

Arch 464
ECS
Spring 2005

Name _____

Quiz #2

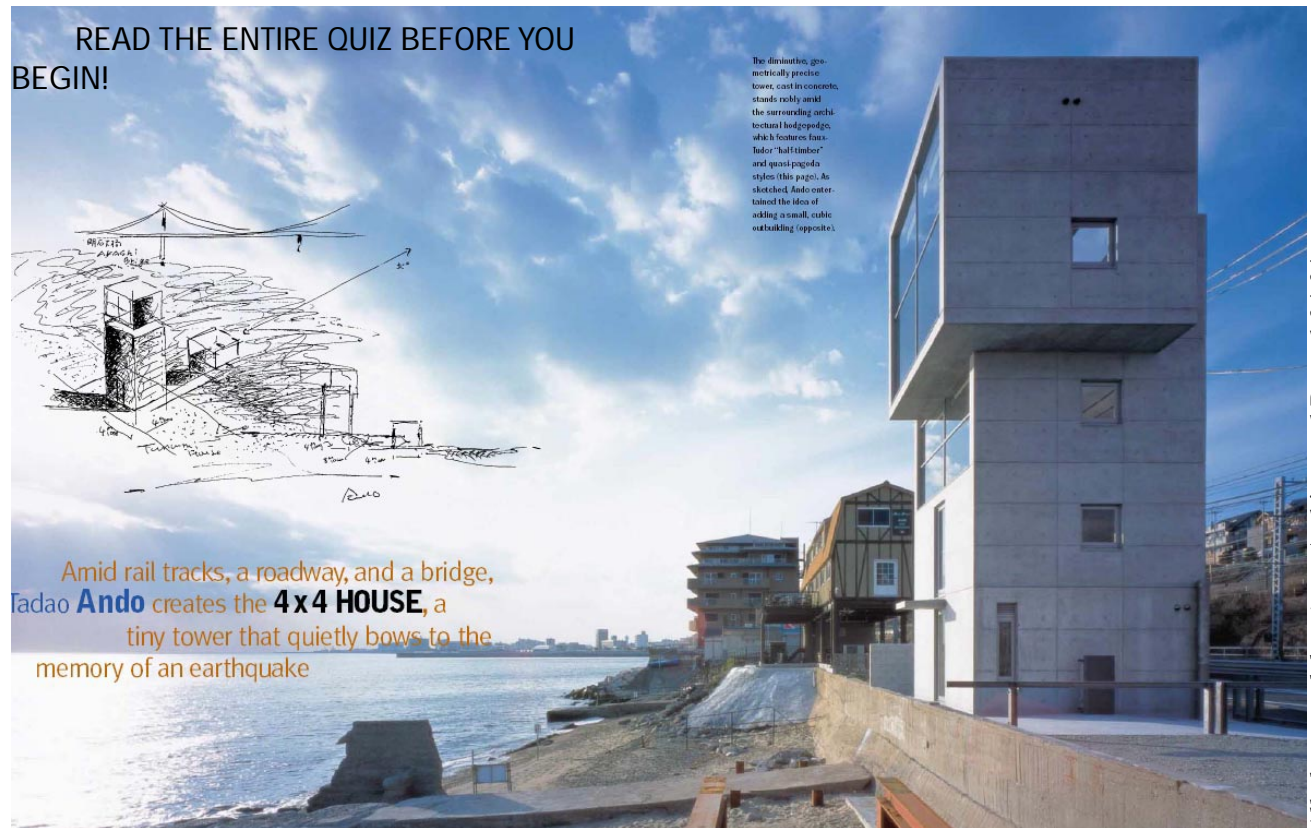
"Water for Ando's 4x4 House"

For this problem you are the water use consultant for Tadao Ando. Ando wants his building to express the latest thinking in water conservation and water treatment. The client is a 31-year old bachelor and construction company executive, who wants to live in the house for a long time.

Context. The lot is quite small, bound by a road on the north and a seawall on the south. Kobe has a humid temperate climate with about 45" of rainfall annually.

Description. *Architectural Record* described the house in its Annual Record Houses issue in April 2004. The text of that description is on page 2 of the quiz.

View of North facade..



READ THE ENTIRE QUIZ BEFORE YOU BEGIN!

The diminutive, geometrically precise tower, cast in concrete, stands rockily amid the surrounding architectural landscape which features Ando's "half timber" and quasi-pagoda styles (this page). As sketched, Ando entertained the idea of adding a small, cubic outbuilding (opposite).

Amid rail tracks, a roadway, and a bridge, Tadao Ando creates the **4x4 HOUSE**, a tiny tower that quietly bows to the memory of an earthquake

View of East facade, seawall, and beach.

All photos and drawings: Architectural Record 04:04.

