Supporting a Floating Stone Countertop

by Rob Corbo

Figure 1. A custom-fabricated aluminum bracket — rather than a vanity — supports this stone countertop, maximizing the tiny powder room's floor space.

When I first looked at the plans for this small, upscale bathroom remodel, I knew the L-shaped stone countertop shown in the drawings would be a challenge. It was to run like a narrow shelf the length of the 61-inch-long powder room before turning 90 degrees and extending over the top of the toilet. That part was easy, but the counter also widened enough at one point to accommodate an undermount sink — with no vanity underneath to support it. I had to figure out the best way to hold up the heavy stone slabs so that they would appear to defy gravity (see Figure 1).

Since the powder room measured only 41 inches wide, the countertop's layout was dictated by the room's existing toilet flange, which was offset from the centerline of the room. Near the toilet, the counter couldn't be wider than 6 inches, but at its widest it would project 19 inches out from the wall; that would allow a 22-inch-wide passageway to the toilet and create enough space to undermount the 13½-inch-diameter sink. The ringlike projection around the sink would be fragile, so it was clear we'd need a metal angle bracket to support the stone.

Figure 2. To hide the bracket's vertical leg, the author notched the framing ½ inch, then lag-bolted the bracket to the studs before hanging the drywall.

A Bracket Takes Shape

The bracket's basic dimensions were easy to determine: 5 inches for the horizontal leg (one inch short of the total countertop width) and 4 inches for the vertical leg (enough to drive two lags into each stud). At the sink, the bracket would extend 18 inches into the room, allowing a 14½-inch-diameter opening for the sink and a 1½-inch ring of metal to support the sink and the stone. We would notch the 2x4 studs to accommodate the bracket's vertical leg. Eventually, after lag-screwing the bracket to the studs, we would cover it with drywall.

After discussing the project with numerous metal fabricators we had worked with over the years, we concluded that the bracket should be fabricated from

aluminum. The pieces could be cut from a single sheet of material with an abrasive waterjet, and then welded together into two strong, light, corrosion-resistant sections that would be completely hidden beneath the countertop (Figure 2, previous page).

Workers at the shop doing the cutting, LMK Waterjet of Kenilworth, N.J., recommended that we use 3/8-inch-thick aluminum for adequate strength and incorporate a 1/4-inch radius at the inside corners where the sink projection tied into the countertop. They also suggested adding a triangular gusset under each side of the sink projection (Figure 3).

Figure 3. Unlike the rest of the bracket, the gussets beneath the sink are not completely hidden. The aluminum fabricator felt the additional strength was necessary to prevent flexing, which could crack the countertop at its weakest point.

Cutting the Aluminum

The cutters began by entering our design specifications into their CAD/CAM system. They laid out the six pieces needed to make the bracket in a pattern that would most efficiently use the $690 sheet of aluminum we'd bought. Then they placed the aluminum sheet on the waterjet at point zero, and the machine went to work (Figure 4).

An abrasive waterjet works by pumping water at high pressure through a small orifice into a ceramic mixing chamber, where an abrasive gets pulled into the stream by both gravity and the vacuum created by the water's velocity. Exiting the chamber through a .03-inch-diameter nozzle at 1,000 feet per second, the sand-and-water stream slices through the aluminum as smoothly as a knife through butter. Depending on water pressure, orifice size, and the type of abrasive, a waterjet can cut virtually any shape in a wide range of materials, from soft stones to steel, without creating heat or a lot of waste.

The cutting cost for our aluminum bracket was a reasonable $160.

Figure 4. To cut the aluminum bracket components, the author contracted with a local machine shop equipped with an abrasive waterjet. By mixing 80-mesh alluvial garnet with a high-velocity stream of water, the machine was able to slice through the 3/8-inch-thick aluminum sheet without overheating or distorting it.

Welding With Care

Once I had the six pieces of aluminum under my arm, I went looking for an aluminum welder who could create two angles from four of the pieces, so that we could strengthen the sink ring with the two gussets.

Aluminum welding requires a high-frequency welding machine; since aluminum quickly dissipates the heat that is applied to it, the material also requires a larger heat source. The work takes a deft touch, because too much heat will buckle or shrink the material. I was fortunate to find G&H Welding in Hillside, N.J., which charged $260 to expertly assemble the bracket.

With the bracket on site, we leveled across the studs to mark the area that needed to be notched, putting the finished countertop height at 34 inches above the finished floor. After installing the bracket and covering the vertical leg with drywall, we called the stone fabricator to template the countertop.

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Warmly Yours, 800/875-5285, www.warmlyyours.com.

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Electro Plastics, 877/783-7832, www.warmfloor.com.

Warm Wire.

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SunTouch, 888/432-8932, www.suntouch.net.

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