DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Steven Holl

The Architectonics of Music

Abstract
Steven Holl analizza la relazione tra musica e architettura nel processo ideativo di 4 sue opere: l'ormai nota Stretto House (1992) e 3 progetti recenti: il progetto teatrale Tesseracts of Time (2015), il Maggie's Centre St. Barts di Londra (2011-2017) e l'Hangzhou Music Museum in Cina (2009). La composizione delle opere di architettura si intreccia con la composizione musicale e con il contesto, inteso sia come contesto morfologico che come condizione culturale: quando Steven progetta a Londra il riferimento è la notazione neumatica della musica medievale del XIII secolo, quando progetta in Cina sono i "bayin", gli otto suoni tradizionali della musica cinese.

Parole Chiave
Architecture — Music — Architectural Composition

A composition is like a house you can walk around in.
John Cage

Music, like architecture, is an immersive experience —it surrounds you. One can turn away from a painting or a work of sculpture, while music and architecture engulf the body in space.
The "Architectonics of Music" portfolio includes a selection of four projects that test new architectural languages, formed by the cross-disciplinary link between architecture and music.
Tesseracts of Time, the collaboration with the choreographer Jessica Lang, was provoked by the fact that architecture and dance are at opposite ends of the spectrum with respect to time: lasting vs. ephemeral, but could merge in a compression of space and time. The music, by composers David Lang, Morton Feldman, John Cage, Iannis Xenakis, and Arvo Pärt, was chosen for its geometric potential.
Looking at music composition, the Stretto House, built in Texas in 1992, was created as a direct analogy to Bella Bartók's distinct division between heavy and light in his work *Music for Strings, Percussion and Celeste*. For this project, I made an equation to explain the condition where sound is to time as light is to space:

$$\frac{\text{material} \times \text{sound}}{\text{time}} = \frac{\text{material} \times \text{light}}{\text{space}}$$

DOI: 10.12838/fam/issn2039-0491/n54-2020/714

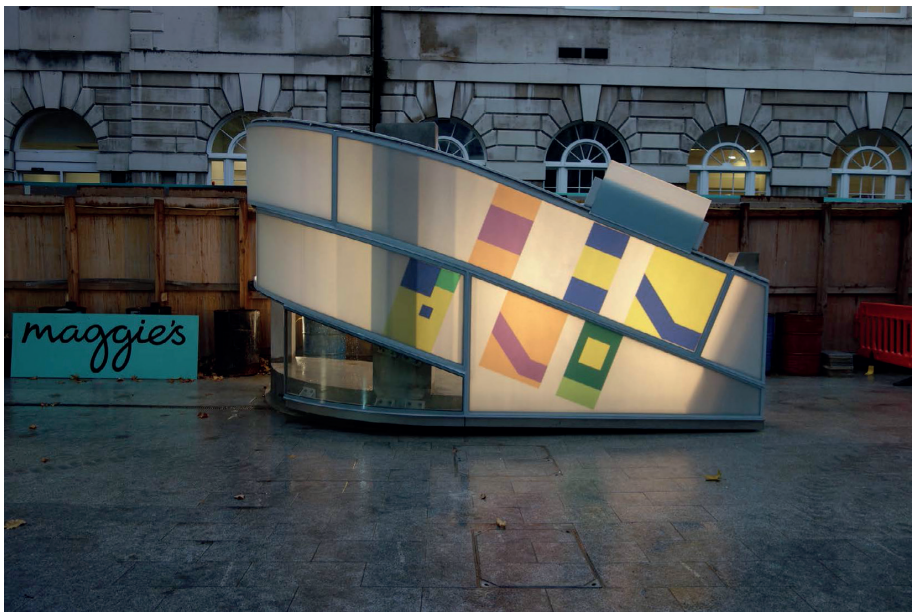


Fig. 1
Steven Holl, Maggie's Centre, St. Barts, London. Colored glass facade mockup of the building. Courtesy Steven Holl Architects.

Bridging music and architecture can form a very unique and dynamic experience of space. For the design of the new *Maggie's Centre*, currently under construction in the historic center of London, the building's colored glass façade was inspired from neume notation of Medieval chant music of the thirteenth century. A new insulating material, a type of glass never used before, brings wonderful colored light to the inside as visitors experience the building.

