



Hitoshi Abe /
on-the-spot

The John Dinkeloo Memorial Lecture

♠

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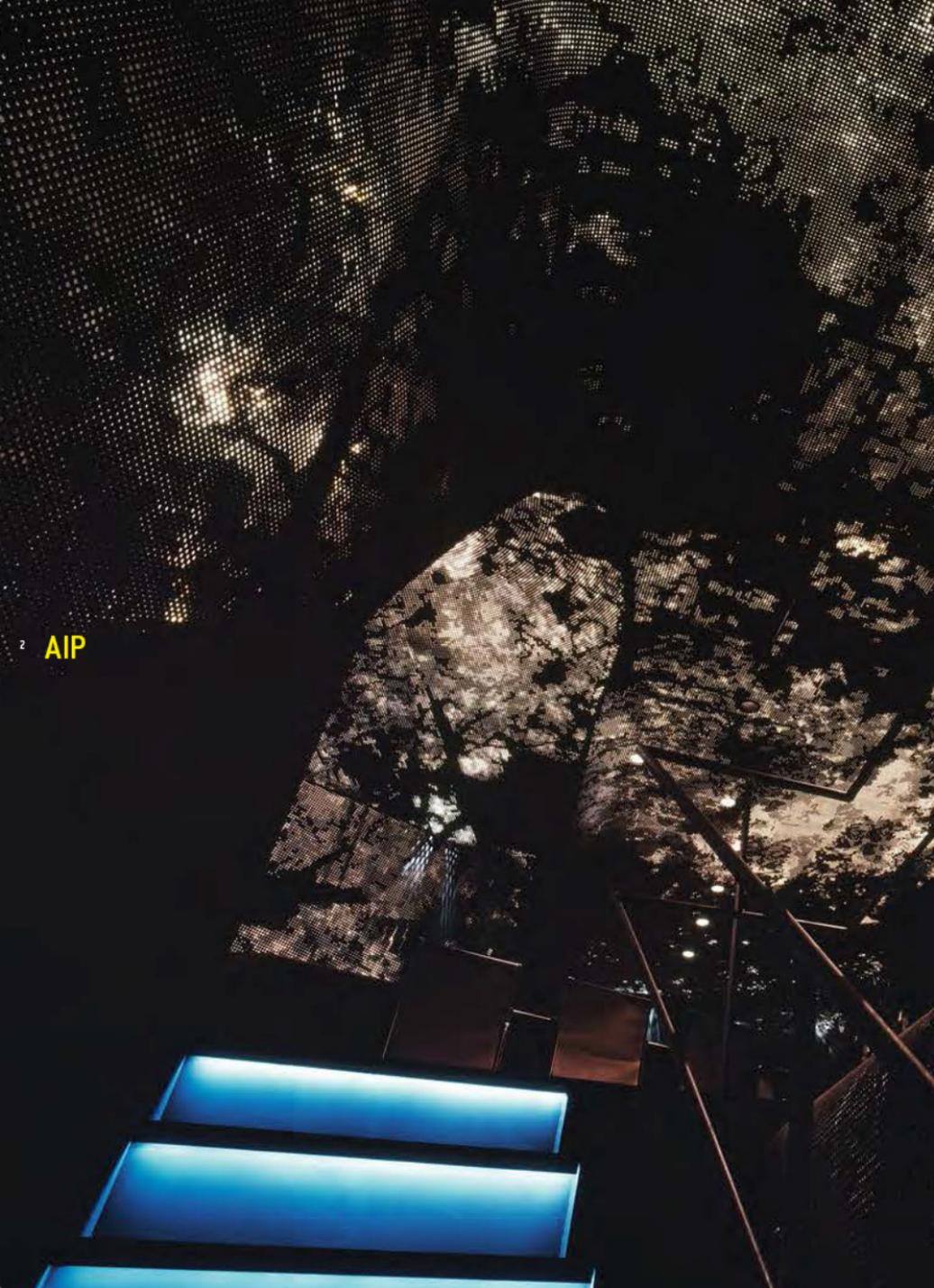
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2 AIP



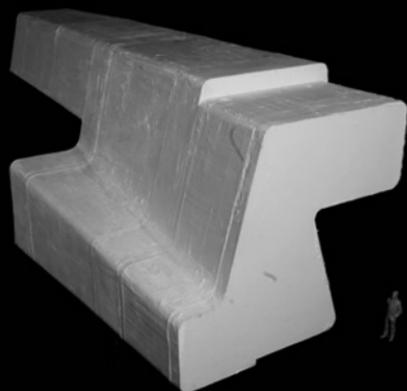
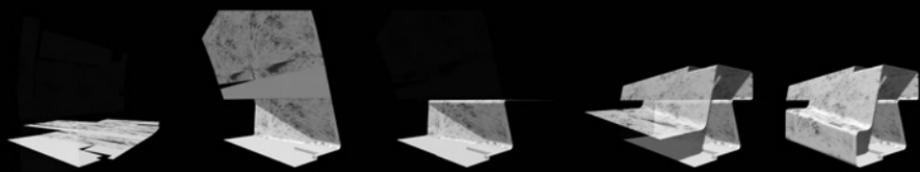


2003.12-2005.1 Sendai 3



2 案内図

By inserting an inner wall made of thin steel plates within a French restaurant that faces Jozenji Street in the city of Sendai, we were attempting to design a soft boundary surface that spatially mediates between the first and second floors of the existing building, and links the inner space of the restaurant with the space defined by the famous roadside zelkova trees that symbolize Sendai.

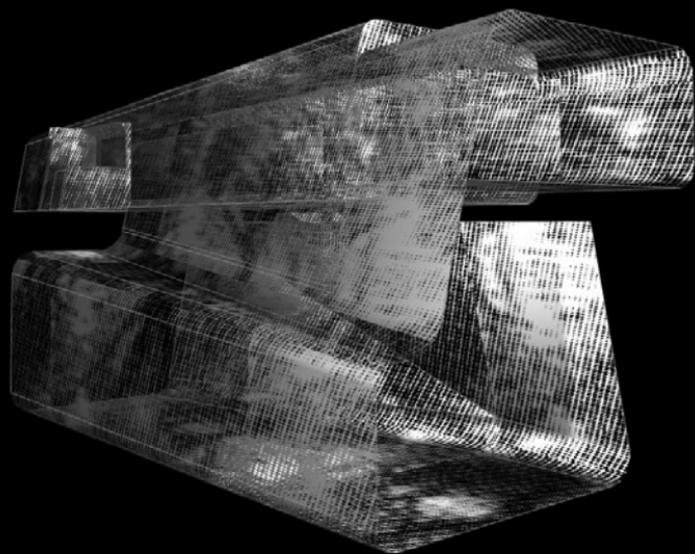


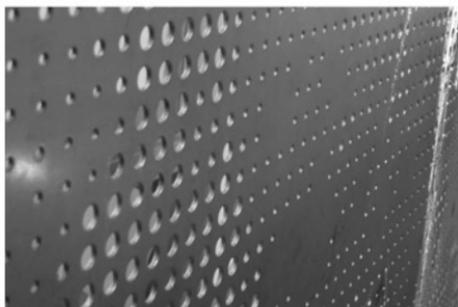




For the inner wall of the Aoba-tei restaurant, the difficulty of welding complex shapes from thin steel plates within the existing building led to the use of shipbuilding technology for the actual manufacturing. Craftsmen who were highly experienced with the unique characteristics of steel plates were able to freely deform the steel by heating and chilling key points, and thereby producing complex curved surfaces. The unique descriptive methods they used to unfold a three-dimensional volume into two-dimensional surfaces were predicated on the manual craft techniques used to make these curves.

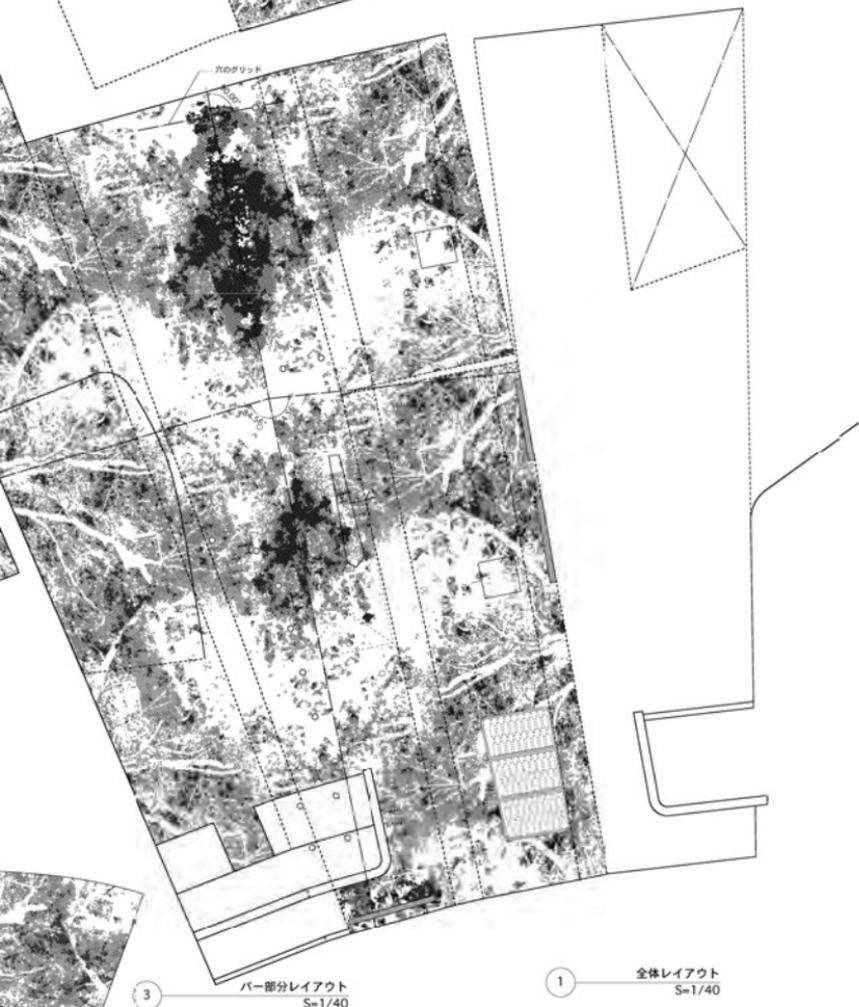






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5 客席3部分レイアウト
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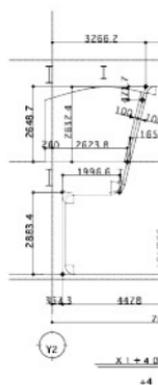
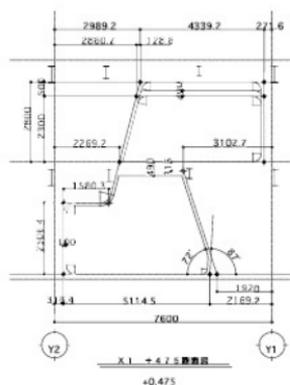
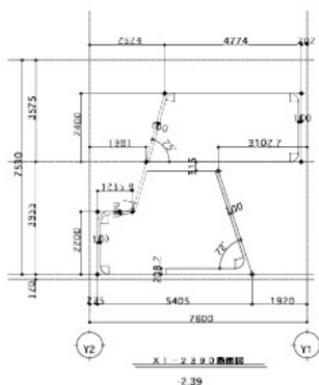


3 バー部分レイアウト
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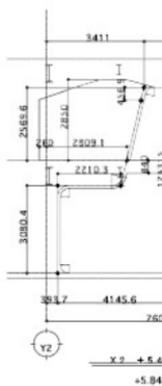
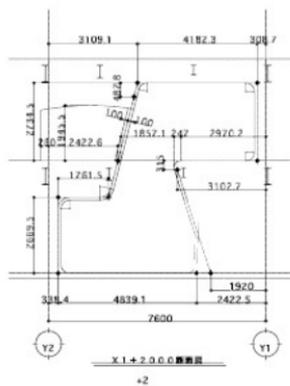
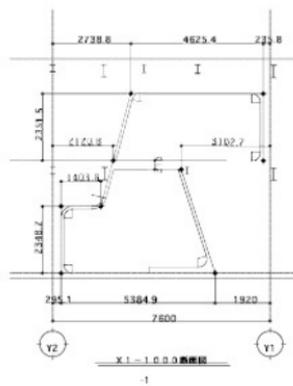
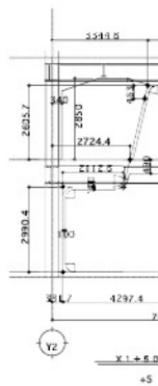
1 全体レイアウト
S=1/40



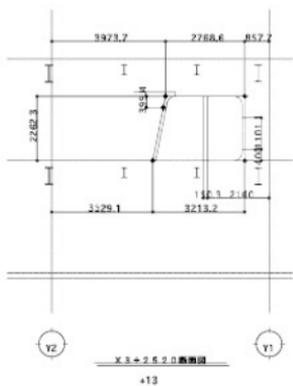
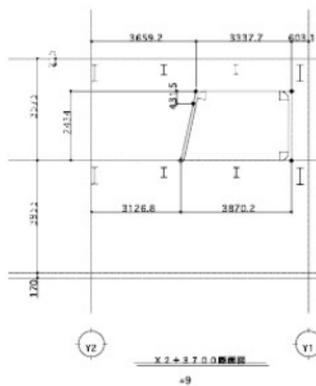
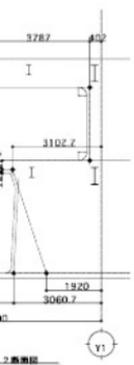
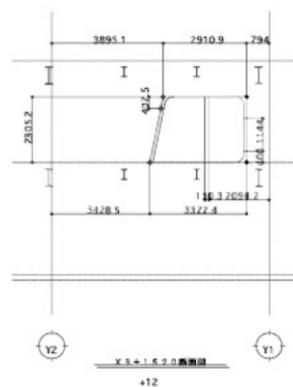
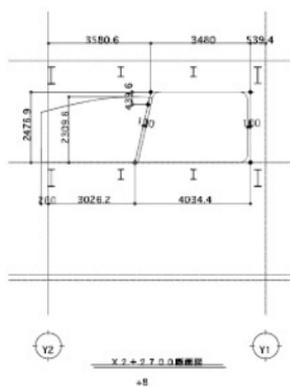
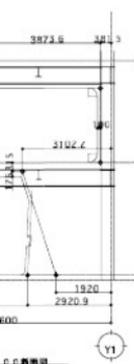
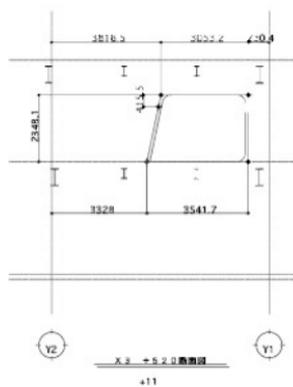
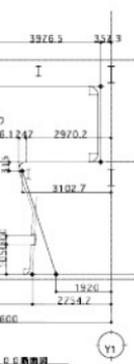




The traditional descriptive method of plans, elevations, and sections used in architectural design is predicated on Cartesian coordinates along three axes. Accepting these coordinate axes as the generators of space creates a platform upon which the design process could be said to occur. In other words, beyond being merely a descriptive method, it stipulates the fundamental basis from which architecture itself is produced. In fact, however, this is not the only possible descriptive method for three-dimensional bodies.

