**



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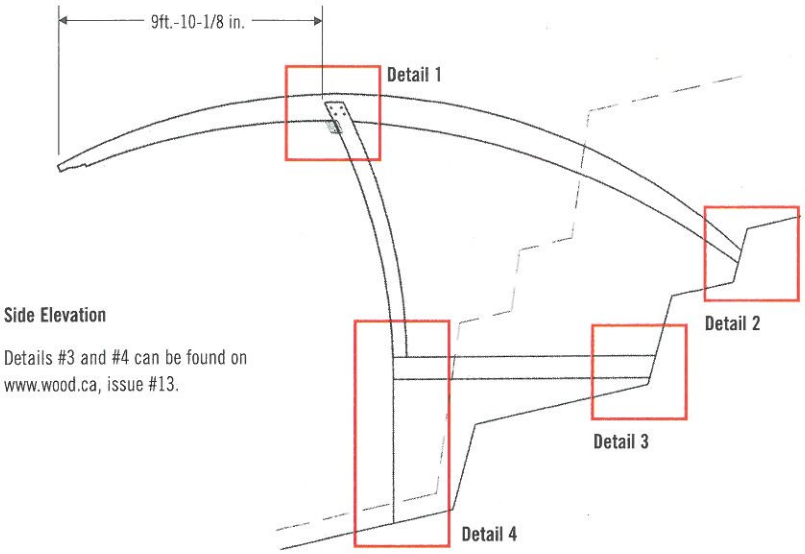

Side Elevation

Details #3 and #4 can be found on www.wood.ca, issue #13.

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To imply the sculpted lines of a boat hull, we wanted the arches and columns tapered in profile. This challenge was met by tapering the individual laminations after they were scarf joined, to create full-length pieces, and before gluing and clamping. Gougeon Brothers came up with a simple way to plane each laminate so that all were tapered exactly the same.

The curved beams are anchored to the rock outcroppings. We used two galvanized shear plates [one each side] for the steel to wood connections and epoxy anchors for the steel to rock connections. The column to beam connection is made with wood flanges and wood pegs, set with epoxy. A built-up [glued] horizontal brace, engaged and pegged to each column provides lateral stability and outriggers for the fabric at each end.

The pieces fit together beautifully on site so that complete construction took only 10 days, the support structure for the dock having been built the previous Fall.

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More photos and information on the construction sequence can be found on www.wood.ca, issue #13.

4 **The typical pegged connection at the intersection of beam, column and horizontal brace. Note the wood flanges positioned on both sides of the assembly. Hickory pegs were used for shear strength.**

5 **Transporting the assembled members to the building site.**

CREDITS

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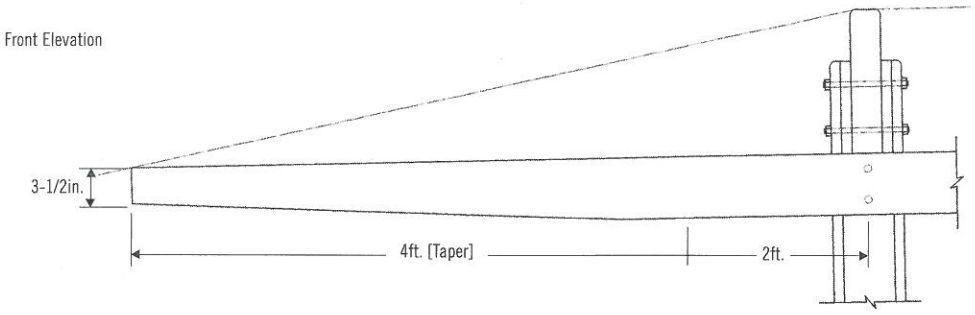
Detail 1
Brace-Arch-Column Connection, Front and Side Elevations



Side Elevation

Detail 2
Anchor Detail, Arch