Music's ancient history and locality was the inspiration for the Huangzhou music museum, a proposal not yet realized. The design concept is based on the idea that each of the museum's eight auditorium volumes relate to one of the Eight Sounds, known as "bayin" (八音), in traditional Chinese music: silk, bamboo, wood, stone, metal, clay, gourd, and hide. Here the materiality of music became a direct reference to the architectural vocabulary.

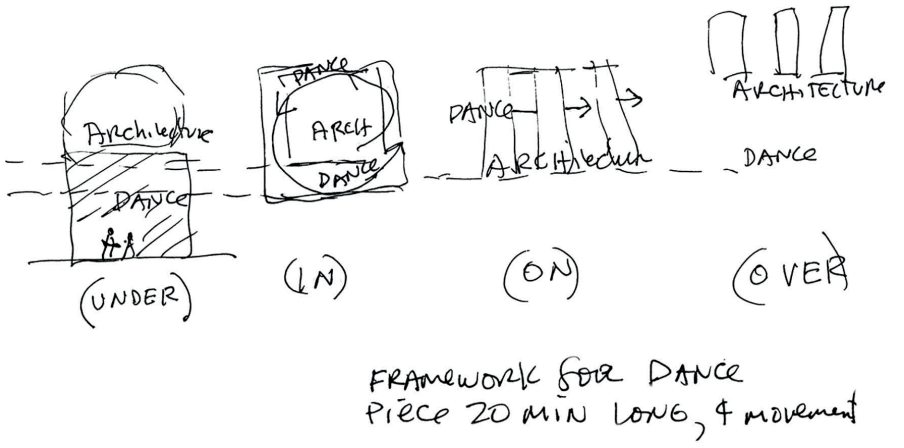
Research on music and architecture continues to provoke inspiration and is especially needed in the present moment when architectural pedagogy and practice seam diffused, directionless, lacking idea and spirit. I have been teaching the advanced design studio "Architectonics of Music" at Columbia University, School of Architecture over the last ten years, now with Dimitra Tsachrelia. This semester we focus on the work of composer Iannis Xenakis, who was also an engineer, architect, and mathematician who truly connected architecture and music with innovative conceptual strategies. At the studio, we see potential in future architecture as open to experiment as it is connected to spirit. While we ask, "what is architecture"? we also ask, "what is music"?

Tesseracts of Time (2015)*

Both Architecture and dance share a passion for space and light in time. However, they are on opposite ends of the spectrum with respect to time. Architecture is one of the arts of longest duration, while the realization of a dance piece can be a quick process and the work disappears as the performance of it unfolds. Here the two merge. Corresponding to the four seasons, but within a twenty-minute period, my collaboration with choreographer Jessica Lang merges dance and architecture in a compression of time and space. The four sections of the dance correspond to the four types

* Steven Holl in collaboration with Jessica Lang; directed and choreographed by Jessica Lang. Architectural Director, Dimitra Tsachrelia. Jessica Lang Dance: Clifton Brown, Randy Castillo, Julie Fiorenza, John Harnage, Eve Jacobs, Kana Kimura, Laura Mead, Milan Misko, Jammie Walker.

DOI: 10.12838/fam/issn2039-0491/n54-2020/714



Figg. 2-3
Steven Holl, *Tesseracts of Time.*

Top: Preparatory drawing.
Bottom: Watercolor study for set design.
Courtesy Steven Holl Architects.

DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Figg. 4-5
Jessica Lang Dance performing Tesseracts of Time. Third section, ON
Bottom: Jessica Lang Dance performing Tesseracts of Time. Fourth section, OVER.
Photos by Todd Rosenberg.

DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Fig. 6
Steven Holl, Watercolor study for the design. Fourth section, OVER. Courtesy Steven Holl Architects.

of architecture: (1) Under the ground (2) In the ground (3) On the ground (4) Over the ground.

