

THE INNOVATORS & MAINTAINERS:  
INNOVATION IN ARCHITECTURE,  
INFRASTRUCTURE & TECHNOLOGY

2019 AIA  
COMMITTEE  
ON DESIGN  
CONFERENCE

SAN FRANCISCO + SILICON VALLEY

April 4 - 7, 2019

## Sponsors

The American Institute of Architects (AIA) Committee on Design (COD) knowledge community strategically pursues funding partners whose goals align with the AIA COD Sponsorship Principles. Funding from reputable organizations provides opportunities to inspire emerging professionals, supports continuing education for established design professionals, and secures beneficial resources for COD programs.

We thank our sponsors for making this program possible and rewarding for attendees.

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Fergus Garber Young Architects (FGY)  
Marvin Windows and Doors  
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### Silver

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### Bronze

Basel Convention Visitors Bureau  
Kreysler and Associates  
Lucerne Tourism AG  
Quart Architekturbücher

### Other

Turner Construction

### Contributors

Autodesk  
Mobimo  
Scheitlin Syfrig Architekten



We would also like to thank the Embassy of Switzerland in the United States of America and the Swiss Touch Campaign for their support and collaboration during our planning process. Through their partnership, we have enabled local emerging professionals to attend the conference.

Innovation distinguishes between a leader and a follower

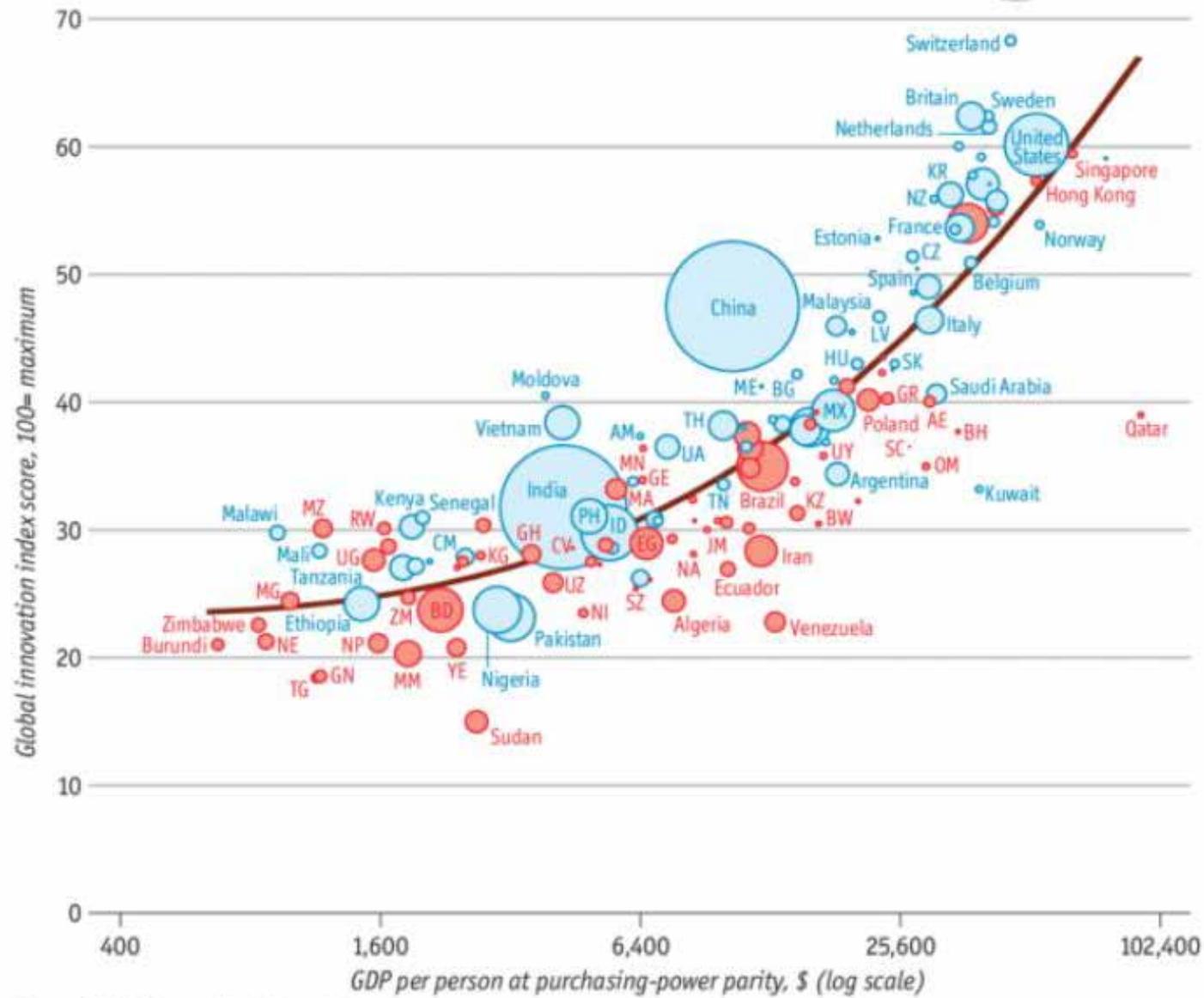
Steve Jobs

## Global Innovation Index

2014 or latest available year

● Efficient innovators  
● Inefficient innovators

1bn Circle size = population



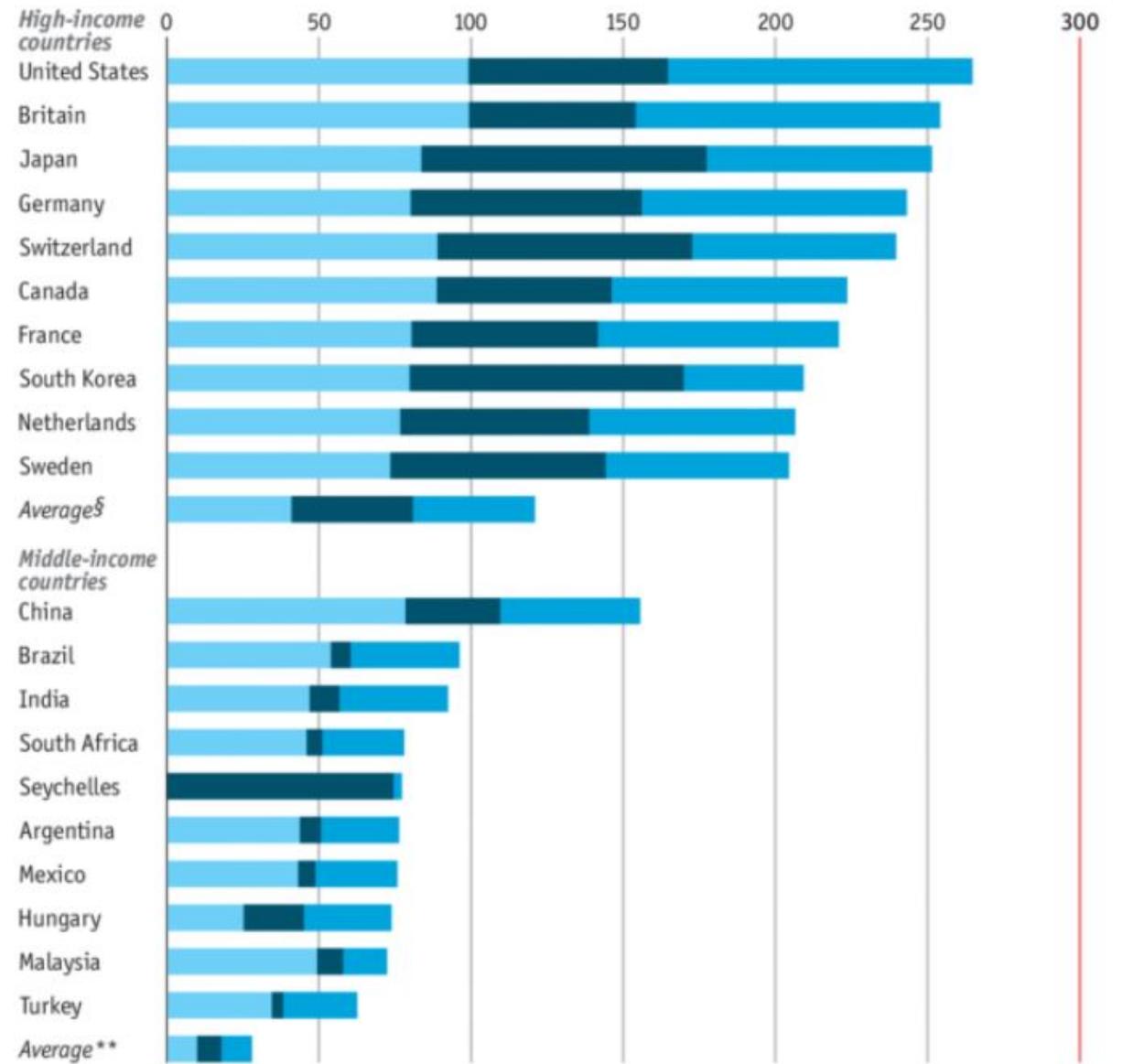
Source: Global Innovation Index, 2015

Economist.com

## Innovation quality

300=maximum quality

Universities\* Patents† Citations‡



Source: Global Innovation Index, 2015

Economist.com

\*Average rating of top three universities †Number of patents filed per unit of GDP  
‡Cited articles as % of published articles §Of 48 countries \*\*Of 72 countries

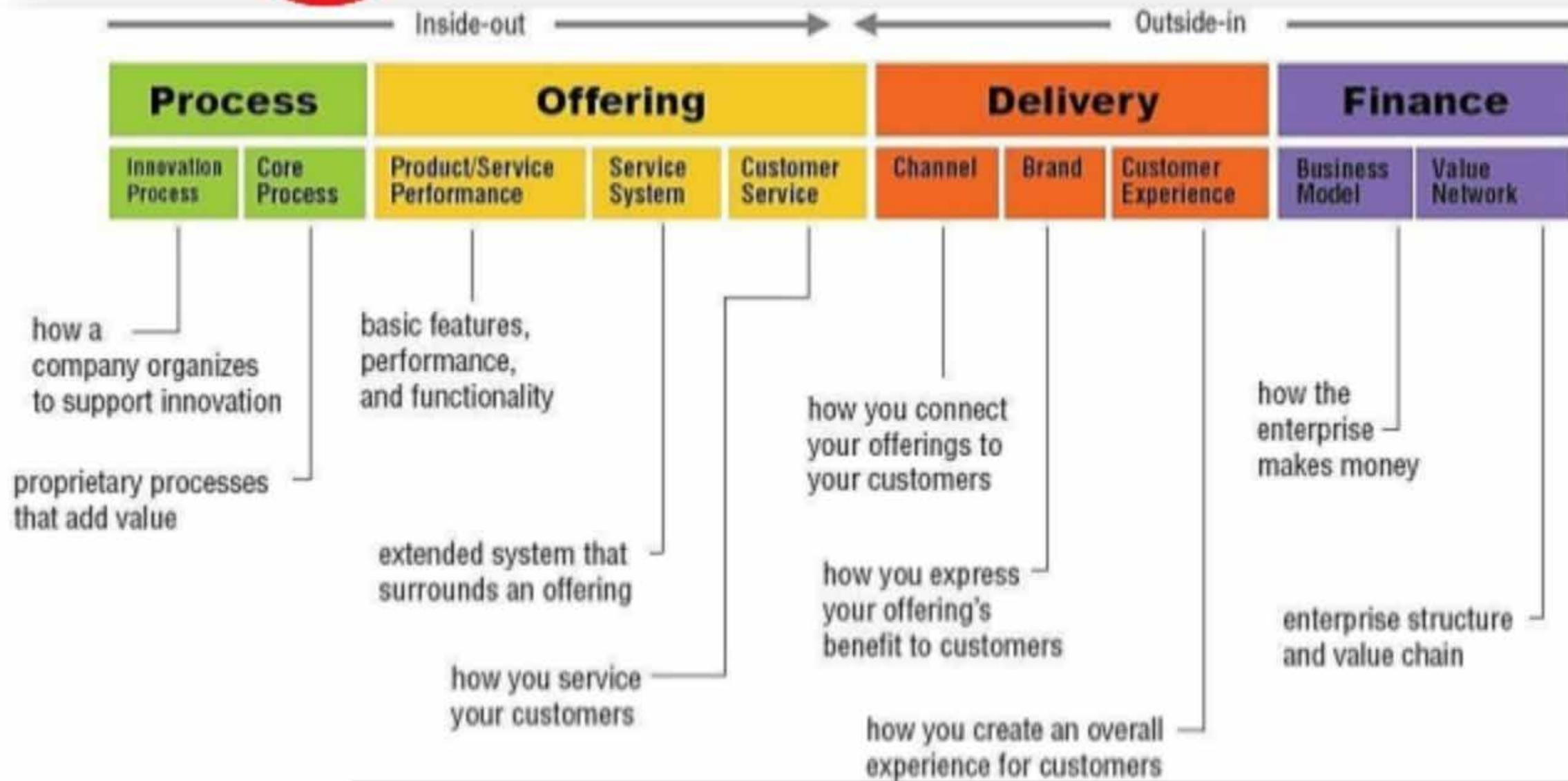
## Types Of Innovation

- Incremental Innovation
- Radical Innovation
- Business Model Innovation
- Product, Process And Service Innovations



# 10

# TYPES OF INNOVATION



# THE TEN TYPES OF INNOVATION

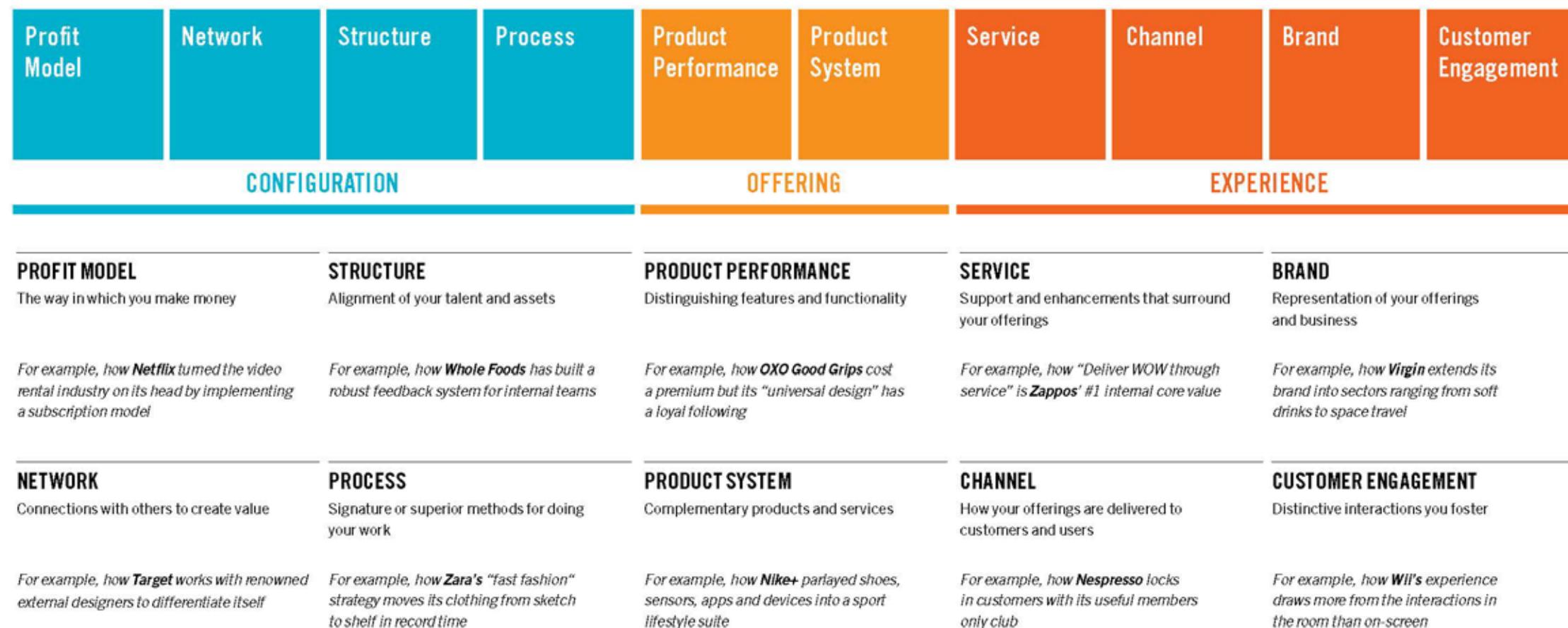
## AN OVERVIEW



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The Ten Types framework is simple and intuitive. It is a useful tool you can use both to diagnose and enrich an innovation you're working on, or to analyze existing competition. It makes it especially easy to spot errors of omission — missing dimensions that will make a concept stronger.

The Ten Types framework is structured into three color-coded categories. The types on the left side of the framework are the most internally focused and distant from customers; as you move toward the right side, the types become increasingly apparent and obvious to end users. To use a theatrical metaphor, the left of the framework is backstage; the right is onstage.



