

# **SUEP. ENLISTS ENERGY-EFFICIENT IDEAS AND DISASTER PREVENTION**

TO REVIVE JAPAN'S KYUSHU REGION



*Hirokazu and Yoko Suemitsu have received much recognition for the product and residential designs that come out of their Tokyo office, and now their firm is making new headlines with its public spaces.*



*SUEP's husband and wife team Yoko and Hirokazu Suemitsu are inspired by the work of Toyo Ito and Frank Lloyd Wright.*

Yoko Suemitsu founded *SUEP* in 2004 “to realize organic architectural design that integrates structure and ecology through design and engineering.” Her husband, Hirokazu Suemitsu, joined her as co-chair three years later. Their working partnership comes naturally, and they attribute their love of architecture to their fathers who instilled in their children an enduring love for design. Hirokazu’s father oversees a glass company, and Yoko’s manages a sliding screen paper company.

Another inspiration for this husband-wife team is Toyo Ito’s Sendai Mediatheque. Built in 2001, this innovative library and art gallery blends modern design and technology under a seaweed-like, organic motif. The team also admires the works of Frank Lloyd Wright, especially his Fallingwater project.

“We think that the perfect fusion of nature and architecture under orderly geometry is beautiful,” Hirokazu explains. “We can learn a lot when we focus on nature. All forms existing in the natural world have reason and are reasonable, yet nature doesn’t have linear

or rectangular shapes. The architecture we aim for is not uniform and stereotyped like one with a modern style. Instead, it’s a more design and technology-integrated, more organic one, following natural principles or rules.”

This architectural approach was honed during the Suemitsus’ formative years. Yoko received her bachelor of architecture from Hiroshima University in 1997 and then worked at AXS SATOW Inc. from 1997 to 2003 before forming *SUEP*. Hirokazu earned his master of architecture from The University of Tokyo in 2001, under the tutelage of renowned Pritzker Prize-winning Japanese architect Tadao Ando, a practitioner of the “haiku effect” that celebrates Japanese culture and its focus on simplicity. From 2001 to 2006, Hirokazu worked at Toyo Ito & Associates Architects. Studying directly under Ito, a RIBA award-winning architect and recipient of the 2013 Pritzker Prize, Hirokazu learned about Ito’s organic architectural design and incorporating new forms that strove for borderless spaces.

This foundation has enabled *SUEP* to earn notable awards every year since 2007, including several Fukuoka Prefecture Architectural Awards, which recognize top talent in the arts and culture and academic arenas throughout Asia, as well as a Tokyo Residential Architecture Award and a Shinkenchiku Prize.

### **Ureshino-City Cultural Center & Shiota Junior High School**

A recent award took *SUEP* to Ureshino-City, located in the Saga Prefecture of Japan’s Kyushu Region. *SUEP* won a joint cultural center and junior high school project from the city in March 2011, which sought to revive an area that was losing its population while protecting it from possible flooding. By December of that same year, *SUEP* submitted its basic design; the buildings should be completely constructed by 2014.

The building site is located in the flood-prone, low-lying delta between the Shiota and Urata Rivers. The Urata River floods approximately every decade when heavy rain falls at high tide, and the Ariake Sea, where the rivers converge, has a great tidal range. This geography became critical after the Great East Japan Earthquake that devastated the country on March 11, 2011. The Suemitsus were distraught to see thousands of people and buildings lost to the sea and the ensuing floods. “This tragedy changed our awareness of disaster prevention drastically,” Hirokazu explains.

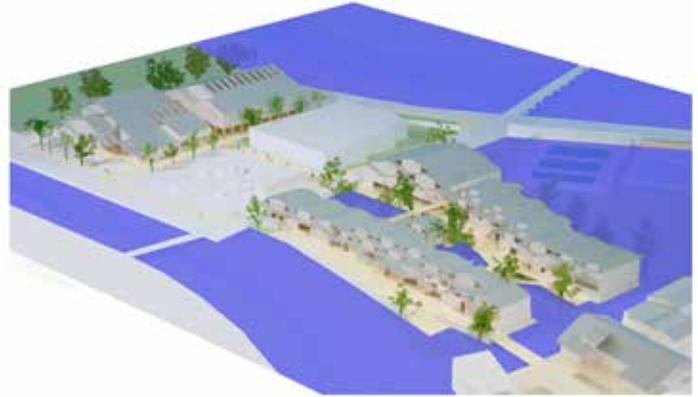
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*—Hirokazu Suemitsu, Co-Chair, SUEP.*

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## Flood Simulation



SUEP incorporated disaster prevention into all their plans. This flood simulation analysis made them comfortable planning the buildings right on top of the flood plain and with a raised floor, leaving enough green space to absorb the bulk of any potential damage.