The first section, UNDER, begins with a slow movement of sunlight coming from above, sweeping across the curved interior spaces of the architecture. The dance physically vibrates in the dark shadows of the stage. Dancers are dressed in black geometric and angular costumes. Their movement is grounded and driven with linear thought to the percussive score *Anvil Chorus*, by David Lang. For the second section, IN, compressed spatial sequences filled in deep light are projected in film. The dance movement defies gravity and explores geometry with emotional expression. Space and body in black and white work in synchrony with the minimalist piano music *Patterns in a Chromatic Field*, by Morton Feldman. The third section, ON, all in white, reveals onstage three twelve-foot-tall tesseract fragments. In geometry, the tesseract is the four-dimensional analog of a cube. In dance, the movement explores space now present in the third dimension of the stage. The music is the percussive, prepared piano of *The Perilous Night*, by John Cage. The fourth section, OVER, begins with the tension of sound and energy as the tesseracts rise upwards to the Iannis Xenakis music *Metastaseis*. Unlike the previous sections, bursting color floods the stage, with dancers in asymmetrical colors of oranges and reds. Arvo Pärt's *Solfeggio* takes shape in a synthesis of chromatic forms as the dance releases like a sunrise into intensely lyrical and hypnotic, meditative phrases.

Like seasons, the ending returns to the darkness at the beginning of UNDER. No beginning No ending.

The whole piece takes a year—four seasons—but is compressed into twenty minutes. As there are 525,600 minutes in one year, this compression ratio would render an average human life as four years.

DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Stretto House, Private Residence, Dallas, Texas (1992)
Sited adjacent to three springfed ponds with existing concrete dams, the house projects the character of the site in a series of concrete block "spatial dams," with a metal framed "aqueous space" flowing through them. Flowing over the dams, like the overlapping stretto in music, water is an overlapping reflection of the space of the landscape outside as well as the virtual overlapping of the spaces inside. A particular music with this stretto, Bartók's *Music for Strings, Percussion and Celeste*, was a parallel on which the house form was made. In four movements, the piece has distinct division between heavy (percussion) and light (strings). Where music has a materiality in instrumentation and sound, this architecture attempts an analogue in light and space.
The building is formed in four sections, each consisting of two modes: heavy orthogonal masonry with light and curvilinear metal. The concrete block and metal recall Texas vernacular. The plan is purely orthogonal, while the section is curvilinear. The guest house is an inversion with the plan curvilinear and section orthogonal, similar to the inversions of the subject in the first movement of the Bartok score. In the main house, aqueous space is developed by several means: floor planes pull the level of one space through to the next, roof planes pull space over walls and an arched wall pulls light down from a skylight. Materials and details continue the spatial concepts in poured concrete, glass cast in fluid shapes, slumped glass and liquid terrazzo.
Arriving at the space via a driveway bridging over the stream, a visitor passes through overlapping spaces of the house, glimpsing the flanking gardens, and finally an empty room flooded by the existing pond. The room, doubling its space in reflection, opening both to the site and the house, becomes the asymmetrical center of two sequences of aqueous space.

