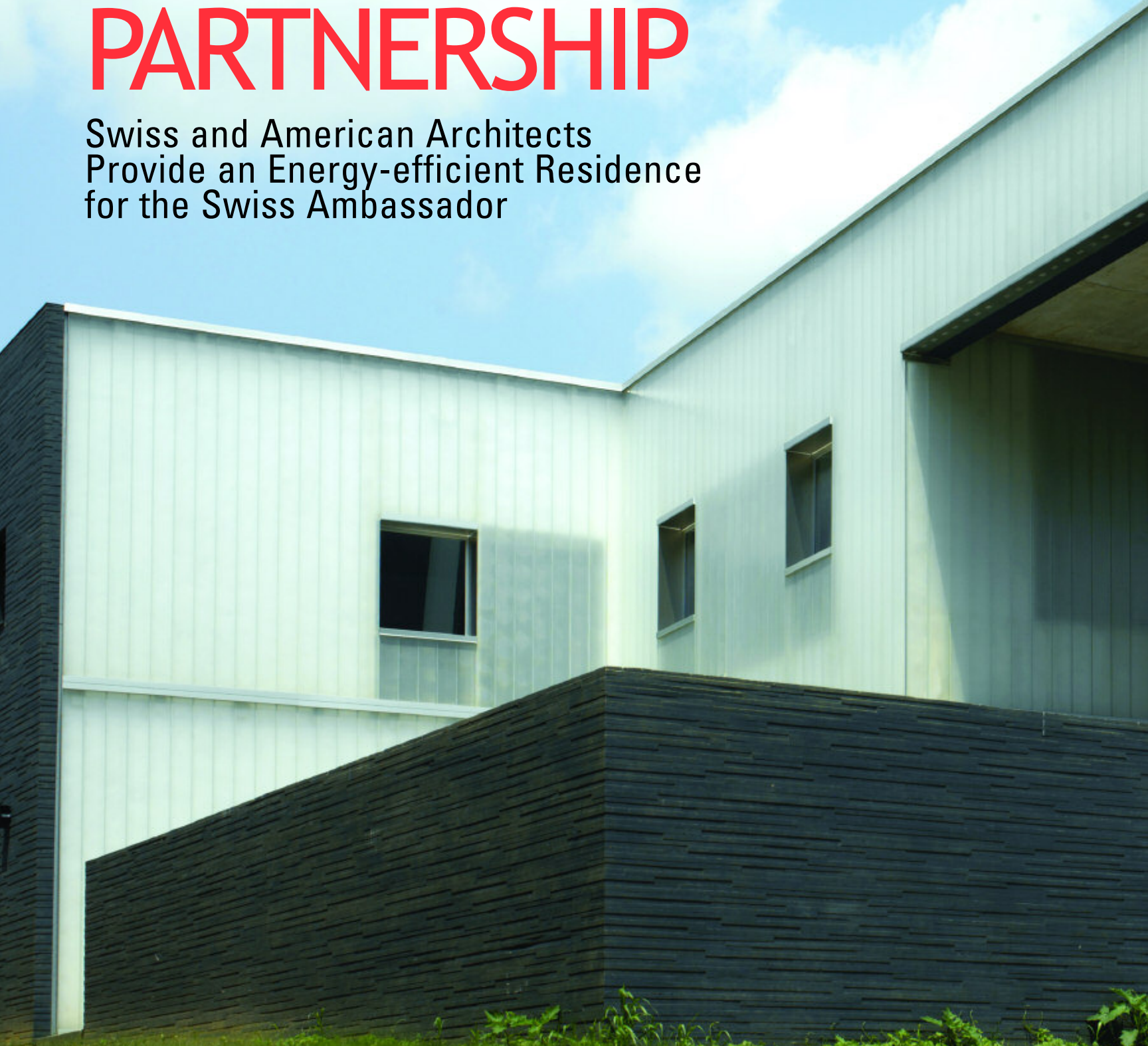


AN INTERNATIONAL PARTNERSHIP

Swiss and American Architects
Provide an Energy-efficient Residence
for the Swiss Ambassador