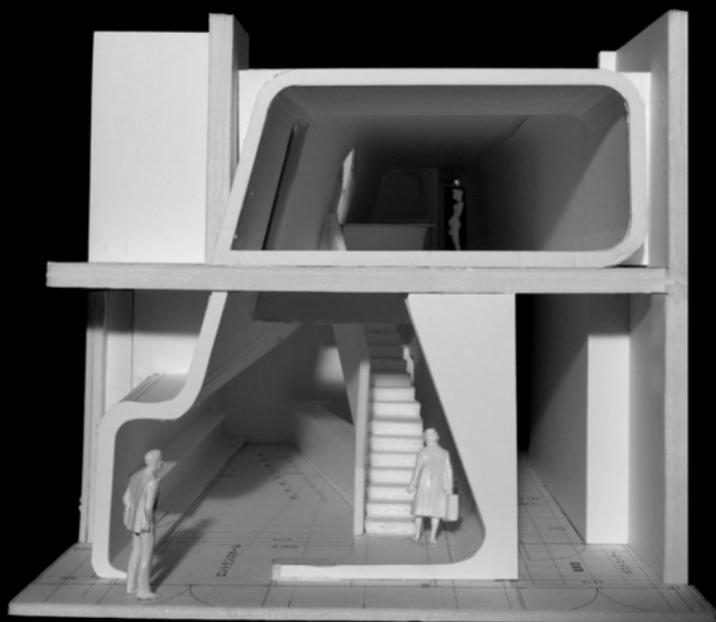


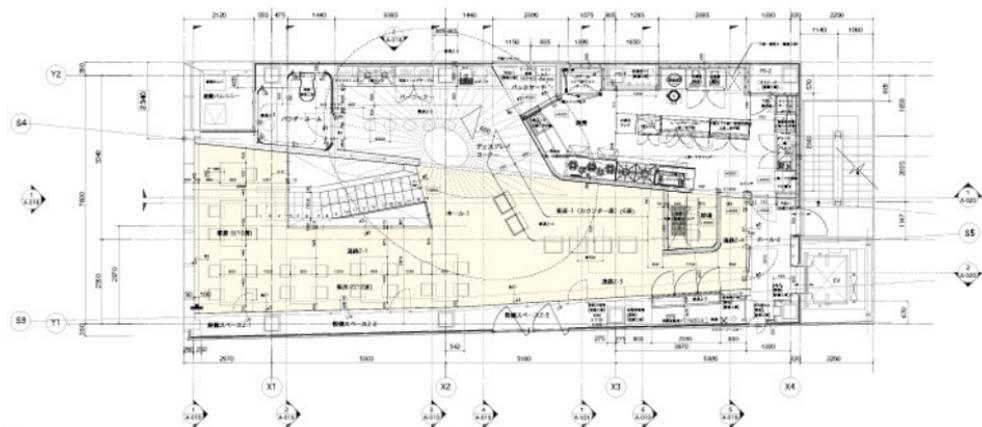
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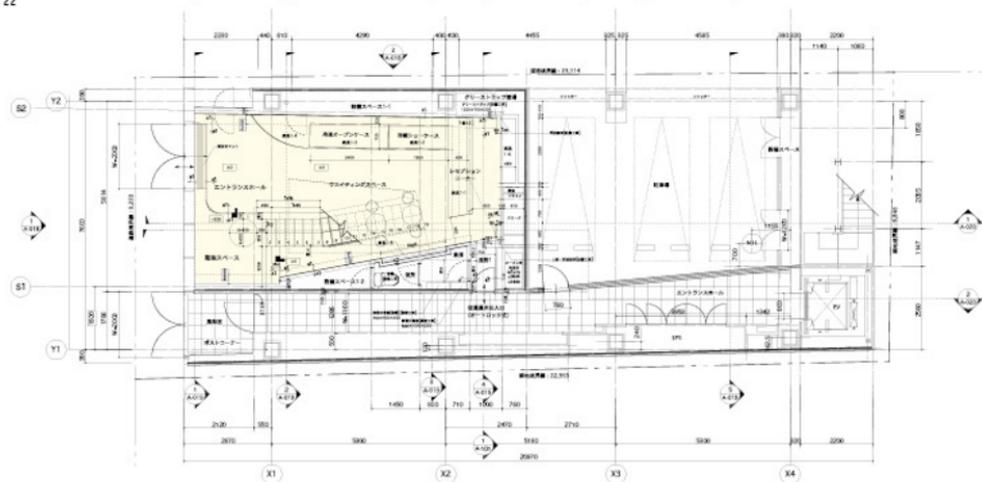


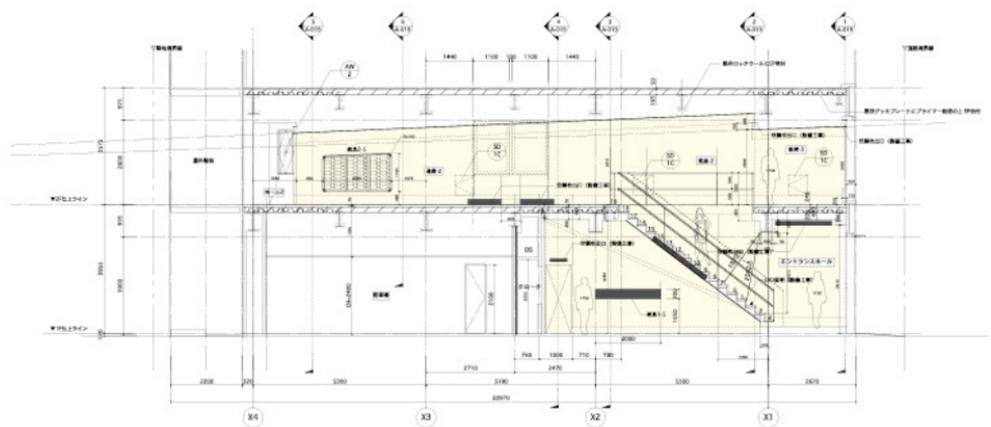
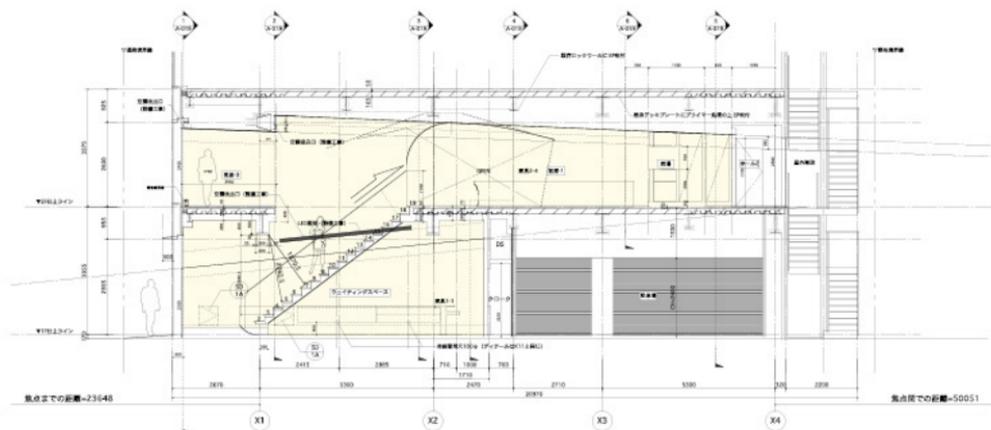


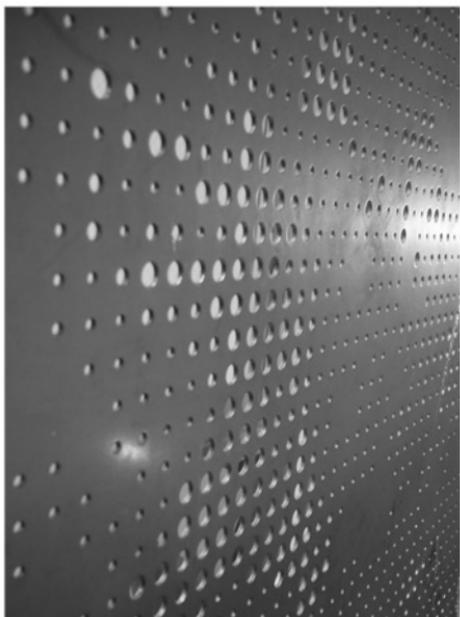




22









Materials Laser Cut Steel Plate (2.3 mm) with Ceramic Vacuum Metallizing Finish
and Water-based Urethane Coating
Concrete + Epoxy Resin Finish Floors
Walnut Packet Floor (10 mm) with Oil Finish

Project Code AIP
Project Name Aoba-tei
Principal Use Restaurant
Location Kokubuncho, Aoba-ku, Sendai
Site Area 208.01 m²
Building Area 169.16 m²
Total Floor Area 220.37 m²
Number of Stories 2F (Interior)
Structure Steel
Architectural Design Hitoshi Abe + Atelier Hitoshi Abe
Structural Design Arup Japan
Facility Design Sogo Consultants, Tohoku
Lighting Design Masahide Kakudate Lighting Architect & Associates
Construction Hokushin Koel + Takahashi Kogyo
Design Period 2003.12–2004.3
Construction Period 2004.4–2004.12





青菜亭

27

7F
6F
5F
4F
3F
2F
1F

The body is, at present, the sole interface for people to directly engage their environment.⁴

— Hitoshi Abe

Body Building

Gretchen Wilkins

Hitoshi Abe's 2005 exhibit at the Gallery MA in Tokyo exemplified a recurring idea in his work, an idea regarding a practice of "bodybuilding." Entitled BODY, the exhibit featured a room of large-scale architectural fragments excerpted from projects built around Japan—a series of buildings re-sited within a building. Stripped from their original context and program, the building fragments were liberated from the pressure typically imposed on architectural exhibits—to describe a body of work comprehensively—and offered instead a new set of experiences produced through the pieces themselves. At nearly full-scale the constructions still embodied their inherent formal qualities of light, shadow, texture, scale, and material, yet produced a new space between them which could be experienced at the scale of the gallery. Abe favored the large-scale format exactly for this reason—for its ability to put the viewer in contact with the work directly and narrow the gap between representation and experience. As such, the exhibit did not "cover" the projects comprehensively but rather it produced them, and what was



edited in terms of information, (the space of the mind), was gained through direct experience (the space of the body). Detached from their sites and re-choreographed in the gallery, these architectural fragments composed "a place for direct dialogue between body and form."¹

By collapsing the distinction between the space of the gallery, the projects and the viewer, the BODY exhibit did not prioritize the gallery space over the objects in it or vice versa, nor did it instruct a proper way to view, understand or experience the content. Instead it produced an experience of "bodybuilding." That is to say in the exhibit, as in the built version of the projects themselves, the relationship of body to form and space was inseparable. In fact, it is often the body—one body, collective bodies, or bodies in motion—that mediates the exchange between autonomous formal strategies and contextual conditions surrounding Abe's work. Just as distinctions between gallery, artifact and viewer were recalibrated in the exhibit (through the suppression of representation), one finds in the projects themselves that body and building are similarly coincident. In this way, Abe's architecture acts as an interface between environmental conditions and internal dynamics, between ideas and materials, and between figure and form.

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The mediated relationship described above can be found in Abe's work at multiple scales—including the scale of the human body. If one looks at the specific practice of bodybuilding, for example, it is similarly defined by a process of mediating between extensive and intensive limits—between form and process. Unlike other practices of forming or manipulating the human body, such as prosthetics or cosmetic surgery, bodybuilding is predicated on time-based, reciprocal feedback between intake and output. The body grows from the inside outward, as opposed to being formed (or de-formed) from the outside inward. It is an interface between externally driven limits and internally-driven forces, between context and desire.

Abe often describes his approach to design in this way, as a practice of interfacing the various material and immaterial

conditions surrounding a project including issues of site, movement, or material qualities. In describing this approach he refers to a master body-as-interface, Buster Keaton, as an analogy. Keaton creates environments by constantly maneuvering between action and reaction—by absorbing the dynamics of a situation and then transforming that situation through acting (which Abe contrasts with John Wayne, whose iconographic image alone has the power to dominate his immediate surroundings).² For example, Abe's design for the Shiroishi Bridge (1994) demonstrates this approach; its form emerges through his process of "materializing the forces of the site."³ Like Keaton's acting, this process oscillates between receptive and active modes, between observing limits and projecting desires, or between research and design. It is like "dancing with a place," Abe says, sometimes being guided and other times leading the way.⁴

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Other examples of the body-as-interface can be traced to culturally-rooted experiments with anthropomorphic space and animation. Critic Taro Igarashi points to the Japanese sci-fi animation series of "Gundam" as inspiration for Abe's early architectural ideas:



The generation of Japanese architects currently in their thirties was baptized into the manga subculture during the popular run of *Astro Boy* (1963–66), and this type of animation has exercised an important formal influence on their work. One of these architects, Hirosi Abe, has stated that he perceived the equipment that served as the interface between body and environment for certain warrior-like characters, such as *Mobile Suit Gundam* (1979) and *Neon Genesis Evangelion* (1995–96), as very architectural.⁵

Gundam is predicated on an intimate relationship between body and machine, or body and space. The "Mobile Suits" are transforming machines controlled by human pilots, machines which effectively act as mechanical extensions of human physical and intellectual capacity. According to legend, Mobile Suits were derived from the machines used for the construction of outer space, and these machines were in turn derived from spacesuits worn by modern-day astronauts. This mythical foundation of Gundam—that a human suit becomes a machine which becomes a building—defies any strict distinction between body and

space or between building and site. The gap between human scale, architectural scale, and urban scale is collapsed insofar as a single figure can operate seamlessly and simultaneously between all three. In Gundam, the Mobile Suits—like buildings—formally mediate between bodies and sites.

The discussion of design and process is all the more interesting in consideration of Abe's finished work. While each project emerges from subtle observations about program or ephemeral conditions of the site, the building develops a uniquely strong formal expression. Often described as sculptural, the work is, however, never disembodied from its environment as an autonomous, sculptural object. Indeed, one ambition underlying the work is to "sculpt" form from the dynamics of the situation itself—to tease space into being. Focusing on the formal attributes alone might obscure the role that activity, time and movement play in the work, and these are the very factors which allow architecture to function as an interface rather than an iconographic form (e.g. John Wayne). As Sou Fujimoto suggests, perhaps the term "formal" needs to be paired to a twin term, "figural," to fully describe Abe's work:

So what is it that I mean by figure? To begin with, the word figure is mainly used to describe architectural spaces. Figure is used, for example, to refer to people. On the other hand, the word form somehow evokes the image of an inorganic object. It suggests fixity, and therefore form is not used when describing the posture of a person. We might then say that the notion of "figure" is somehow related to movement. However this is not the movement of simply being in motion. Rather we should say that figure refers to something that captures the phenomenon of transformation, or connotes movement. Perhaps it could be said that, alluding to a human figure, it is an instantaneous cut of ongoing fluctuation.⁴

The K-Museum in Shioyama is a pertinent example of this relationship between figure and form. The original diagram, eight bubbles contained by a box, gains complexity as spaces of movement and circulation are developed within it. The space of the body is literally inscribed into the steel surfaces, transforming a purely formal strategy into an animated, figural experience. In "Abe's Bubbles," an essay found later in this book, George Wagner elaborates on the translation of the K-Museum's "bubble-diagram" into a constructional strategy, considering the

relationship of initial design ideas to architectural production, and what gets lost—and found—along the way.

The K-Museum also demonstrates how the mediated relationships between body and building can scale up to the context of site. A Corten steel cube perched on a steeply-sloped site outside of Sendai, the museum sits autonomous from the surrounding residential context. Yet the building mediates changes in topography as well as relationships between the immediate landscape and the extended urban region through careful sequencing of interior and exterior spaces around and through the property. This raises an interesting question about the status of the term "context" in Abe's work: If the ambition of the work is to continually oscillate between active and responsive modes, or to empower architecture as a mediator at multiple scales, how can an oversized metallic cube set between low single-family residences be understood as responsive to its context? In terms of relationships to a site, Abe admits that the "confused" and "messy" urban situation in Japan precludes any adherence to context in the traditional sense.⁷ Rather, Abe's work responds to issues of context performatively, as well as formally. It observes site conditions of a more ephemeral and experiential nature, translating "forces of the site" into a spatial, material, or constructional strategy. Ken Tadashi Oshima's essay, entitled "Dynamics of a 'Boundary Surface'," discusses this aspect of Abe's practice in greater detail, exploring how his work extends the limits of programmatic, disciplinary or cultural boundaries through the process of translation.

The projects featured in this publication are extracted from a much larger body of work completed by Atelier Hitoshi Abe since the beginning of his practice in 1992. They are selected for how they demonstrate a particular attitude about process which underlies all aspects of his practice. The texts discuss this attitude in terms of design process and boundary conditions (i.e. boundaries between figure and form or between architecture and the city), while the graphic documentation of the work encourages an understanding of the process of the work itself, especially the material fabrication and construction.

This book follows a talk by Hitoshi Abe at the A. Alfred Taubman College of Architecture and Urban Planning at the University of Michigan in 2005. The annual John Dinkeloo Memorial Lecture celebrates distinguished and innovative practice, technology and construction in honor of Michigan alumnus John Dinkeloo. In this spirit the project selection, graphic material and contributing essays presented here highlight material and tectonic qualities of Abe's work in progress.

1. Hitoshi Abe, "BODY," *Flicker*, (Tokyo: TOTO Publishing, 2005), 248.
2. Hitoshi Abe, "Busker Keaton," *Flicker*, (Tokyo: TOTO Publishing, 2005), 96.
3. Hitoshi Abe, in an interview with the author, February 2006.
4. *Ibid.*
5. Taro Igarishi, "Superflat Architecture and Japanese Subculture," *Japan Towards Toralandscape: Contemporary Japanese Architecture, Urban Design and Landscape*, [Rotterdam: Netherlands Architecture Institute, 2000-2001], 097.
6. Sou Fujimoto, "The 'Figure' and 'Form' of Space," *Flicker*, (Tokyo: TOTO Publishing, 2005), 156.
7. Hitoshi Abe in a public lecture at the University of Michigan, Taubman College of Architecture, March 28, 2005.