# “Integrating Innovation in Architecture: Design, Methods and Technology for Progressive Practice and Research”

by Ajla Aksamija

## 1 INNOVATIVE MATERIALS

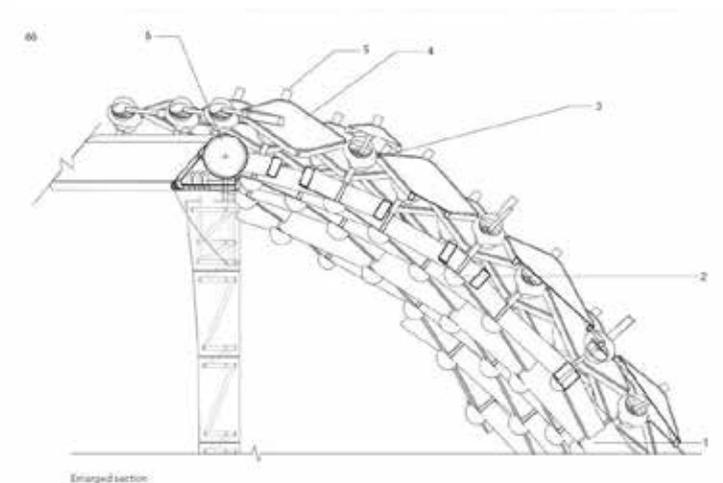
- Advances in concrete
- Advances in glass
- Advances in metals
- Biomaterials
- Composite materials
- Electrochromics
- Shape-memory alloys
- Self-healing materials
- Sensors and controls
- Phase-change materials
- Photovoltaics
- Thermoelectrics

## 2 INNOVATIONS IN COMPUTATIONAL DESIGN

- Advances in computational design
- Tools and methods
- BIM in design
- BIM in virtual construction
- BIM in facility management
- Environmental simulations and energy analysis
- Structural analysis
- CFD analysis
- Digital fabrication and methods
- Design to fabrication

## 3 TECHNOLOGICAL INNOVATIONS

- Advances in facade systems
- Advances in HVAC systems
- Advances in lighting
- Building automation systems
- Prefabrication and modular construction
- Automation in construction
- Robotics in construction
- Smart and responsive buildings



#### 4 INNOVATIONS IN THE DESIGN PROCESS AND ARCHITECTURAL PRACTICE

Motives and goals for innovation

Organization and roles

Integration of research and design practice

Research methods for innovation

Financial factors and investments for innovation

Value of innovation

Innovations in project delivery

Risk management in innovative design practice

#### + 5. INNOVATION IN URBAN AND REGIONAL DESIGN

Adapting to changing demographics and lifestyles

Creation new types and improvements of Infrastructure

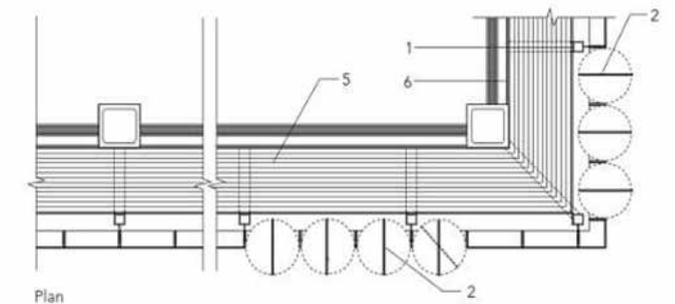
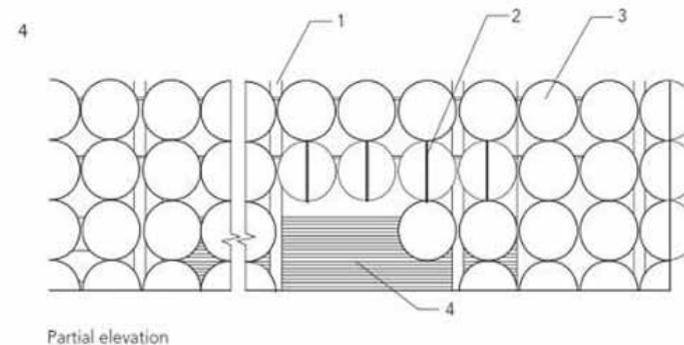
Lifestyle accommodation

Resiliency

#### 6. PROCESS AND BUSINESS MODEL INNOVATIONS

New space types and configurations

New adjacencies or relationships in space programming



Creativity is thinking up new things.

Innovation is doing new things.

Theodore Levitt



**RECAP:  
INNOVATORS AND MAINTAINERS  
SAN FRANCISCO/ SILICON VALLEY CONFERENCE**

## Agenda and locations:

### Thursday, April 4, 2019

Day 1: San Francisco

### Friday, April 5, 2019

Day 2: San Francisco, Downtown

### Saturday, April 6, 2019

Day 3: Silicon Valley

### Sunday, April 7, 2019

Day 4: SF, Mission Bay

## SF Conference Planning Committee

Heather Young, AIA

Dan Garber, FAIA

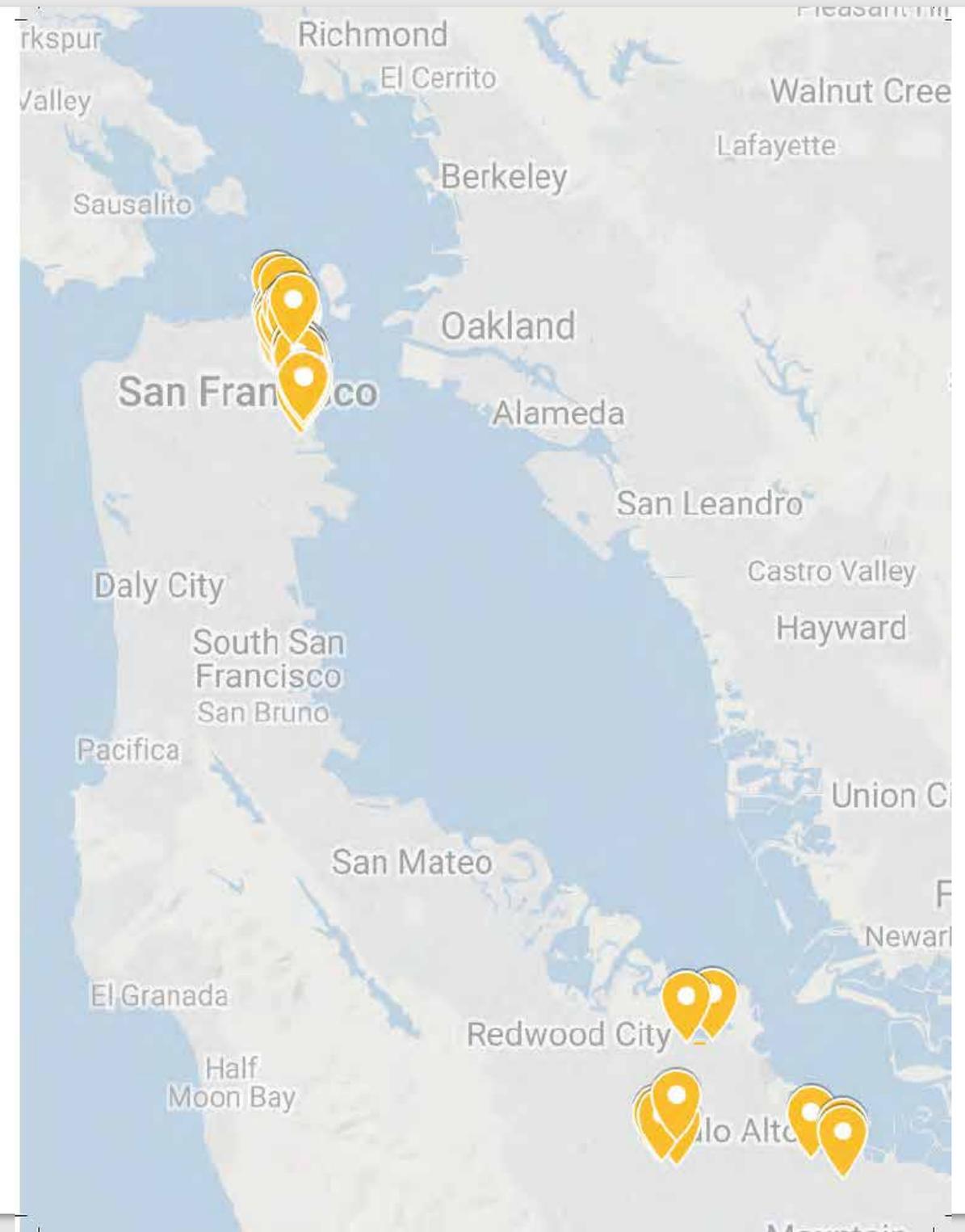
Cathy Simon, FAIA

Karl Backus, FAIA

David Greenbaum, FAIA

Susan Parrish, Lori Feinman

**Photo Credits:** Jason O'Rear













## Symposium on Innovation

- Moderated symposium to compare and contrast how the topics of social equity, housing development, and landscape design are evolving in San Francisco to better reflect the values of social equity and public engagement.
- We learned how the symposium speakers modified their practices to implement innovative thinking into their practices and work, ultimately reshaping the services they provide to the public.



Katie Gerfen, Moderator;  
Speakers: Margie O'Driscoll, Deanna Van Buren,  
Steve Wiesenthal, Richard Kennedy

# Let's review:

## How to drive innovation in design?

- Time and money
- Diverse teams
- Embrace "beta"
- Learn from failures
- Think different
- Get political

# And also:

- Thrill your customers (solve their big problems)
- Use competitions to hone your skills
- Eat together (really!)



## Panel Discussion - Issues and Innovation on Campus

- How enormous tech and institutional **workforce growth is impacted by bay area constraints of space, housing, and transit.**
- The **planning and transit forces** in the San Francisco bay area that impact commercial and institutional development.
- The **planning principles** that drove revitalization of the San Francisco bay area as they learn about the role that urban planning, and zoning play in such programs.
- How Google, Apple, and Stanford University develop their real estate to address the specific bay area pressures of intense workforce growth and the lack of public transit and housing.

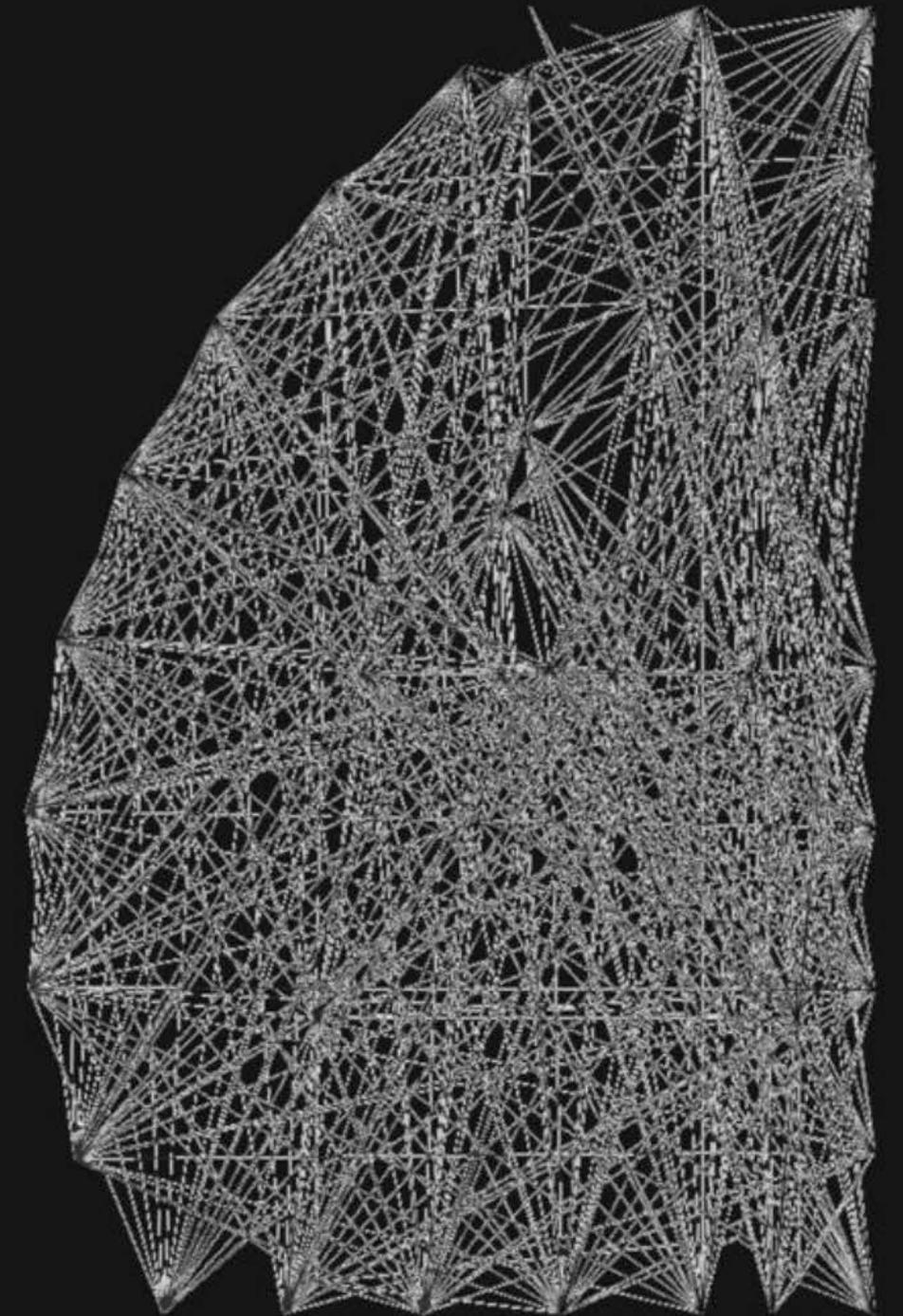


Daniel Garber, Moderator;  
Panelists: Joe Van Belleghem, Dan  
Whisenhung, Jack Cleary

# Architecture Design Data,

Phil Bernstein

- Evolution of tools and technologies
- Practice competency in the era of computation
- Evolution of project delivery models
- Project operational and performative optimization





**ADVANCED MANUFACTURING**  
The world's most advanced manufacturing technologies are being developed, designed, and built using 3D printing, additive manufacturing, and other digital manufacturing technologies. These technologies are enabling the production of complex, custom parts and components that were previously impossible to manufacture.

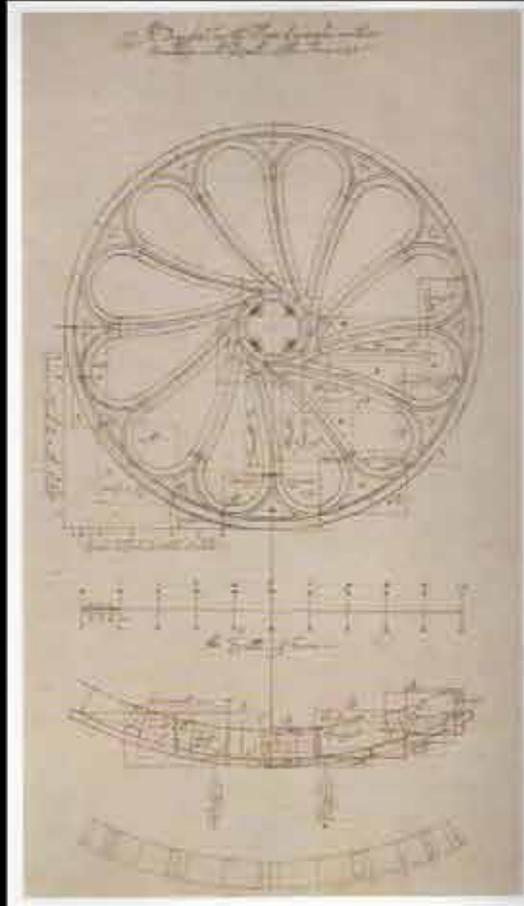
**AUTODESK**

**Virtual Cinematograph**  
Virtual Cinematograph

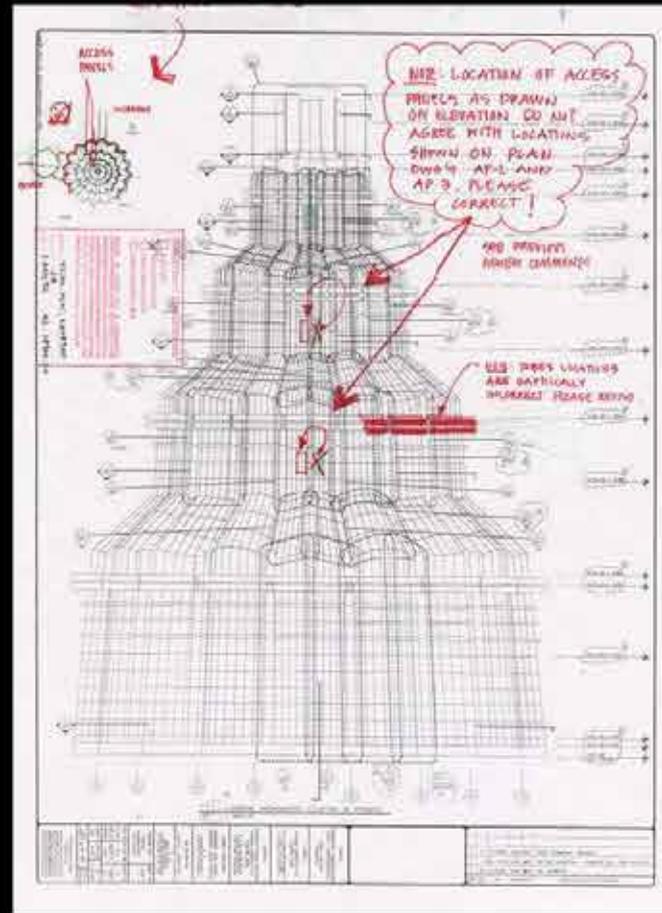
**Fuseproject**  
See how to learn better

