

“BUILDING A BAD REPUTATION: SLOPPY AMERICAN CONSTRUCTION”

by Julie V. Iovine
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ABSTRACT:

When building in the United States, Herzog & de Meuron likes to have a Plan B. The kind of stolid cast-concrete walls that give European architecture a look of permanence from Day 1 are out; they just don't come naturally on these shores. So for the new de Young Museum in San Francisco, the architects decided instead on a flashy metallic skin. They called on [A. Zahner], a 108-year-old family-run metal company in Kansas City, Mo. The idea was to cover the building in a textured copper skin, embossing it with an image of sunlight filtering through trees. Without any precedent on which to draw, Zahner, a company whose name is in the Rolodex of every European architect with American aspirations, figured out a way to make 3,000 individual panels pixelated with dents of varying depth to produce the desired image. Seurat would have marveled.

Early in the process, representatives of the Museum of Modern Art's construction managers, Amec Construction Management, went to Japan to study how Mr. [Yoshio Taniguchi] works. "At first there was this big fear that the kind of quality possible in Japan was impossible here," said Guy Nordenson, the American engineer who worked on the project. "Some of us took that as a challenge to achieve the equivalent level of craftsmanship." But just to be on the safe side, the architect decided to vary his usual method. Instead of relying on the perfect installation of massive elements, he figured out a much more forgiving way to achieve the same effect. The Modern's construction model involves a substructure, or invisible supporting skeleton, onto which large smooth panels -- a signature of the architect's design -- are clipped. That part is fairly standard. But in addition, Mr. Taniguchi designed another, underlying frame that is entirely adjustable, so that if the panels are attached imperfectly they can still be readjusted. Mr. Taniguchi "never let down his standards," Mr. [Terence Riley] said. "He just took a bit of a different approach than he might have in Japan."

The Forum for Contemporary Art in St. Louis. Some foreign architects have been disappointed with American concrete. (Photo by Renzo Piano Building Workshop)(pg. 28); Renzo Piano relies on mock-ups, such as this one for the High Museum of Art in Atlanta. (Photo by Renzo Piano Building Workshop) (pg. 27); When building in America, the Swiss firm Herzog & de Meuron likes to have a Plan B, like this textured copper skin for the New de Young Museum in San Francisco.

FULL TEXT (Aug 8, 2004)

In the architect's vision, the two-story concrete walls of the grand lobby would be breathtaking: not only monumental in scale but with an even gray finish so shiny it would suggest a polished mirror. Instead they were stained from roughly mixed sand. And streaks in the concrete were not going to make the grade, not at the Modern Art Museum of Fort Worth.

After all, the museum had been designed by Tadao Ando, the Japanese architect whose transcendentally simple concrete buildings have elevated a lowly material to the level of highest luxury.

There had already been problems. In a large gallery, the concrete came out mottled, with a texture alarming to a benefactor whose collections were supposed to hang there. So the offending wall was torn down and rebuilt. And this time the heavy wet slabs were slowly vibrated in place to make the gray sludge settle to the airless density of a flourless chocolate-cake batter. Or as another contractor on the job, Roger Reed of A. Zahner, said, "The architect wanted it vibrated till it looked like butter."

It was not the first American project on which Mr. Ando had had a bad experience with sloppy execution. In fact, the architect's reputation for meticulous standards was so daunting that some 50 contractors had refused to bid on the job. In this case, he insists, it wasn't his own perfectionism that was at stake. But clearly the architect's reputation preceded him: the client, he explained in a recent e-mail exchange, "wished more perfect concrete by Tadao Ando."

As more high-profile buildings by foreign architects rise in the United States, and as computers allow architects to strive for engineering, design and construction complexities never before imagined, a gathering rumble can be heard across the profession about the way America builds. The country has garnered a reputation for overlooking gaping joints, sloppy measurements and obvious blemishes, and refusing to deviate from even the most outmoded standardized practices. Having exported its expertise, in the 80's and early 90's, to destinations from Singapore to Dubai, it is now facing stiff competition from Europe and Asia, where the building traditions favor singularity, craftsmanship and durability over speed and cost.