The construction executive's site immediately struck a chord with the architect, who lives and works in nearby Osaka. Set along a commercial strip on the outskirts of Kobe, where sandy beach meets the Seto Inland Sea, the 700-square-foot property faces a two-lane artery and train tracks on one side and, on the other, the Akashi Strait Bridge, Japan's longest suspension span. But what riveted Ando's attention was the view: directly across to Awaji Island, the epicenter of the 1995 Great Hanshin Earthquake. The architect knew the island well as home to his Yumeibutai and Water Temple, but firsthand impressions of the earthquake's massive destruction remain seared in his memory.

In personal remembrance of the devastation, Ando proposed a four-story concrete tower—pointed toward the island. “It was so simple and looked completely different from what I thought Ando's work would be like,” recalls the client. To convey his vision of the house, the construction executive made a model of a low-slung building over piloti parking, and brought the maquette to a meeting with Ando. But the architect had in mind an entirely different strategy: 4-by-4-meter (13-by-13-foot) rooms, stacked one atop the other like blocks. Mandatory setbacks, height restrictions, and off-street-parking needs determined the building's footprint, leaving a small buffer zone between the house and its neighbors.

Modest in his programmatic requests, the client had hoped for a flexible space that might one day accommodate a family and other life changes. “In Japan, the life cycle of houses is very short,” he points out, “and I wanted a place I could stay in until I die.” Though the house's stairs seem less than user-friendly for the very young or old, the study, bedroom, and living areas remain intentionally free of fixed elements, ready to accommodate future functional changes—a very realistic scenario, given the lack of emphasis on personal space in Japanese culture.

The tiny tower rises (above a basement storage room) from an entry-level foyer to the bedroom on the second floor and a study on the third. On the fourth level, a combined kitchen, living, and dining area forms the house's focal point: a 4-meter cube with a glazed south elevation jutting out toward the water like a giant (albeit square) telescope lens capturing the views. Although stairs take a bite out of each floor, the decision to slide the crowning cube to one side gained a bit of usable space.

While the top room does not exactly evoke a Western ideal of comfort, its volume more than compensates for the small floor area. Taking full advantage of the height, the south-facing floor-to-ceiling window offers panoramic vistas. Opposite it, a large clerestory frames a patch of sky, but edits out the nearby grilled-octopus stand, scuba shop, and busy artery.

Ando enclosed the building in concrete, his favored material, and for privacy, kept windows, especially on the land sides, to a minimum. Even the front facade, recalling his 1976 Sumiyoshi Row House, presents a wall of concrete with just one small window and a door. Yet the architect could do little to muffle traffic and train noise or mollify the site's harsh natural conditions. “When it's really windy, I'm scared the house will topple over or the glass will blow out,” frets the client. Fortunately, his concerns remain more imagined than actual, as Ando has securely anchored the reinforced-concrete shell below grade, strengthening its resistance to lateral forces. Besides coating the cube's thick glass in a shatterproof film, he braced the glazing with his signature crossed-steel mullions.

Not to say the wind and sea don't take a toll. In addition to a waterproof sealant on the concrete's outer surface, Ando provided supplemental piping to bring water up to the roof, so that the client (after ascending a ladder through a small kitchen hatch) can hose off the salt-



View from above living/dining to south..

water and seaweed that spray up with rough waves.

On calm days, though, the beach is the place to be. A conduit from street to sand, the foyer leads directly to stairs descending to a concrete platform that hovers above the shore: an ideal spot for barbecues and sunbathing. Ando entertained the idea of building an addition on the beach, but it's unlikely to come to fruition unless the building code changes. Though the property stretches out to the water, legal restrictions prevent the construction of anything but public amenities beyond the existing seawall. But apart from questions of expansion, Ando considers the house a complete entity as built.

An unusual site—on a narrow, chaotic strip of land so near the epicenter—with an owner willing to follow his architect's lead, enabled Ando to turn a magazine survey into a radical house, quietly memorializing the earthquake. It's a wonder that a designer of palatial homes for the rich and famous would participate in a media gimmick (of which the financial arrangements remain confidential). But Ando explains, “I wanted to know what the average person thinks about houses.” If the owner of 4 x 4 represents the norm, then modest architectural clients in Japan may be ready to take big risks—once given the chance. ■

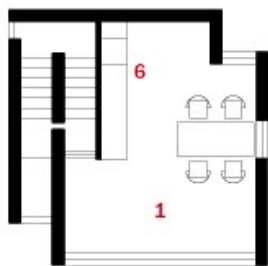
Project: 4 x 4 House, Kobe, Japan
Architect: Tadao Ando Architect & Associates—Tadao Ando, principal; Masataka Yano, Tatsuhito Ono
Engineer: Ascoral Engineering—Naoto Kashimoto (structural);

Shinmei-kyusetu—Takao Mizogushi (mechanical); Kurozumi (electrical)

For more information on this project, go to Projects at

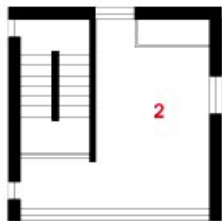
www.architecturalrecord.com.