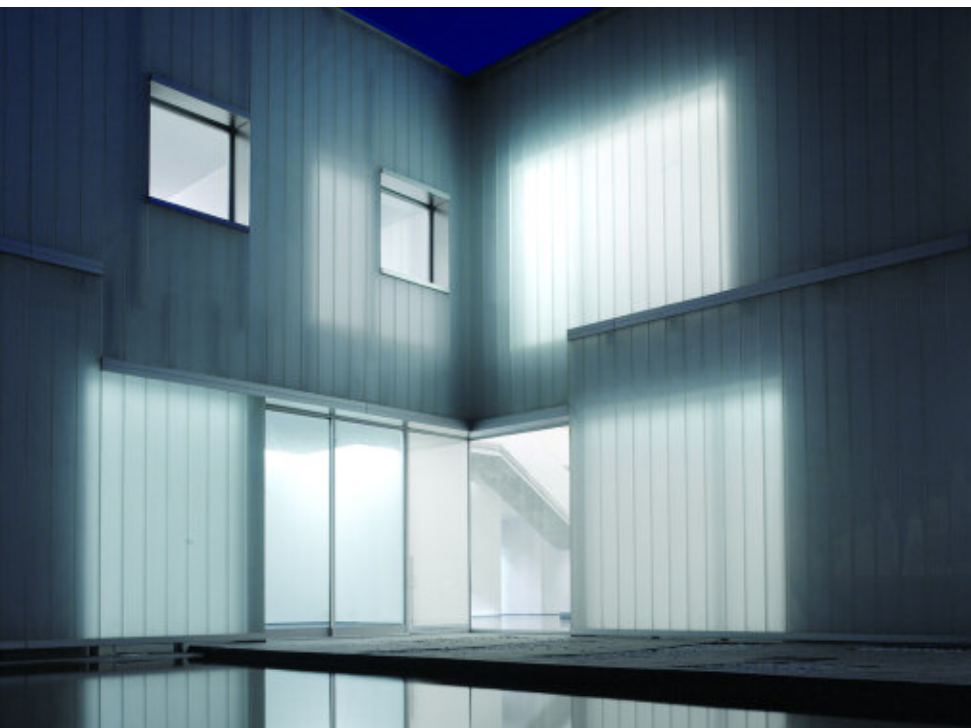
BY CHRISTINA KOCH

THE UNITED STATES AND SWITZERLAND have long been political partners and often are referred to as sister republics. The countries inspired each other's constitutions, and today they protect one another's interests abroad and support each other financially. So it's no surprise that a U.S.-Swiss design partnership created a Washington, D.C., residence for the Swiss ambassador that showcases Swiss and American architecture and artists.

THE GREEN ROOF FEATURES SEDUM WITH 4 INCHES (102 MM) OF GROWTH MATERIAL INSTALLED OVER 6 INCHES (152 MM) OF RIGID INSULATION. THE CHOSEN PLANTS MAINTAIN THE GREENNESS OF THE ROOF ALL YEAR; IN SUMMER, THE ROOF CONTAINS A NUMBER OF FLOWERS.



IMAGE COURTESY OF STEVEN HOLL ARCHITECTS, NEW YORK



Using sand-blasted structural glass planks and charcoal-colored concrete trimmed in local slate, Steven Holl Architects, New York, and Rüssli Architekten AG, Lucerne, Switzerland, designed the Swiss Residence to replicate the black rocks and white snowcaps of the Swiss Alps in Washington's Woodley Park area. The 28,000-square-foot (2601-m²) residence, which opened in September 2006, is expected to host 400 annual social gatherings. In addition, the residence sets an example for U.S. sustainable design; it was built to Minergie standards (www.minergie.ch), a strict energy-efficiency program adopted by the Swiss government in 2001.