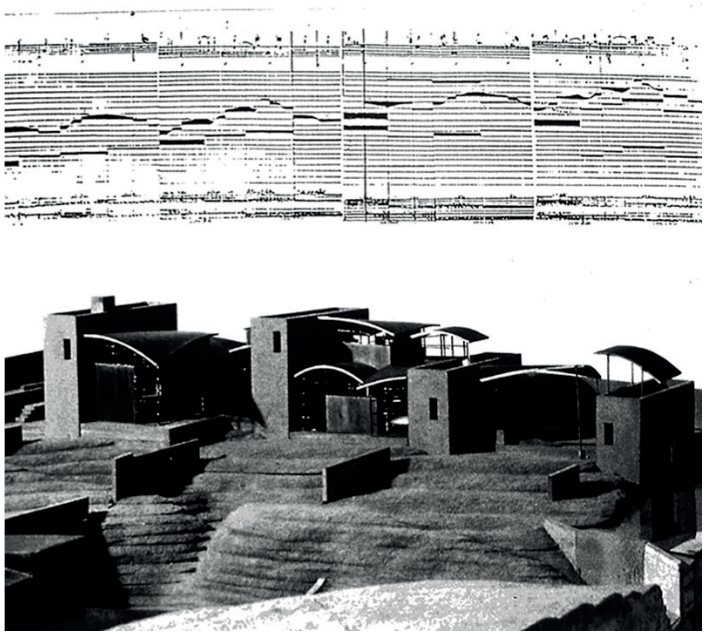
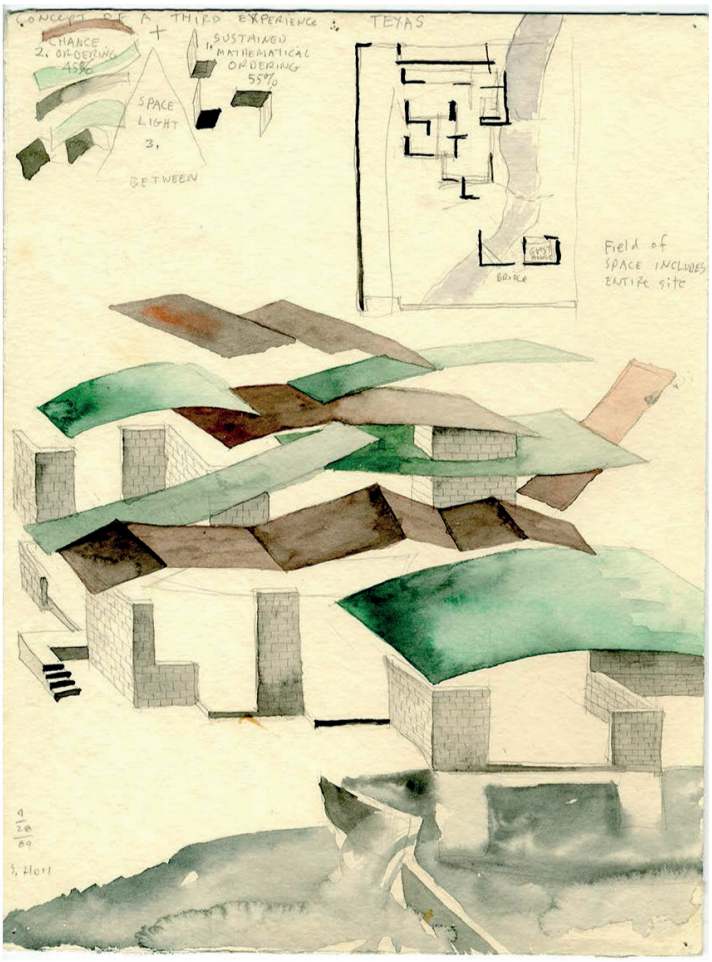


Fig. 7
Steven Holl, *Stretto House*. Pattern from "stretto" by Bartók with Stretto House's model.
Courtesy Steven Holl Architects.

DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Figg. 8-9
Steven Holl, *Stretto House*.
Ramp to terrace over the flooded room. Photo: Paul Warchol

Bottom:
Watercolor study for Stretto house.
Courtesy Steven Holl Architects.



DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Maggie's Centre, St. Barts, London (2011–2017)

The site in the center of London is adjacent to the large courtyard of St. Bartholomew's Hospital. Founded in Smithfield in the twelfth century, the hospital is the oldest in London and was founded at the same time as St. Bartholomew the Great Church in 1123. Rahere founded the church and hospital "for the restoration of poor men." Layers of history characterize this unique site, connecting deeply to the Medieval culture of London.

While most of the realized Maggie's Centres have been horizontal buildings, the Centre at St. Barts will be more vertical, sitting on the historically charged site. It will replace a pragmatic 1960s brick structure adjacent to a seventeenth-century stone structure by James Gibbs, holding the Great Hall and the famous Hogarth staircase. Maggie's Centers, established throughout the UK and Hong Kong, offer free practical, emotional, and social support to people with cancer, their family and friends, following the ideas about cancer care originally laid out two decades ago by Maggie Keswick Jencks.

The building, opening in December of this year, is envisioned as a "vessel within a vessel within a vessel." The structure is a branching concrete frame. The inner layer is perforated bamboo and the outer layer is matte white glass, with colored glass fragments recalling neume notation of thirteenth-century Medieval music. The word "neume" originates from the Greek pnevma, which means vital force. It suggests a breath of life that fills one with inspiration like a stream of air, the blowing of the wind. The outer glass layer is organized in horizontal bands, like a musical staff, while the concrete structure branches like the hand. The three-story Centre has an open curved staircase integral to the concrete frame, with open spaces vertically lined in perforated bamboo. The glass facade geometry, like a musical staff, is in horizontal strips two feet by nine inches wide, which follows the geometry of the main stair along the north facade, while lifting up with clear glass facing the main square, marking the main front entry. There is a second entry on the west opening to the extended garden of the adjacent church.