For a firm that always thought organically, the threat of flooding was a natural but dangerous consideration. So the SUEP team incorporated disaster prevention and energy-saving ideas into all their plans. For example, they used SimTread, a plug-in for Vectorworks® Architect software, to model pedestrian evacuation flows. This analysis made them comfortable planning the buildings right on top of the flood plain and with a raised floor, leaving enough green space to absorb the bulk of any damage.

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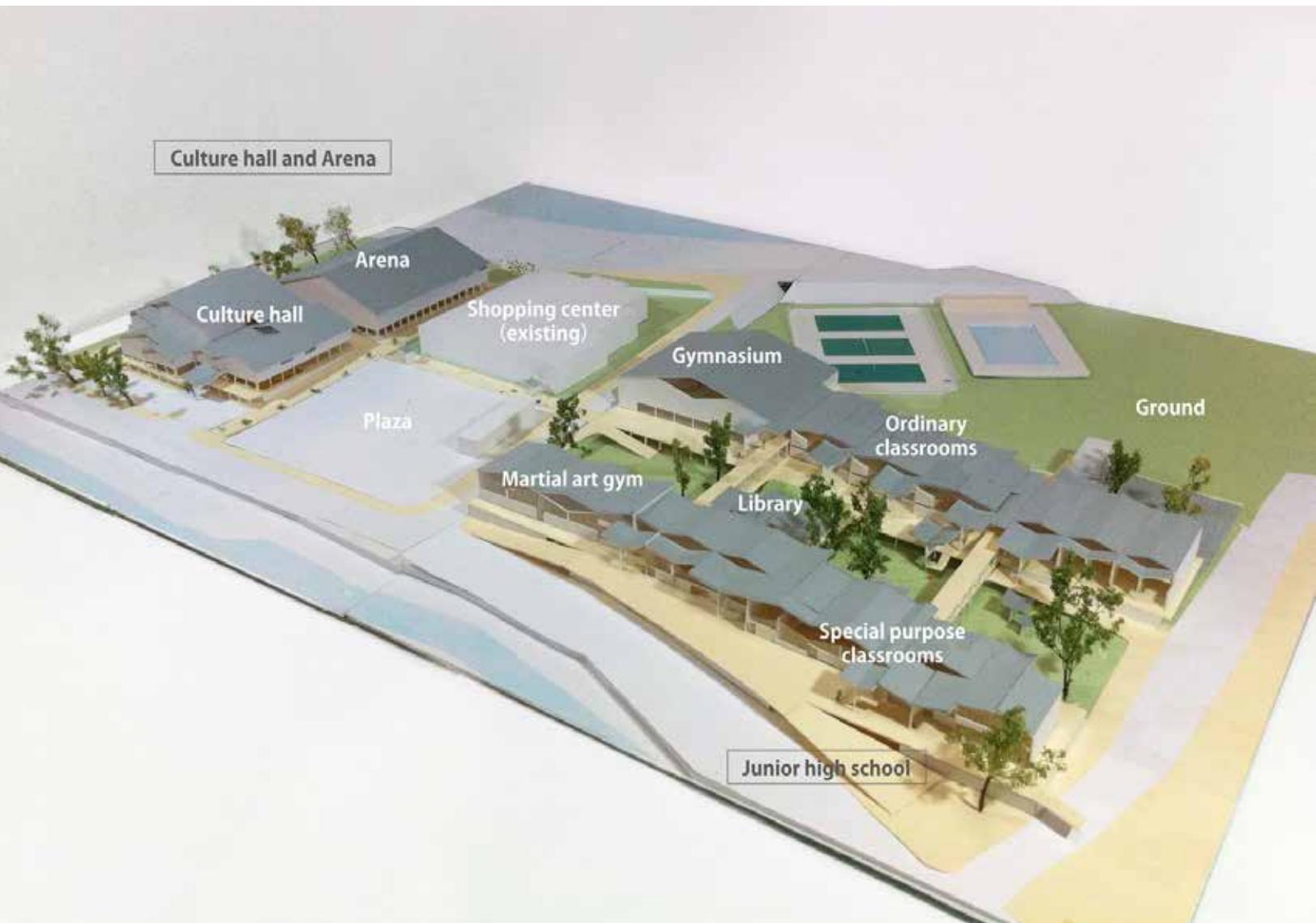
The completed design for the Ureshino-City project consists of two spaces on neighboring sites with an existing shopping center and proposed plaza sandwiched between them. First, the 4,771-square-meter cultural center will feature a 1,000-person arena, a 500-person cultural hall, and several multipurpose rooms that can each

