

SIMPLE FORMS



Church of the Light—Tadao Ando

“I am always interested in developing new structural or material systems and adapting them to particular circumstances. That’s what new architecture always comes out of...My impulse is always to simplify, clarify.”—Shigeru Ban, “The Accidental Environmentalist”, article by Michael Kimmelman, New York Times, May 20, 2007.

“My aim is to limit materials, simplify expression to the maximum, eliminate all non-essentials, and in the process interweave in my spaces the totality of the human being.”—Tadao Ando, “Light, Shadow and Form: the Koshino House”, in Via, 11, 1990.

Sunlight streams through a cross-shaped opening into Tadao Ando’s Church of the Light. Beams of light fall onto the smoothed concrete surfaces that surround the unadorned room, and visitors catch their breath in wonder. Ando’s building captures what I hope to find and explore in Japan using the SOM Foundation Fellowship: designs that arrange efficient structural systems into simple, purposeful spaces that impact us deeply.

SPACE

Studio architecture courses in college made me realize for the first time how thoroughly architecture affects our lives. Designed spaces surround us, interact with us, and direct our focus, changing the way we see the world, yet we rarely give any thought to this influence. Instead, the best designs succeed not by making us think about architecture, but by directly affecting the way we feel.

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Furthermore, purified, simple spaces tend to have the most powerful effect. A trip to M.I.T.'s non-denominational Kresge Chapel several years ago drove this point home for me. A long, low-roofed entry hall guided me from a view of the chapel's simple exterior to a breathtaking moment as I entered; the roof above me flew away. The small chapel seemed expansive compared to the corridor, and I entered feeling uplifted and free.

The purity of this experience exemplifies what I appreciate most about architecture. Simple, clean spaces affect us directly through their shape and composition rather than by making us notice them—not that we never notice. In

architecture's boldest forms, in churches, temples, and museums, and sometimes in places completely unexpected, it can bowl us over. I am drawn to designs that bowl us over before we have time to notice, that startle us, and then, perhaps, fill us with wonder.

EFFICIENCY

Structures that carry loads efficiently support the aesthetics of simplified spaces. In the best structures, designed spaces emerge coherently from effective structural systems. As an engineering student, I've come to realize that well-designed structural systems have great aesthetic value and can take on a dazzling variety of forms. These systems allow designs to express themselves as cleanly and as naturally as possible. I also appreciate efficiency as a builder. For two years I worked as a carpenter, first for Habitat for Humanity and then for a private design-build company. These experiences fundamentally changed the way I view the world; I became (and remain) constantly aware of how structures are built. I have come to believe that the most successful designs emerge from architectural, structural, and construction efficiency, creating pure spaces that are both structurally coherent and buildable.



Kresge Chapel entry hall (top) and interior (above)

JAPAN

With this fellowship, I hope to experience, study, draw, and analyze structures that deeply affect people through their simplicity of form, composition, and structural systems. Japan is the ideal place to explore this design aesthetic.

Japan's vibrant modern architecture has combined with its history of subtle, carefully designed temples, castles, villas, and teahouses to present a rich variety of structures to visit. A history of earthquakes and a willingness to use new technology have supported highly efficient engineered systems. Furthermore, Japanese construction is renowned for its high level of craftsmanship. Traditional builders erecting temples often eschewed nails in favor of tightly-knit wooden joints, while today Japanese construction features smooth concrete finishes and near-perfect steel connections. This high level of craft supports simpler designs, with no need to cover exposed joints and structural systems for aesthetics. Finally, a high level of collaboration between architects, engineers, contractors, and manufacturers makes the Japanese system particularly amenable to aesthetic and structural coordination.

ARCHITECTS

Though I plan to visit and study a wide variety of structures by a wide variety of designers, I hope to meet and interview two innovative Japanese architects—Shigeru Ban and Tadao Ando. Both have active design practices, and I hope to ask them about their design processes, specific designs, and how they address structural integrity and constructability.

Shigeru Ban's designs combine his modernist training, strong interest in structure and construction, and an impressive willingness to innovate. Most famous for a series of paper tube structures, he often solves design problems by developing beautifully exposed structural systems that carry loads as efficiently as possible. At the Atsushi Imai Memorial Gymnasium in Akita, Japan, for instance, he designed an innovative laminated veneer lumber space frame. The frame arches over a 20

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meter span with members in the long direction tilted to fit inside the members perpendicular to them; the result is streamlined, structurally coherent, and dazzling.