A WINNING DESIGN

Because the existing Swiss Residence, built in 1926, was in poor structural condition and no longer fulfilled the needs of a contemporary diplomatic residence, the Berne-based Swiss Federal Office for Buildings and Logistics—the Swiss version of the U.S. General Services Administration—held a competition in 2001 to design a new residence. The department invited 10 U.S.-Swiss architectural partnerships to submit designs. Among them were Steven Holl Architects and Rüssli Architekten, firms that had worked together before. In fact, Justin Rüssli, principal of Rüssli Architekten, had worked under Steven Holl in New York before returning to his native Switzerland to take over his father's architectural firm. The design Holl and Rüssli submitted won the competition. According to Rüssli, the jury chose their design because of the siting of the building and functionality of the space.

Although the firms' design won in 2001, Swiss Parliament had to approve the residence's budget, which was a lengthy process. In 2004, construction documents were completed, and construction on the new residence began in 2005. Urs Ziswiler, the Swiss ambassador, and his family moved into the residence in July 2006.

In addition to the Swiss Alps' analogy, driving the cruciform design was the view from the site's hilltop directly to the Washington Monument. Holl suggested laying out the rectilinear building along a diagonal access, providing dynamic spaces as guests enter the building and a direct view to the monument.

“Coming in at the vestibule we have the reception hall and reception terrace, and they’re all along this diagonal line pointing to the Washington Monument,” explains Olaf Schmidt, Steven Holl Architects’ project architect for the Swiss Residence. “That kind of drove the internal organization of the building.”

MINERGIE

Because the residence was a project of the Swiss government, it was required to follow Minergie, a quality label for new and refurbished buildings developed by the Berne-based nonprofit organization of the same name. The standard focuses mainly on energy efficiency and occupant comfort and reportedly results in energy consumption by buildings at a rate 60

percent lower than buildings built to traditional Swiss construction standards. Minergie allows architects freedom in design and materials and has caused the creation of products and services in the marketplace that support the standard.

According to Rüssli, all public buildings in Switzerland are certified to the Minergie standard, and private buildings often are built to the standard because of tax incentives. Similar to what happens in the United States, Rüssli has seen people reject Minergie because of first-cost assumptions.

“Sometimes they say there’s a cost increase of 5 to 10 percent, but when you calculate the running costs over the life span of the building you save money, depending on energy prices, of course,” he says.

Rüssli also points out the Minergie standard is more stringent than the U.S. Green Building Council’s LEED Rating System. Although the Swiss government opted not to certify the Swiss Residence according to LEED, Rüssli says he and Holl used the guidelines while designing the structure. “We checked ourselves to determine what points we would’ve gotten,” he says. “We thought we’d easily achieve Silver and maybe even Gold.”

Because the design team followed the Minergie standard, the Swiss Residence’s green-building techniques focus on siting, the building envelope and mechanical equipment. Renewable energy often is a characteristic of the Minergie standard, but Rüssli says the tight budget kept renewables out of the Swiss Residence.





By focusing on siting the building, the design team took advantage of passive solar to improve the structure's energy efficiency. "In the winter we make use of passive solar," Schmidt states. "With the south exposure we get a lot of light into those suite areas and public rooms because of the large areas of clear glass and partially exposed concrete ceilings. The ceilings store the thermal energy and release it over night."

A skylight in the entrance area provides enough natural daylight to reduce consumption of electricity, according to Rüssli. When electric light is needed, the residence is equipped with fluorescent bulbs. In addition to providing lighting, the residence's argon-filled insulating glass units feature a high insulation value. To

reduce heat gain, external sunshades are linked to sensors on the structure's roof. "When it gets too hot inside the shades go down, and when it gets too windy they go up automatically," Schmidt notes.

The poured-form concrete walls of the residence provided a challenge to the subcontractors by requiring several mock ups to ensure they were installed correctly. Now the walls afford high efficiency with an R-value of 25.7.