34 **KAP**



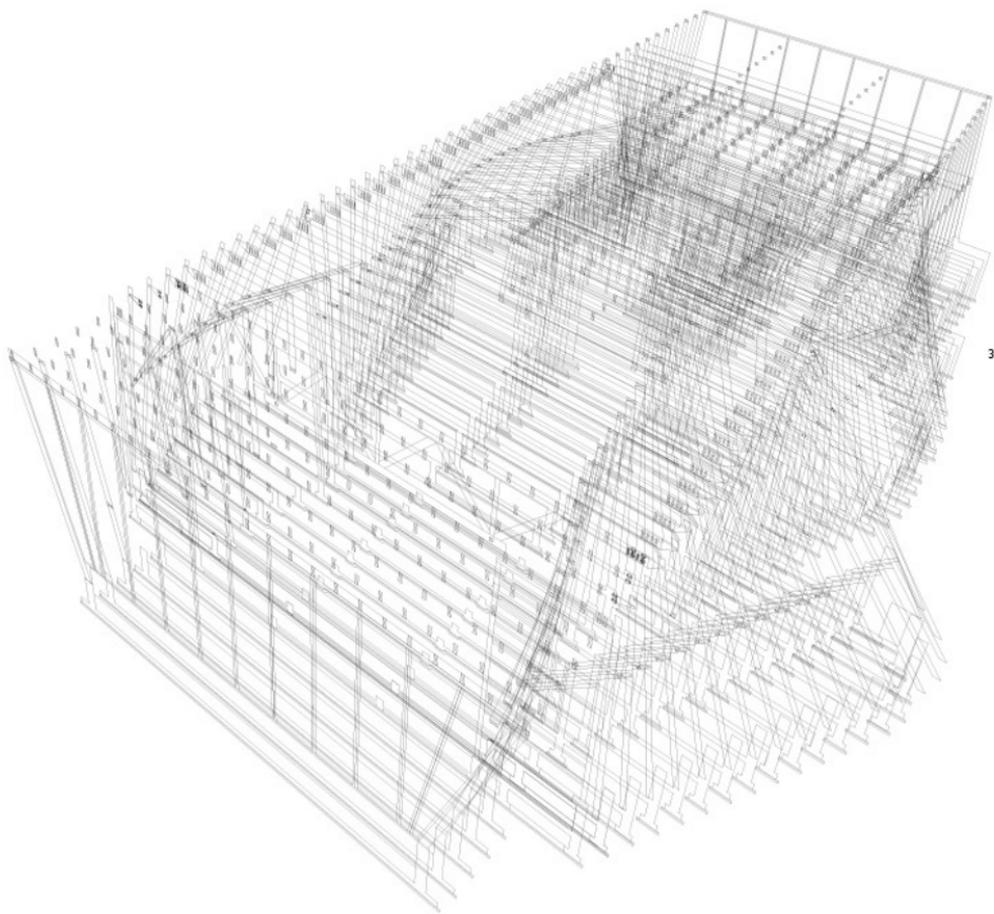
The image shows the interior of a modern theater. The seating is tiered and consists of light-colored plastic chairs. The walls are dark and feature a curved, ribbed design. There are balconies with railings on the upper levels, and a staircase is visible on the left. The lighting is dramatic, with spotlights illuminating the stage area and the curved wall. The overall atmosphere is dark and contemporary.

2000.12–2002.3 Kumamoto 35

The aim of this project was to make a compact, high-efficiency box that allows multiple usages. In considering concepts that would allow us to avoid the usual method of resolving the program via a collection of functionally-determined rooms, we imagined planting the seeds for various activities without dividing the space into rooms with defined uses, and thereby opening the box to multiple possibilities. With regard to the program, we combined the functions of a public auditorium and a community center in the same space, increasing the spatial efficiency by manifesting each function only when necessary. The shape of the building is a combination of one big space where all the main activities are focused, and a collection of smaller volumes for the various auxiliary functions. These spaces are enveloped with wooden walls shaped like the gills of a fish, resulting in the continuous gentle articulation of a single box.

The basic form of this building was organized on the principle of fluctuations along a straight line, as in a tomographic section. These fluctuations are wide in amplitude at the entrance so as to ensure a large space, whereas the amplitude is small in the auditorium to sustain a moderate diffusion of sound; the wavelength has been further altered in accordance with the demands of each location. By developing the expression of the building from this single principle, the various functional requirements are satisfied while a continuous form is produced.

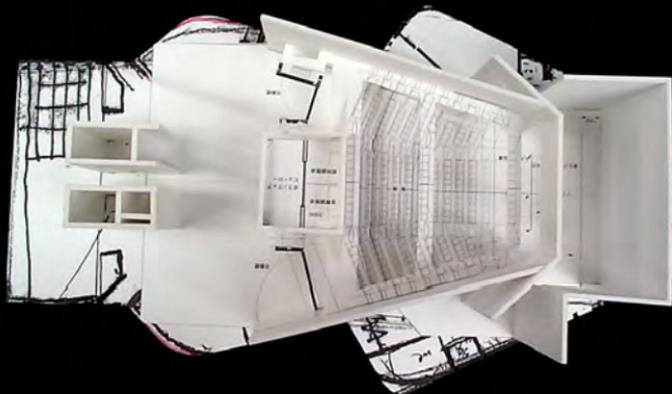
The frequency of fluctuation is geared to the organization of the small components that give expression to the facades. The wavelength prescribes the undulation of the surfaces, but they are also regulated by factors such as the width of the cedar boards that comprise the exterior walls, the method of dimensioning the wood joints, the size of the glass panes that cover the outer wall surfaces, and the thickness of the window frames. These combine to produce the pattern of the walls. As the angle of the warping wall changes, variations in the glass pane divisions and the thickness of the window frames are produced; for more distorted sections, the glass must be further subdivided.

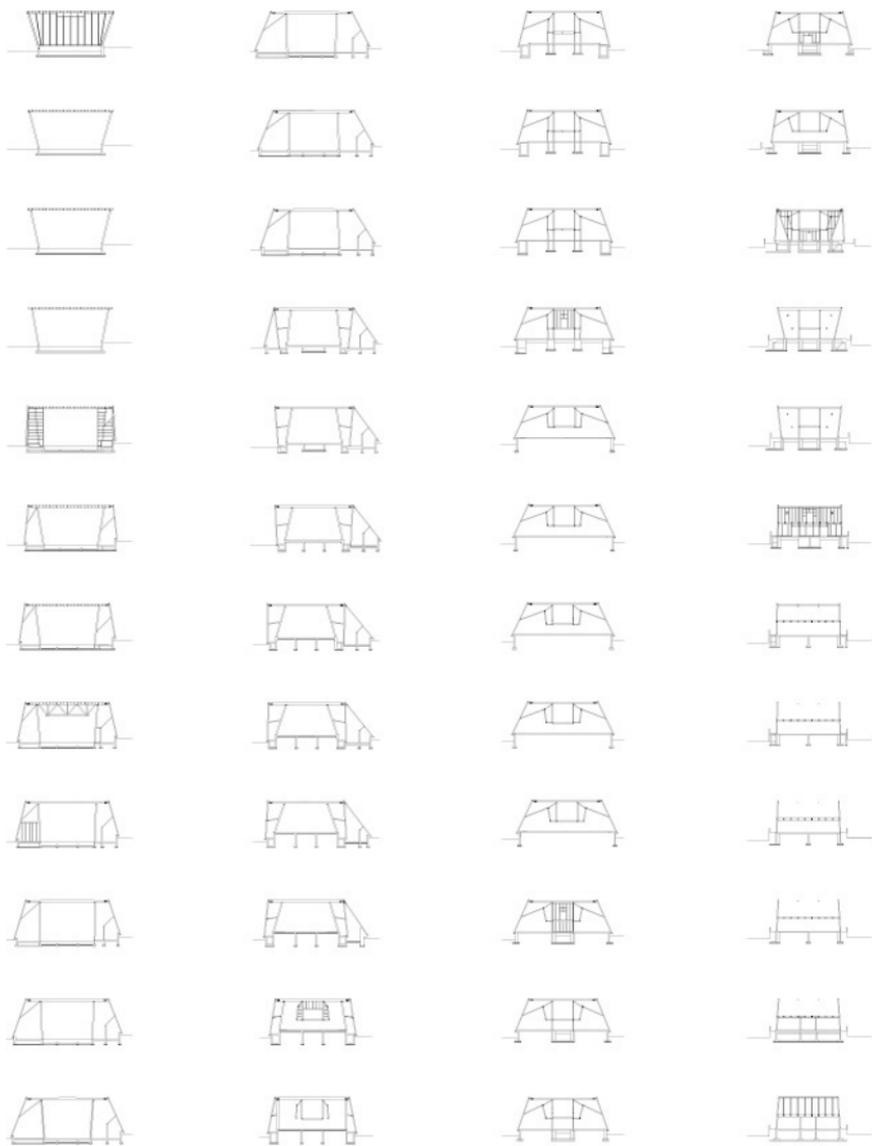


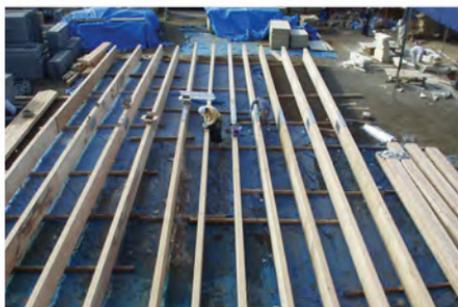


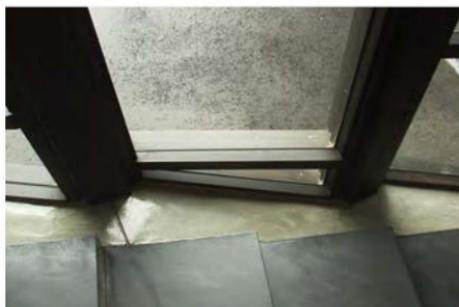


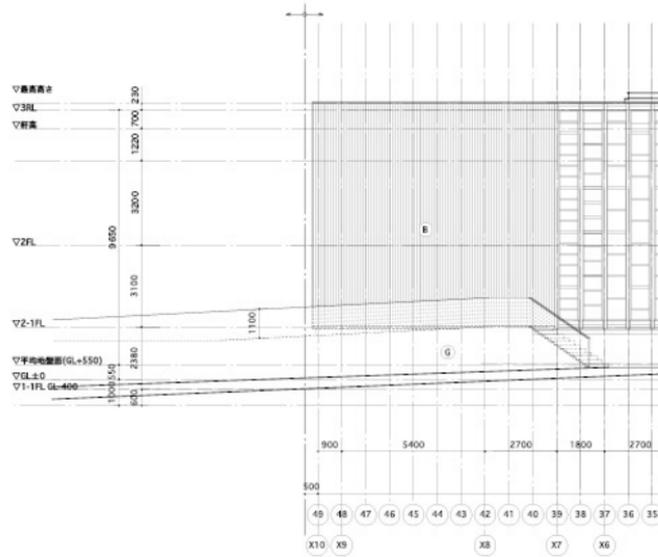
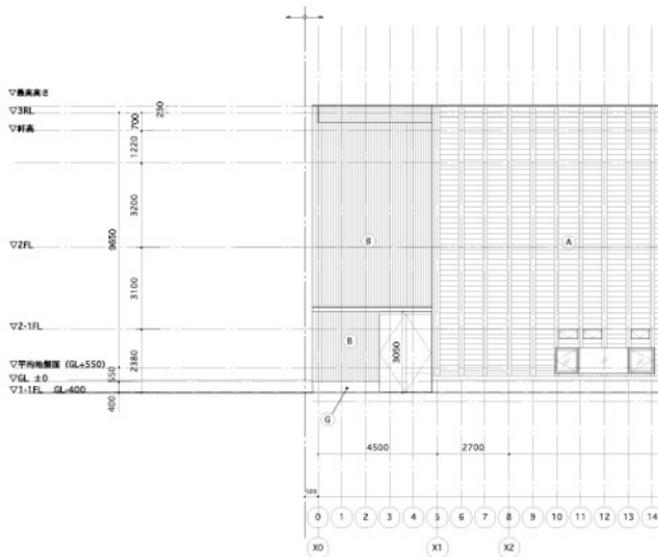
Frames comprising LVL (laminated veneer lumber) beams and large cross-section glue-laminated timber columns have been arrayed at a 900mm spacing. Like a sequence of movie stills, each one is slightly different, resulting in a complex box. These column and beam structural frames resist vertical loads, which are then transmitted to the reinforced concrete section at the base. Asymmetrical horizontal loads such as earthquakes are taken by seismic resistant walls, which comprise wood frame structural panels fixed by nails. Each seismic resistant wall is connected to the deck slabs that constitute the roof surface, so that the entire building is utilized when resisting horizontal forces. By supporting the roof with the deflection-resisting LVL beams, the large frame system of the hall enables a column-free space with a 14-meter maximum span. The elements that brace the hyperbolic paraboloid outer walls mainly take vertical loads, although in some areas they also resist wind loads.

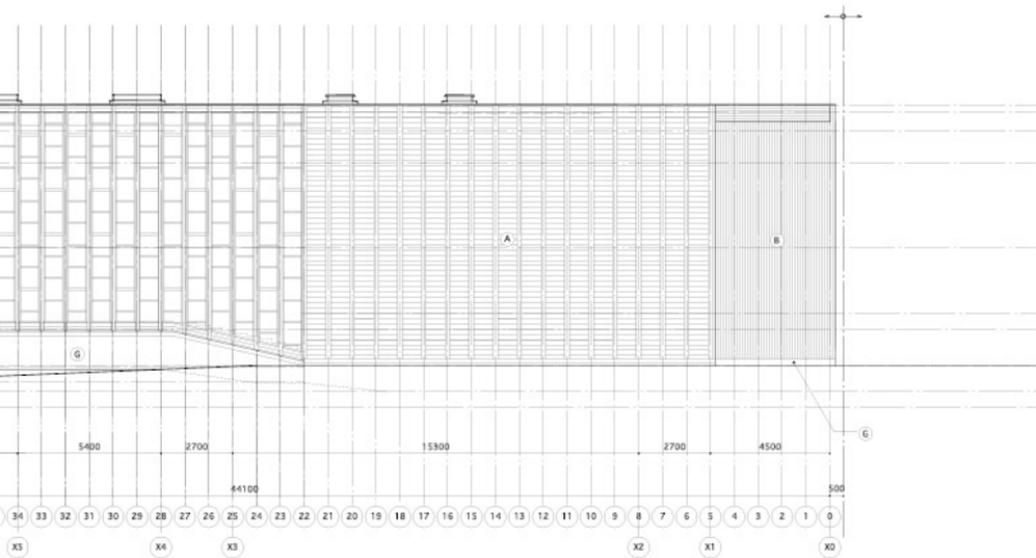
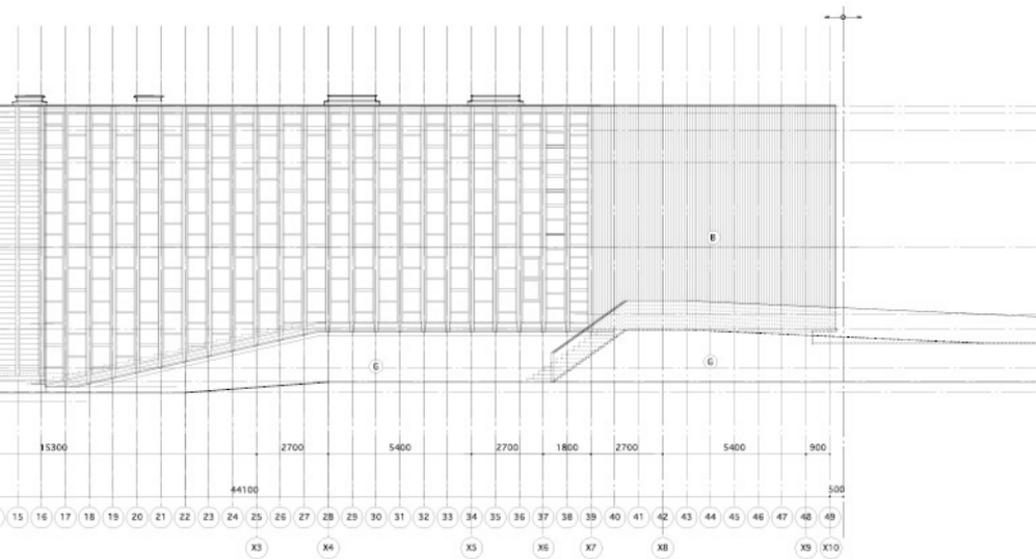