The building tops out in a public roof garden, with flowering trees open to a large room for yoga, Tai Chi, meetings, and other activities. The interior character of this building will be shaped by colored light washing the floors and walls, changing by the time of day and season. Interior lighting will be organized to allow the colored lenses together with the translucent white glass of the facade to present a new, joyful, glowing presence on this corner of the great square of St. Barts Hospital.

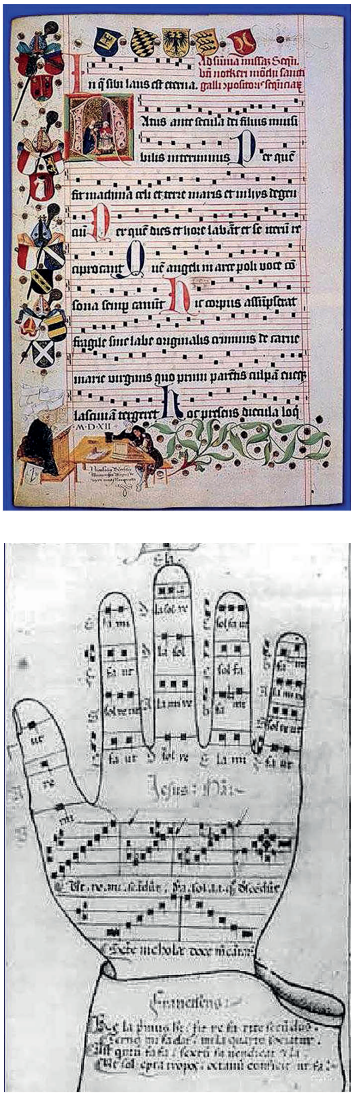


Fig. 10
The page of Gregorian chant serves as a reference for the design. In Medieval chant music, the Guidonian hand (attributed to Benedictine monk Guido d'Arezzo) was a mnemonic device used to assist singers in learning to sight-sing. Heighted neumes were also placed on a stave of four horizontal lines to notate pitch. These inventions evolved into solfeggio and staff notation as used today.