Also important to the Minergie standard was the HVAC equipment with energy recovery specified for the residence. According to Schmidt and Rüssli, equipment that met the specifications within the project's budget could not be found in the United States. "We had a hard time finding comparable products," Schmidt says. "BBL decided on a German contractor who brought all his stuff over and did plumbing, electrical and mechanical work."

Rüssli agrees: "The high-standard Swiss government required things we couldn't achieve with American firms or at least not at the price we wanted to pay. If we could do things differently, we'd probably import more things from Europe."

The team's mechanical, electrical and plumbing engineer provided building-performance calculations and simulations to the Swiss government for Minergie consideration. A long-term commissioning process was done on the mechanical equipment that included specialists hired by the client and an independent review from Minergie. Rüssli says buildings seeking Minergie either pass or fail; there is no rating scale.

A GREEN ROOF

To meet local building codes, the design team would have had to build a retention tank because of the Swiss Residence's large surface runoff area. By specifying a 9,000-square-foot (836-m²) vegetated roof, the team was able to meet the code and provide another sustainable asset to the structure. The roof provides noise reduction within the residence and an R-30 insulation value.

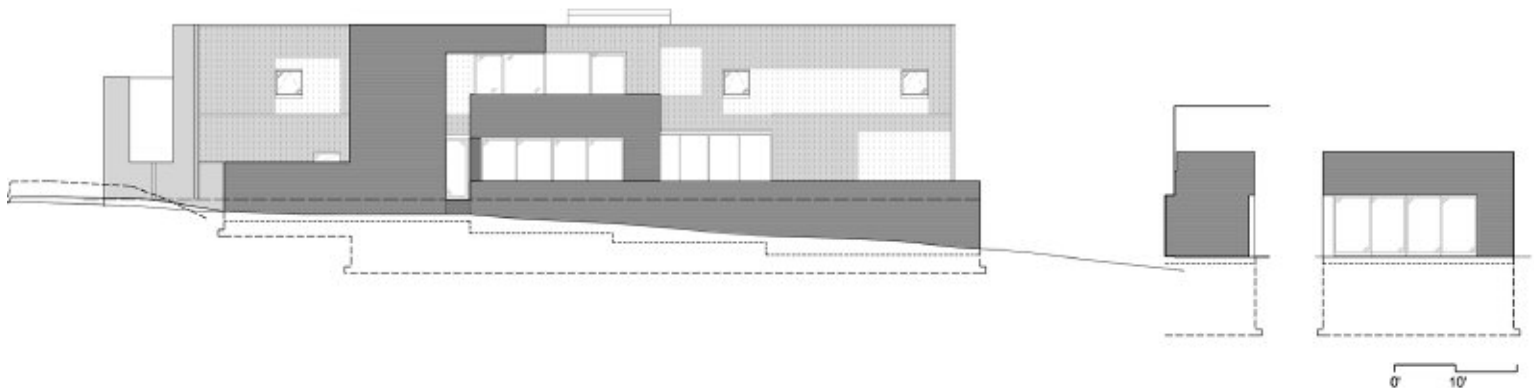
The roof features sedum with 4 inches (102 mm) of growth material installed over 6 inches (152 mm) of rigid insulation. Schmidt notes the chosen plants maintain the greenness of the roof all year; in summer, the roof contains a number of flowers.

"Whenever he can, Steven really tries to incorporate green roofs into a project," Schmidt says.

COMFORT AND BEAUTY

Aesthetics always have been at the forefront for architects, and though green design is highly touted, architects still want aesthetics to be most important. In the Swiss Residence, Schmidt believes this goal has been achieved—the Minergie standard is a silent byproduct of a beautiful design. "The green aspects are important, but the architectural edges of the residence are the most important for us," he says.