**Tesla Motors**  
Electric structures

# Evolution of Tools and Technologies



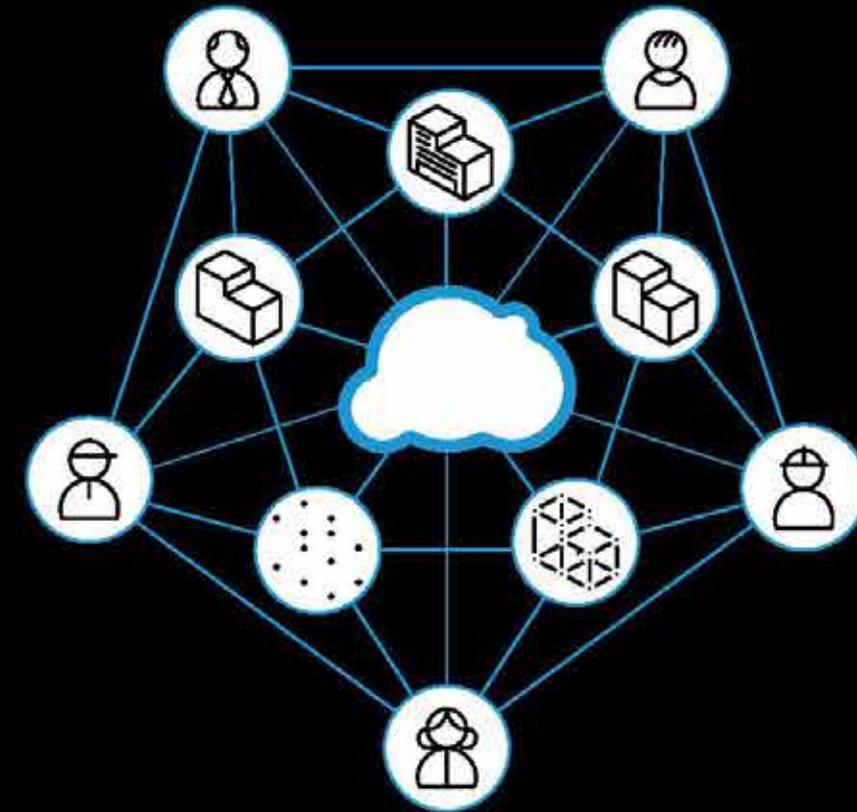
**Drawing**



**CAD**

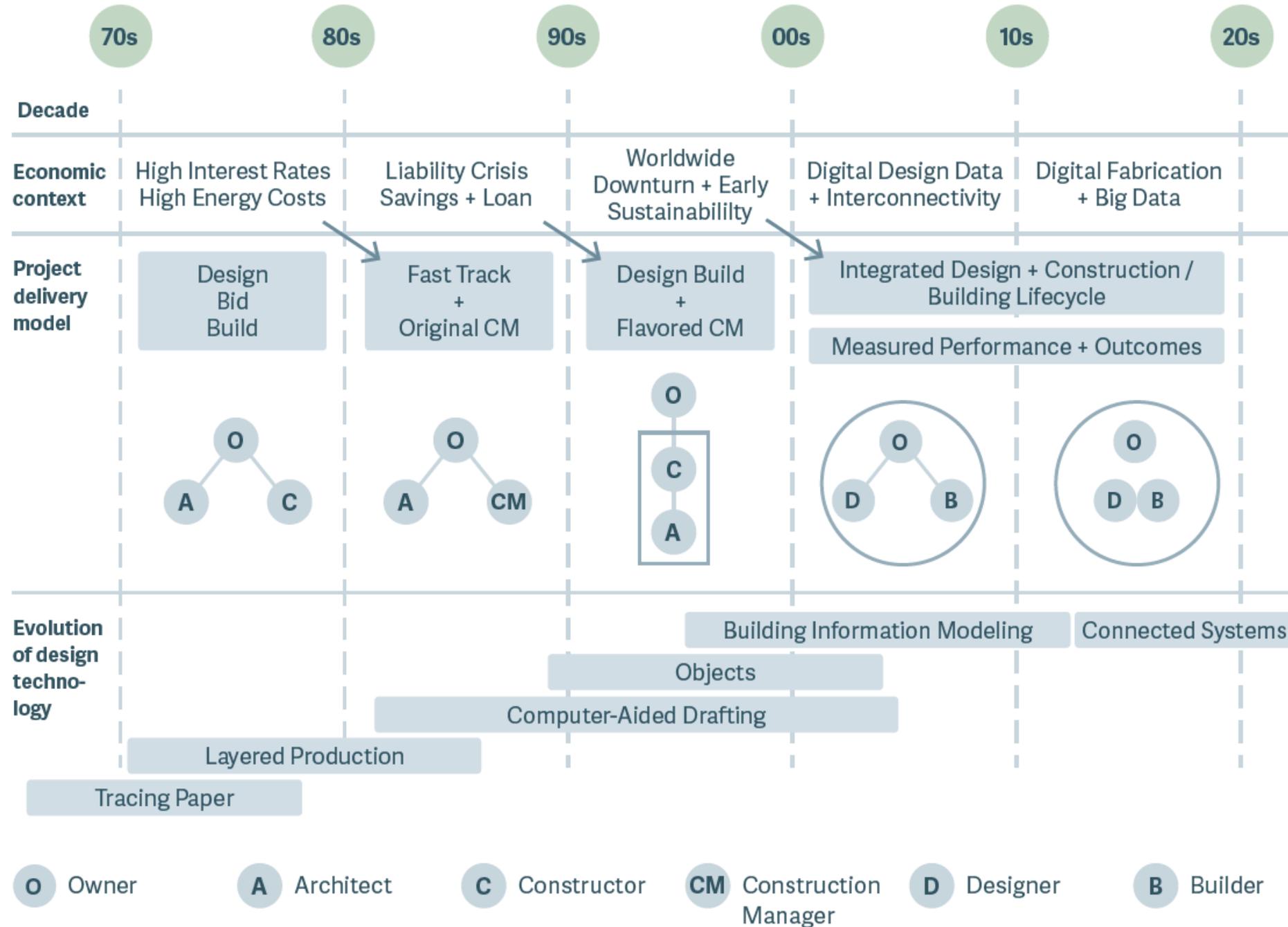


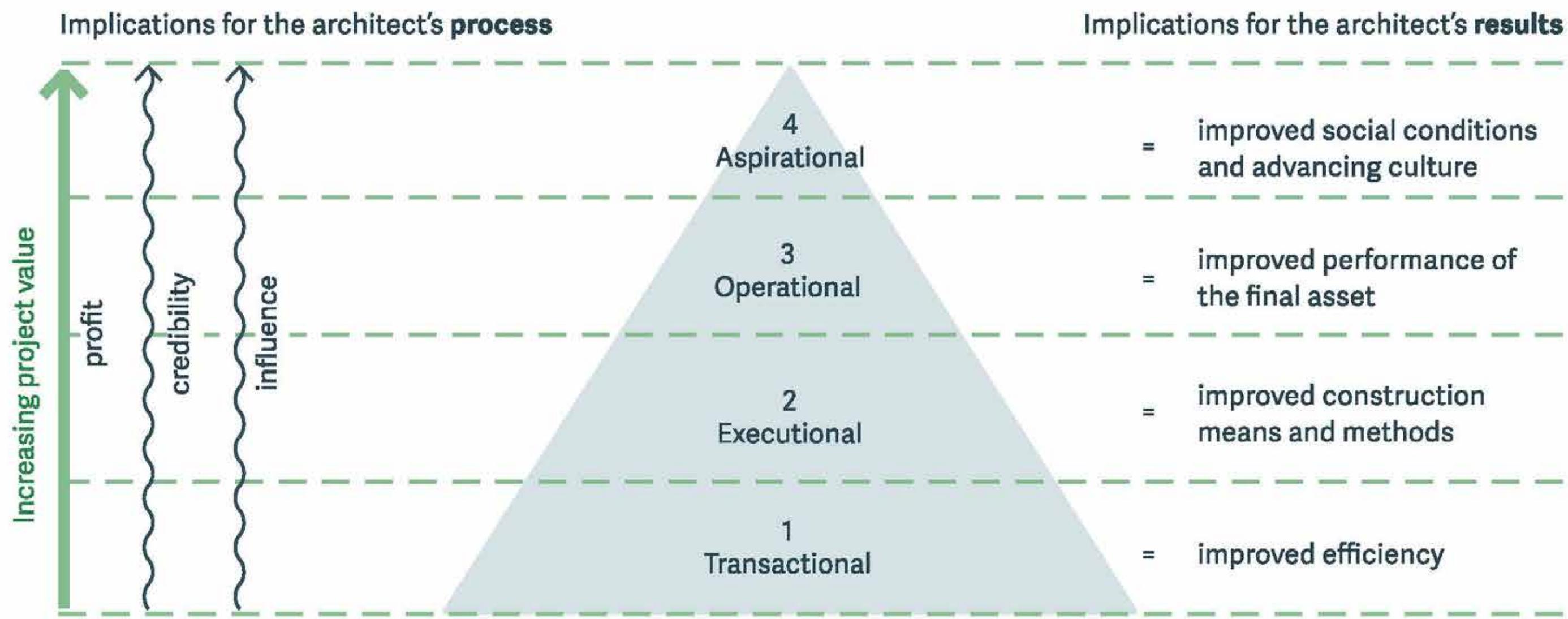
**BIM**



**Connected BIM**

### 2.1.5 The evolution of project delivery models, 1970–2020





# KIERAN TIMBERLAKE

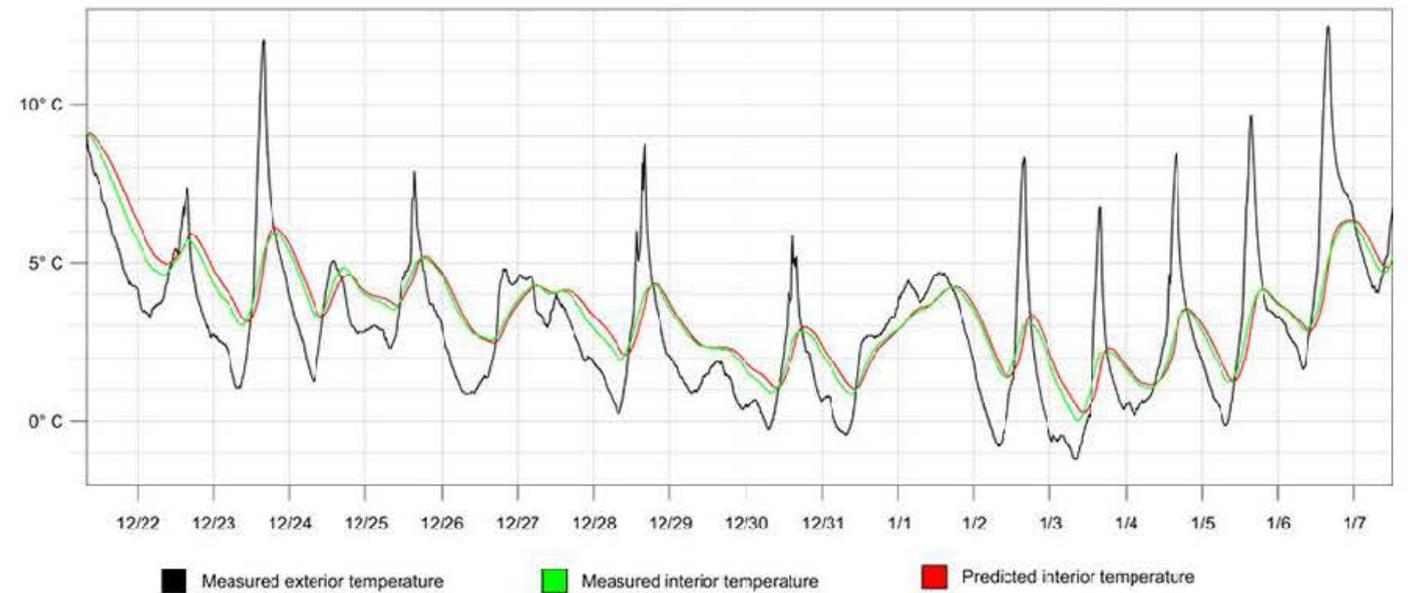
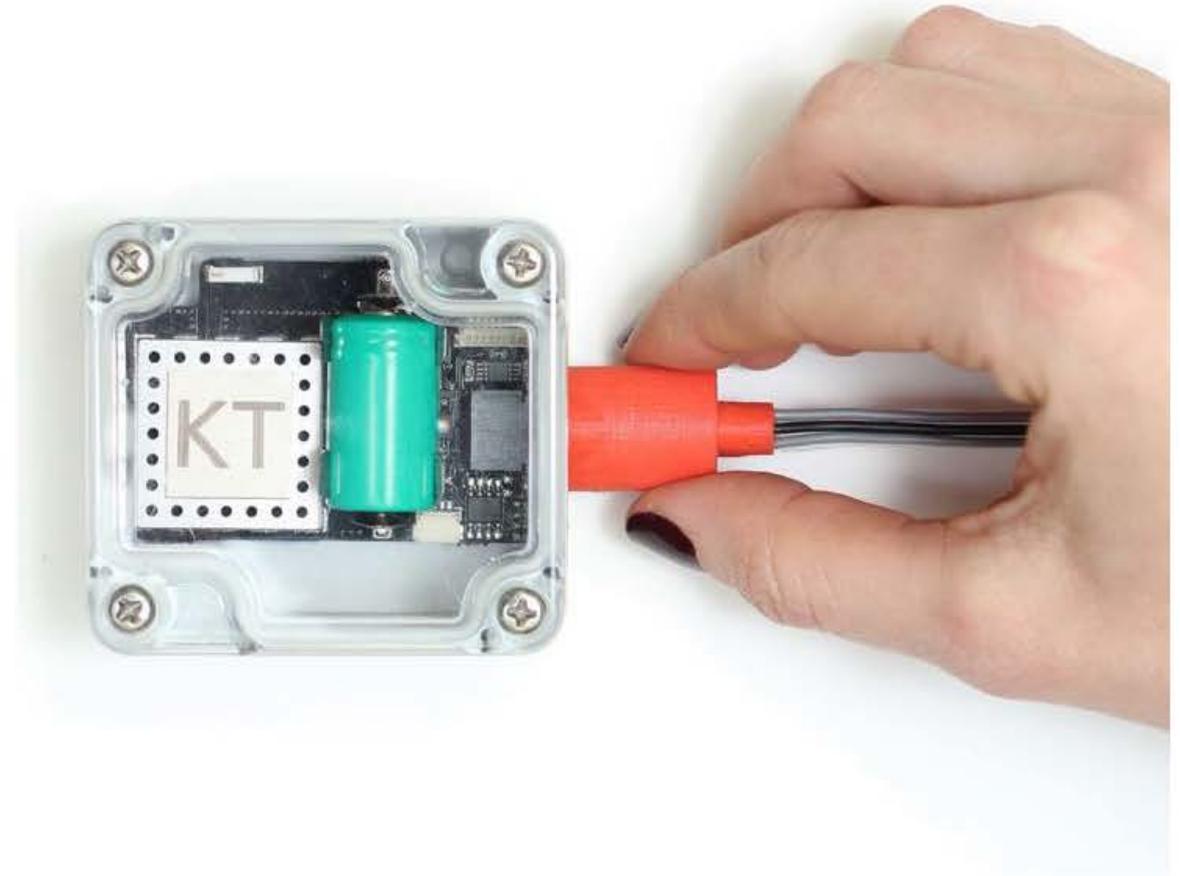