Tadao Ando's structures, meanwhile, most fully express the spatial clarity that first captivated me in

Japanese architecture. Working mostly in exposed concrete, his simple forms create spaces that interact



Temple of the Water—Tadao Ando

with the outdoors and change dramatically over the course of the day as light moves through them. In a famous example, visitors enter his Water Temple through the middle of an oval pool of water. Inside, natural light only enters through one corner, diffusing the temple with soft red light at the end of the day. Ando's unconventional career, including seven years as a carpenter, makes his design process all the more interesting.



Atsushi Memorial Gymnasium—Shigeru Ban

When I first studied architecture, Japanese architecture—old and new—captivated me. In early designs the simplicity of spaces, the tendency towards adaptability, the focus on the natural world, and the merging of indoors and outdoors appealed to me deeply. Modern designs use light and exposed structural elements to recapture these considerations in entirely new formats. I can think of no better opportunity for my career as an engineer and designer than to experience these powerful structures in person.

Itinerary:

The structures I plan to visit are listed below, arranged by week for my twelve week itinerary.

In the first two weeks, I will focus on early Japanese architecture (pre-18th century). My visits to other older structures will be interspersed throughout the remaining ten weeks, when my focus will be on contemporary structures. I have chosen public buildings that I can enter rather than homes and studios that I can only view from the outside. I have also focused somewhat on churches, temples, shrines, and museums, where particularly innovative, powerful architecture and structural systems have often been used to shape human experience.

I intend to explore each structure, taking photographs, drawing the spaces and structural systems, and gaining an appreciation for the experience of moving through the designed spaces. I plan to conduct advance research on the entries listed in bold below, and to spend additional time exploring these structures, making more extensive drawings and studying the structural system in depth. Interviews with Tadao Ando and Shigeru Ban are, of course, contingent upon their schedules and availability.

LEGEND:

Weekly schedule organized by prefecture

- Structure—Prefecture (Architect, if known)
- **Structures in bold = Key sites**

Week One: Nara with side trip to Mie

- **Horyuji Temple—Nara**
- **Ise Shrine—Mie**
- Shosoin Temple—Nara
- Yakushiji Temple—Nara
- Kasuga Shrine—Nara
- Nara City Museum of Photography—Nara (Kisho Kurokawa)

Time permitting:

- Other shrines/temples/villas/teahouses (Nara)



Horyuji is the oldest surviving Buddhist temple in Japan, with several striking wooden structures.



Ritually rebuilt every 20 years, the Ise Shrine symbolizes both physical impermanence and spatial continuity.

Week Two: Kyoto

- **Katsura Imperial Villa—Kyoto**
- Ryoanji—Kyoto
- Ginkakuji Temple—Kyoto
- Toji Temple—Kyoto
- Daitokuji Temple—Kyoto

Time permitting:

- Kiyomizudera Temple—Kyoto
- Other shrines/temples/villas/teahouses—Kyoto



Completed in 1645, the Katsura Imperial Villa is a masterpiece of Edo architecture.

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Week Three: Kyoto /Hyogo

- **Kyoto Garden of Fine Arts—Kyoto (Tadao Ando)**
- **Himeji Castle—Hyogo**
- **Children’s Museum—Hyogo (Tadao Ando)**
- Blossom Tower—Kyoto (Shin Takamatsu)

Time permitting:

- Syntax—Kyoto (Shin Takamatsu)

Week Four: Hyogo

- **Water Temple—Hyogo (Tadao Ando)**
- Museum of Literature—Hyogo (Tadao Ando)
- Museum of Wood—Hyogo (Tadao Ando)
- Church on Mount Rokko—Hyogo (Tadao Ando)

Time permitting:

- Okanoyama Graphic Art Museum—Hyogo (Arata Isozaki)
- Bubbleecture H—Hyogo (Shuhe Endo)

Week Five: Osaka

- **Church of the Light—Osaka (Tadao Ando)**
- **Meet and interview Tadao Ando—Osaka**
- Oyodo Tea Houses—Osaka (Tadao Ando)
- National Museum of Ethnology—Osaka (Kisho Kurokawa)
- GC Osaka Building—Osaka (Shigeru Ban)

Time permitting:

- Raika Group Headquarters—Osaka (Tadao Ando)
- Osaka International Peace Center—Osaka (Coelacanth Architects)

Week Six: Kagawa /Hiroshima

- Hiroshima Peace Center—Hiroshima (Kenzo Tange)
- Naoshima Contemporary Museum of Art—Kagawa (Tadao Ando)
- Itsukushima Shrine—Hiroshima
- Hiroshima City Museum of Contemporary Art—Hiroshima (Kisho Kurokawa)

Time permitting:

- Marugame Genichiro-Inokuma Museum of Contemporary Art—Kagawa (Yoshio Taniguchi)
- Jodoji and other Buddhist temples—Hiroshima



A maze of bridges, ramps, walls, and waterfalls makes the Kyoto Garden of Fine Arts visually, physically, and structurally engaging.