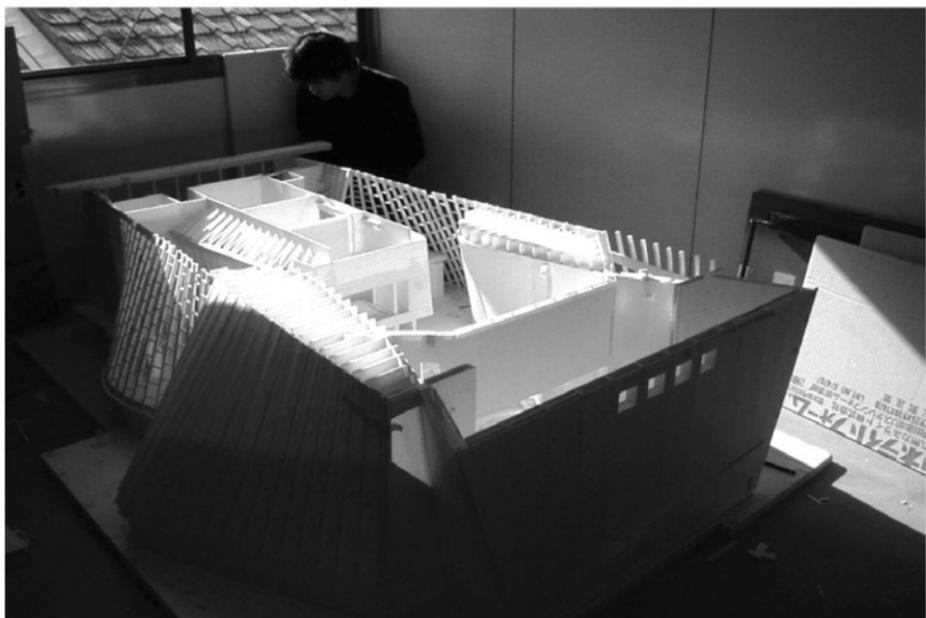


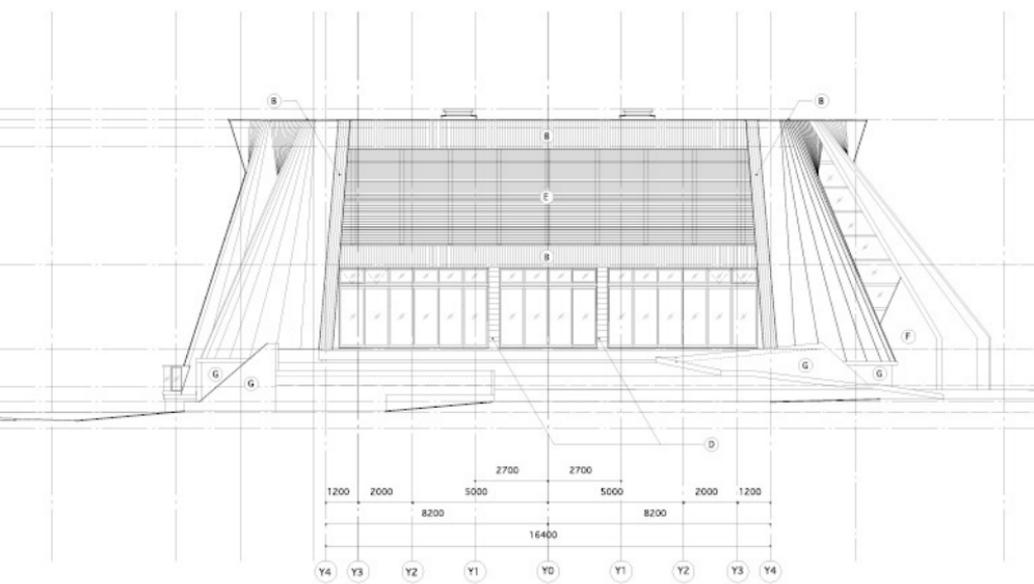
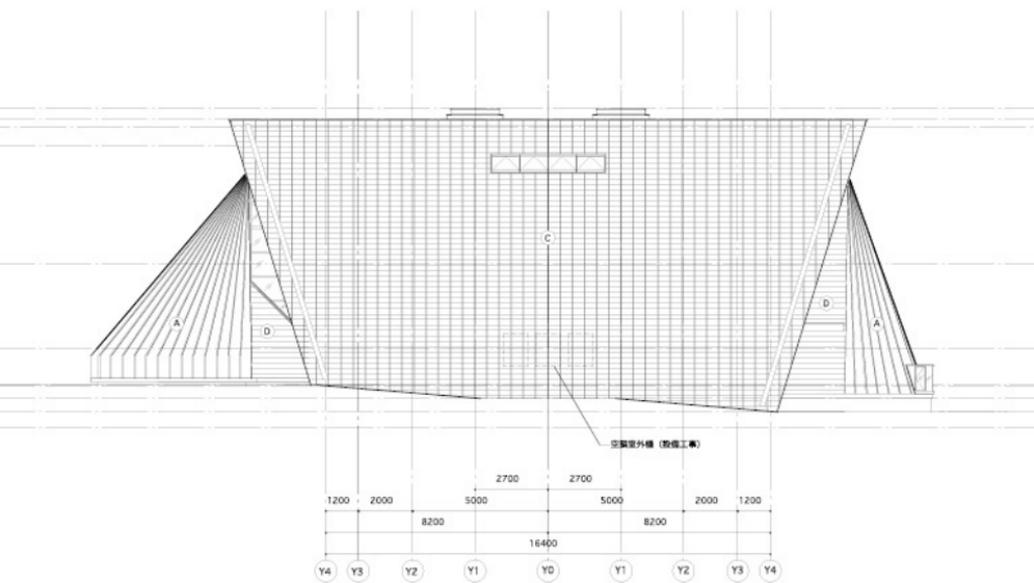


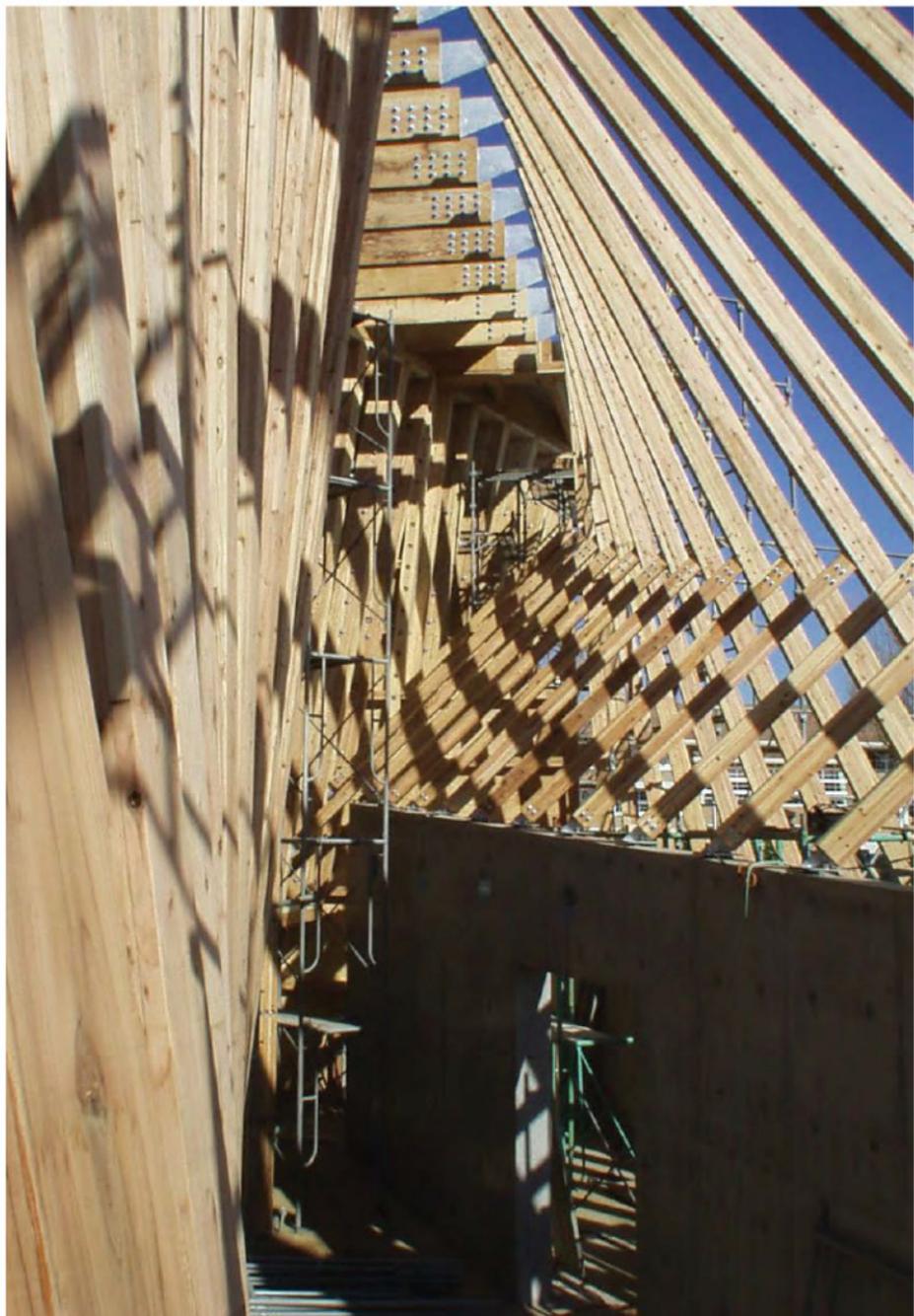


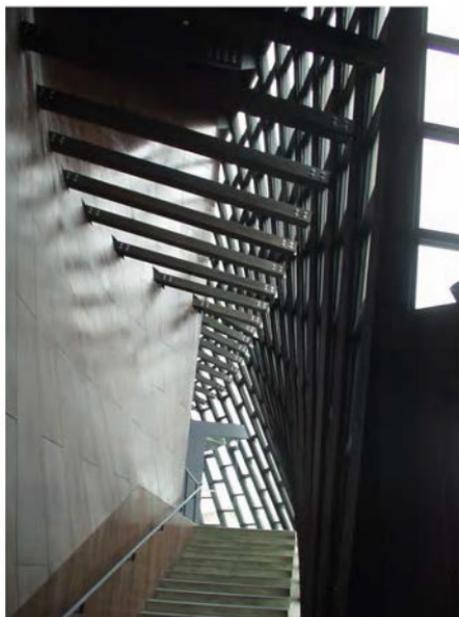


















Materials Timber [150 mm x 200 mm] exterior supporting glass, 200 mm x 300 mm interior columns and 150 mm x 600 mm interior beams] + Reinforced Concrete [200 mm] Cedar Panel [120 mm wide, 15 mm thick] Bevel Siding, Wainscoting + Finished with Guard Lacquer [Painted twice] Asphalt Roofing with Waterproof Insulation

Project Code KAP
Project Name Reihoku Community Hall
Principal Use Community Hall
Location Reihoku, Amakusa-gun, Kumamoto
Site Area 3840.14 m²
Building Area 934.7 m²
Total Floor Area 993.36 m²
Number of Stories 2F
Structure Timber + Reinforced Concrete
Architectural Design Hitoshi Abe + Yasuaki Onoda + Atelier Hitoshi Abe
Structural Design TIS & Partners
Facility Design Sogo Consultants, Tohoku
Lighting Design Yasuaki Onoda
Construction Nakamura Corporation + Kanematsu JV
Design Period 2000.12–2001.3
Construction Period 2001.6–2002.3



At the initial stage, [Hitoshi] Abe makes a thorough study of the given conditions in order to gradually reveal the existence of layers of multiple forces acting on the project—that is to say, an ether-like phenomenon of delicate temperate differentials and interwoven currents drifting through the site and its surroundings—and based on this he seems to accurately apprehend the state of the place where the project will be implemented. He then inserts a notation device that can register the dimly perceived latent boundary surfaces, and carefully scrutinizes them. Next, this device is focused by the application of geometric rules, and a basic architectural structure is evolved.¹

—Yasuaki Onoda

The Dynamics of a “Boundary Surface”

Ken Tadashi Oshima

As Onoda explains above, Abe seeks to push architecture’s boundaries to their limits by understanding their complexities and opportunities. This inside-outside perspective emerged from Abe’s personal history as an architect practicing in his hometown of Sendai, to which practice he brought fresh insights into its possibilities upon studying at SCI-Arc (Southern California Institute of Architecture, 1988–89), and in working with Thom Mayne of Morphosis and the Austrian transplant Wolf Prix of Coop Himmelblau in Los Angeles (1988–92). The crossing of national borders served to make Abe conscious of boundaries both cultural and architectural, and he became gradually aware of how to stretch them.

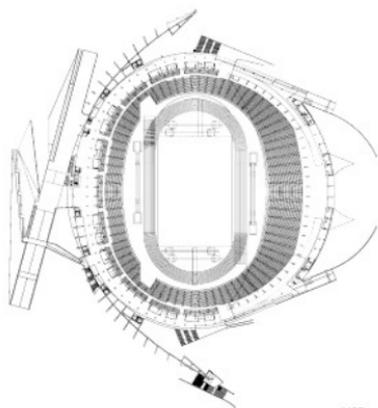
Abe’s time with Coop Himmelblau instilled a conviction that architecture is not static. He described his mentors’ work through their theoretical notion of “liquid architecture” that can be understood as, for example, “a small particle that floats in space freely, constantly transforming itself.”² Antithetical to



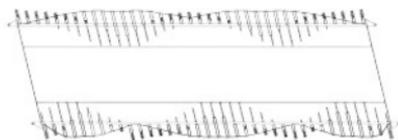
Aobatei restaurant, Sendai Station (2005)

conventional boxlike representations, architecture could be like a light cloud. This notion did not simply imply a formal vocabulary, but rather one inclusive of the forces of the city and nature. This established an open system: “turning static terms into dynamic” terms and “closed spaces into open spaces.” Here, as Wolf Prix defined, “space is the three-dimensional expression of a cultural attitude.”³ In the specific case of Abe, this attitude was nascent in his student work, which Prix described as “strangely precise, very decisive and supported by a spatial emotionality.”⁴

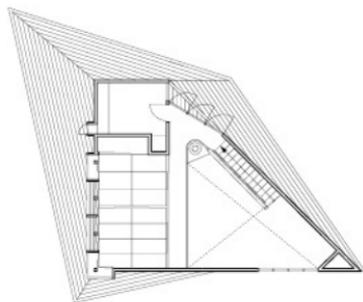
Driven by this attitude, Abe launched his career in 1993 by winning the competition to design the 50,000-seat Miyagi Stadium in Sendai (MSP). While the impetus for building the 620,000 square feet stadium was to host the 2002 World Cup soccer match in Japan, Abe clinched the competition by intermixing the stadium with a public park in his design. The stadium thereby became a public amenity, beyond its usage ten times a year to hold matches. Abe fused his design with the



MSP



SBP



YG

surrounding landscape by inserting the stadium into a hill, then using giant interlocking arc roofs and pathways radiating from the center. Abe's sweeping roofs at once recall the dynamism of Kenzō Tange's Yoyogi Stadiums built for the 1964 Tokyo Olympics, but here they have been opened up to be experienced within the stadium and without, by dog walkers, joggers, and stroller-pushing parents traversing through the structure along the interpenetrating skywalk.

In returning to Japan, Abe thus began to extend a culture of wrapping and folding. This was not an attempt to retain standard tropes or clichés of Japanese culture, but rather to invent new interpretations. In other words, Abe's unique strength stems from his ability to understand the Japanese context both as a native—fully aware of the rules and forces at play—and to appreciate the perspective of a foreigner, able to reread the situation in a new way. Many early projects such as the XX-Box System [1993] focused on installation and exhibition design as systems meant to contain objects. Concurrent to the Miyagi Stadium commission, Abe designed a bridge [SBP, 1994] in the Shiroishi area of Miyagi prefecture that created a monumental passage through an undulating stainless steel, triangle-frame structure, rather than using the kitsch *kakeshi* doll monument that government officials originally envisioned. The bridge's dynamic rotating balustrade marks its response to requirements for lighting, loads and levels for water and the structure itself. From afar, the bridge marks motion, evoking images like a runner leaping over hurdles.

Abe subsequently pushed the notion of a boundary surface into a domestic context in the design of the Yomiuri Guest House [YG, 1997], which fused living with landscape. Based on the generating idea of a folded ribbon that could be seen as analogous to a kimono, Abe wrapped the living spaces with a 295-foot-long black wooden wall centered on a metal fireplace and flue, to form a double layer engaging both the interior living spaces and surrounding forest of Japanese maples. Architectural critic Yoshitake Doi has noted that just as courtiers such as Issey Miyake wrap the body with fabric, "Abe

folds a ribbon...into the landscape to create the space on site.⁴⁵ From another perspective, Abe reinterpreted origami folding in the overall form and reconsidered traditional elements of tatami room spaces and charcoal-stained Japanese cedar siding to provide a setting for contemporary living. Angled verandah and living space offering oblique views of the forested landscape, counterbalanced by the flexibility of modular tatami mats set within an orthogonal order elicit excitement and repose—an experience both familiar and foreign.

Abe, together with Yasuaki Onoda, extended the dynamic tectonic possibilities of the black cedar wall to form a 207-seat theater for the community of Reihoku, a town of 9000 in Kumamoto Prefecture, Kyushu (KAP). Meeting with the citizens in workshops for three years, Abe came to conceive of the structure as an open-ended communal gathering place/auditorium. Within a wooden shell system, black exterior cedar walls undulate to accommodate the hall's circulation and interior walls twist and turn to meet acoustical requirements. Glass panes inserted between the laminated timber verticals offer views inside and out. Internally, the building's form serves as a sounding board for the community center's activities, which range from violin concerts to speed dating sessions. Externally, the billowy form engages the surrounding urban landscape and draws in residents.

Most recently, Abe used the notion of a boundary surface to envelop the Aobatei restaurant (2005) in Sendai (AIP). Located within an existing building along a Zelkova tree-lined boulevard, the 30-seat dining space is encased within a Corten steel enclosure. The membrane is perforated with 0.16 to 0.35-inch-thick holes and uniformly lit from behind, evoking the abstract impression of sunlight filtering through the leaves of tree and the essence of the restaurant's name that translates as "follage restaurant." The success of this project inspired the owner to commission Abe to design a second restaurant in Sendai Station (SOB) featuring the city's specialty, beef tongue. Rather than typically partitioning off the dining space from the shopping corridor, Abe consciously kept it open and defined the space by

an oversized photographic mural depicting the restaurant's staff enjoying life.