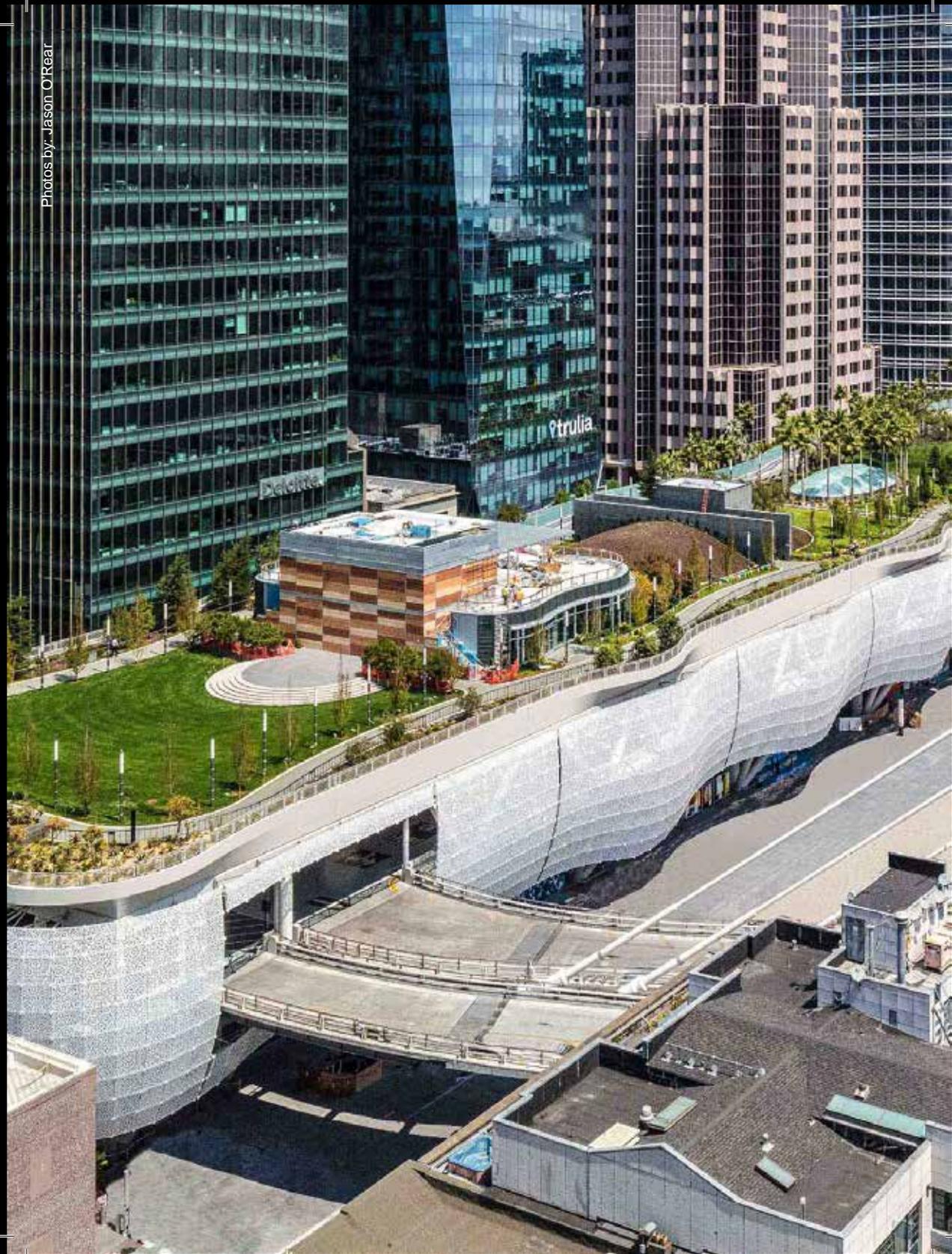
Photo by: Jason O'Rear

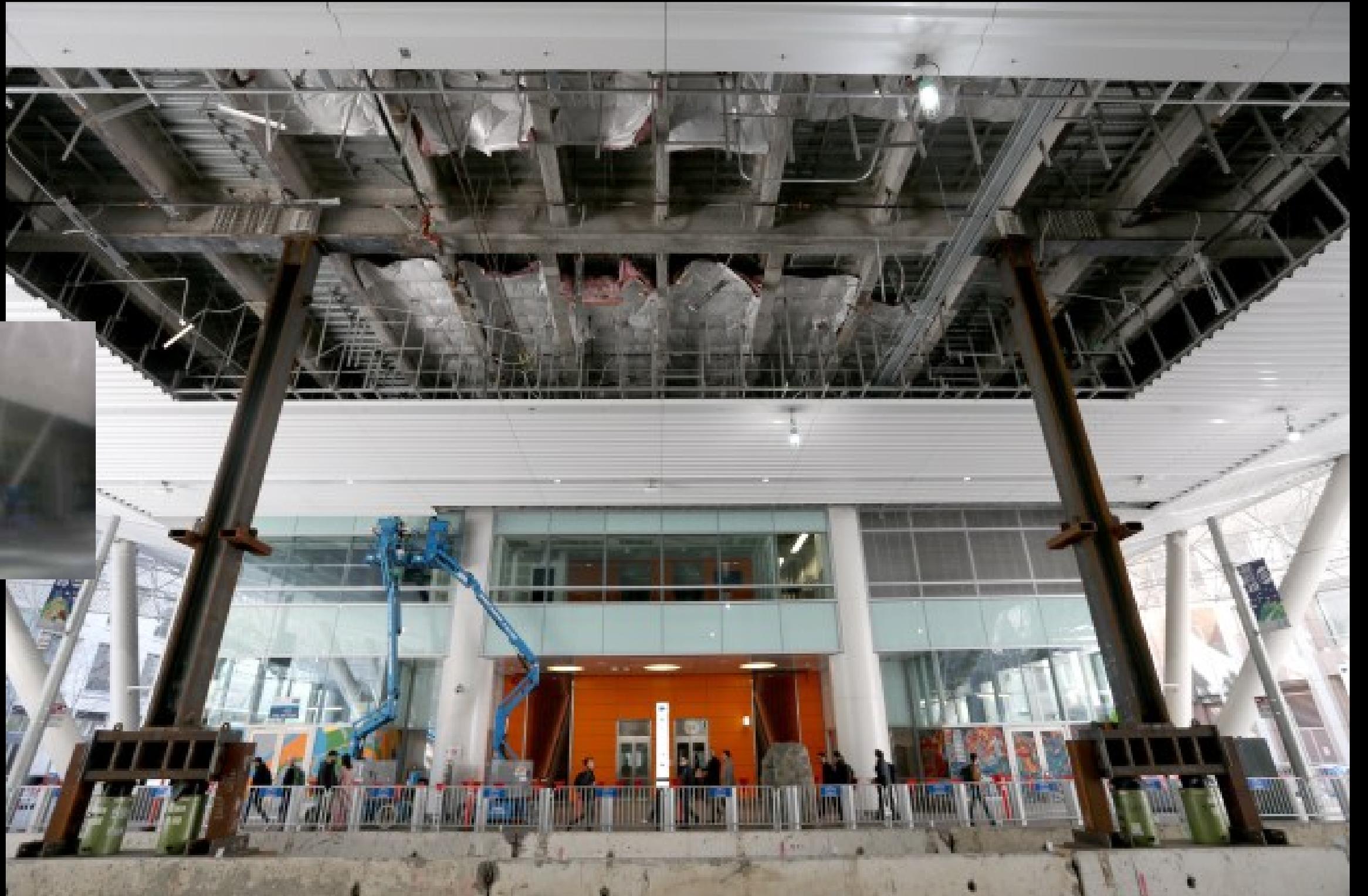


**Salesforce Tower and Transbay Terminal**  
Pelli Clarke Pelli Architects



Photos by Jason O'Rear

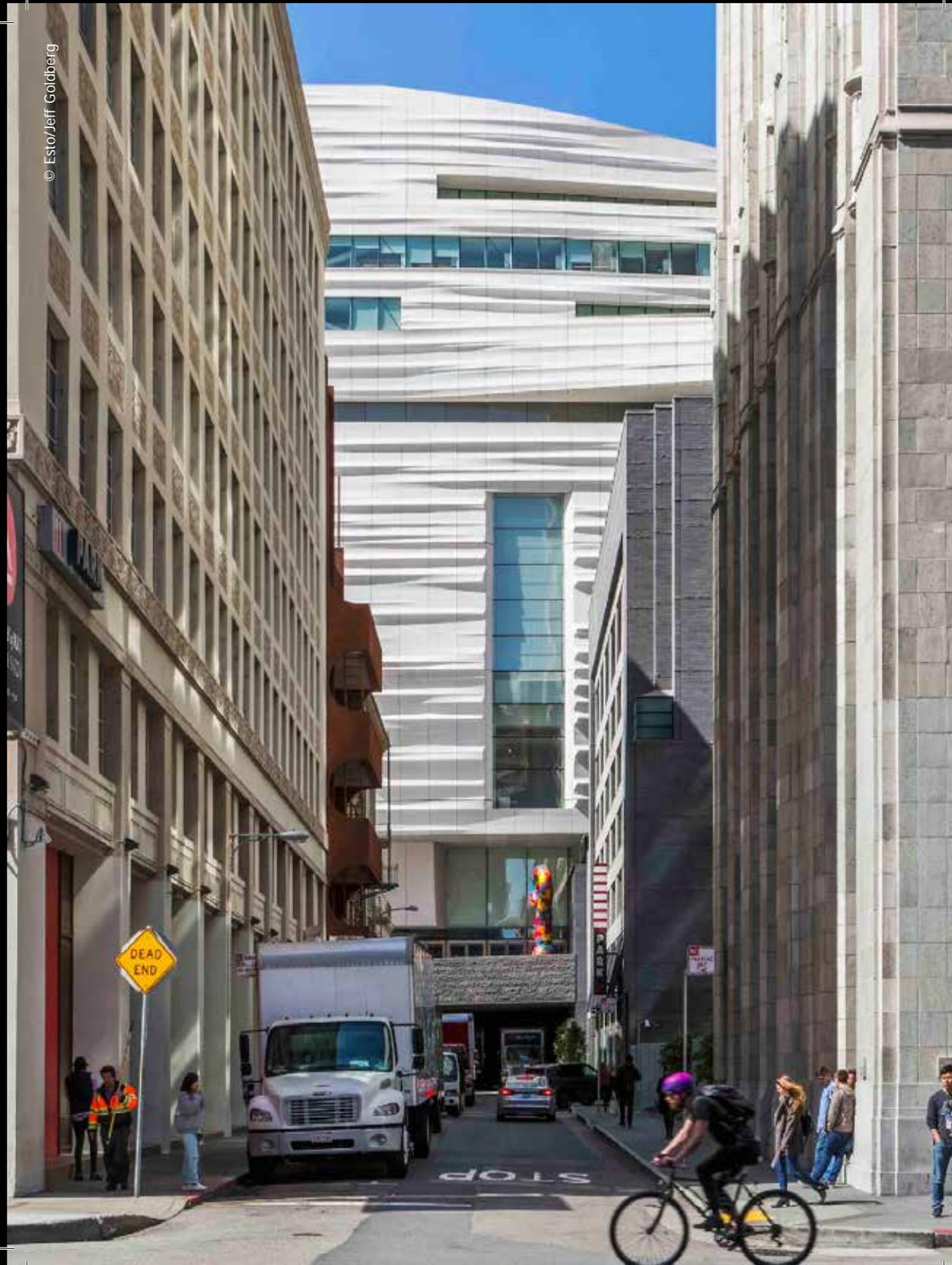




While innovation — the social process of introducing new things — is important, most technologies around us are old, and for the smooth functioning of daily life, maintenance is more important. Statistics are difficult to come by, since American federal agencies do not account for maintenance costs in a standard way. But in the computer industry, software maintenance — that is, fixing bugs and distributing upgrades — can account for more than 60 percent of total costs. According to one study, roughly 70 percent of engineers work on maintaining and overseeing existing things rather than designing new ones.

All varieties of American infrastructure — roads, bridges, airports, sewers — are in decrepit condition.

Andrew Russell and Lee Vinsel



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**SFMOMA Expansion**  
Snowhetti