3 pts. 1. Give three options for water-saving toilets for the bathroom. Critique each for its suitability for this house. Declare which one you prefer and why. Show how it would be implemented in the plan and section below.

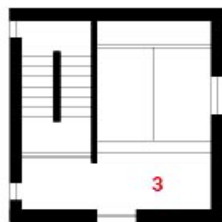


FOURTH FLOOR

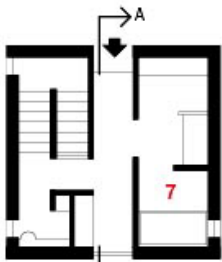
- 1. Living/dining
- 2. Study
- 3. Bedroom
- 4. Entrance
- 5. Storage
- 6. Kitchen
- 7. Bath



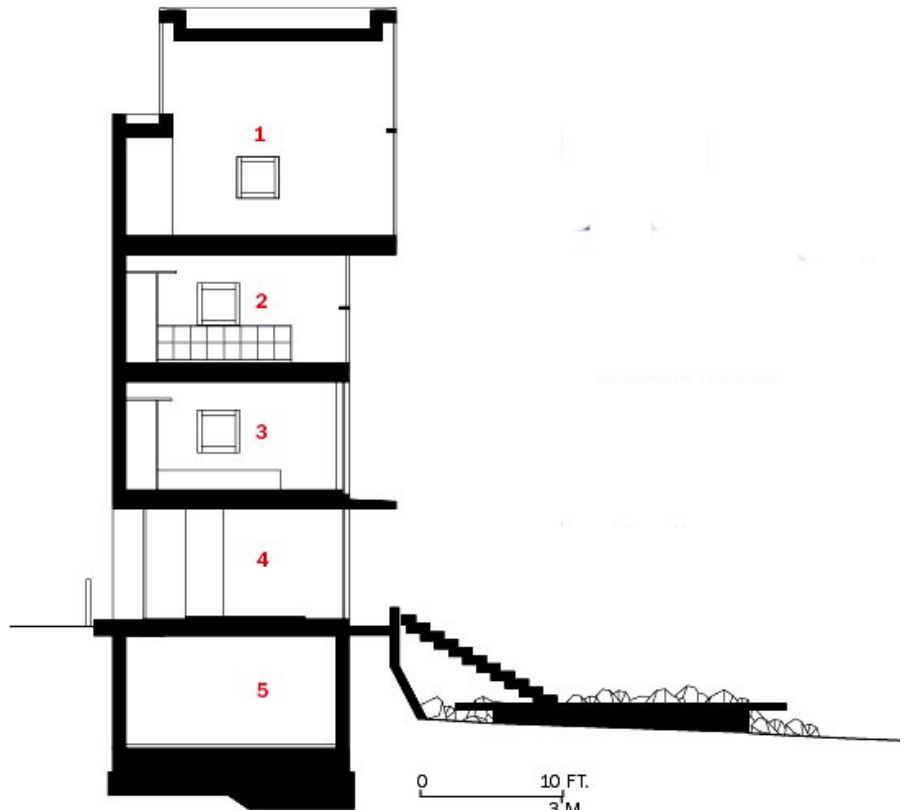
THIRD FLOOR



SECOND FLOOR



FIRST FLOOR
0 3 FT.
1 M.