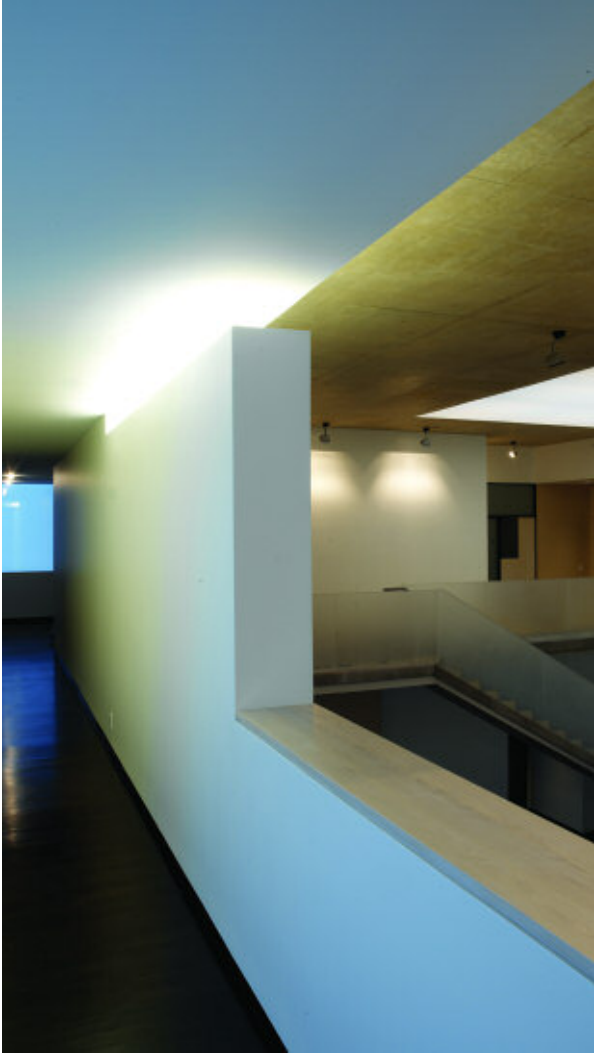
The Swiss Residence's aesthetics definitely have generated much buzz in the architectural community. Words used to describe the structure often include ethereal, proportional and masterpiece. But to Ambassador Ziswiler and family, the residence just feels like home. 🌿





USING SAND-BLASTED STRUCTURAL GLASS PLANKS AND CHARCOAL-COLORED CONCRETE TRIMMED IN LOCAL SLATE, STEVEN HOLL ARCHITECTS, NEW YORK, AND RÜSSLI ARCHITEKTEN AG, LUCERNE, SWITZERLAND, DESIGNED THE SWISS RESIDENCE TO REPLICATE THE BLACK ROCKS AND WHITE SNOWCAPS OF THE SWISS ALPS IN WASHINGTON, D.C.'S WOODLEY PARK AREA.

INTERIORS: THE ALPS GO INSIDE



The Swiss Residence, Washington, D.C., was co-designed by Steven Holl Architects, New York, and Rüssli Architekten AG, Lucerne, Switzerland, to provide the Swiss ambassador to the United States a comfortable home reminiscent of Switzerland and room to entertain up to 3,000 guests annually. The interior was artfully designed by ZedNetwork Hannes Wettstein, Zürich, Switzerland.

Public areas include two formal dining rooms, three salons and a reception hall, all of which connect to outdoor terraces that can accommodate 200 guests at a time. The second floor is the ambassador's private residence and includes two guest rooms and two staff apartments.

Materials used to construct the residence mimic the Swiss Alps, and that analogy is carried inside with the contrast between white walls and black terrazzo on the main floor and dark bamboo floors upstairs.

"It's part of the interior design to have natural materials, which also reflect in the colors," explains Justin Rüssli, principal of Rüssli Architekten. "The interior concept is reflected by a very earthy feel; there's a lot of wood, light and dark."

Working closely with the architects, the interior design firm juxtaposed light-colored ash interior doors, built-in drawers and shelves against dark-colored furniture specially designed for the residence by Swiss and American designers.