Most recently at Seattle's new Central Library, Rem Koolhaas, the Dutch architect, set out to debunk what is perceived as an all-too-common attitude in the American construction industry: if it looks hard to build, don't, because it will be too expensive. According to Joshua Ramus -- a partner at Koolhaas's firm, Office of Metropolitan Architecture, who is in charge of American projects -- no American contractor wanted to take on the building's highly unusual structure, which is folded like a gigantic mesh party napkin. "They said there was no way anyone could do that on that budget," Mr. Ramus said of the \$165 million library. "We said: 'Invest in thinking. It may be expensive but it's a lot cheaper than bad building.' "

Construction in the United States relies on the





quick fix, said Sara Hart, a senior editor at Architectural Record. "Got a gaping one-inch space between frame and window? Just fill it in with silicone and call it a day. Not perfectly flush or plumb? Who cares!" is the typical American response, she said. "While in Germany or Switzerland, they'd rather die than have a gap of more than one-eighth or even one-sixteenth of an inch." And though no one is calling Frank Gehry's Walt Disney Concert Hall slapdash, most American construction aspires to cookie-cutter commercial development rather than high-profile brand-name architecture. Furthermore, in Europe, buildings tend to be smaller and clients accustomed to spending more. One way or another, the conditions have made for considerable bragging rights on the part of European and Asian architects.

Dana Buntrock, an architecture professor at the University of California, Berkeley, and the author of "Japanese Architecture as a Collaborative Process" (Spon Press, 2001), said she once believed that quality was tied to wealth. "Now I am beginning to wonder if well-built architecture occurs only at a very fragile economic moment," she said. "You need not only affluence, but a group of people who are well paid enough to remain in the crafts and building trades even though they are intelligent, and you need the overall size of an architectural project to remain relatively small." While enclaves of craftsmen and small companies cultivating specialty talents, like customized steel work or casting plaster, are growing in the United States, large corporate construction companies still rule the sites, with their supersize-me approach to building.

As a result, more and more architects are choosing to outsource the construction of American buildings, or at least parts of them, hiring overseas craftsmen to do what they fear domestic hands cannot. After designing the Austrian Cultural Forum on East 52nd Street in Midtown Manhattan, for example, Raimund Abraham, an Austrian-born American architect, was concerned that the masklike facade was too complex for American abilities. So he had the whole thing made in Austria and shipped here. "There are no good curtain wall manufacturers in America," Mr. Abraham said, adding that the project had been held up for a whole year while someone capable of installing the facade could be found.

Jacques Herzog of Herzog & de Meuron, the

Swiss architecture firm, says that its Prada store in Tokyo -- with its wall-to-wall white shag rugs and fishnet-stocking facade -- could never have been built in America. Switzerland and Japan, he said, are "the only two countries where you can get great craftsmanship. The Swiss and Japanese perfection in construction is unique. Everywhere else you are adapting to possibilities." Still, he added: "I can't complain. It's part of global activity."

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For extra insurance, architects have even been known to construct full-scale mock-ups of sections of their buildings -- using all the same materials -- as an expensive but foolproof way to teach inexperienced workers the needed skills. Renzo Piano, the Italian architect, uses this method on all his current American projects, like the Morgan Library expansion and the planned New York Times headquarters in Manhattan, the new California Academy of Sciences in San Francisco and the expansion of the High Museum of Art in Atlanta, with its sunflower skylights to track northern light. Mr. Ramus says such models can cost anywhere from \$15,000 to \$750,000, or the same cost per square foot as the building itself. Which is one reason Mr. Piano tends to accept commissions only from clients he considers sophisticated: "When designing a cultural building or for an institution," he said, "there is more experiment and then, by necessity, everyone is more careful."

In the case of the overhaul of the Museum of Modern Art in New York, by the Japanese architect Yoshio Taniguchi, careful hardly begins to describe it.

As construction got under way last summer, sidewalk critics started snooping around the building site. Seeing the partially installed work, as well as the liberal sprinkling of used coffee cups and odd assorted junk typical of a New York construction site, they started to whisper that Mr. Taniguchi was not going to be able to achieve his usual level of precision.