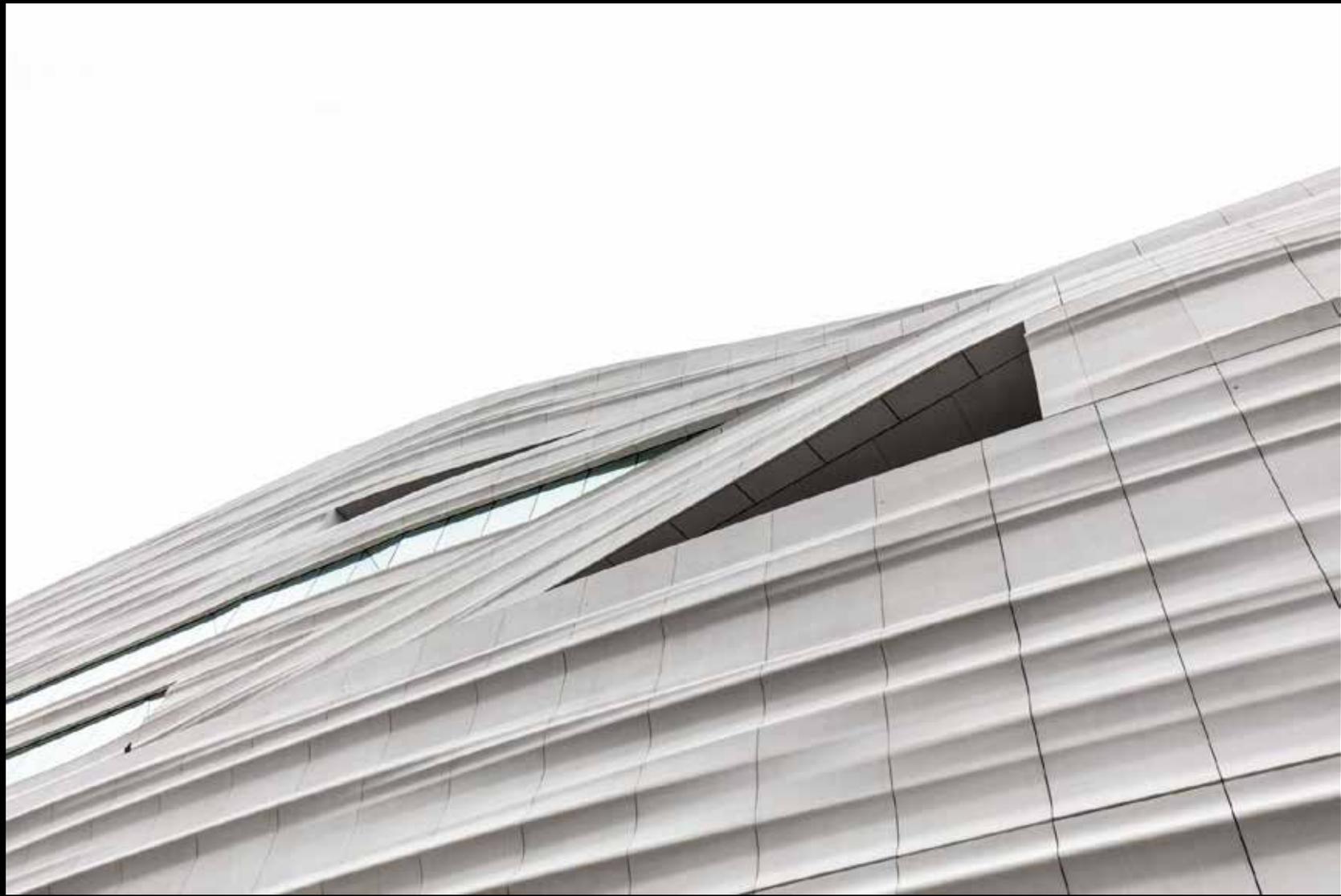






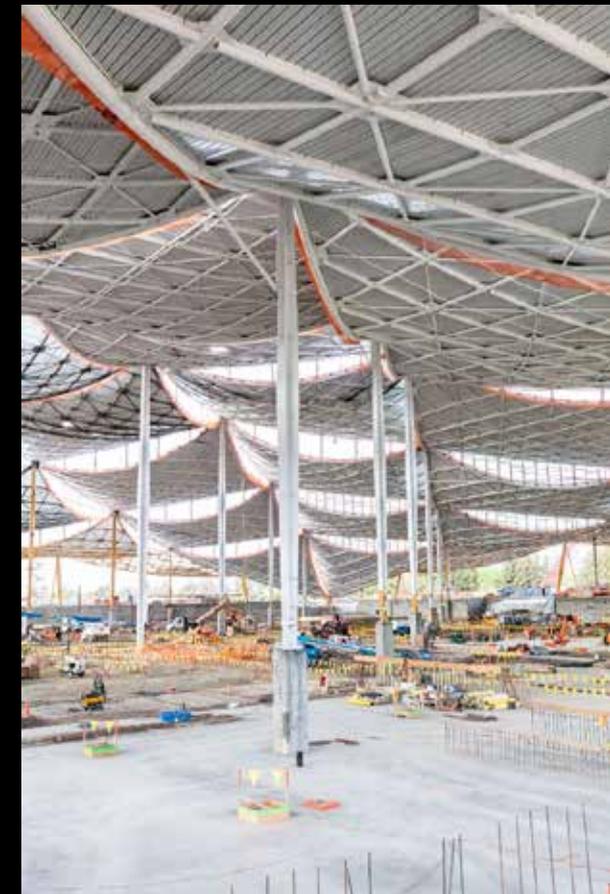
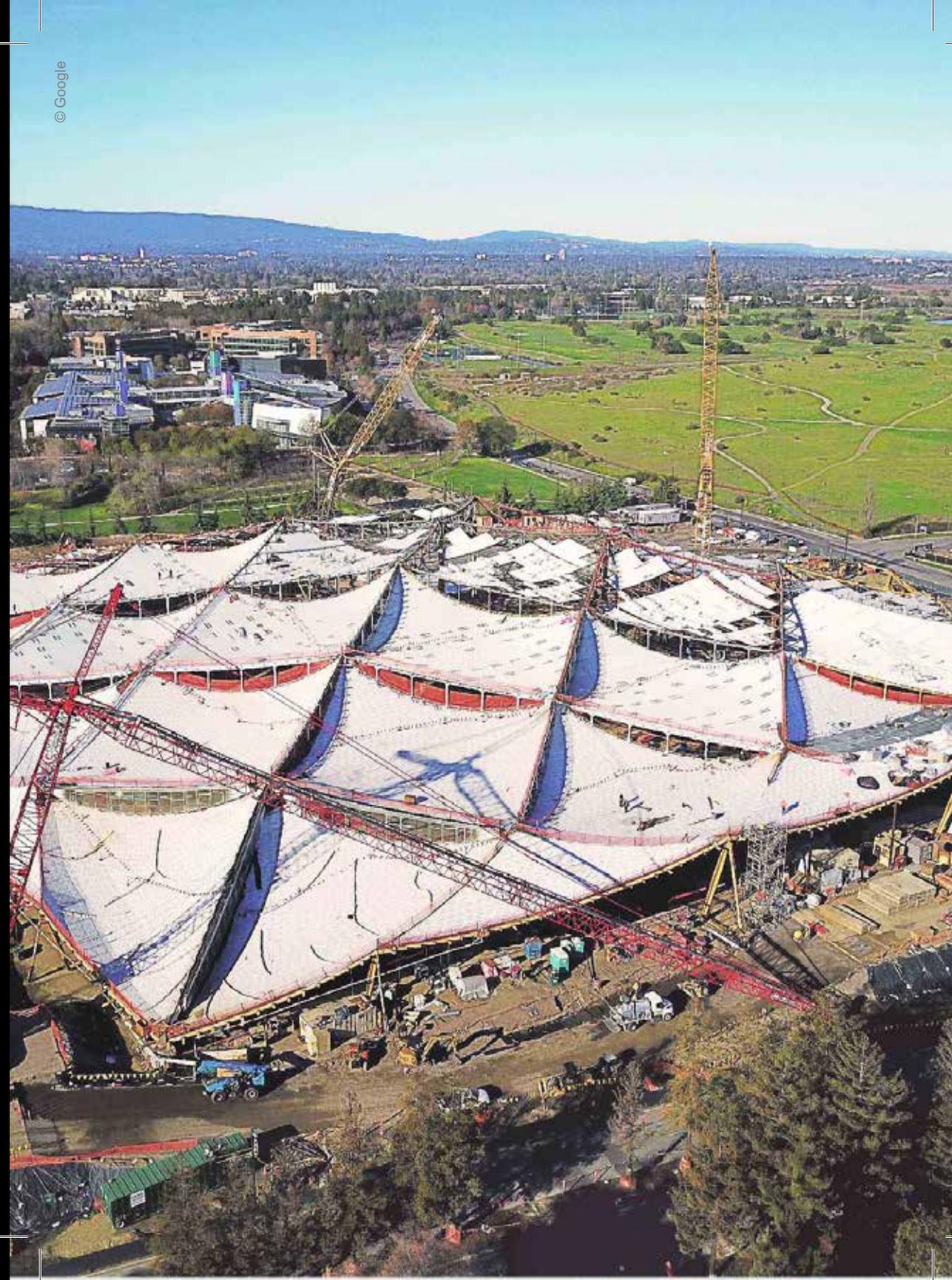
Photo by: Steve Proehl

**Stanford Central Energy Facility**  
ZGF

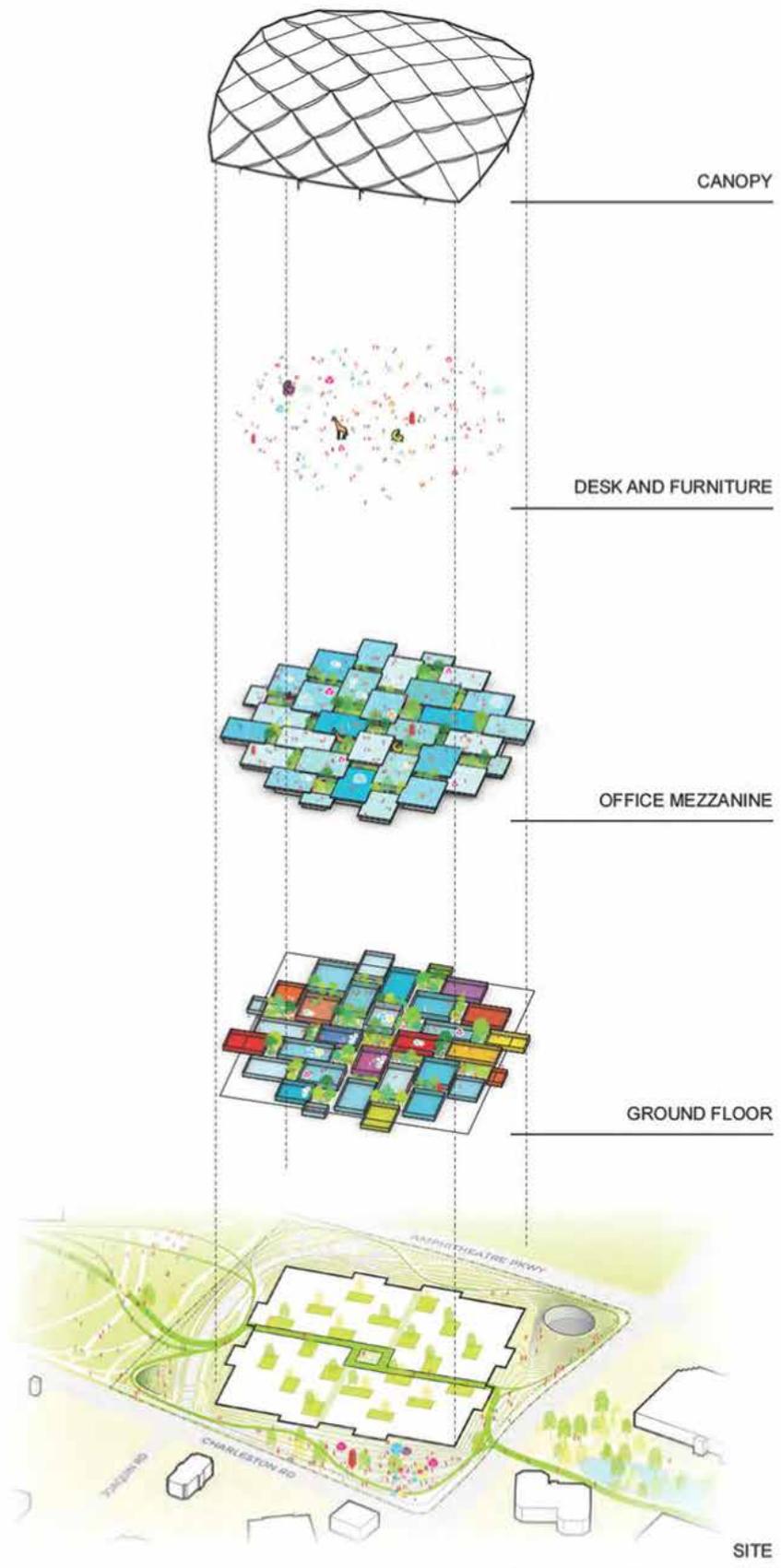




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**Google Charleston East**  
by BIG/Heatherwick







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**Apple Visitors Center**  
Foster and Partners



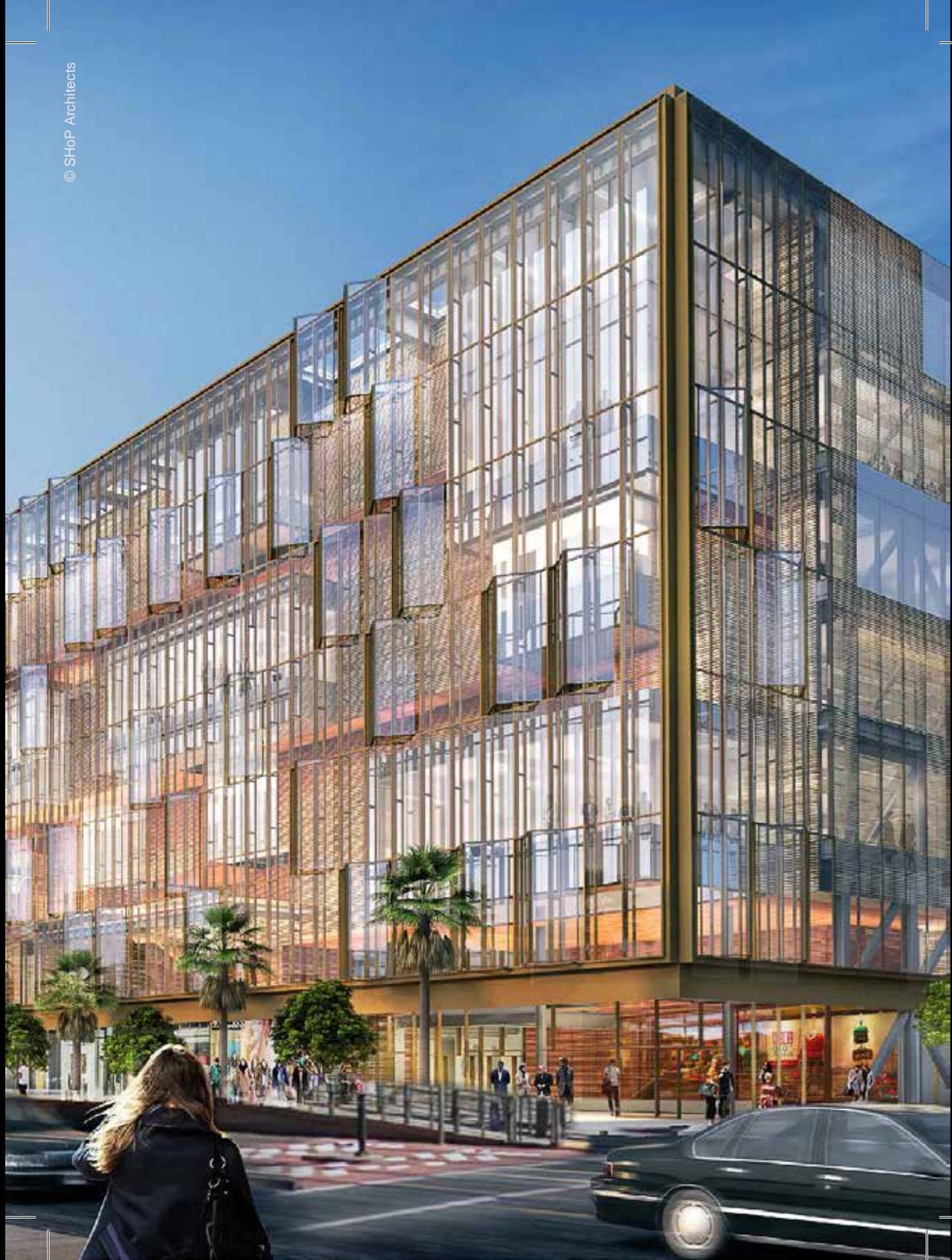


**588 Mission**  
David Baker

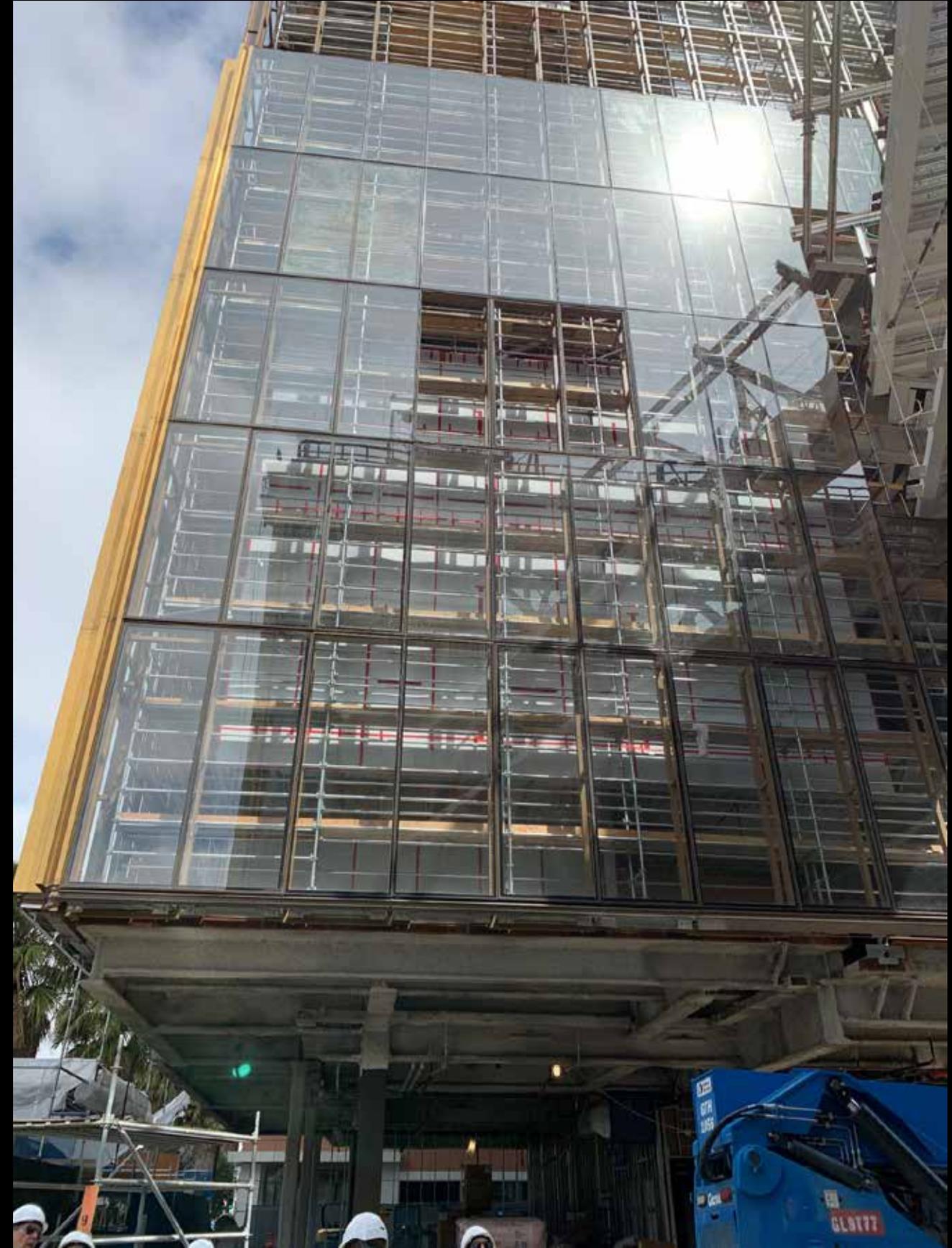
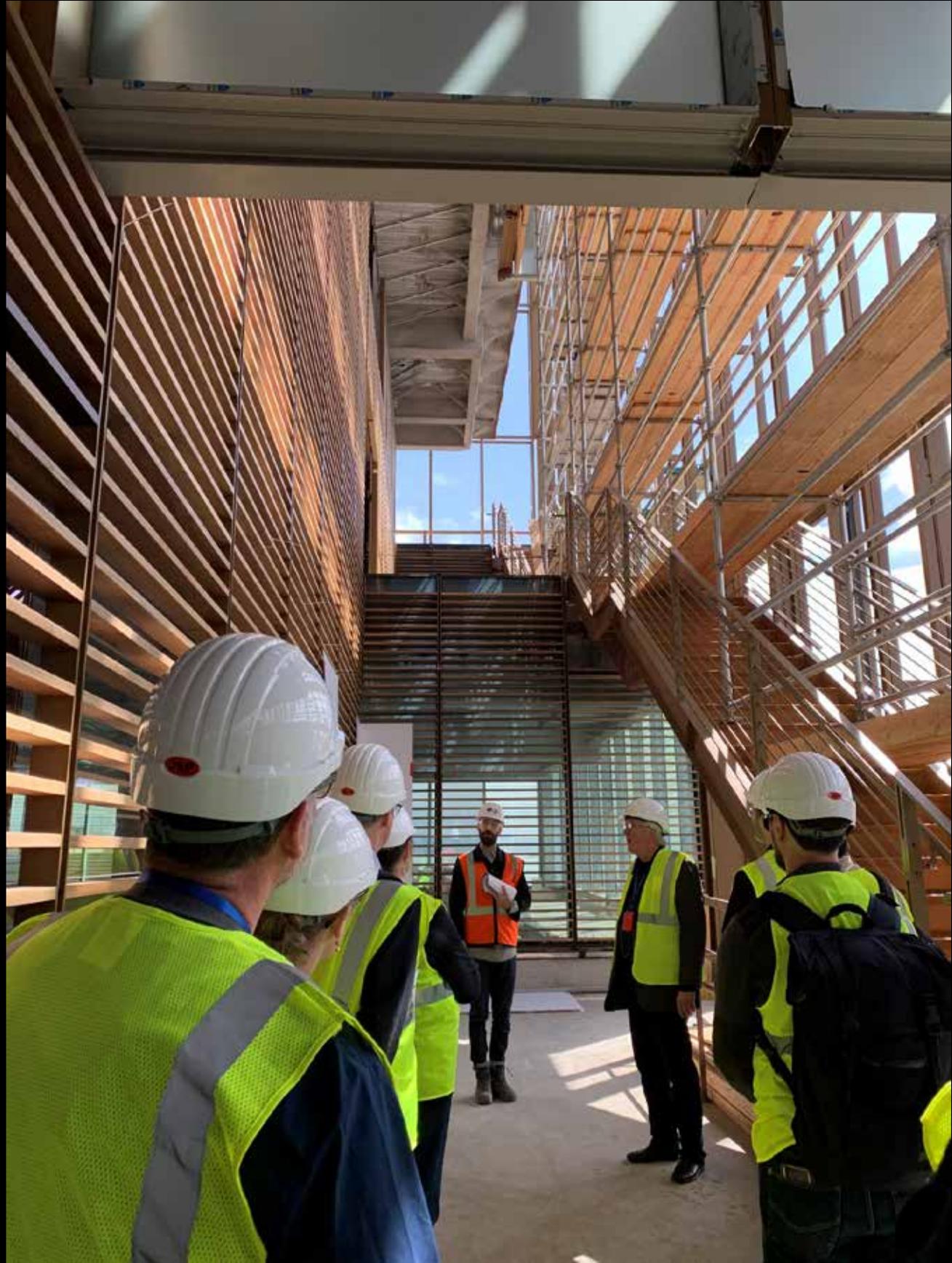