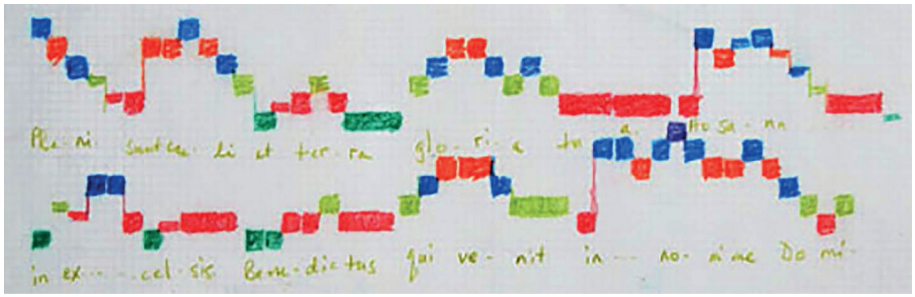
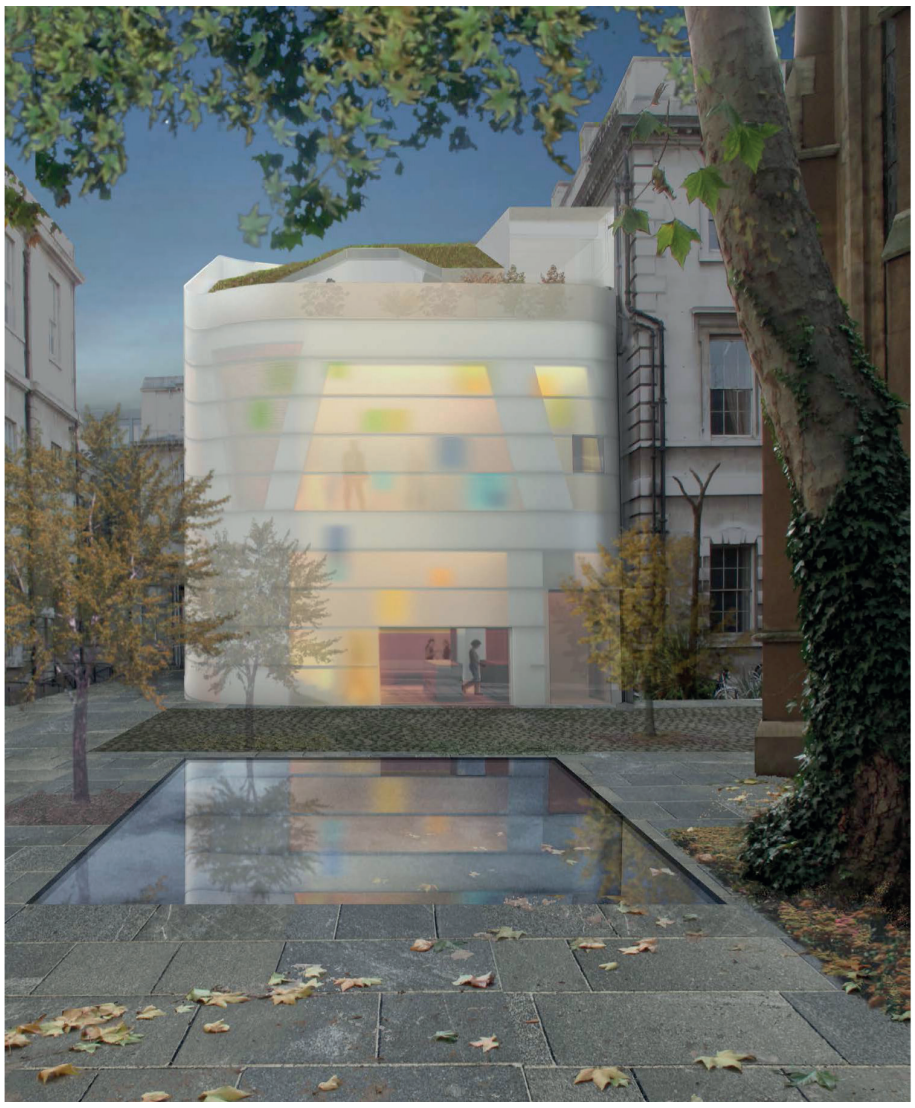


Fig. 11
Steven Holl, Maggie's center. Detail of colored neume notation used as a reference for the design. Colors in mensural neume notation were used to annotate altering metrical values.

DOI: 10.12838/fam/issn2039-0491/n54-2020/714



Figg. 12-13
Steven Holl, Maggie's Center.
Watercolor concept drawing.

Bottom:
Rendering of Maggie's second entry opening to the extended garden west of the adjacent St. Bartholomew-the-Less chapel.
Courtesy Steven Holl Architects.

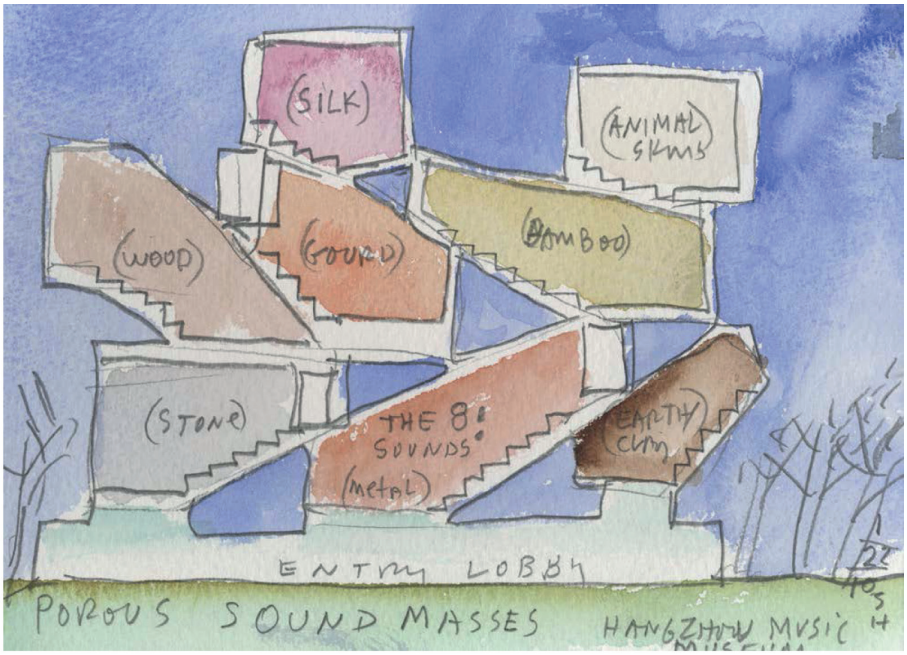
DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Hangzhou Music Museum, Hangzhou, China (2009)