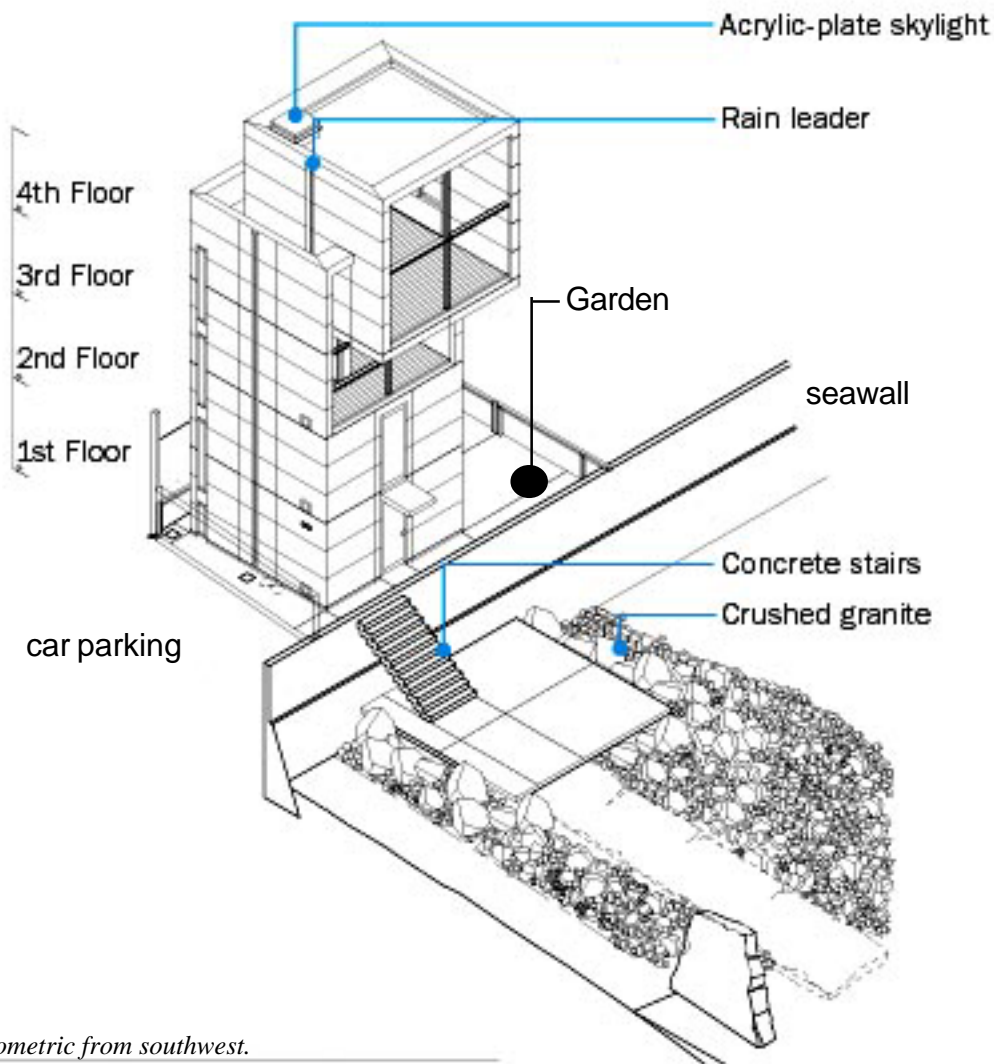


SECTION A-A

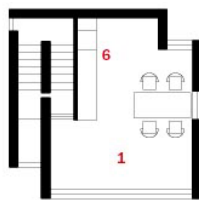
0 10 FT.
3 M.

Plans and section. North is up in plan and to the left in section.

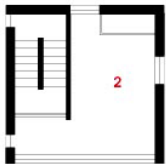
- 3 pts. 2. The building has a flat roof and a small site—west of the building is room to park two cars and east of the building room for a small garden. Use words and sketches to illustrate your strategies for retaining stormwater on-site.



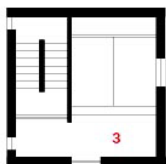
- 4 pts. 3. **Formulate** your integrated water strategy for the building and site. **Annotate** the building and site plans or make sketches and diagrams to illustrate your approach.



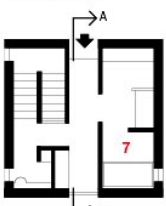
FOURTH FLOOR



THIRD FLOOR

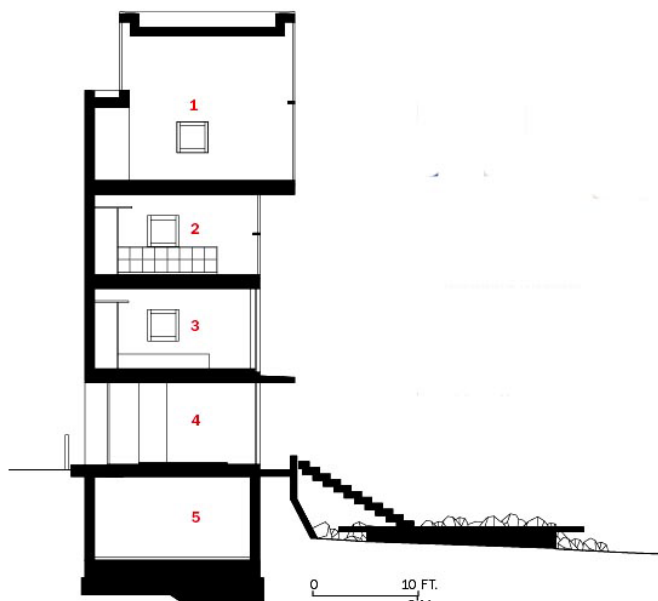


SECOND FLOOR



FIRST FLOOR 0 3 FT. 1 M.

1. Living/dining
2. Study
3. Bedroom
4. Entrance
5. Storage
6. Kitchen
7. Bath



SECTION A-A

Plans and section. North is up in plan and to the left in section.