





## **DESCRIPTIONS OF "Cube.pdf"**

### **Page 1.**

Top: The post and beam frame of the 10'x10' azumaya was finally erected on 10/26/06. Viewed here from the back lawn/garden area, the structure sits at the edge of a steep hill overlooking a typical, lily-filled Cape Cod kettle pond (background).

Bottom: View from a small terrace, above the pond. Some people are now wondering whether this is an overgrown cubist sculpture.

The extra 5'x10' deck projection (rear, top photo; right, bottom photo) will serve two purposes. It will lead to the formal entry of the eventually enclosed azumaya, and it will also support stairs that lead down to the terrace area, which will become an informal but nevertheless Japanese garden.

Because the structure is built on "glacial till" that consists mainly of large, random-sized rocks and boulders, it proved impractical to dig holes deep enough for directly setting the posts without either hitting large rocks or totally digging them out, which would produce a very wide hole requiring extensive back filling. One local, conventional option was to fully excavate and put in a poured concrete foundation, but this was impractical due to the remote location, the permitting requirements needed for construction adjacent to and above a protected wetland, and the question of how to attach the posts. Consequently, single concrete piers, set 2-4' deep, often atop rocks, were used as supports for each corner.

### **Page 2.**

Top left: A typical posthole was dug, uncovering the edge of a large, diagonally situated boulder.

Top right: Rebars (4') were put in place and the water-soaked hole was filled above the encroaching rock with concrete.

Second row, left: After the concrete had set, a 12" diameter Quik-Tube form was placed at the proper height and centered with the aid of a long piece of 1x4, which also held a 10" long, 5/8" bolt, centered and at the proper depth. This template system, using accurately spaced holes, was used to set the piers and their anchor bolts at the proper height and distance apart to accept the post brackets.

Second row, right: Eight piers are ready for a conventional deck. Why eight? After four were poured, the location had to be shifted 5' back, away from a large, leaning tree trunk, which would have come within 8" of the roof overhang (and probably grazed during a hurricane). Two extra piers now support the center of the azumaya while the farthest pair supports the projecting entry deck, which was the consequential afterthought of this last minute change.

Third row, left: The deck (pressure-treated 2x8's) is in place and leveled (set above the concrete surface by 1/4"-1/2"), with two unattached joists adjacent to the corner post piers. This deck was designed to exactly enclose the 10'x10' outer dimensions of the azumaya, with a minor correction for the enclosed post brackets.

Third row, right: With the unattached joists temporarily removed, galvanized steel, adjustable post brackets (Simpson Strong-Tie #ABU66Z) were centered and bolted in place.

Bottom row, left: The centered bracket, with its standoff plate in place and perfectly level, is ready to accept a perfectly square-bottomed post. (Note: with this system, the bracket plate and the post bottom must be mutually level; otherwise, the post will start off out of plumb and may be difficult to adjust). At this stage, each 8' post had already been pre-drilled for a 5/8" bolt, based on the position of the top hole in the bracket. Using the now-positioned brackets, each joist pair (end joist and unattached joist) was similarly drilled for the bracket's top hole.

Bottom row, right: The post was set into the bracket and a 10" long, 5/8" carriage bolt was inserted through the end joist, the post, and the unattached joist. The post was plumbed, the carriage bolt tightened, and the beams were then positioned and bolted in place. After checking that the entire structure was still plumb and square (the diagonals were within 1/8" of each other!), a 5" long, 3/8" hex-head lag screw was inserted into the post through the unattached joist via the lower bracket hole to further hold the post plumb. Finally, the "floating" joist was secured to the deck frame with three 4" TimberLok screws. Why an initially unattached joist? To compress the brackets maximally when tightening the post bolts.

Further lateral support for the posts will be provided by three conventional, partial-width or partial-height walls, but temporary angle bracing will be used during construction of the roof if the walls are not roughed-in first.

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