Artwork was taken from the previous residence and includes paintings of the American generals Robert E. Lee and William T. Sherman by Swiss painter Frank Buchser.

As guests mill about the residence, the friendship between the United States and Switzerland is represented everywhere—in the architecture, interior design and art.



Materials and Sources

CHANNEL GLASS / [BENDHEIM WALL SYSTEMS](#), Passaic, N.J., [www.bendheimwall.com](#)

WATER FIXTURES / [DORNBRACHT](#), Iserlohn, Germany, [www.dornbracht.com](#); [KOHLER](#), Kohler, Wis., [www.kohler.com](#); and [DURAVIT](#), Hornberg, Germany, [www.duravit.us](#)

DISHWASHER / [ELECTROLUX](#), Martinez, Ga., [www.electrolux.com](#)

VEGETATED ROOF / [AMERICAN HYDROTECH INC.](#), Chicago, [www.hydrotechusa.com](#)

BAMBOO / [DURO-DESIGN](#), Laval, Quebec, Canada, [www.duro-design.com](#)

MECHANICAL EQUIPMENT / [VIESSMANN MANUFACTURING CO. INC.](#), Waterloo, Ontario, Canada, [www.viessmann-us.com](#); [WEGER](#), South Tyrol, Italy, [www.weger.it](#); and [REHAU](#), Leesburg, Va., [www.rehau-na.com](#)

SUNSHADES / [NYSAN SHADING SYSTEMS](#), a Hunter Douglas company, Calgary, Alberta, Canada, [www.hunterdouglascontract.com](#)

WINDOWS / [WAUSAU WINDOW AND WALL SYSTEMS](#), Wausau, Wis., [www.wausauwindow.com](#)

LIGHTING / [ERCO](#), Lüdenscheid, Germany, [www.erco.com](#), and [ZUMTOBEL](#), Dornbirn, Austria, [www.zumtobel.com](#)