Abe's design can thus be defined by dynamic boundary surfaces engaging human activities, rather than simply as sculptural form. Drawing from early installation design, Abe provides settings to engage fully in the activities of everyday life—whether they be dining, living, playing, or performing. Practicing his own preaching, Abe designed his own office (2002), by renovating a warehouse in the outlying Oroshimachi area of Sendai to be a work-and-event space simply defined by wooden lattice partitions and a loft-like bridge set within the existing steel structure. Here, Abe's students from Tohoku University and guests from around the world join his staff for "House Events" to contemplate the possibilities of architecture. In Abe's office and all of his designs, the dynamics of boundary surfaces fluctuate between the material and immaterial. Abe's careful consideration of the latent forces that shape society and built form is thereby a vital source for capturing the pliant potential of architecture, transcendent of traditional boundaries.

1. Yasuaki Onoda, "Boundary Surfaces and Existential Spaces," *Flicker*, (Tokyo: Toto Publishing, 2005), 76.
2. Hitoshi Abe, "By d tai to shite no toshi to kenchiku," *A+U* 256, no. 1 (January 1992): 12.
3. Wolf D. Prix, "Architecture Begins where Space Ends," *A+U* 310, no. 7 (July 1996): 112.
4. "Conversation: Zaha M. Hadid, Wolf Prix, and Bernard Tschumi," *A+U* 334, no. 7 (July 1998): 4.
5. Violet Gore, "Warp Factor," *Architectural Review* 220, no. 1256 (October 2001): 86.

5. Yoshitake Doi quoted in Gore, 86.



02 SOB

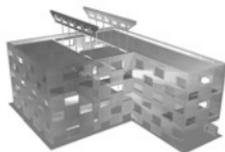
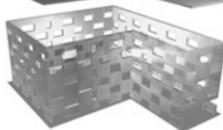
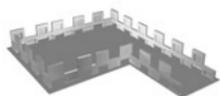


2002.6-2004.11 Sendai 63

This project is an office and factory for the production of prostheses, in a building enclosed by a typical "flagpole" site. Our aim was to make a single space with a soft boundary that would allow people to work "together" in "this place." The building is organized around a 6m x 6m x 6m glass box floating in mid-air, located in the center of a space directly extruded from the shape of the site. All sightlines are focused on an open interior courtyard arranged between the various rooms, ensuring spatial continuity and allowing the people working here to feel that they are sharing a single space.

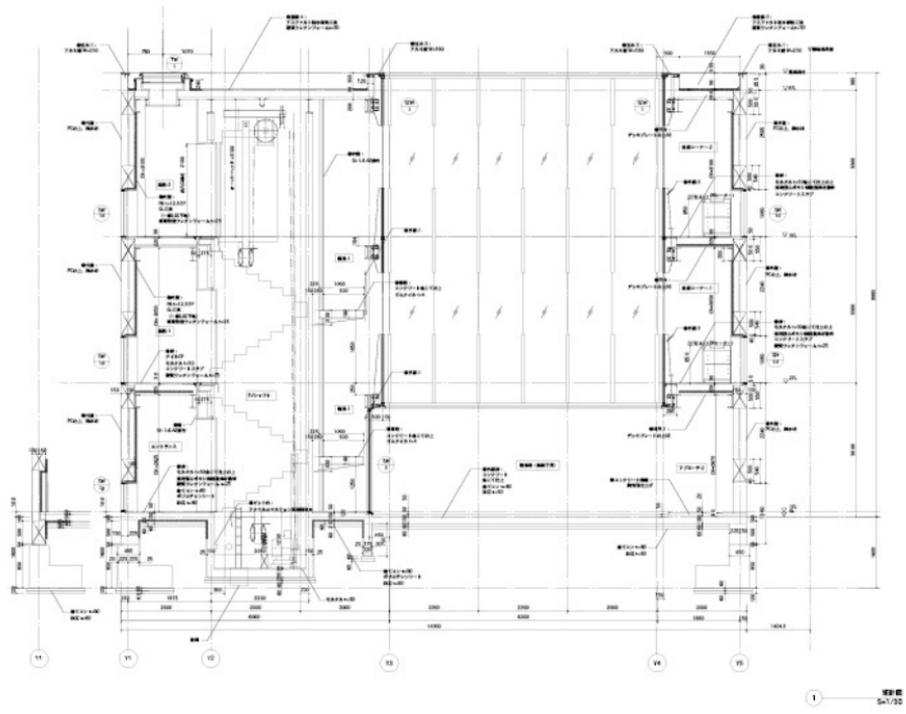
The walls were built tracing the site boundaries, while following the building height restrictions and achieving the maximum floor area. The structure has no interior columns so as to make a free and flexible space inside. The exterior structural walls comprise precast concrete panels that are stacked up and then post-stressed, giving the panels and the openings a uniform checkerboard arrangement. Resulting from the arrangement of openings, this checkered pattern controls views of the disordered surroundings, making a boundary that softly separates this place from the outside.

Structurally, this building is primarily composed of five elements: precast concrete exterior walls, floor slabs, foundation beams, joists, and the trusses above the courtyard. In order to shorten the construction period and cope with the constraints of constructing on a narrow site, precast concrete walls were used, composed of factory-made units (about 2m x 2m). After bringing them to the site and stacking them on top of the foundation beams, horizontal steel wires were laid across them, allowing the units to be set perfectly vertical and then fixed in place; the entire composition is like a stack of blocks that has been rotated into a vertical alignment. By supporting the roof trusses and the joists of each floor on these walls, they bear all vertical loads in the building, and also act as sturdy seismic elements that will withstand forces acting on the building during an earthquake. Nine different versions of the precast panels were prepared, and these have been arranged in each wall according to local stresses and the planning layout. The elevation design is a result of the combination of these units with the ventilation grilles. The 14m trusses span between the exterior precast walls at roof level, and the first floor has been realized as a column-free space by supporting the connections for the second floor and third floor joists from perimeter beams.





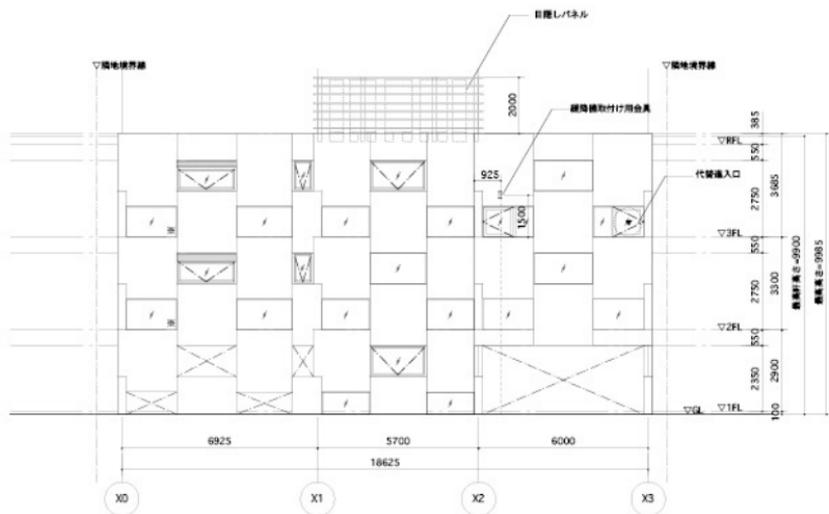




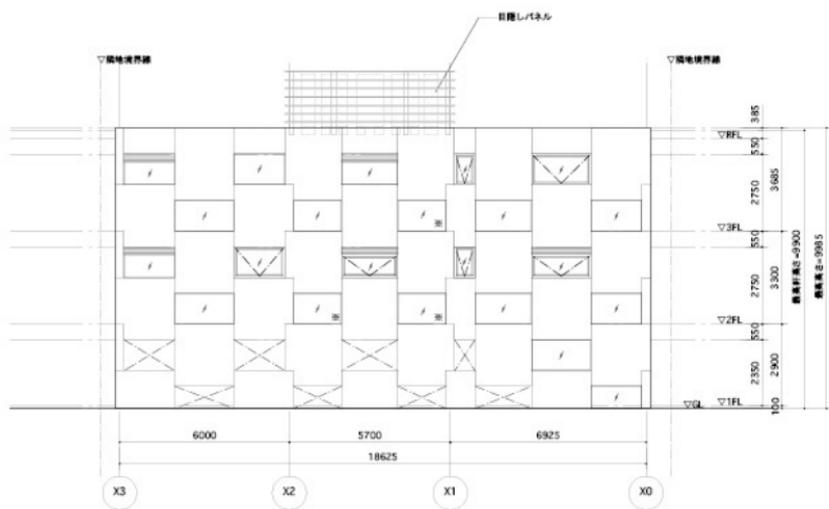


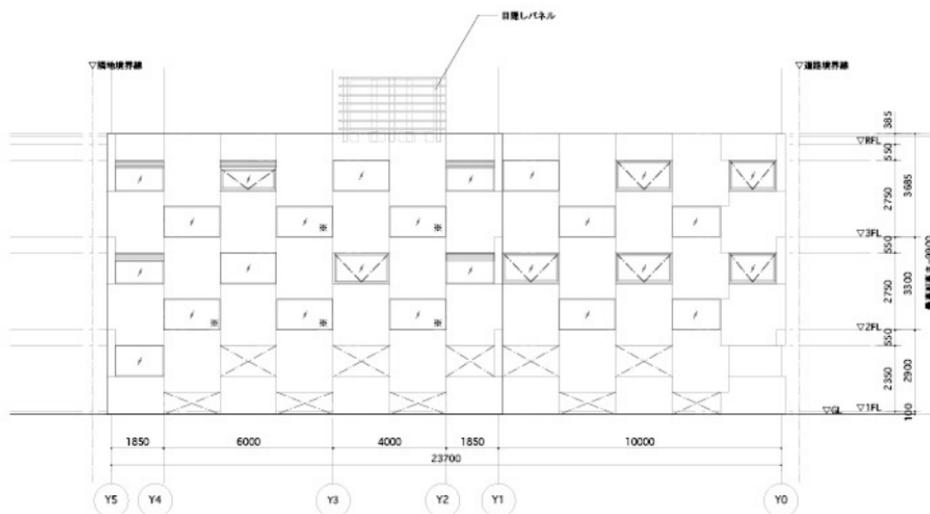




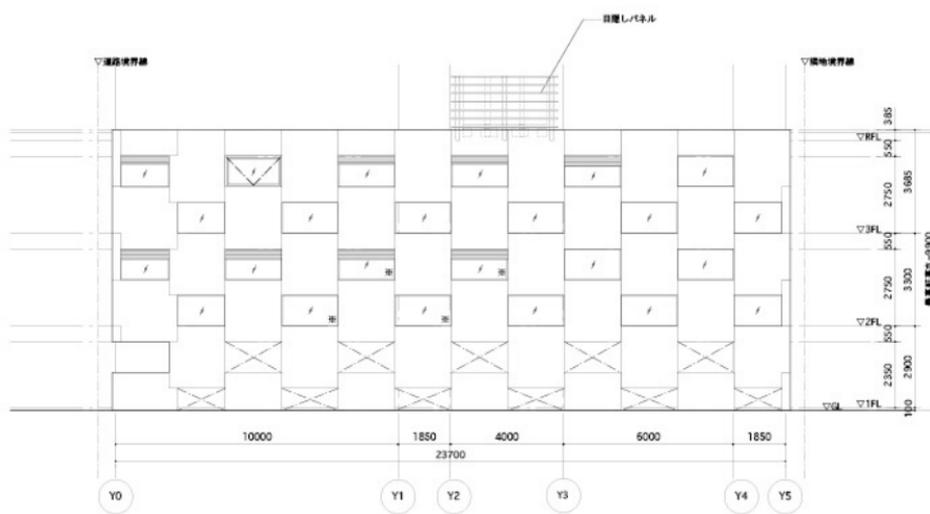


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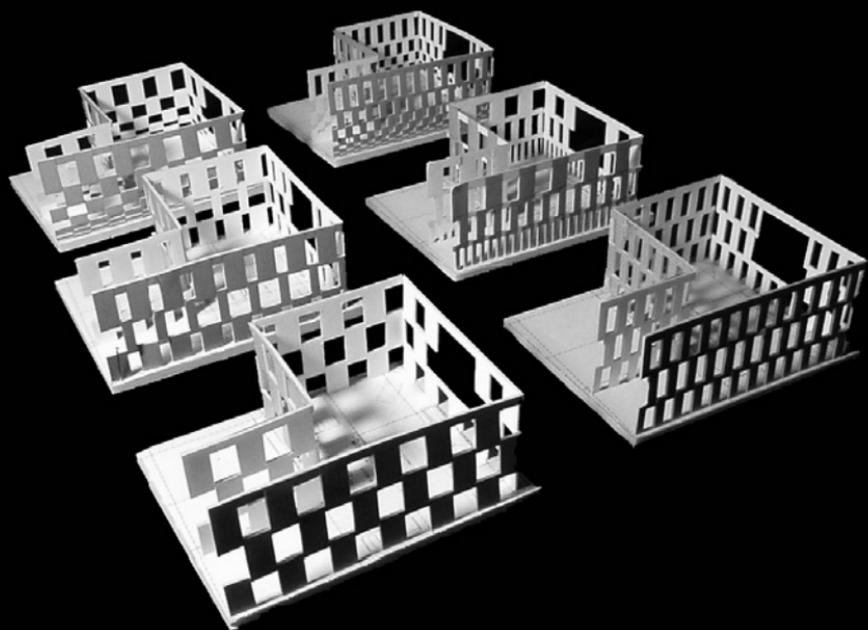




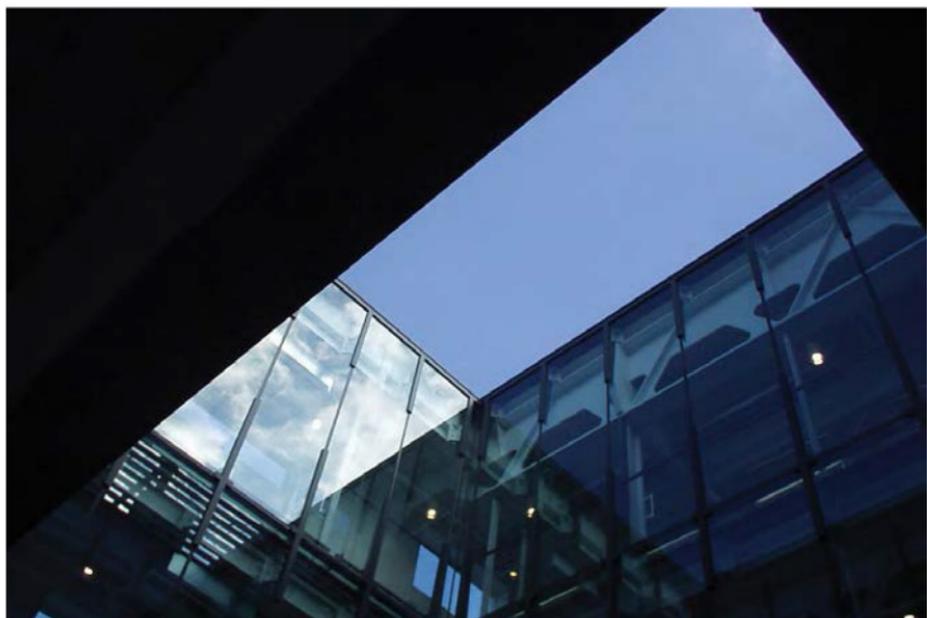
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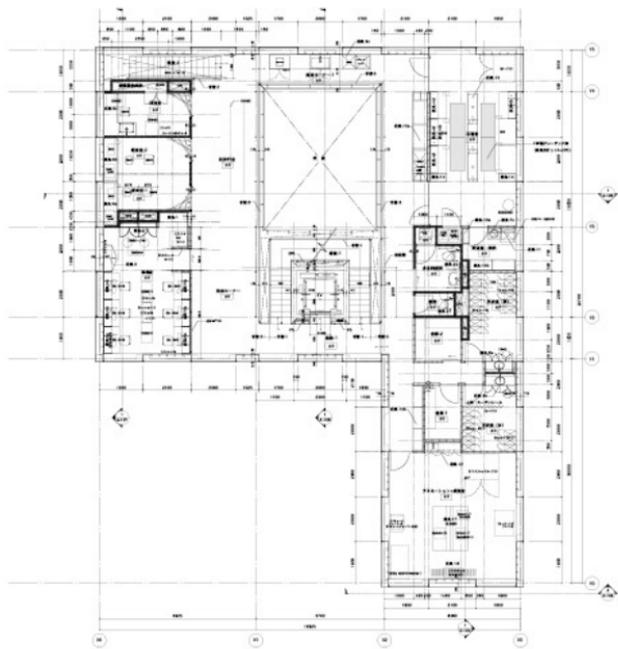
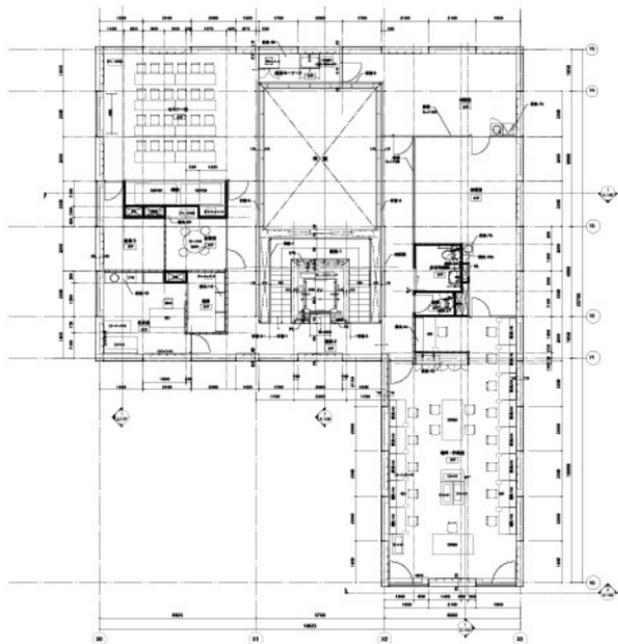