Built in 1609, Himeji Castle is the largest and best-preserved feudal castle in Japan.



The Children’s Museum’s interlocking concrete walls, water pools, and an extended walkway encourage interaction with the natural world.



After descending into the Water Temple through a water pool, visitors enter a world of soft light that changes over the course of the day.



Light that enters through a cross-shaped opening in the back wall and over an offset wall makes the Church of the Light one of Ando’s most famous structures.

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Week Seven: Shimane

- Izumo Taisha Shrine—Shimane
- Shimane Museum of Ancient Izumo—Shimane (Fumihiko Maki)
- Hamada Children’s Museum—Shimane (Shin Takamatsu)

Time permitting:

- Nima Sand Museum—Shimane (Shin Takamatsu)
- Matsue Castle—Shimane



The Notojima Glass Art Museum’s complex geometric structures combine traditional and futuristic aesthetics, and highlight the diverse properties of glass.

Week Eight: Ishikawa /Nagano /Aichi

- **Notojima Glass Art Museum—Ishikawa (Kiko Mozuna)**
- Iida Art Museum—Nagano (Hiroshi Hara)
- Ukiyoe Museum—Nagano (Kazuo Shinohara)
- Shimosuwa Municipal Museum—Nagano (Toyo Ito)

Time permitting:

- Nagoya City Art Museum—Aichi (Kiro Kurokawa)



Fiberglass panels fold open to connect indoors and outdoors in the Paper Art Museum.

Week Nine: Shizuoka /Kanagawa /Tokyo

- **Paper Art Museum—Shizuoka (Shigeru Ban)**
- **Saint Mary’s Cathedral—Tokyo (Kenzo Tange)**
- Ueda Art Gallery—Shizuoka (Toyo Ito)
- Library at Seikei University—Tokyo (Shigeru Ban)
- Nakagin Capsule Tower—Tokyo (Kisho Kurokawa)
- Shizuoka Press and Broadcasting Offices—Tokyo (Kenzo Tange)

Time permitting:

- Nemunoki Children’s Art Museum—Shizuoka (Shigeru Ban)
- Shonandai Cultural Center—Kanagawa (Itsuko Hasegawa)



Reinforced concrete hyperbolic paraboloids define Saint Mary’s Cathedral’s dramatic wings, allowing formwork to be constructed along straight lines.

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Week Ten: Tokyo

- **Tepia Science Pavilion—Tokyo (Fumihiko Maki)**
- **Meet and interview Shigeru Ban--Tokyo**
- Spiral Building—Tokyo (Fumihiko Maki)
- Tokyo Church of Christ—Tokyo (Fumihiko Maki)
- Hanegi Forest—Tokyo (Shigeru Ban)

Time permitting:

- Olympic Gymnasia—Tokyo (Kenzo Tange)
- Tokyo Sea Life Park—Tokyo (Yoshio Taniguchi)
- Tokyo Chikuyo-Tei—Tokyo (Kan Izue)
- Baisoin Temple—Tokyo (Kenzo Kuma)



Repeating concrete walls, perforated metal screens, and extremely high-level detailing combine in the dramatic Tepia Science Pavilion.

Week Eleven: Saitama /Ibaraki /Tochigi /Gumma /Niigata /Yamagata

- **Saito Memorial Hall, Shibaur Institute of Technology—Saitama (Takefumi Aida)**
- Art Tower Mito—Ibaraki (Arata Isozaki)
- Nakagawa-Machi Bato Hiroshige Museum of Art—Tochigi (Kengo Kuma)
- Gumma Prefectural Museum of Modern Art—Gumma (Arata Isozaki)
- Temple Komyoji—Niigata (Tadao Ando)

Time permitting:

- Yamadera Monastery—Yamagata
- Ken Domon Museum of Photography—Yamagata (Yoshio Taniguchi)



Repeating concrete walls tip three degrees to give visitors to Saito Memorial Hall the impression that the walls are swaying lightly in the wind.

Week Twelve: Akita/Hokkaido

- **Imai Hospital Daycare Center—Akita (Shigeru Ban)**
- **Atsushi Imai Memorial Stadium—Akita (Shigeru Ban)**
- **Church on the Water—Hokkaido (Tadao Ando)**
- Tazawako Station—Akita (Shigeru Ban)



A laminated veneer lumber frame connects an interior arch and an exterior tile roof, making the Imai Hospital Daycare Center's roof structurally coherent rather than merely decorative.



Ban's unique space frame allows laminated veneer lumber to support snow loads across a 20 meter span in Atsushi Imai Memorial Stadium.



The Church on the Water uses clean lines and smooth concrete to direct a visitor's focus to a cross in the middle of a pool of water.