The Music Museum master plan design proposes to unify the campus of Hangzhou City Planning Bureau, Hangzhou Normal University through the voids between buildings, like a caesura in music. The scheme identifies five voids between the buildings to form the overall morphology of the campus. The first void is the ancient garden with existing trees. The second void is the Music Plaza with reflective pond and arrival space. The third, fourth, and fifth voids utilize the spaces between buildings with different programs, providing open areas for music performance, scholarly discussions, cafes, restaurants, and recreation. These voids are formed by simple wooden pergolas, which hark back to Song Dynasty architecture, when the first wood construction standards were published. The Music Plaza is flooded in a thin layer of water. Skylights at the bottom of the pond bring light down to a large gallery space below. This space is flexible, and the reflecting pond can be drained to accommodate a larger audience. The Music Museum is based on the idea of the Eight Sounds, known as "bayin," in traditional Chinese music: silk, bamboo, wood, stone, metal, clay, gourd, and hide. While the exterior of the building is clad in the same wood as the pergolas, the eight volumes are each constructed from one of these eight materials. Each volume contains a chamber where visitors not only hear the music but can experience its production.

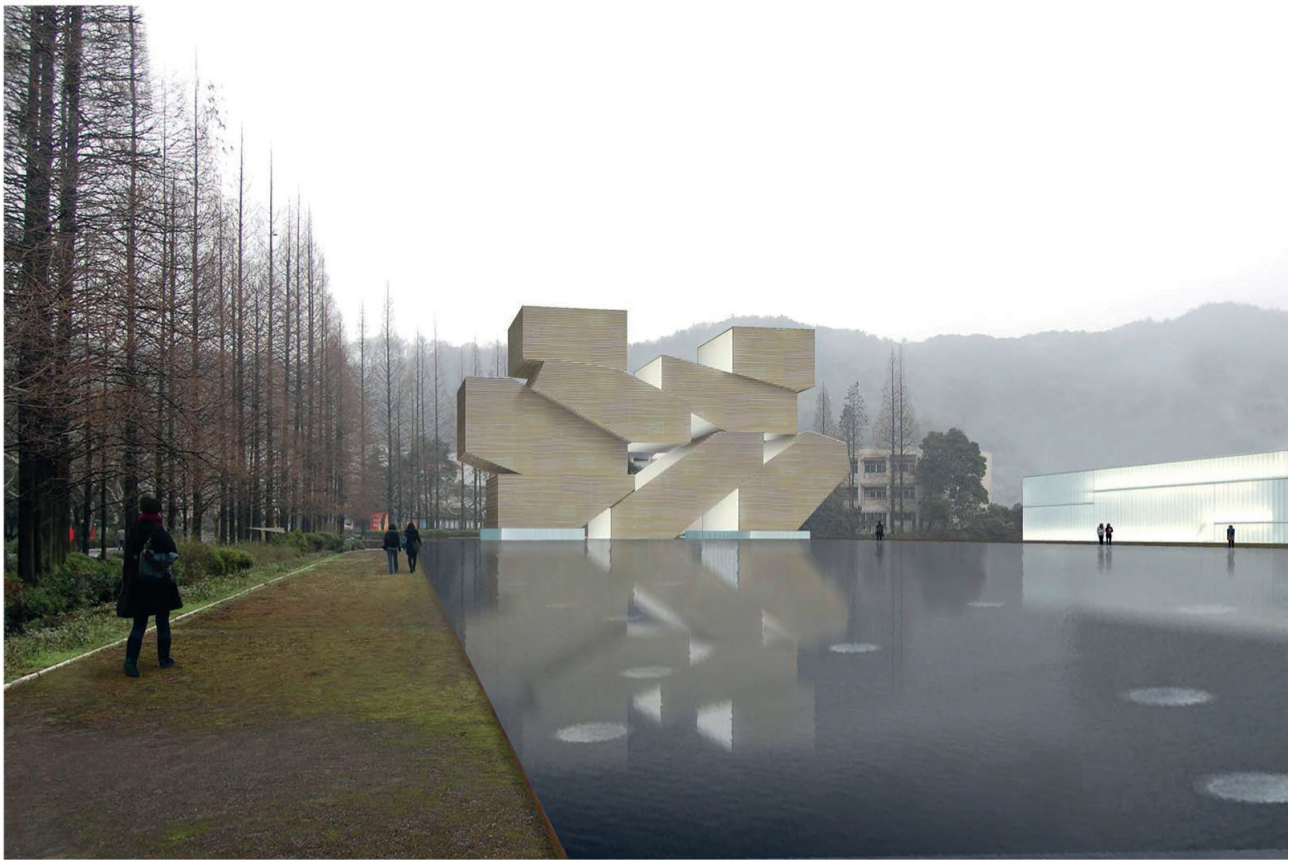
Fig. 14
Steven Holl, Hangzhou Music Museum, Hangzhou, China (2009).
Concept void diagram.
Courtesy Steven Holl Architects.