accommodate 50 people. Second is the 7,618-square-meter Shiota Junior High School. Its large and open spaces will hold 12 regular classrooms, 10 special purpose classrooms, as well as a library, gymnasium, and martial arts gym. Both public spaces are designed to encourage people to visit while boosting the area's population.

The project also features several energy-efficient details, beginning with a steel structural frame and concrete walls. In addition, SUEP designed an innovative, natural air-conditioning system, and the school's roofline forms a tree-like canopy to maximize shade and cover outdoor hallways. Turning down the external temperature in this way reduces demands on air-conditioner energy.

“Architecture always has the site as its given condition, and we are forced to think about it,” says Hirokazu. “For the Ureshino-City project, we were inspired by the traditional architectural design that exists near the building site. Then, we transformed our inspiration into organic architecture and introduced motifs from nature to try to realize dual architectural concepts. We did this by fitting in with the landscape of the area and having modern and organic images, as well as by renewing traditional house roofs as Y-shape roof ensembles.”

He adds that SUEP also spent a great deal of time thinking about the project's architecture in relation to the overall city simultaneously. “The dichotomy of the two is a balance that SUEP worked hard to achieve,” he says. “I am proud to design this scale of public architecture in Japan while in my 30s.”



The junior high school and cultural hall and arena will sit on neighboring sites with an existing shopping center and proposed plaza sandwiched between them.

## Creating Harmony with Technology

SUEP achieves such beautiful designs based on a methodology grounded in prediction and trial. For example, they use wind and thermal simulation software and conduct experiments to test various approaches and determine which is the most efficient and effective. In addition, Hirokazu and Yoko have relied on Vectorworks Architect software since 1997. They use the program to visualize and document their projects, ranging from product design to city planning.

“Most students in Japan use Vectorworks,” says Hirokazu. “It saves time because it’s easy to learn the application and improves work efficiency.”

In addition to its ease of use, SUEP credits Vectorworks software’s high-quality presentation capabilities. At his previous firm, Hirokazu used the Vectorworks program in conjunction with AutoCAD®.

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*–Hirokazu Suemitsu, Co-Chair, SUEP.*

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However, he prefers Vectorworks because so many people, including builders and partner firms in Japan, use it. “I also like its operability,” he explains. “I can work more creatively, imagining spaces rather than just drawing lines because Vectorworks is better than other CAD software when it comes to visualization.”



SUEP used SimTread, a plug-in for Vectorworks Architect software, to model pedestrian evacuation flows for places like the 4,771-square-meter cultural center, which features a 1,000-person arena, a 500-person cultural hall, and several multipurpose rooms.

“Since the Vectorworks program is both a CAD software and a presentation tool, we were able to work on the presentation and drawing at the same time, and I could realize both creative thinking and drawing,” says Hirokazu. “This is important because we have a short timeframe in which to present to clients.”

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Collaborating with other design firms like the lighting and fixture design offices was also easy since those firms used the same software. Working with partners that didn't use the Vectorworks platform went smoothly, too, because the software can import and export multiple file formats.

With Vectorworks software as its tool of choice, architecture and product design firm SUEP will continue to blend modern and traditional Japanese designs while achieving smart, simple structures.

## Acknowledgements

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