© SHoP Architects

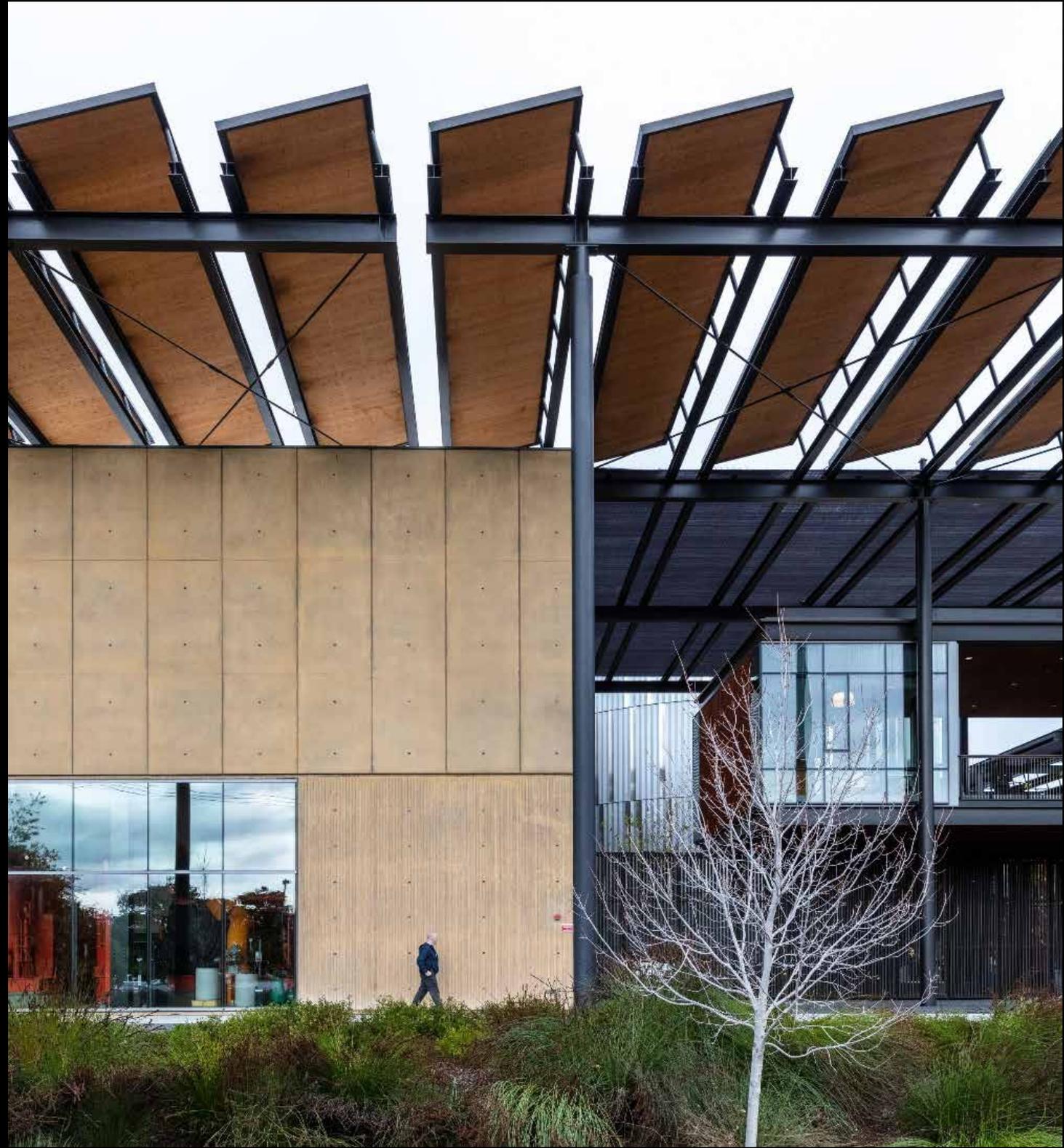
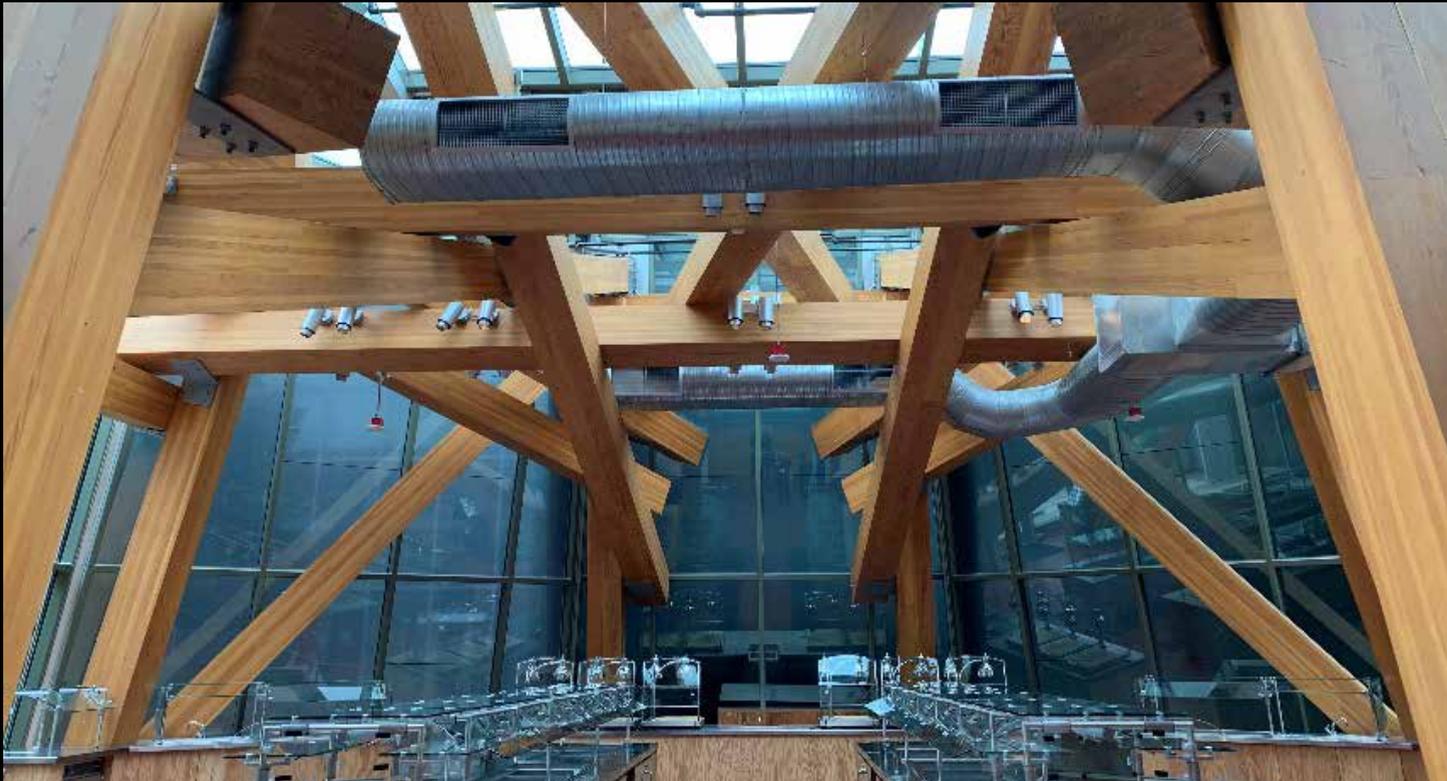


Uber Headquarters  
SHoP

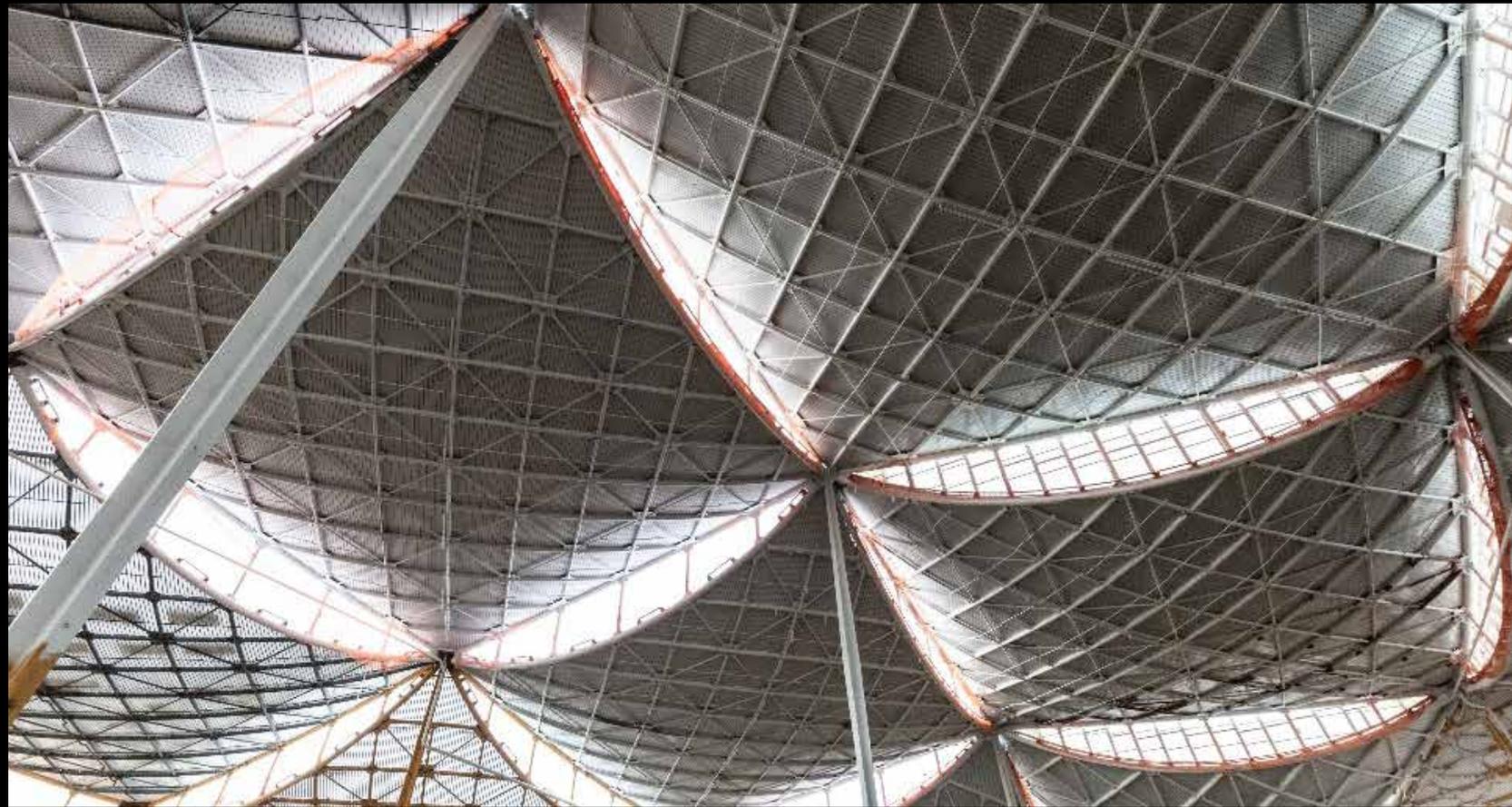


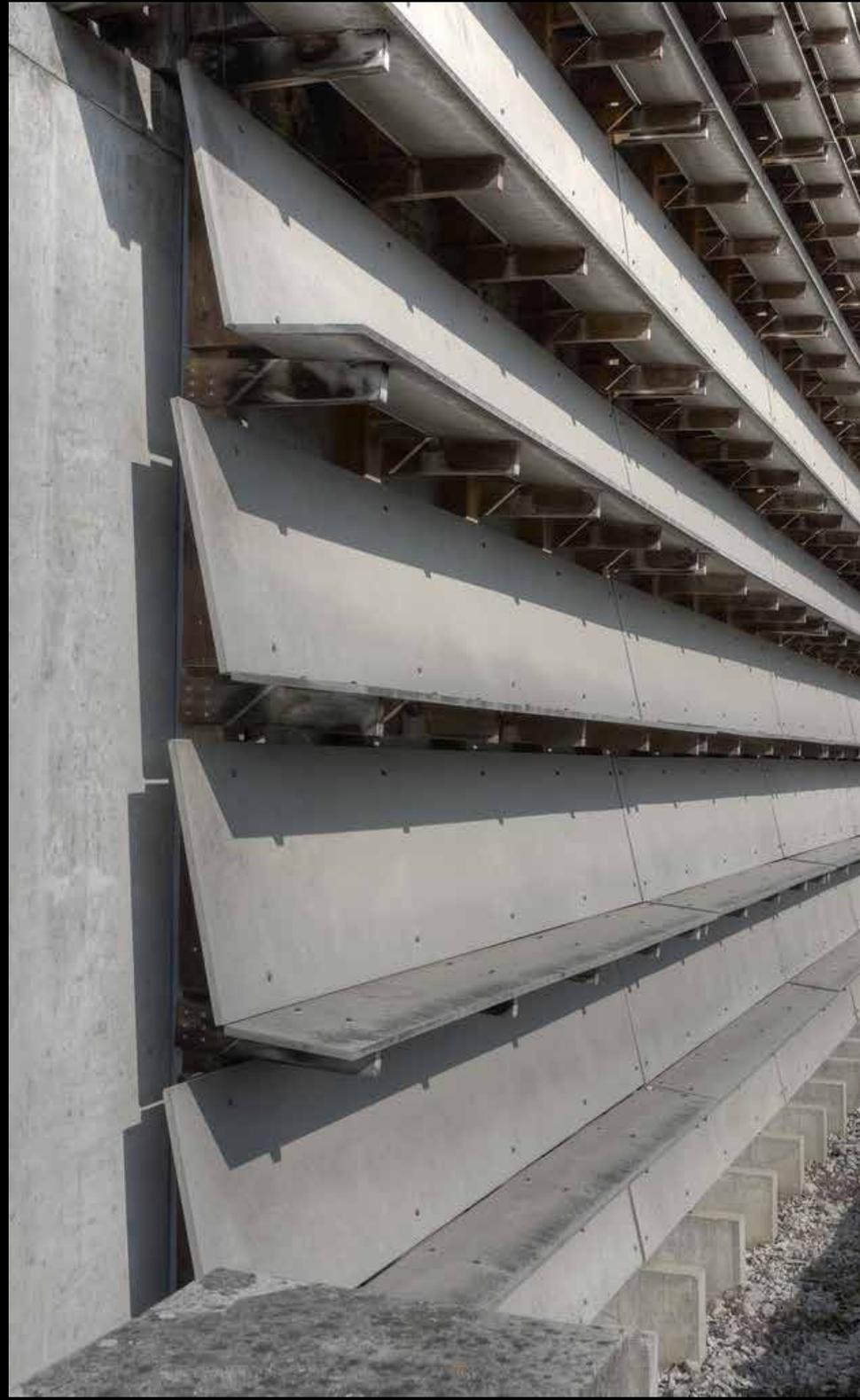
The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man. ... One man that has a mind and knows it can always beat ten men who haven't and don't.