DOI: 10.12838/fam/issn2039-0491/n54-2020/714



Figg. 15-16
Steven Holl, Hangzhou Music Museum, Hangzhou, China (2009).
Watercolor study spiral-bound pad. Photo: Courtesy Steven Holl Architects.

Bottom:
View of Water Plaza.
Courtesy Steven Holl Architects.



DOI: 10.12838/fam/issn2039-0491/n54-2020/714

Bibliografia

FRAMPTON K. (2002) – *Steven Holl architetto*, Electa, Milan.
HOLL S. (2005) – *Parallax. Architettura e percezione*, Postmedia books, Milan.
HOLL S. (2019) – *Architettura parlata*, Postmedia books, Milan.
HOLL S. (2019) – *Compression*, Princeton Architectural Press, NY.

The essay was originally published in:
PAJ: A Journal of Performance and Art, Volume 39 | Issue 2 | May 2017, p.49-64.
Translated into Italian and re-published with the kind permission of the author.

Steven Holl Architects is a 35-person innovative architecture and urban design office working globally as one office from two locations: New York City and Beijing. Steven Holl leads the office with partners Chris McVoy, Noah Yaffe and Roberto Bannura.

Steven Holl Architects is recognized for the ability to shape space and light with great contextual sensitivity and to catalyze the unique qualities of each project to create a concept-driven design at multiple scales, from minimal dwellings, to university works, to new hybrid models of urbanism. The firm has realized architectural works around the world, with extensive experience in the arts, campus and educational facilities, and residential work, as well as mix use and office design, public works, and master planning.

Parallel to designing large scale, sustainable urban architecture, Steven Holl supports the preservation and restoration of landscape and wilderness as Lifetime Member of Sierra Club, Active Member of Scenic Hudson, Member of Natural Resources Defense Council (NRDC), and “Advocates for Wilderness”-Member of the Wilderness Society. In 1970, Steven Holl was one of three founding members of Environmental Works at the University of Washington.

Steven Holl Architects is internationally honored with architecture’s most prestigious awards, publications and exhibitions for excellence in design. Awards include the Velux Daylight Award for Daylight in Architecture (2016), the Praemium Imperiale Award for Architecture (2014), the Gold Medal from the American Institute of Architects (2012), the RIBA Jencks Award (2010), the BBVA Foundation Frontiers of Knowledge Award (2009), the Grande Médaille D’Or from the French Académie D’Architecture (2001), and the Alvar Aalto Award (1998).

Steven Holl has published numerous texts and has lectured widely. He is a tenured faculty member at Columbia University where he has taught since 1981. He was named by Time magazine as “America’s Best Architect,” for creating “buildings that satisfy the spirit as well as the eye.”

https://www.stevenholl.com