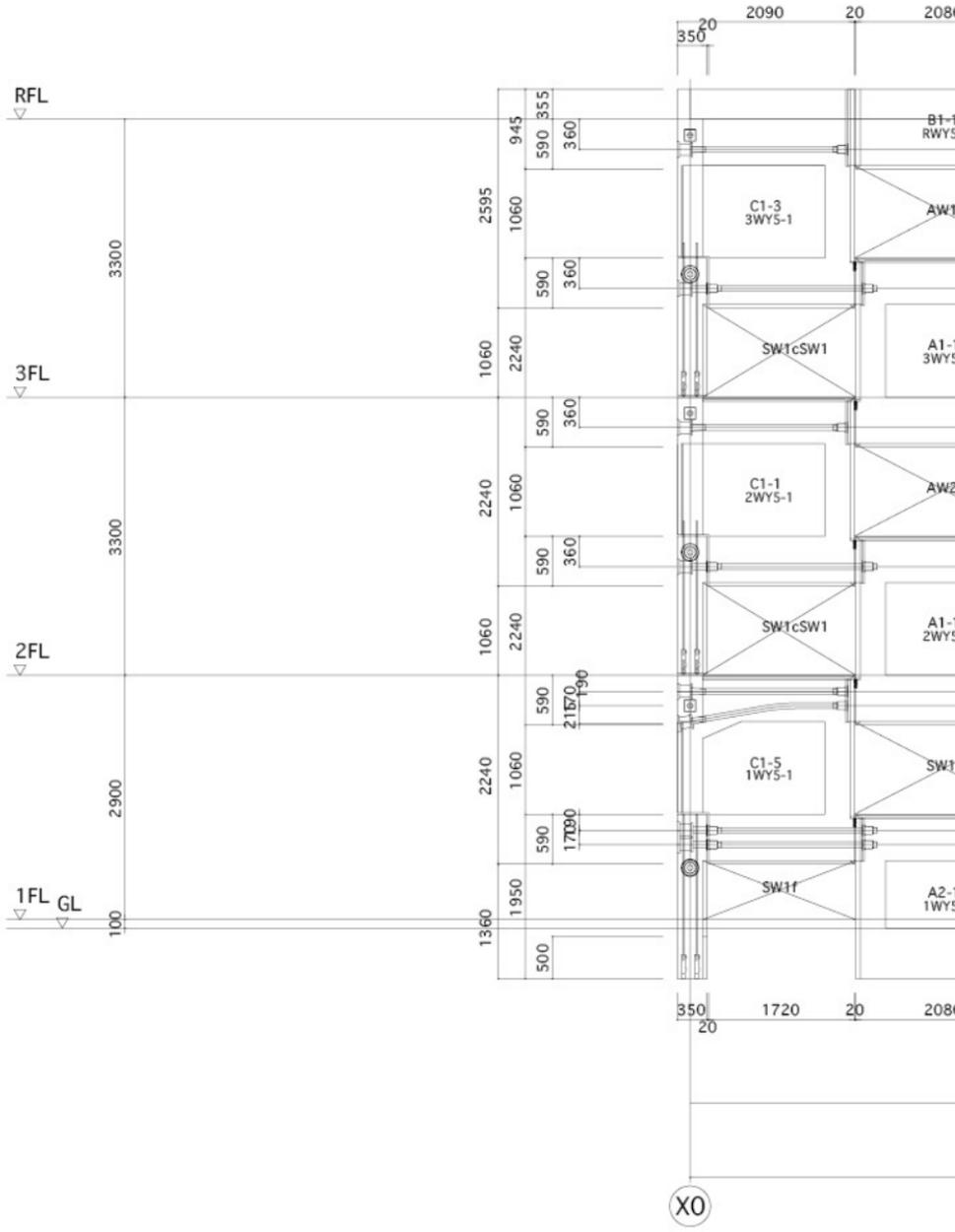


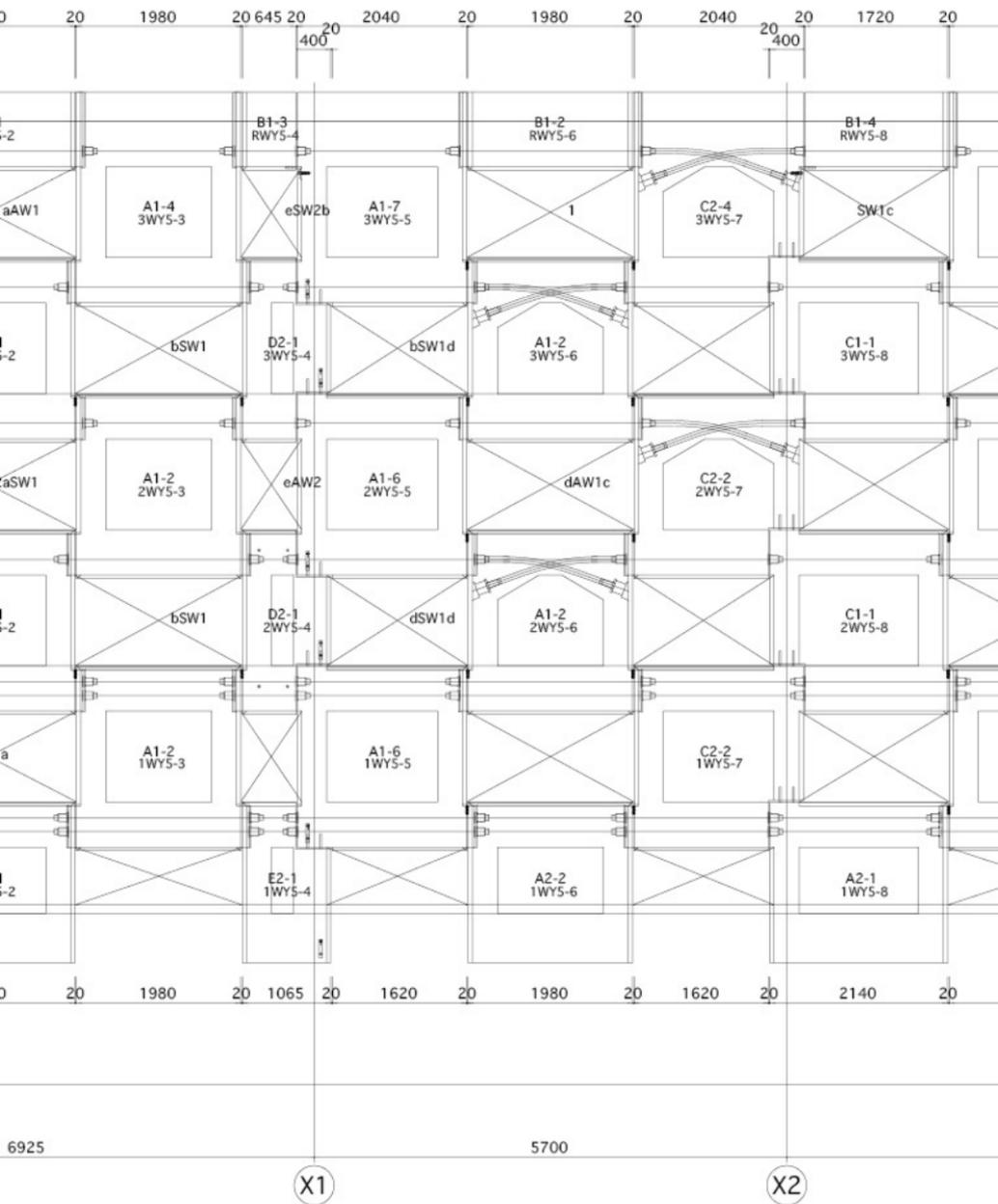












Materials Precast Pre-Stressed Concrete, Partially Reinforced Concrete and Steel
Asphalt Waterproof Insulation Roof
Precast Hydrophobic Concrete Exterior Wall Panels (2 m x 2 m, 300 mm)
Curtain Wall and Aluminum Sash Opening

Project Code SOB
Project Name Sasaki Orthotics Building
Principal Use Office
Location Kimachidori, Aobaku, Sendai
Site Area 394.02 m²
Building Area 294.05 m²
Total Floor Area 866.32 m²
Number of Stories 3F
Structure Steel + Precast Concrete Panel
Architectural Design Hitoshi Abe + Atelier Hitoshi Abe
Structural Design Arup Japan
Facility Design Sogo Consultants, Tohoku
Construction ANDO Corporation
Design Period 2002.6–2003.12
Construction Period 2004.1–2004.11





Abe's "Bubbles"

George Wagner

There are moments in the architectural practice of Hitoshi Abe that suggest a hallucinatory magic; Ladies and Gentlemen, imagine if you will a glass box filled with bubbles. But Abe's use of this illustration as a starting point for the design of a private gallery in Shiogama—known as SSM—stimulates quickly a consideration of the origin and status of ideas in design process. While some lucidity might exist in the argument that there is a difference between good and bad ideas, the actual point is really what you do with them—to the loyalty and consistency with which they are followed in the thick of design practice. In the Shiogama gallery, the common surfaces between bubble cells were isolated, providing a spatial and structural model that helped coordinate the characteristics of space, sequence, and display. As the process evolved, these shared surfaces between spaces were specified as embossed steel plates welded together, tautly delineating the eccentric gallery spaces while structuring the enveloping steel cube. The bubble model allowed Abe to invent a unique synthesis between a structural

method and a spatial type. The fact, then, that the experience of visitors to the Shlogama gallery is essentially bubbleless, or even that bubbles themselves have nothing to do with museums, is irrelevant—they have done their job in the conceptual work necessary to initiate and fuel Abe's design synthesis.

Because architects do not build buildings—their work projects, synthesizes and tracks the construction of buildings—they need ideas, conceptual models strong enough to withstand and negotiate the riotously diverse set of variables that affect them. Norms and standards exist to insulate the world from the extremes of renegade invention—or incompetence. How to nurture the architectural imagination and develop the intelligence required of buildings at the same time is another question. The artist Sol LeWitt articulated some of the reference points of his own practice when he wrote "Sentences on Conceptual Art" in 1969.¹ Of the 35 sentences, number 5 stands out as being particularly relevant to the process of architectural design:

5. Irrational thoughts should be followed absolutely and logically.

This is a beautiful and useful sentence, in large part because it can be read in so many ways. It helps us to understand, for instance, that reason is not a universal, but requires construction for, and within, the specifics of each work. In architectural process, it can help us to recognize and define the internal logics of a design, and use the idea as a constant against which variables can be registered. One could argue that LeWitt's sentence number 5 might only lead to a universe of self-reference within the work, and that would be true...let us call it coherence, and agree on its necessity in a medium as dependent on synthesis as architecture. Knowing the images describing the design process of SSM—and this is what Abe presents in lecture and publication of this recently completed project, leaves one slightly wistful when visiting the work, recalling the utter clarity of the generative studies: the glass cube encasing bubbles, the miniaturization of the sectional models, the drawings of unfolded



steel plates. In the building, the all-white interior subsumes the didactic aspect of the process, and equalizes the difference between the cell walls and the enclosing box.

But does that suggest that the building might never be as clear as the ideas that formed it, or worse, that the process might yield nothing to the uninitiated? Well, it is likely that a casual stroller, walking through the city of Sendai on Kimachidori, would pay no heed when passing by Sasaki Office Factory for Prosthetics. Granted, this is not a public building, and as a factory for prosthetics its use is quite specialized, not something to which the general public might attend. But at the sidewalk there is no sign; in fact, the building has neither door nor storefront on the street. Instead, we are offered a void, a vehicular entry with a walkway to the side, the narrow second floor bridging above all leading to the block interior. The elevated mass of the building occupies the center of the block, and the bit reaching out to Kimachidori is just a stem, enough to give the factory a point of access and a street address. The entire site is open at the ground, paved to a property line that is marked by the only part of the building besides the entry stair to touch the ground: the perforated checkerboard of the exterior concrete wall. Winding around five sides of the site, the wall, and its contrapuntal glazing, abruptly confronts a motley collection of adjacent buildings at close range. At the site's center, above the single handicapped parking space, is an open court about six meters square, lined with a glass curtain wall.

The building's organization is straightforward: circulation space rings the interior courtyard on two floors, giving access to workshops and offices arranged around the perimeter wall. The courtyard is entirely glazed to the corridors that ring it, and the rooms that line the building's edge are mostly glazed onto the corridor. The workshops and offices are glazed eccentrically along the property line, through the checkerboard of the perimeter wall—windows pressed up against the ceiling, and down against the floor.

The sense of the building is extremely porous: the whole is legible from any part, all registered against the void of the center, and the enveloping continuity of the structural wall. While there is an aspect of the activities of the building that suggests a measure of privacy—the manufacturing of artificial limbs—that reservation is overwhelmed by extraordinary craftsmanship displayed in the highly specialized workshops. In fact, at a moment, the building ceases to read as a collection of spaces, but registers as one large space, set in the middle of the city, and this was Abe's intention: "...our aim was to make a single space with a soft boundary, to allow them to feel that they are working together in this place." The idea of what constitutes "this place" is slightly complex, because the space refers both inward, to the community of workers, and outward to the city, always present through the eccentric windows of the perforated wall.

In Abe's practice, this condition is referred to as the "boundary surface," a delicate edge that registers and reflects adjacencies. His description of the phenomenon is unique:

In any situation whatsoever, the face of comedic actor Buster Keaton remains absolutely impassive. He erases his own personality while racing about the screen, and absurd comedy results as the situation escalates. The aesthetic thesis is the way he functions as a medium that reflects the surroundings is John Wayne, who possesses a strength of character that redefines the situation on screen whenever he appears. [Buster Keaton] manifests the invisible rules that constitute the condition of the site—achieving symbolism without resorting to the highly meaningful icons.¹

Whether the space of the Sasaki factory is symbolic should be controversial. This is not an architecture about the politics of representation—in fact, one of its great achievements is to transcend that discourse effectively—and this is clearly Abe's intention, one of the cornerstones of his theory. But what is clear is that the architectural operations of the building are highly consolidated and reduced, to the point that they seem almost inevitable. Some of these qualities emanate from the extraordinary site. Here is a building with a monolithic identity, manifest by the structural consequence and physical continuity of its exterior wall, and yet, it is essentially invisible. But most of the building's magic is strategic, not fortuitous. The double reading of the building's interior—as a set of fully functional discrete spaces, and as a collective bound together in the city—does not impinge on its functional success. The discourses of conceptual art, offered in this essay as the progenitor of a holistic design process highly relevant to

architecture, anticipated friction between content, material and experience. Quoting Sol LeWitt:

The danger is, I think, in making the physicality of the material so important that it becomes the idea of the work [another kind of expressionism]. Three-dimensional art of any kind is a physical fact. This physicality is its most obvious and expressive content. Conceptual art is made to engage the mind of the viewer rather than his eye or emotions...Anything that calls attention to and interests the viewer in this physicality is a deterrent to our understanding of the idea and is used as an expressive device.²

Of course, LeWitt is full of warnings and admonition, which, I hope, only serve to make clearer Abe's accomplishment on Kimachidori. The structural heroism (no columns!) of the Sasaki factory is not of the exhibitionistic sort, it just is. By making that engineering disappear, Abe makes other phenomena visible. It would be difficult for an architect not to scrutinize the "physicality" of this building, nor to admire Abe's skillful and elegant orchestration of all these parts. The tenacious life on display at the Sasaki Factory is quietly heroic, crafting prostheses that will help make incomplete bodies functional once again. The effects of Abe's brilliant orchestration of the building's "physical facts" render visible this diligent work as a shared experience.

1. Sol LeWitt, "Sentences on Conceptual Art," *Conceptual Art*, ed. Peter Osborne (New York: Phaidon Press, 2002).

2. Hitoshi Abe, "Buster Keaton," *Flicker*, [Tokyo: TOFO Publishing, 2005], 98.

3. Sol LeWitt, "Paragraphs on Conceptual Art," *Conceptual Art*, 214.





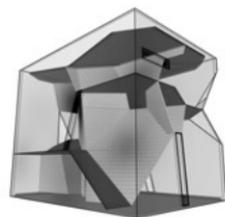
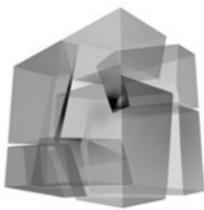
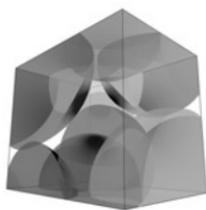
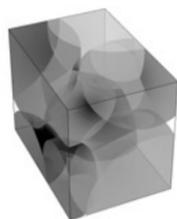
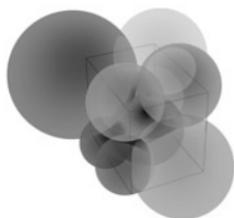
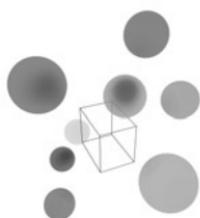


2003.7–2005.12 Shiogama, Miyagi ⁹³

Located in a small town on a hilly site with a view of the Pacific Ocean, this is a design for a private art gallery intended to permanently display eight sculptures owned by the client. Giving consideration to the state of the town and the program of the building, we decided it was necessary that the space of the art gallery itself should be potent enough to stimulate local artistic activities. In other words, rather than a "white cube" able to accommodate any type of exhibition, we aimed to design a unique landscape, and specific places for exhibiting each of the sculptures.

