Doing the Wave

JEN GRAVES; The News Tribune

BRUCE KELLMAN | THE NEWS TRIBUNE

Stone masons use 500-year-old Chinese road stones - and a lot of caution - to assemble a 'wave' that is tightly enclosed by glass at the new Tacoma Art Museum.

Pretend you have to build a 650-piece puzzle that tips and tilts like a frozen wave inside an enclosed atrium whose shape is so irregular, there's no name for it. The puzzle pieces are stone slabs that will nestle up to glass enclosing walls. If you break the glass, a crane will have to come to lower in a new pane because there's only one small entry door in the glass.

You have less than two months.

After that the world is invited to see what you made.

"It has to go together exactly right, and stone doesn't bend," said project manager Pamela Rhodes.

Like the tilting cone at the Museum of Glass: International Center for Contemporary Art, the stone sculpture that is halfway finished at the center of the new Tacoma Art Museum is a one-of-a-kind feat of engineering and construction.

Pamela's husband, Richard, designed it. The museum, which opens May 3, has $1 million left to raise in its $27 million capital and endowment campaign. That includes funding for the stone sculpture set in the garden that architect Antoine Predock originally referred to as the "Mist Moss Garden." (It may still have mist and moss, but the sculpture is its main feature.)

Pamela peers into the 1,650-square-foot enclosure to oversee the puzzle assemblers, a team of Ukrainian stone masons exposed every day to the capricious weather. The enclosure's 30-foot-high walls are mirrored glass, so when the sun does come out, it scorches part of the garden and leaves the rest cold with shade.

The workers began in March on their foundation - a plain concrete floor above the museum's parking lot. The museum is a P-shaped building on stilts next

to the federal courthouse at Union Station. The garden is inside the P in a four-sided space Richard calls a "warped hyperbolic paraboloid." Of its four corners, only one is a right angle.

Richard wants the finished sculpture in the fishbowl garden to look like water, like the fishbowl has been jostled and the water is caught forever in mid-slosh.

But instead of using a malleable material, he opted to go Moses-style, making water out of rock. He went to China, as he often does for his Seattle stone company, and harvested 500-year-old pavement from roads about to be destroyed for development.

Workers cut the stones and, according to his blueprints, assembled the sculpture in China before Richard even knew whether he had the funding and the go-ahead from TAM. The museum is still seeking a donor to buy naming rights.

The stones were then marked with blue tape according to their order of installation, loaded into crates and shipped across the Pacific Ocean, arriving eventually in TAM's parking lot with the necessary 3,000 cubic feet of foam.

The light foam supports the stones without violating the 250-pounds-per-square-foot weight restriction that will keep the sculpture from crashing down on visitors' cars.

First, the floor was covered with a rubbery waterproofing membrane. Workers taped foil-faced foam sheathing to the glass walls.

Then they stacked what Pamela calls "foam bleachers" that rise toward the wave's edges, where it ebbs. Only sky is overhead, so workers can't dangle a plumb bob to calculate elevations. But the foam has to be the wave's exact shape so the precut stones can simply sit on top.

So the team uses a transit surveyor, a tripod-looking measuring device set on the horizontal level. They custom-cut each piece of foam with a handheld heated wire slung between two strips of wood like a saw blade.

Piles of mortar dumped on the floor make the foam stick and create a honeycomb under the foam to facilitate rain drainage.

On the foam bleachers sit individual foam pedestals, frosted like cakes with dyed-black mortar to make the view between the stones - about an inch wide - look like a void. To make the void deeper, the pedestals are smaller than the stones, and gutters handcut in the bleachers are lined with black mortar.

"He wants it to look like pieces floating on this wave," Pamela said.

Finally, each stone is set by hand and lined up. If one is off by even an eighth of an inch, it throws off the entire pattern. That's what happened last year with the diamond shingles on the Museum of Glass cone, which had to be stripped off and rearranged because of one micro-mistake.

The team works the way you would on a jigsaw puzzle, edges first. They set about 30 stones a day.

The mortar takes a day to dry. For the stones that sit on a steep grade, the mortar was cut with more cement. But stickier mortar was a curse when the team had to rebuild the 7 1/2-foot prow of the wave three times - or six, depending on whom you ask - until it fit perfectly in the garden corner nearest the museum entry.

"There really was nothing to go on in terms of targeting that spot" - the exact place in midair where the wave jumps to - so it was guesstimation, Pamela said.

To get it right, the men had to squeeze between the prow and the glass walls. Museum director Janeanne Upp held her breath as she watched the glass walls seem to bow with their weight one recent morning.

"We're accustomed to doing work in people's living rooms," Pamela said. Most of the Rhodes' stone business is in large homes. "We know how to be extremely careful."

Some of the already installed stones where the top and sides of the wave meet will have to be sand-ed to connect flawlessly. The gaps must be the same width just as the spaces between your

bathroom tiles are, but this has the added challenges of being odd and three-dimensional, choreographed to reveal itself as you scale the ascending curved ramp around the P to see the art galleries.

"We're considering this part of our collection," Upp said.

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What's next

Now: Art arrives.

Mid-April: Dale Chihuly finishes his temporary exhibition; building finished.

May 1: Stone wave at center of building completed.

May 3: Public opening features a 24-hour party (open to members from 5 to 8 p.m., then until 5 p.m. May 4 for all). For more information, call 253-272-4258 or visit www.tacomaartmuseum.org.

Wave facts

Title: to be announced

Designer: Richard Rhodes

Lead stone mason: Pavel Regheta

Number of stones: 650

Total weight of stones: 112,000 pounds

Cubic feet of foam: 3,200

Mortar: 325 50-pound bags (to make 40,000 pounds of wet mortar, or 20,000 dry)

Completed by: May 1