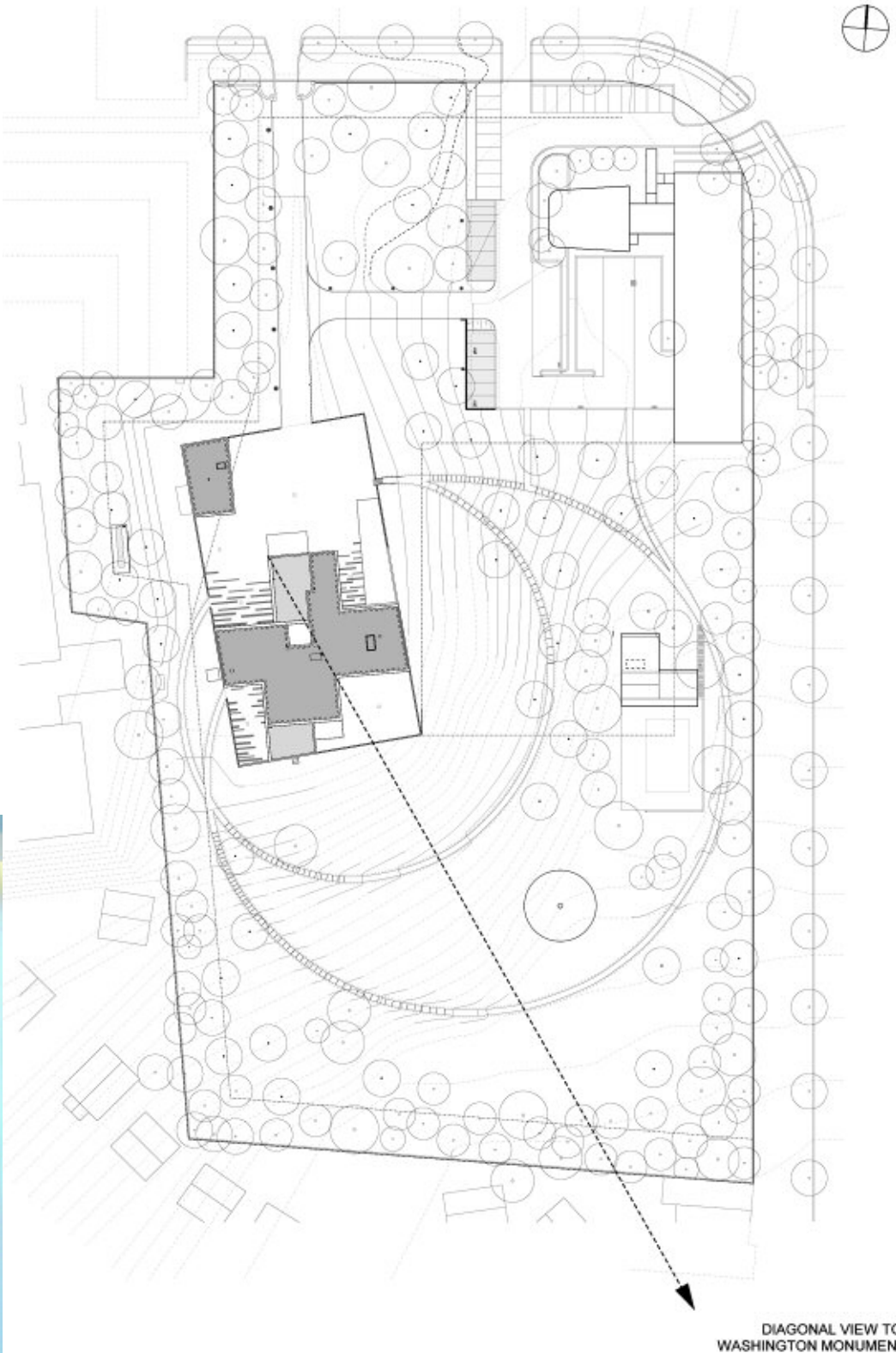


IMAGE COURTESY OF STEVEN HOLL ARCHITECTS

PROJECT TEAM

ARCHITECTS

- STEVEN HOLL ARCHITECTS, New York, www.stevenholl.com, and
- RÜSSLI ARCHITEKTEN AG, Lucerne, Switzerland, www.ruessli.ch

Design Architects

- Steven Holl and Justin Rüssli

Project Architects

- Olaf Schmidt and Stephen O'Dell from STEVEN HOLL ARCHITECTS and Mimi Kueh from RÜSSLI ARCHITEKTEN

Project Team

- Arnault Biou, Peter Englaender, Annette Goderbauer, Li Hu and Irene Vogt from STEVEN HOLL ARCHITECTS and Andreas Gervasi, Phillip Röösl, Rafael Schnyder and Urs Zuercher from RÜSSLI ARCHITEKTEN

STRUCTURAL ENGINEERS

- A. F. & J. STEFFEN CONSULTING ENGINEERS, Lucerne, 41-41-418-5187, and ROBERT SILMAN ASSOCIATES, Washington D.C., www.rsapc.com

MECHANICAL ENGINEERS

- B+B ENERGIETECHNIK AG, Gisikon, Switzerland, www.bbag.ch, and B2E CONSULTING ENGINEERS, Leesburg, Va., www.b2epc.com

GENERAL CONTRACTOR

- JAMES G. DAVIS CONSTRUCTION, Rockville, Md., www.davisconstruction.com, and NIERBERGER GEBÄUDETECHNIK, Pforzheim, Germany, www.niersberger.de

INTERIOR DESIGNER

- ZEDNETWORK HANNES WETTSTEIN, Zürich, Switzerland, www.zednetwork.com

LANDSCAPE ARCHITECT

- GISSINGER, Lucerne, www.gissinger.ch

PROPERTY MANAGER

- BBL, Berne, Switzerland, www.bbl.ch