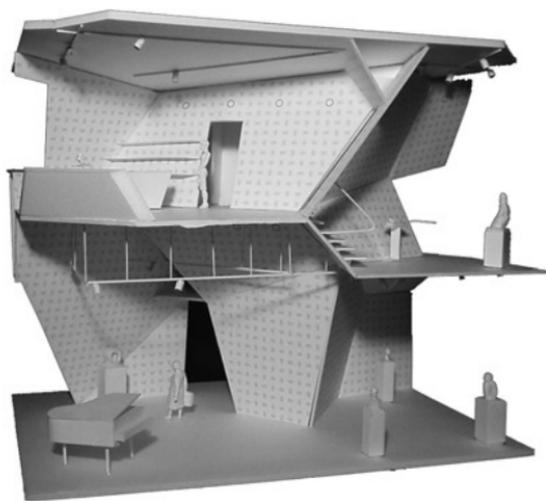
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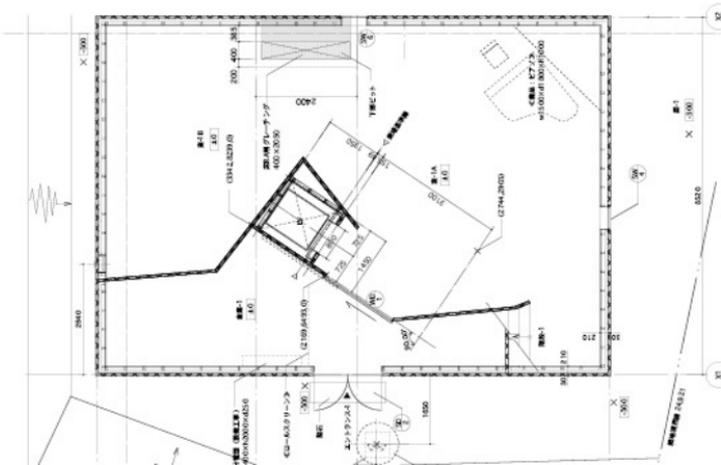
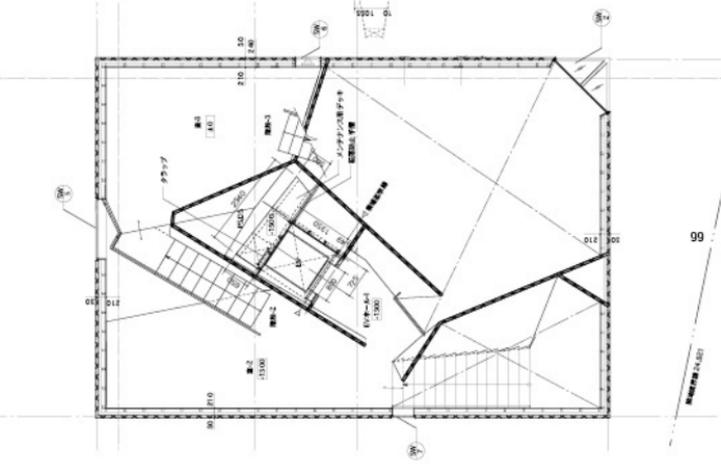
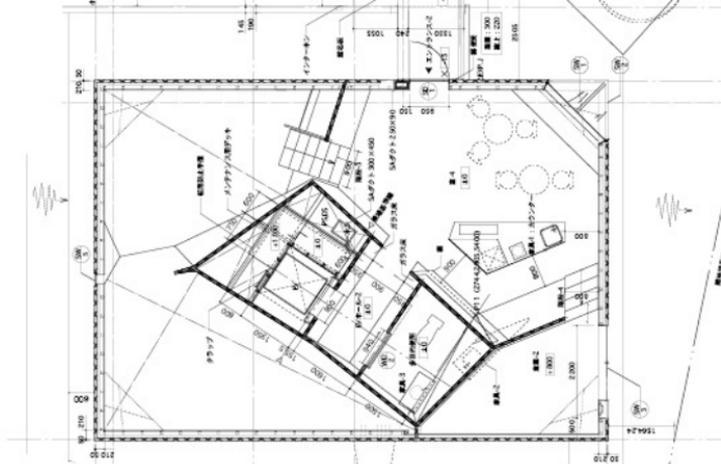
Within the predetermined 10m x 12m x 10m volume, the architecture was given form by creating the eight spaces to hold the sculptures as if inflating them like soap bubbles. This form is defined by balancing the conditions (location, size) that give rise to the boundary surfaces of each cell, which are formed by the internal pressures of the small spaces within the large space of the entire building. Visitors may experience the eight sculptures while moving around the cells, which connect the differences in elevation of the site.



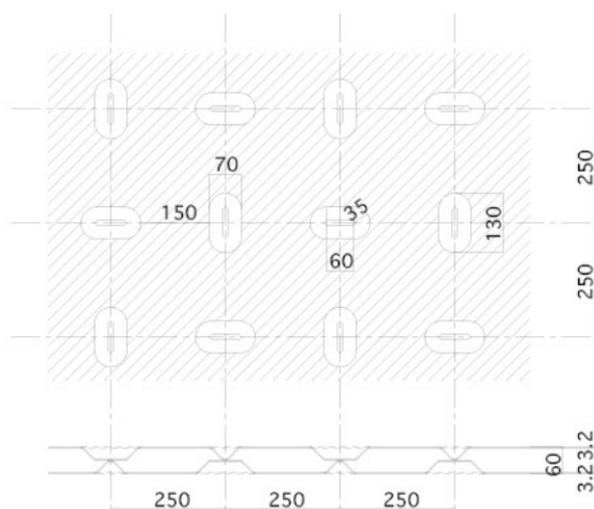
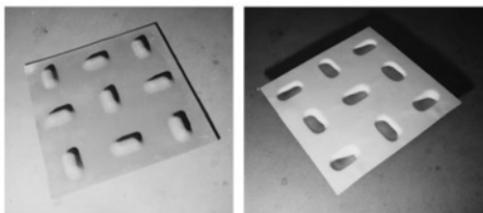




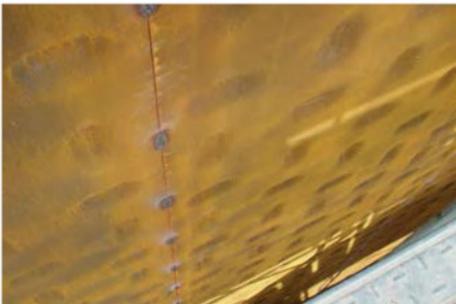


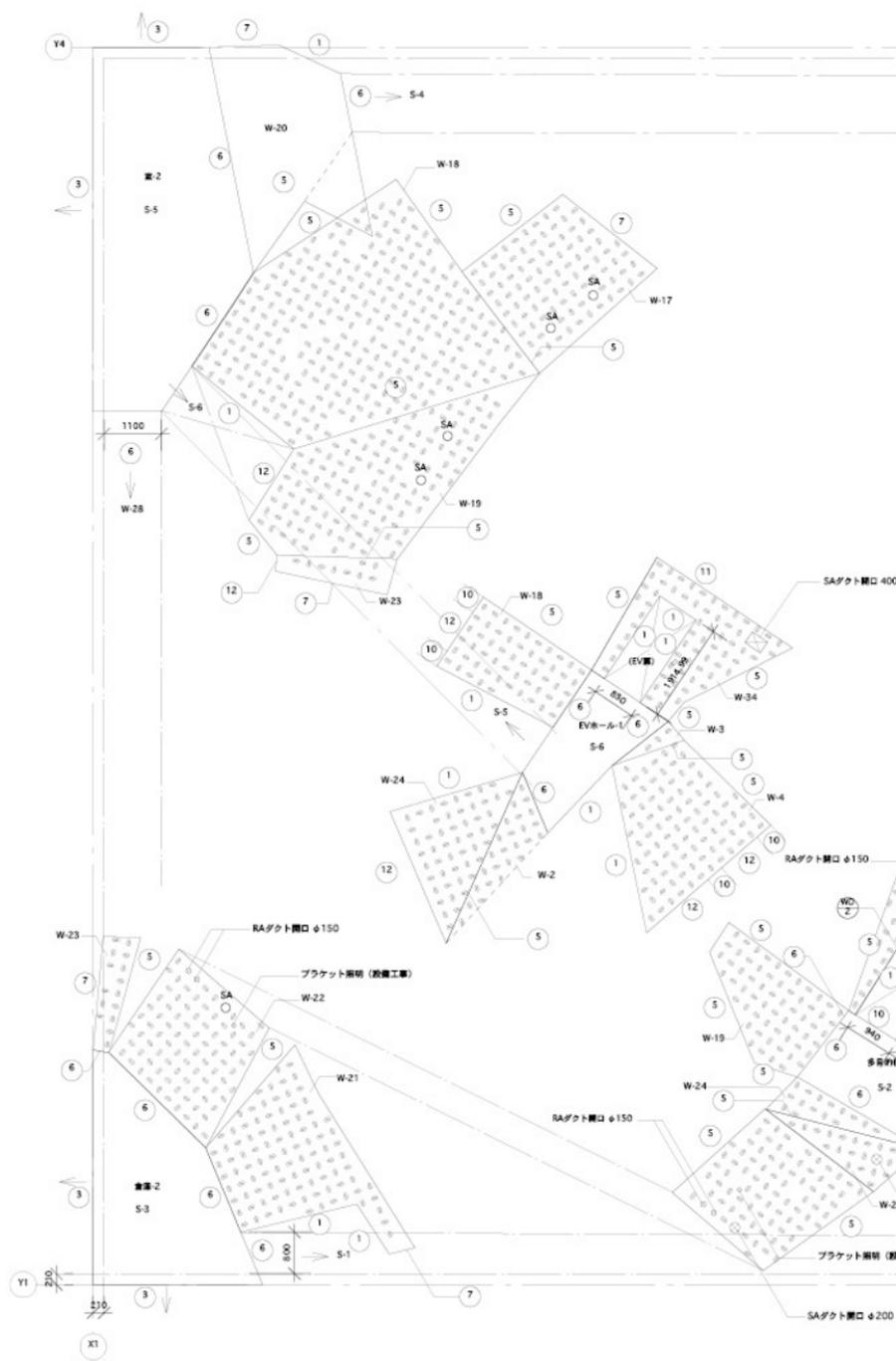


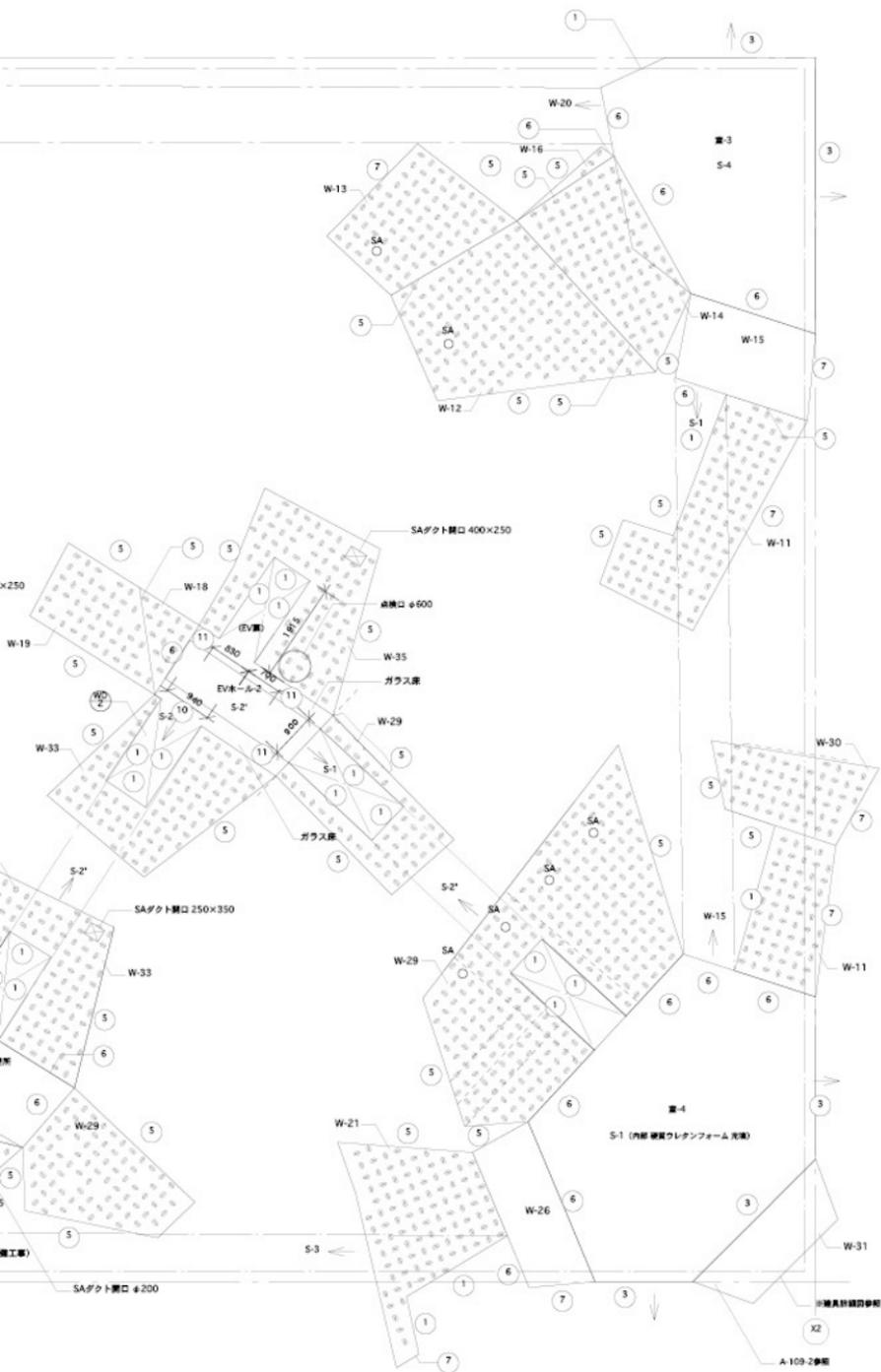
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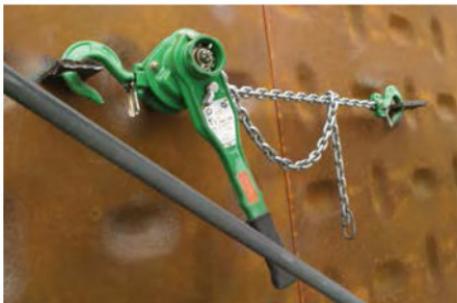
The cells that constitute each of these rooms are made of steel plates 3.2 mm thick, with about twenty-five embossed protuberances per square meter. Honeycomb panels are formed by welding the embossed protuberances of a cell to those of the adjoining cell, resulting in an unusual structure like an aggregation of soap bubbles. Manifest on the interior and the exterior of the building, the pattern of embossing is functionally determined according to structural strength requirements and the malleability of the steel plates, yet in addition, the deep color and materiality of the Corten steel used for the exterior walls is transformed by the changing effects of light and shade.