The architect himself told a reporter in Japan that the museum was like a daughter to him -- a daughter that he worried about leaving alone on the streets of New York. "You have to realize that in Japan they hose down the site every night so that the neighbors won't see any dust," said Terence Riley, the chief curator of architecture and design at the museum.

In that climate, it is possible to execute Mr.

Taniguchi's exquisitely minimal designs. At the Gallery of Horyuji Treasures in Tokyo, for example, a building without peer in terms of meticulous craftsmanship, no detail is left to chance, from the tatami-style carpeting to the elevated air pressure in the galleries for keeping down dust. Within a park at the Tokyo National Museum, the stone-and-steel pavilion housing a prized collection of imperial artworks appears to float at the edge of a reflecting pool. "Any imperfection," Mr. Riley said, "would have been an embarrassment to the whole nation."

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Santiago Calatrava, the Spanish architect, may be best known for his flying buttresses of cable and steel, but at the Milwaukee Art Museum his design also included intricate concrete work of almost weblike delicacy. "At the beginning I was told that doing concrete in the U.S. is impossible," Mr. Calatrava said from his office in Zurich. "There's no tradition for form work. I thought, it cannot be true. Look at the old T.W.A. building, it is a most exquisite example. Look at the Salk Institute." So he chose to work closely with local carpenters, teaching them exactly how to achieve the results he desired.

"The team spirit in the U.S. is exceptional," he said. "Once they are in front of a challenge, they rise to it. It was a pure American effort." But to help them get to that point, Mr. Calatrava invited the local construction managers to Europe, where they stayed with him and his family for 10 days of bonding.

Nadine M. Post, the buildings editor at Engineering News-Record, regards the competition between American and foreign building cultures as beneficial. "For years everything here was bottom line, but things are changing with so many Europeans and Asians working here," Ms. Post said. "It's a win-win situation. America is getting better architecture. Construction is being held to a higher standard. And foreigners are tapping into a huge market."

For architects, there is a constant tightrope walk between getting it done and getting it right. Who cares how beautifully smooth the finish is if the

building it's supposed to adorn never gets finished? On a recent tour of the Museum of Modern Art, where workers are racing toward a promised completion on Nov. 20, Mr. Taniguchi discussed quality as a matter of scale, and perhaps of priorities: "The size of everything in New York is very large, even the plates of food. In Japan, everything is small and delicate; even the sushi is perfectly detailed. But it would be foolish to try and get that level of detail when the scale is so big. It would all be lost. I don't mind so much whether or not it's exactly perfect."

As the architect spoke, he gazed out across the vast interior atrium and onto a two-story wall of sheet rock. Morning sun slanted in from the skylights above, causing small buckles in the seams of the wall to cast slight shadows. "Of course, that is going to be fixed," he said.



"My MoMA," He Moaned. Is Taniguchi unhappy with his creation?"

Yoshio Taniguchi's new MoMA has earned extravagant praise from many quarters—but some say the architect himself has been one of the new building's severest critics. "Things are done very differently in Japan, and this was his first project out of that little obsessive island," notes one prominent city architect. "What seems to have happened was that from an early stage they were nickel-and-diming him on materials," says a person who'd spoken to Taniguchi. As a consequence, says another insider, "he behaved in a very passive-aggressive way, delaying things. That's how he got his aggression out." He is said to have threatened to quit the project on several occasions, though a MoMA insider insisted it never got that far. Architecture anal-retentives can easily pick out flaws that might rile Taniguchi's Zen calm. "Go over there and put a level on the Sheetrock," says one. Further, the grid of stone panels inside the lobby doesn't quite match up with the grid outside—and a few of the garden flagstones are already broken. MoMA declined to comment. — Carl Swanson, www.newyorkmetro.com

“Found in Translation”

One big idea—and thousands of small decisions—are behind any architectural project. For the Museum of Modern Art, reopening this week, Kohn Pedersen Fox was responsible for translating Yoshio Taniguchi’s minimalist concept into a buildable construction. Here’s a sampling of technical solutions that are integral to the museum’s new image and experience.

