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Carraro House, 1990, Lake/Flato Architects, architects. Above: The main house is tucked inside large screened-in pavilion on right. Pavilion on left serves as garage. Central bay, clad in corrugated metal, houses study and, upstairs, master bedroom and bath. Left: Opposite elevation through carport canopy.



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Cement Plant Reused as House

Industrial buildings have held a particular allure for architects at least since Le Corbusier identified them as reservoirs of America's architectural genius. Particularly in Texas, where the suave volumes of a grain silo or the rippling skin of a cotton gin provide the strongest — sometimes the only — vertical intrusion on a hungry horizon, these vernacular buildings are regarded as touchstones of a world of pure form and innocently powerful structures, and schemes abound for saving them when they are threatened.

In the early 1970s, the firms of Pratt, Box and Henderson and the Architects Partnership converted an airport hangar into Olla Podrida, an arts-and-crafts mall in north Dallas. Few Texas architects, however, have saved a favorite industrial building as convincingly and pleasingly as has the San Antonio firm Lake/Flato Architects in its design of the Carraro House. The house, recently finished near Buda (population 597, between Austin and San Marcos), is built out of pieces salvaged from an abandoned cement plant. Formed in 1986, Lake/Flato Architects has already won a fistful of awards for residential and commercial projects from the state and local chapters of the American Institute of Architects and has published projects in *Domain*, *Metropolitan Home*, and *Progressive Architecture*. With the Carraro House the young firm builds on an already solid reputation.

Ted Flato, who with his partner David Lake heads the firm, says that the clients (a writer and her husband, a computer consultant) wanted a new house for a site overlooking a dry riverbed. At an early meeting, Flato recalls, they talked about a stone barn with big loftlike spaces that they had seen in Round Rock, but worried about squeezing such a design into the constraints of a \$100,000 budget. Then the husband mentioned that he had recently traded a truck for a metal commercial building with a low-pitched roof and suggested that the frame could be clad in stone.

"I knew the slope of the roof would be ugly, and I didn't like the idea of changing a metal building into a stone building," says Flato. "But the idea of a metal frame got me thinking about the Alamo Cement Plant, and I said that since he was such a scrounger — he had also scrounged the wood for the floor of their old house from another building — he should meet me there for a look."

The site of the Alamo Cement Plant in northwest San Antonio had been acquired recently by the developer Lincoln Properties; a commercial development was planned. A friend scouting for movie locations had told the architects that the site was about to be cleared. "It was such a shame that they weren't going to use the buildings [in the new development]," says Flato. "They were going to just cut them up and send them to Mexico. We figured we could get the pieces cheap and reuse them in Buda."

The clients took to the image of the building immediately, and Lake/Flato set to work on a design using the steel framework and other parts of the building (the metal cladding itself had to be replaced). As an influence on the design one might have expected the Taller de Arquitectura offices in Spain, built into the spaces of an abandoned cement factory. Not so, says Flato: "I had an image of the construction that Frank Gehry did for the show at the National Building Museum, a big single volume with a structure in the middle of it. It didn't end up much like that, though."

A scheme that accommodated all the volumes required by the program in a single shed made the space too crowded, so the architects broke the Alamo Cement frame into three separate pavilions. The main house is a two-story volume with bearing walls of creamy limestone from a quarry in Sisterdale and sharply punched openings. Living room, dining room, and kitchen are downstairs; a guest bedroom, at the top of a steep industrial stair, will be finished later as the clients' budget permits.

The pavilion is positioned not in the center but in the corner of the largest shed, which itself becomes a four-bay-deep screened porch with a brick floor, lit by tall fiberglass clerestory panels at the roof peak. The frame is painted a faded blue. The architects abandoned an idea from an earlier design of using reworked ventilator hoods from Alamo Cement to bring light into the living room ("The effect would have been too fussy, and we didn't want to mess up the simple shape," says Flato). Also dropped was a planned outdoor fireplace in the porch space that would have reused the firebox of a furnace from the plant. Instead, a shallow fireplace with a tall brick-arched inglenook became part of the solid masonry wall the architects designed to ward off northerly winds in winter. "Having such a tight budget meant that we couldn't have a lot of air-conditioned space," says Flato, "but pulling the kitchen-living-room part back to the corner makes the screened-in area really dramatic."

The second pavilion of the house, one structural bay wide, is clad in new corrugated metal, with bright yellow awnings shading its square windows. Housing a ground-floor study and, upstairs, the master bedroom and bath, it provides a connection from the main pavilion to the garage, which is three bays deep. (The garage's skeletal red-painted frame, lacking the stiffening effect of the walls in the other two pavilions, is laced with steel tie rods, which form a high ceiling plane that helps give the space a sense of enclosure.) Together, the three pavilions form a court that twists to embrace both the riverbed (with its prevailing breeze) to the southeast and an automobile arrival area to the northwest.

Lake/Flato has worked before with the contrast between open and closed, solid and transparent volumes. In the Lassiter weekend house in South Texas, for example, designed while the pair worked at Ford, Powell & Carson in San Antonio, they designed a tall, heavy-walled central volume containing the kitchen and family room, which is also set into wide screened

porches with bricked floors (and an outdoor fireplace). In a recently completed house for Deborah Salge built on Canyon Lake, the architects inverted the relationship of these spaces: the central volume lacks porches, and its walls have become thick enough to contain five separate bedrooms.

In the Carraro House, the space is enlivened by the particularly animated quality of the industrial details salvaged from the cement factory, which range from the forge converted into an outdoor fireplace to the open-treaded metal staircase, the rotating roof ventilators, and the light steel handrail that passes delicately through circles in its supporting posts. As Adrian Forty argues in *Objects of Desire: Design and Society From Wedgwood to IBM*, the main effect of industrial design since the 1930s has been to recast the meaning of housework (and office work) by creating objects stripped of their associations with manual labor. From Raymond Loewy to frogdesign, designers have responded by creating ever smaller and ever smoother utensils that promise to implant a piece of tomorrow's perennial vacation into today's home. The problem is that these products combine to bring a numbing blandness to the domestic landscape. It is in this context, at least partially, that industrial buildings, with their looming personalities, have become such icons. In the Carraro House, by contrast, Lake/Flato Architects is integrating this personality into the details of the house's interior spaces.

Although he confesses to being pleased with the Carraro House, Flato cautions that his firm is "not doing only metal-building houses" but prefers instead "to work with whatever is available when the project comes in." In the Carraro House, Lake/Flato Architects has managed to turn the quirks of coincidence into convincing architecture. It's a risky strategy, but one that other Texas architects might consider more often. ■

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View into main pavilion.

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