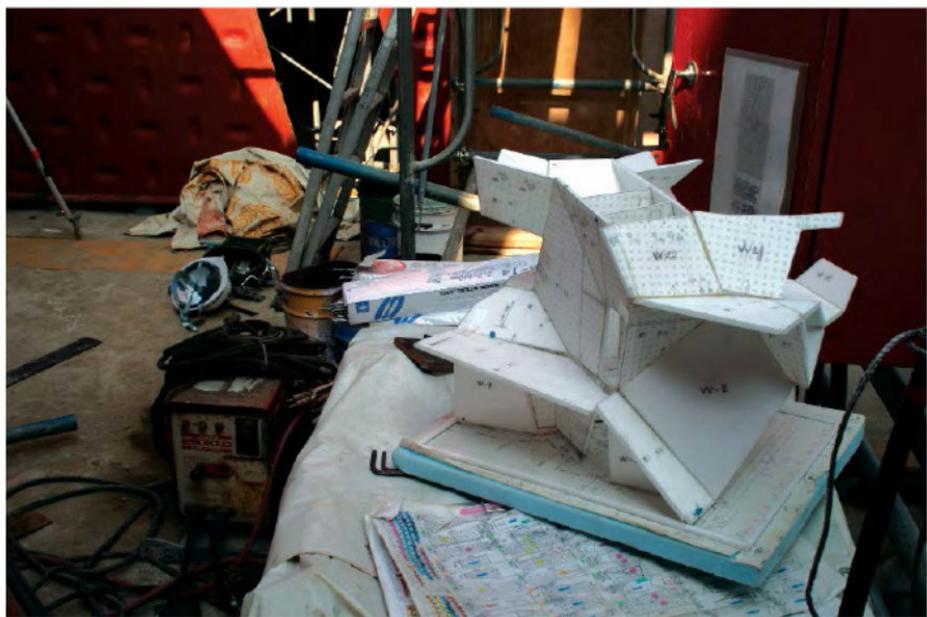




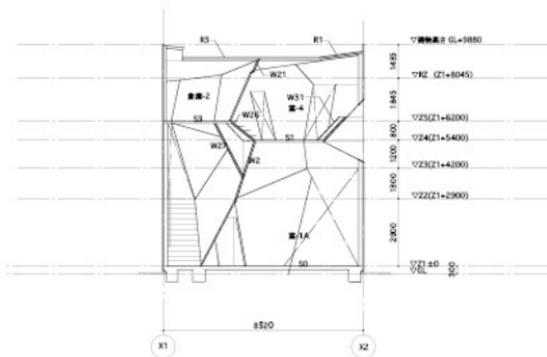




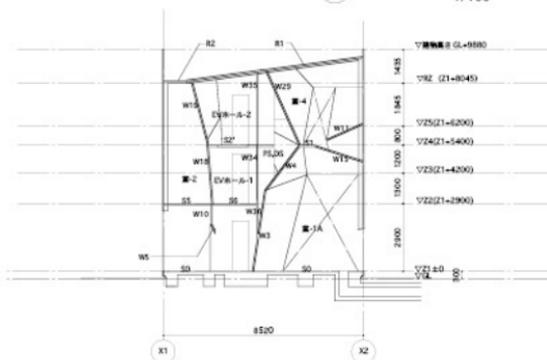




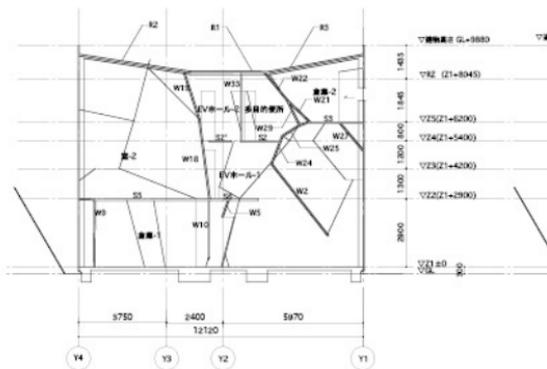




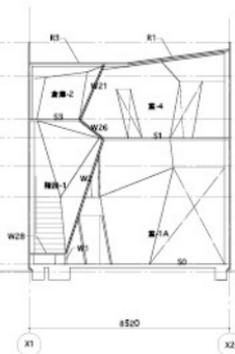
1 X=600断面图 1/100



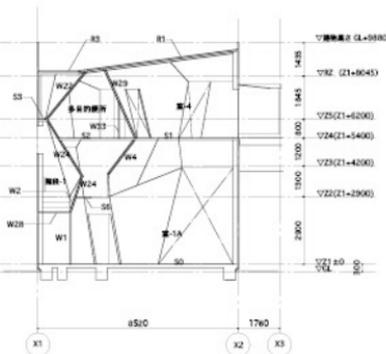
4 X=600断面图 1/100



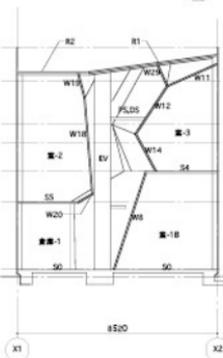
7 Y=2100断面图 1/100



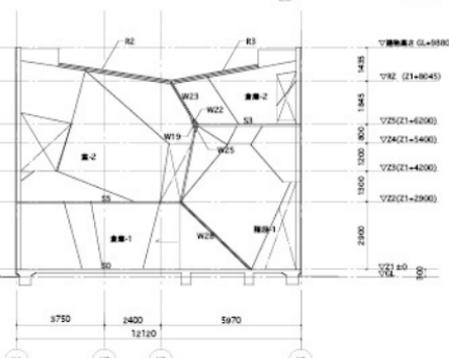
2 X=2400断面图
1/100



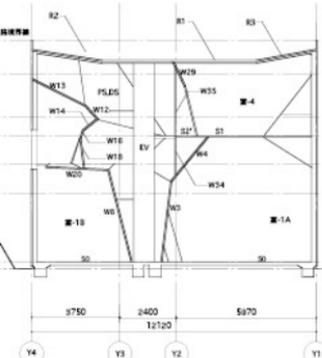
3 X=4200断面图
1/100



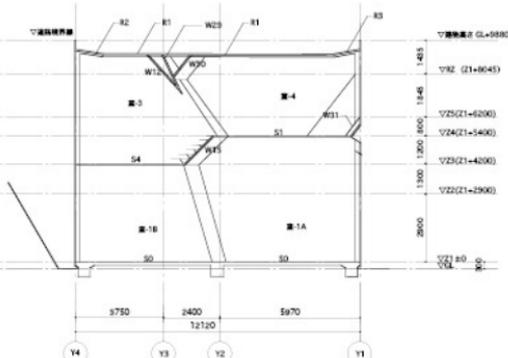
5 X=7800断面图
1/100



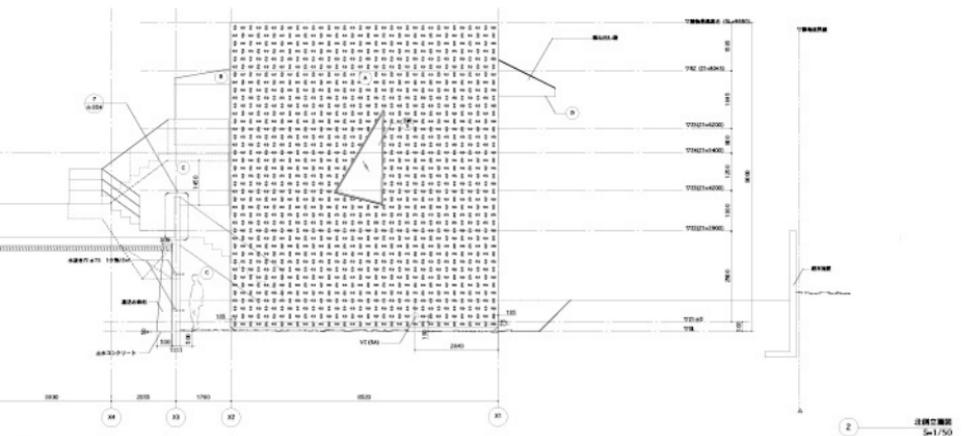
6 Y=100断面图
1/100



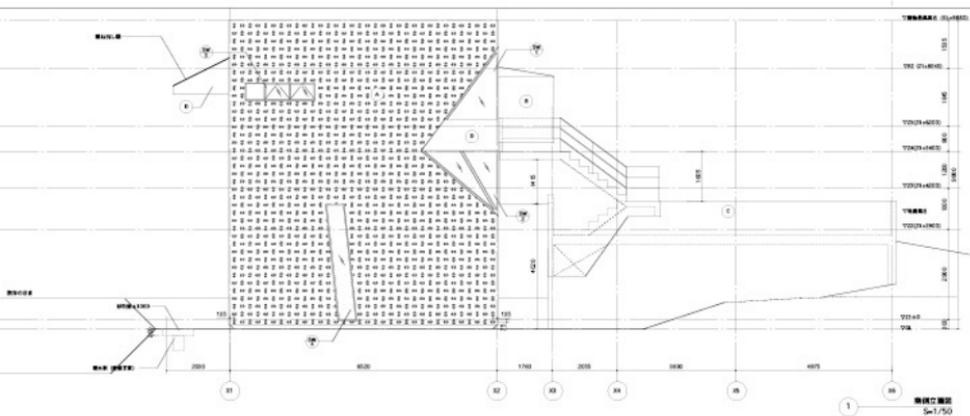
8 Y=4100断面图
1/100



9 Y=6100断面图
1/100

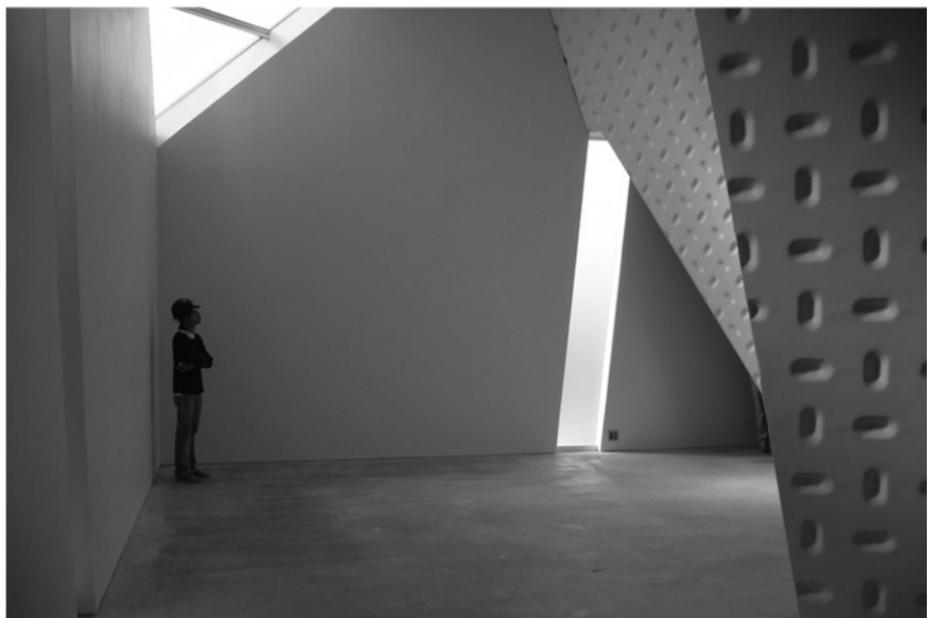


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Materials	Steel Panel (3.2 mm) + Reinforced Concrete (250 mm) Welded Corten Steel Sandwich Panel Interior and Exterior Walls (two 3.2 mm embossed panels welded along protuberances to form 60 mm sandwich) Welded Corten Steel Sandwich Panel Roof (two 3.2 mm embossed steel panels welded to form 68 mm sandwich panel) Interior Walls and Ceiling Sprayed with Ceramic Vacuum Metallizing Finish and Water-Based Urethane Coating
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Project Code	SSM
Project Name	K-museum
Principal Use	Museum
Location	Shiogama, Miyagi
Site Area	638.49 m ²
Building Area	119.94 m ²
Total Floor Area	218.89 m ²
Number Of Stories	2F
Structure	Steel + Reinforced Concrete
Architectural Design	Hitoshi Abe + Atelier Hitoshi Abe
Structural Design	Oak Structural Design
Facility Design	Sogo Consultants, Tohoku
Lighting Design	Yasuaki Onoda, Masashige Motoe
Construction	Kajima Corporation + Takahashi Kogyo
Design Period	2003.7–2004.12
Construction Period	2005.1–2005.12



Hitoshi Abe

Chair, Professor
 Department of Architecture and Urban Design,
 School of Arts and Architecture, University of California, Los Angeles

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BIOGRAPHY

- 1962 Born in Sendai, Miyagi, Japan
- 1989 Master of Architecture, Southern California Institute of Architecture
- 1988–92 Coop Himmelblau, Los Angeles
- 1992 Established Atelier Hitoshi Abe
- 1993 Dr. Eng., Tohoku University
- 1994 Lecturer, School of Architecture, Tohoku Institute of Technology
- 1998 Associate Professor, School of Architecture, Tohoku Institute of Technology
- 2002–07 Professor at Tohoku University
- 2006 Visiting Professor at University of California, Berkeley (Friedman Professor)
- 2007 Visiting Professor at Tohoku University
- 2007– Chair, Professor at University of California, Los Angeles

AWARDS

- 2007 International Architecture Award, "SM/Kanno Museum"
- 2005 Good Design Award, "Sasaki Office Factory for Prosthetics"
- 2003 Business Week/Architectural Record Award, "Sekii Ladies Clinic"
- Architectural Institute of Japan Award, "Reihoku Community Hall"
- 2001 42nd Building Contractors Society Award, "Miyagi Stadium"
- Tohoku Architectural Award, "Michinoku Folklore Museum"
- 1999 Tohoku Architectural Award '98 citation, "Gravel 2"
- 14th Yoshioka Award, "YG-House"
- 1997 4th Twenty Young Architects World Architecture Prize
- 8th World Triennale of Architecture INTERARCH'97
- Tohoku Architectural Award '96 citation, "C-House"
- 1992 Miyagi Stadium Competition, 1st Prize

THE DINKELOO LECTURERS

The John Dinkeloo Memorial Lecture has been delivered by architects internationally recognized for their work in practice.

- 1984 Kevin Roche
- 1985 E. Fay Jones
- 1986 Robert J. Frasca
- 1987 William Pederson
- 1988 Richard Meier
- 1989 Thomas H. Beebe
- 1990 Gunnar Birkerts
- 1991 Thom Mayne
- 1992 Tod Williams & Billie Tsien
- 1993 Michael McKinnell
- 1994 Diana Agrest
- 1995 John Patkau
- 1996 Richard Horden
- 1997 Rafael Viñoly
- 1998 Studio Granda
- 1999 Will Bruder
- 2000 Rafael Moneo
- 2001 Françoise-Hélène Jourda
- 2002 Kazuyo Sejima & Ryue Nishizawa
- 2004 Ben van Berkel
- 2005 Hitoshi Abe
- 2006 François Roche



JOHN DINKELOO 1918–1981

John G. Dinkeloo was born in Holland, Michigan in 1918 and graduated from the architecture program at the University of Michigan in 1942. Upon graduation he joined the office of Skidmore Owings and Merrill in Chicago where he worked first as a designer and subsequently as the chief of production. Eight years later John returned to Michigan to join the office of Eero Saarinen and Associates in Bloomfield Hills where he was to become a partner. During this time he was involved with the design of a number of important projects including the TWA Terminal at Kennedy Airport and Dulles Airport in Washington DC, the Gateway Arch in St. Louis and the Morse and Stiles Colleges at Yale University. Following the sudden death of Eero Saarinen in 1961, John Dinkeloo formed a partnership with Kevin Roche to become a founding partner of Kevin Roche John Dinkeloo & Associates in 1966. This was to become one of the most distinguished architectural offices in the United States and became a practice whose work has been internationally recognized.

John Dinkeloo was responsible for the development of thoughtful and elegant systems of design and technical innovations including the use of structural neoprene gaskets, new glazing systems and high-strength low-alloy weathering steel in the exposed structures of buildings. In 1968 he received the Medal of Honor from the New York Chapter of the American Institute of Architects. Six years later the practice received the Architectural Firm Award from the American Institute of Architects. In 1995 the Ford Foundation was selected for the American Institute of Architects 25-Year Award.

John Dinkeloo died in 1981. The John Dinkeloo Memorial Lecture was established at the Taubman College of Architecture and Urban Planning as a recognition of his extraordinary contribution to architecture and to honor the work of this distinguished and highly respected alumnus of the University of Michigan.

This publication was made possible through the generous support of several people and organizations in Michigan and Japan. In particular we would like to thank Hitoshi Abe and his atelier for collaborating with us on the production of this book and for supplying the vivid graphic material and construction documents without which the publication would not have been possible. We express our deep gratitude to Tohru Horiguchi for his editorial contributions, translation assistance and for close collaboration throughout the design and production of the book. We also appreciate his time and generosity while hosting us in Japan to visit the projects. Thank you also to Christian Unverzagt, Martha Merzig, Neil Meredith and Rachel Rush at M1 for design and production. We are extremely grateful to George Wagner and Ken Tadashi Oshima for contributing insightful essays about the practice. Financial support was provided by the Office of the Vice President for Research (OVPR) and the Center for Japanese Studies at the University of Michigan, Ann Arbor.

Ken Tadashi Oshima, Ph.D., is an Assistant Professor in the Department of Architecture at the University of Washington, where he teaches history, theory, representation, and design. Professor Oshima was a Robert and Lisa Sainsbury Fellow at the Sainsbury Institute for the Study of Japanese Arts and Cultures in London, and has previously taught at the Graduate School of Architecture, Planning and Preservation at Columbia University.

George Wagner is an Associate Professor of Architecture at the School of Architecture at the University of British Columbia. He has edited monographs on the work of Barkow Leibinger Architects, Thom Mayne and Stanley Saitowitz. His writing has been published in *Harvard Design Magazine*, *AA Files*, *Perspecta* and *Canadian Architect*.

Gretchen Wilkins practices architecture in Melbourne, Australia and teaches at the School of Architecture and Design at RMIT University. She was previously an Assistant Professor of Architecture at the University of Michigan. Her work has been published in *Architectural Record*, *Architecture d'aujourd'hui*, *Ottogano* and other periodicals.

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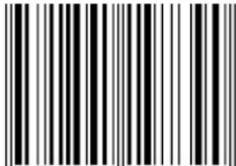
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