Thin Is Beautiful

While leading a group of journalists through a hard-hat tour of the MoMA a year ago, chief curator of the Department of Architecture and Design Terence Riley was keen to point out the little details that made such big difference in the realization of the project. One example was the way the HVAC ducts and other systems were threaded through holes cut through horizontal eyebeams in the glazed west wing that reorients the museum’s entrance toward the sculpture garden. “It was a way to keep the floor slabs thin,” Riley explained, appreciative of how the gesture improves the view of the building from the garden. It was also a practical way to align the floors of the new building with those of the old. “Ceiling heights were lower in old buildings,” said Rustow. “Keeping the floor plates thin in the addition allowed us to maximize the ceiling heights.” The tip of the canopy is tapered, continuing efforts to keep the elevation’s appearance minimal. The third floor slab stops just short of the edge of the building, with a thin steel rod that reaches out to offer added stability to the curtain wall. As for the curtain wall, KPF continued Taniguchi’s overriding formal aesthetic—minimum joints, minimum support, maximum spans of materials and distances—with a structure of extremely thin mullions (see detail, above right) made of milled steel. The result is a slender and stiff steel lattice that is both structure and support for the glazing, which architects were able to specify as large as they could get it (14 feet tall, 7 feet wide). The depth of the horizontal mullions was determined in order to give added strength to the wall, enabling it to bear maximum wind load.



wall, uninterrupted

With the walls in the museum’s atrium space four stories high at certain points, the question of its surface material became a major issue. At one point, Taniguchi considered metal panels, but this raised the problem of a pattern across its surface that would be distracting as a backdrop for freestanding or hanging art. Plaster made obvious sense because, in theory, it is limitless. However, industry standards in the U.S. require an expansion joint every 30 feet to prevent cracking. The resulting grid would be just as bad, not to mention contrary to Taniguchi’s general minimalist aesthetic. So KPF used curtain wall

construction to make the wall structurally independent of the intermediate floor slabs, and tied only to the existing columns, which are 26 feet apart on center. While the way the curtain wall ties into the existing structure varies slightly from point to point as specific conditions require, here’s the basic pattern: The wall is comprised of 14-gauge steel with lateral cross-bracing. Six-by-six-inch steel angles tie the frame to the museum’s concrete slabs for lateral support. (One benefit of 14-gauge steel studs is they can be put up by plaster workers; heavier gauge studs require steel workers, which would have complicated an already tight schedule.) Over this steel framework is a layer of 3/4” plywood, which acts as a membrane and makes it easier to hang art since screws have something to bite into. One or two layers of sheetrock (depending on fire-rating) is attached to the plywood, then finished with a plaster skim coat.

Sharp Reveals

All of the new gallery walls have a 1-inch reveal where the wall meets the floor, but on close inspection, the line is a particularly sharp one. Rather than use the typical J-bead along the bottom of the gypsum board, KPF designed a custom Z-profile channel made out of extruded aluminum. The Z-channel is a good example of a solution born from the conflict between Japanese and American construction materials and standards. It is fairly common in Japan for contractors to create a reveal by cutting the edge of a piece of wallboard (different from our drywall) at 90 degrees, then edging it with a thin metal sheet. Taniguchi wanted to refine the standard reveal by slicing the edge at 45 degrees, creating a sharp point. To accomplish this, KPF designed an extruded aluminum channel that could hold two layers of 3/4” material—here, wallboard and plywood. Resembling the letter Z, the channel has a tiny round hole inside its point. The hole accepts a small alignment pin to ensure that each piece of channel is correctly in place. After calculating that they would need a staggering amount of channel—several miles—it began to seem pretty reasonable to specify a custom piece and absorb the cost of making the die. Pittcon Architectural Metals, the company that manufactured the channel, was so pleased with the results that it is now carrying the item as a product in its catalogue. Ceilings received a similar reveal treatment—and solution. To float the ceilings, another extrusion was made, allowing ceilings to float away from walls. The floor and ceiling reveals are more than just aesthetic, however. They are an integral part of the museum’s ventilation system. The internal gallery walls are a bit thicker than normal, and that is because they have a plenum inside. Air is drawn up into the system through the reveal at the base of the floor, conditioned, and ultimately released through a series of thin slits at the ceiling. – www.archpaper.com