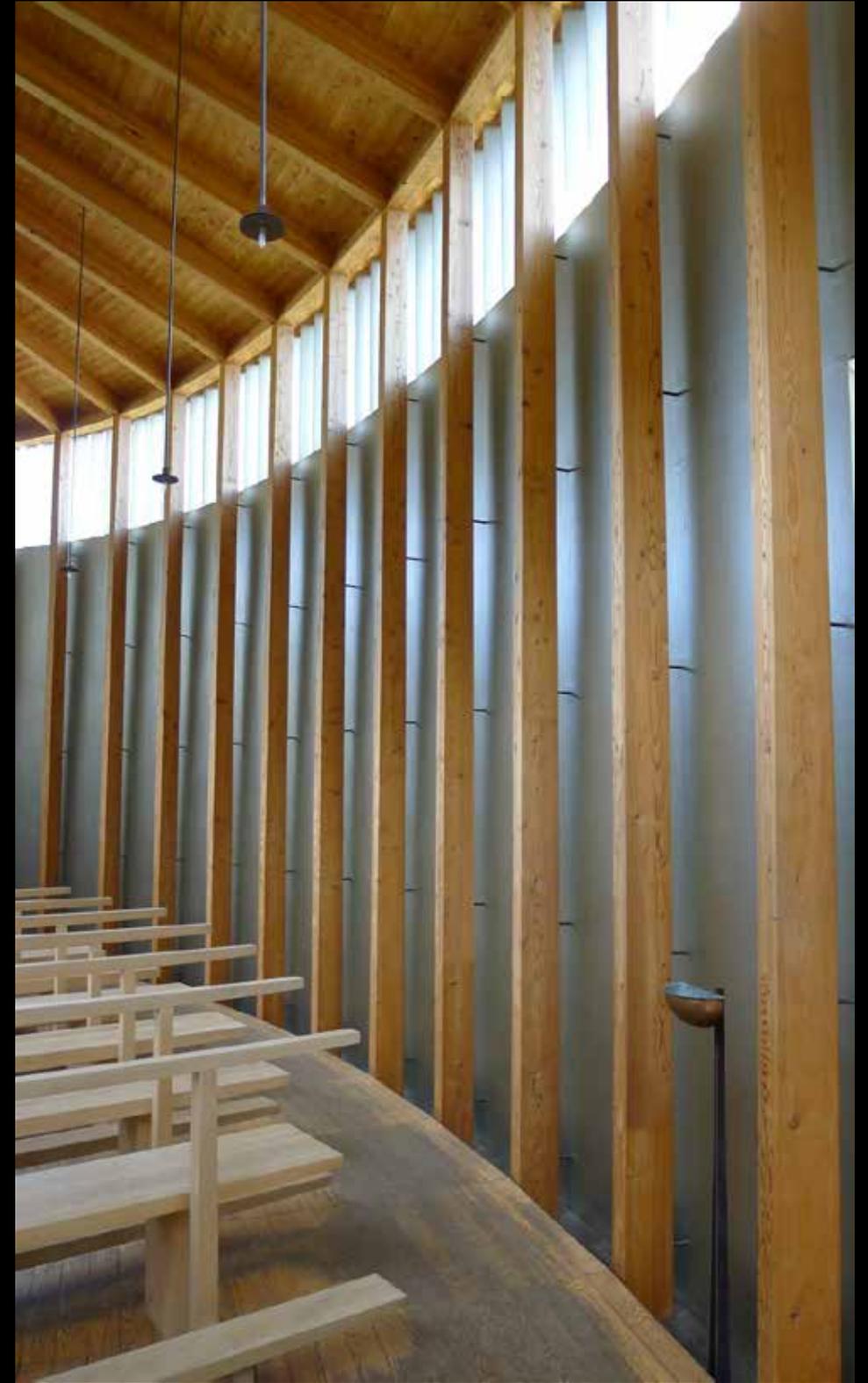
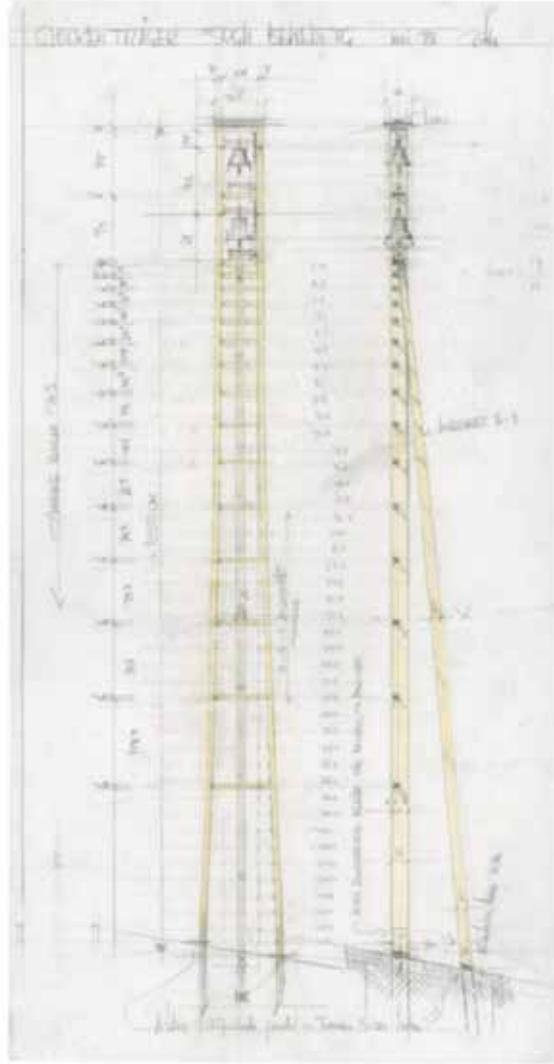
George Bernard Shaw

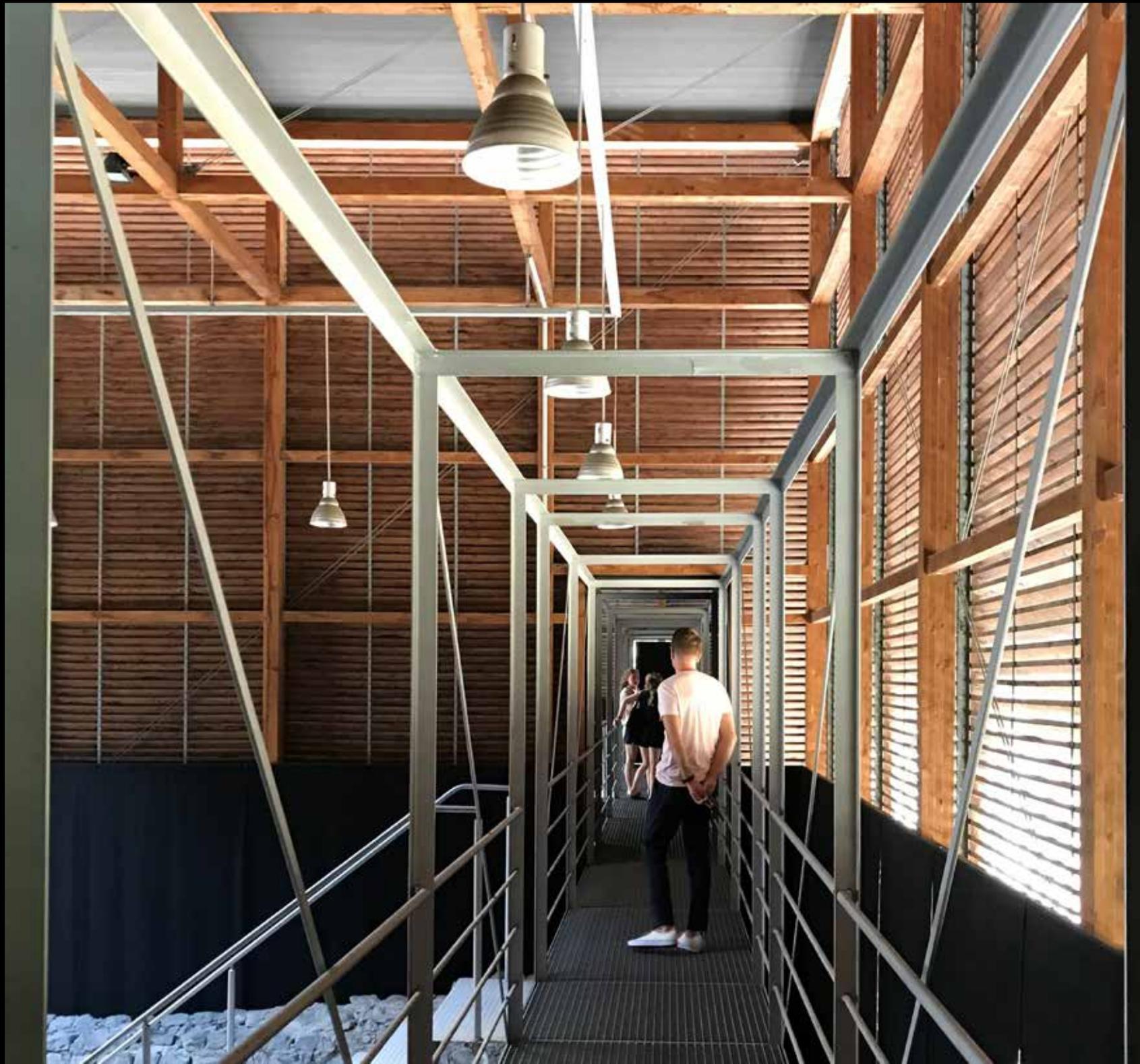
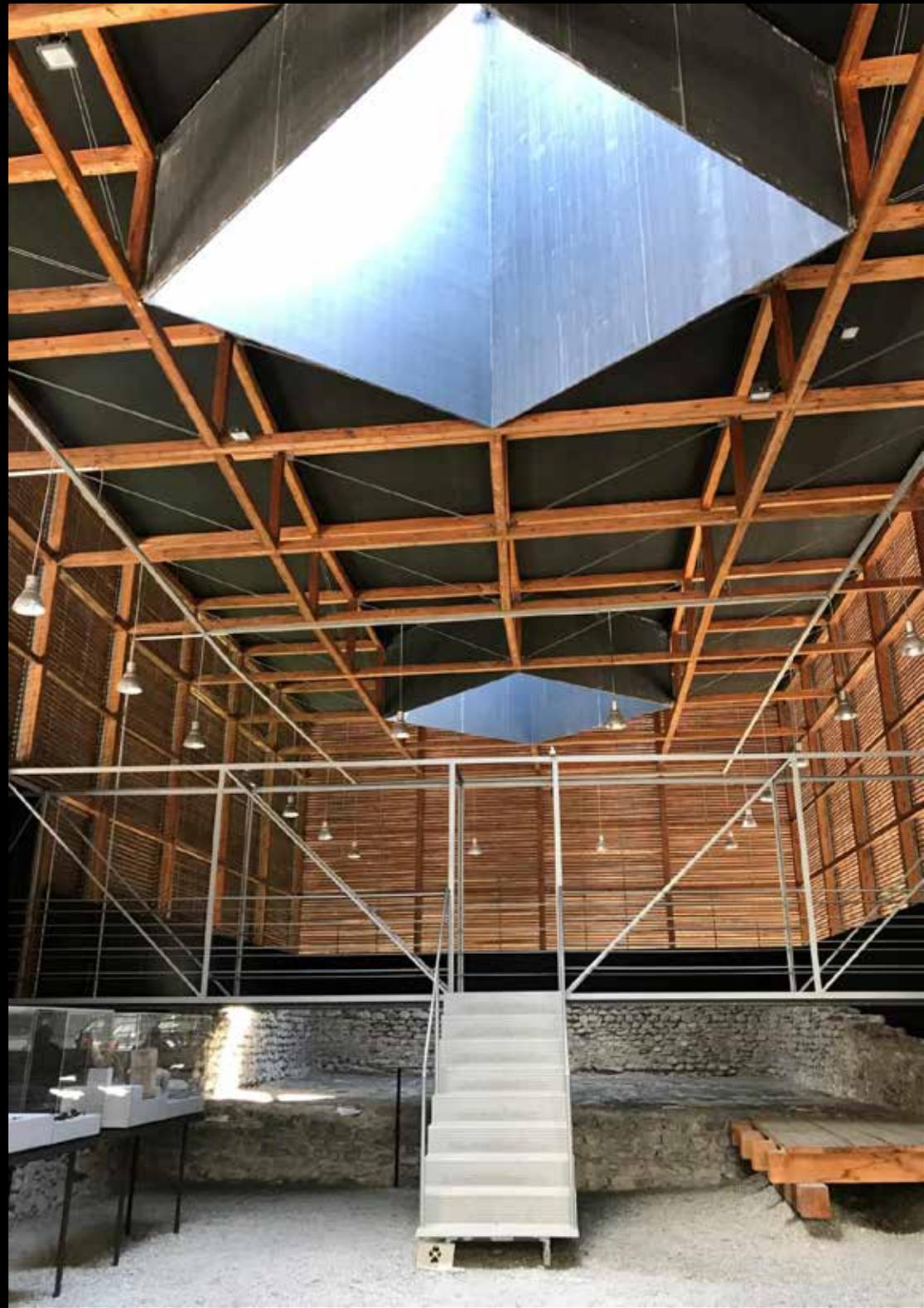


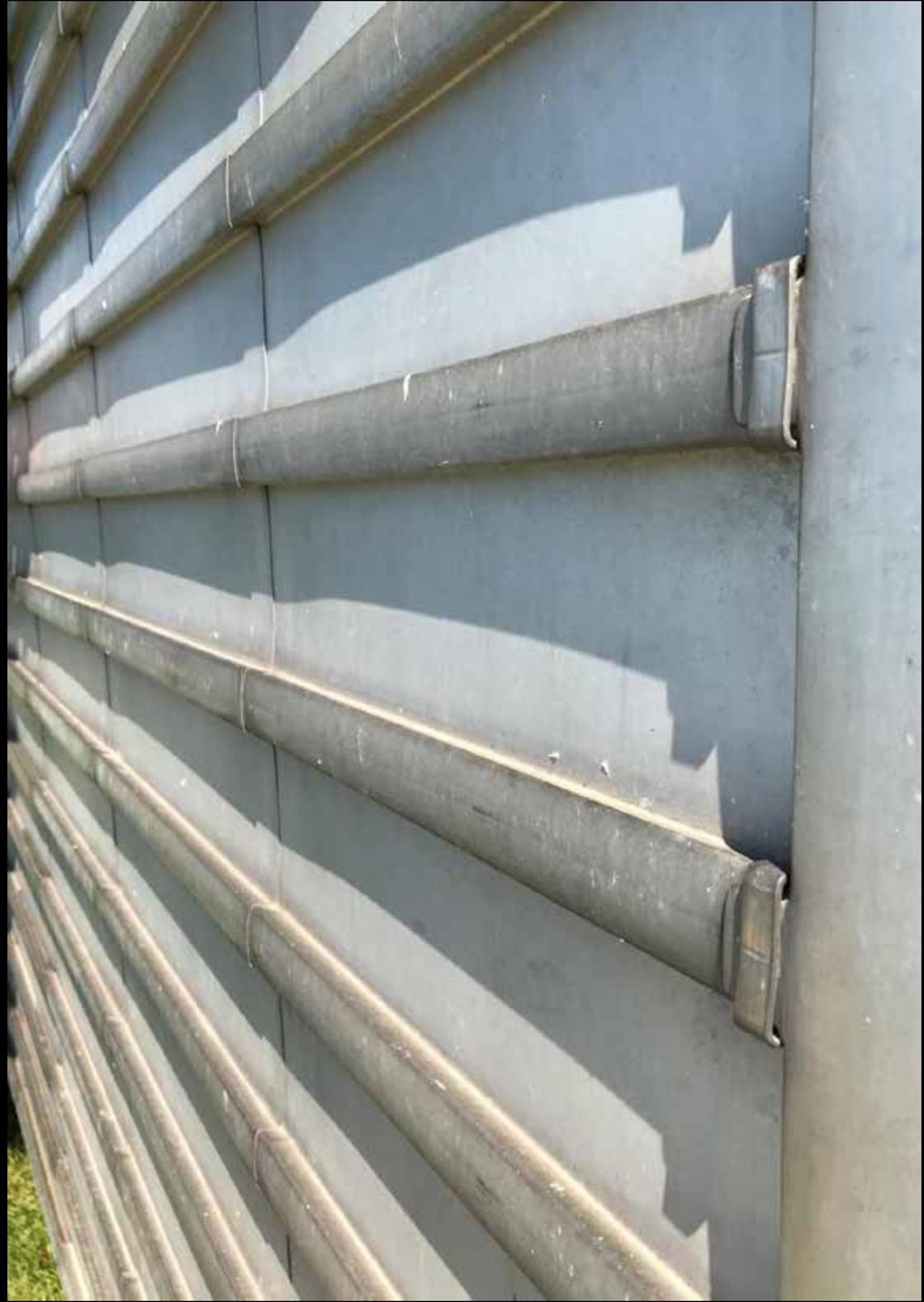












**THE INNOVATORS & MAINTAINERS:  
SWISS INNOVATION IN ARCHITECTURE,  
INFRASTRUCTURE & TECHNOLOGY**

2019 AIA  
COMMITTEE  
ON DESIGN  
INTERNATIONAL  
CONFERENCE

**SWITZERLAND**

September 21-29, 2019

Add-On Tour:

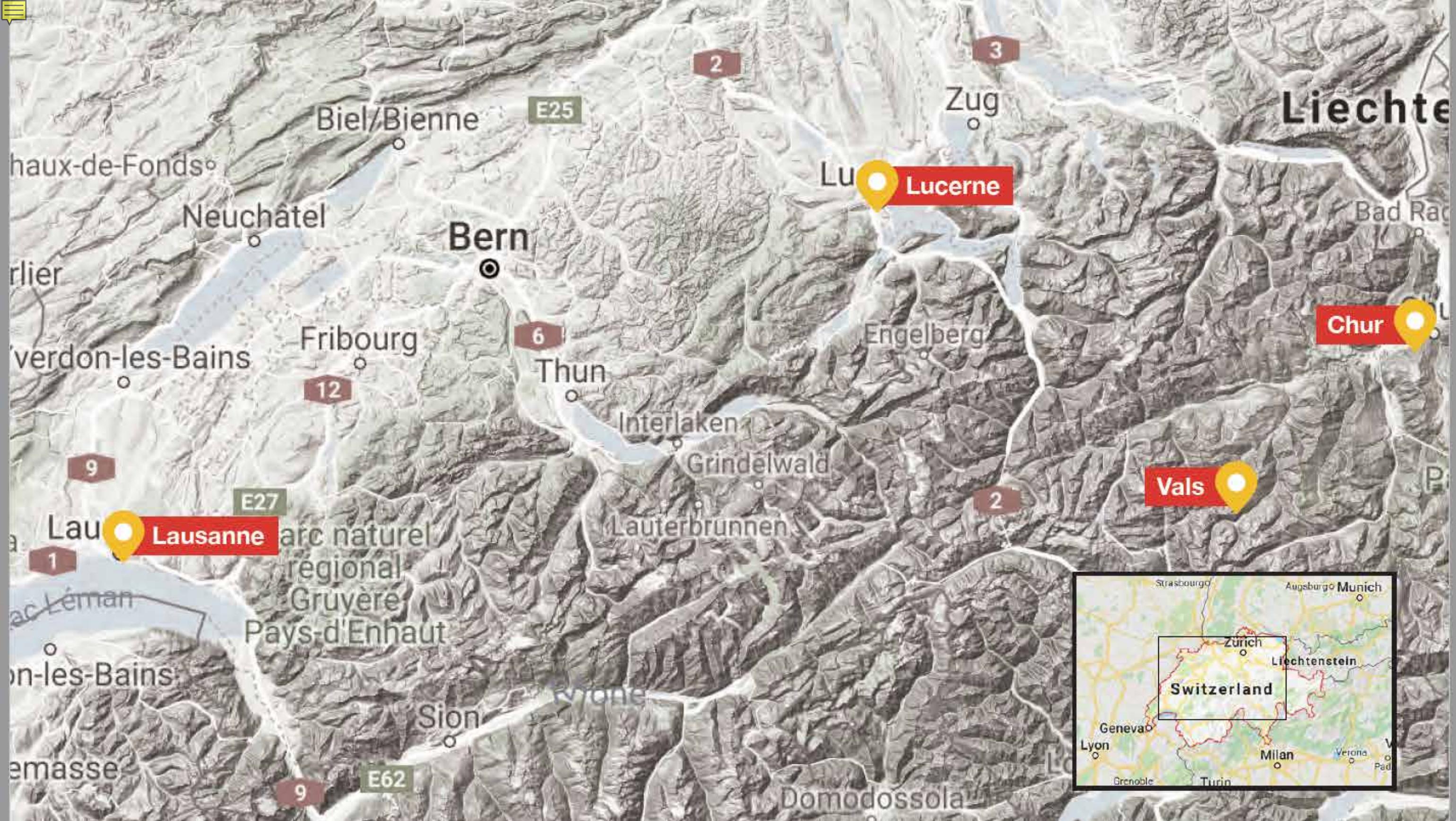
September 29-October 2, 2019

## CREDITS AND NOTES

- Photos by Tom Rossiter, FAIA
- BW Sketches by Dan Wheeler, FAIA
- Colored Sketches by Robert Miller, FAIA
  
- Smaller photos by David Greenbaum, FAIA
  
- Please refer to the conference guidebook for additional information on schedule, project information and speakers







Biel/Bienne

E25

2

3

Zug

Liechte

Lu **Lucerne**

Bern

**Chur**

Neuchâtel

Fribourg

6

Thun

Engelberg

verdon-les-Bains

12

Interlaken

Grindelwald

9

E27

Lau **Lausanne**

arc naturel  
régional  
Gruyère  
Pays-d'Enhaut

Lauterbrunnen

2

**Vals**

ac Léman

on-les-Bains

Sion

ryone

emasse

E62

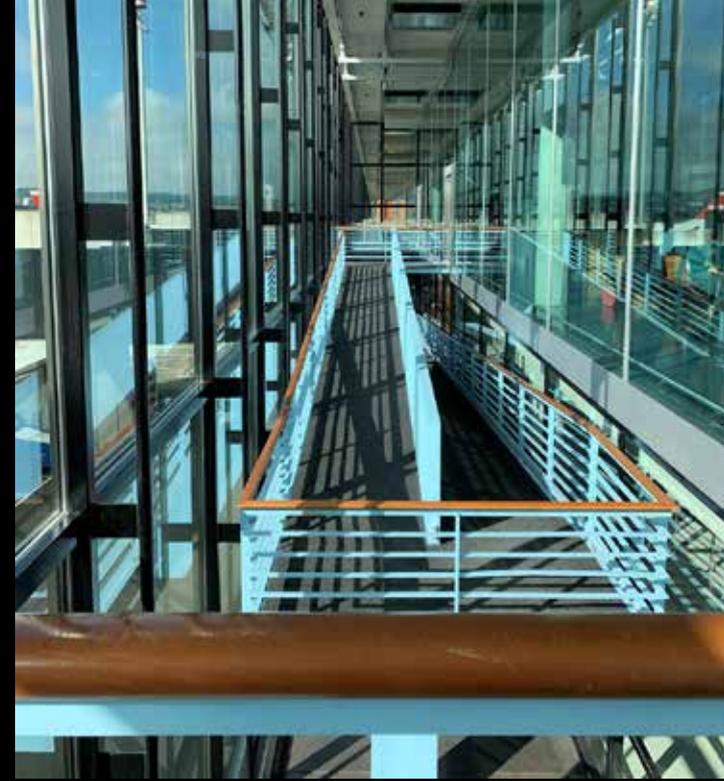
9

Domodossola

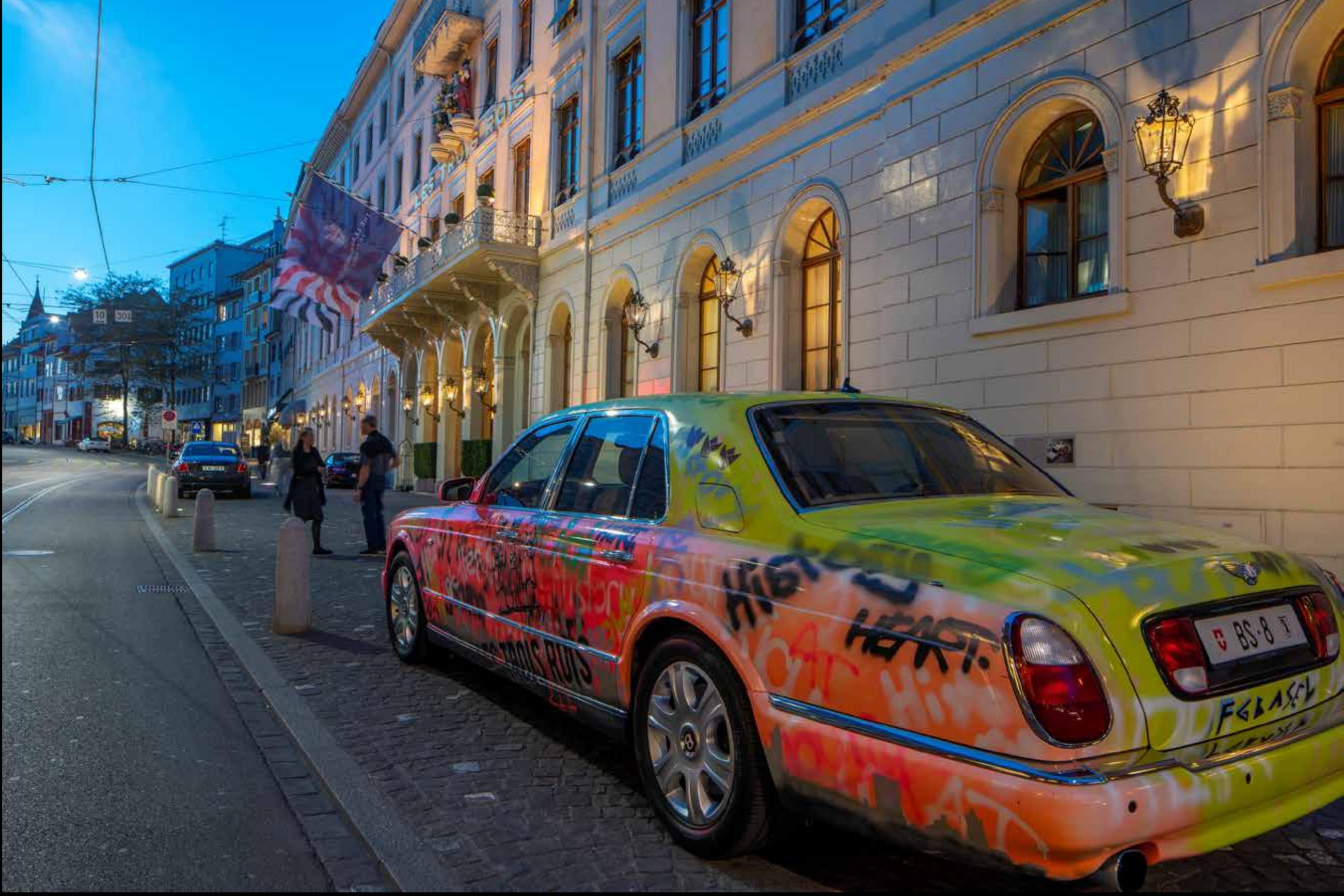




Speakers in multiple locations



Hotel Les Trois Rois  
Basel





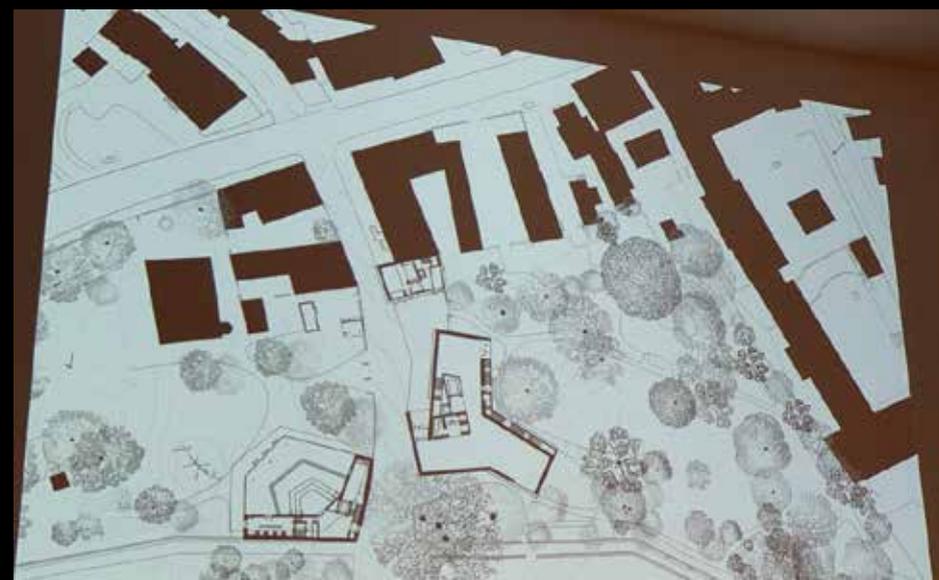
Fondation Beyeler  
Renzo Piano



Peter Zumthor  
Atelier Zumthor

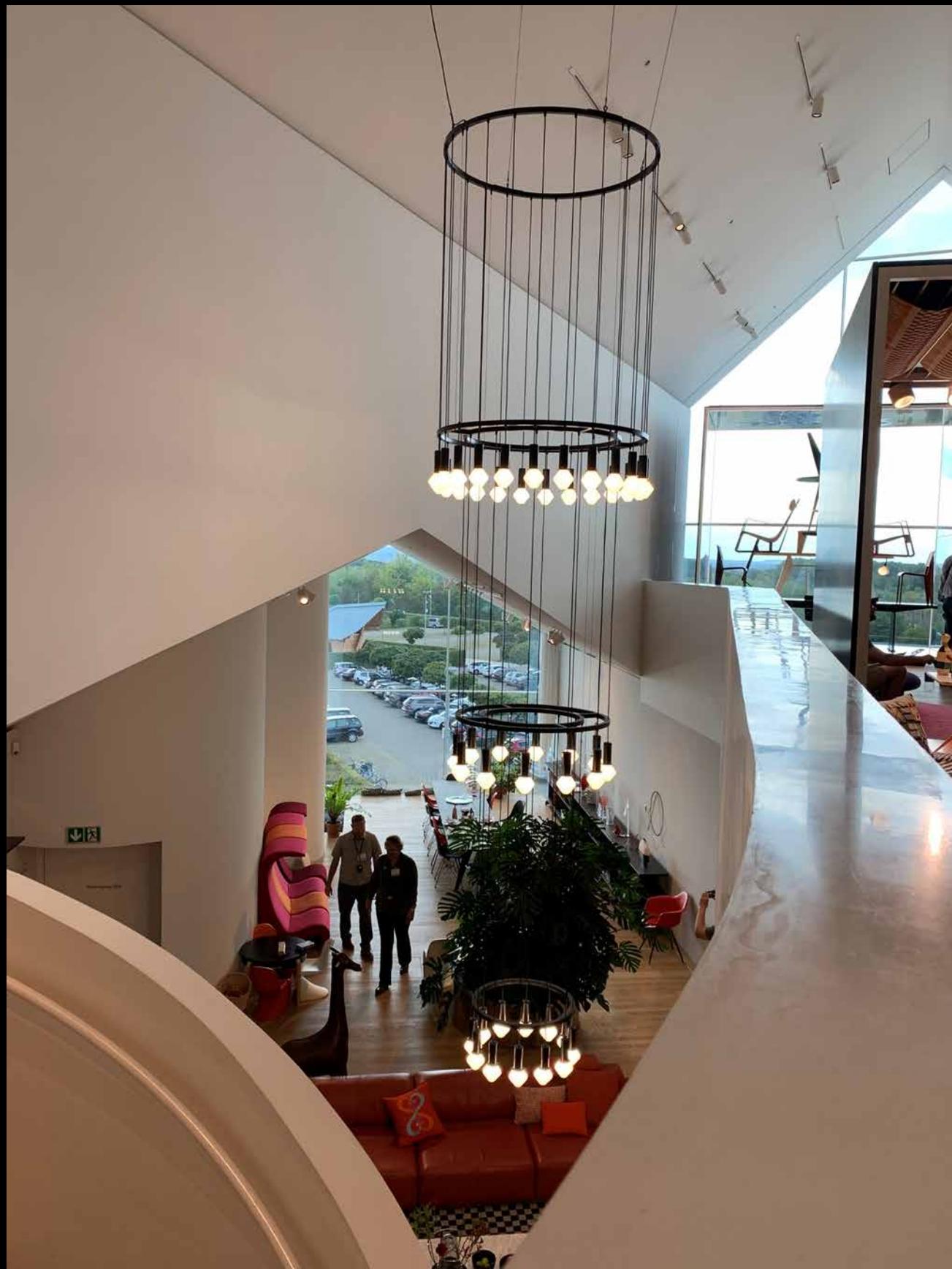


Peter Zumthor  
Atelier Zumthor





VitraHaus  
Herzog & de Meuron







Vitra Schaudapot  
Herzog & de Meuron

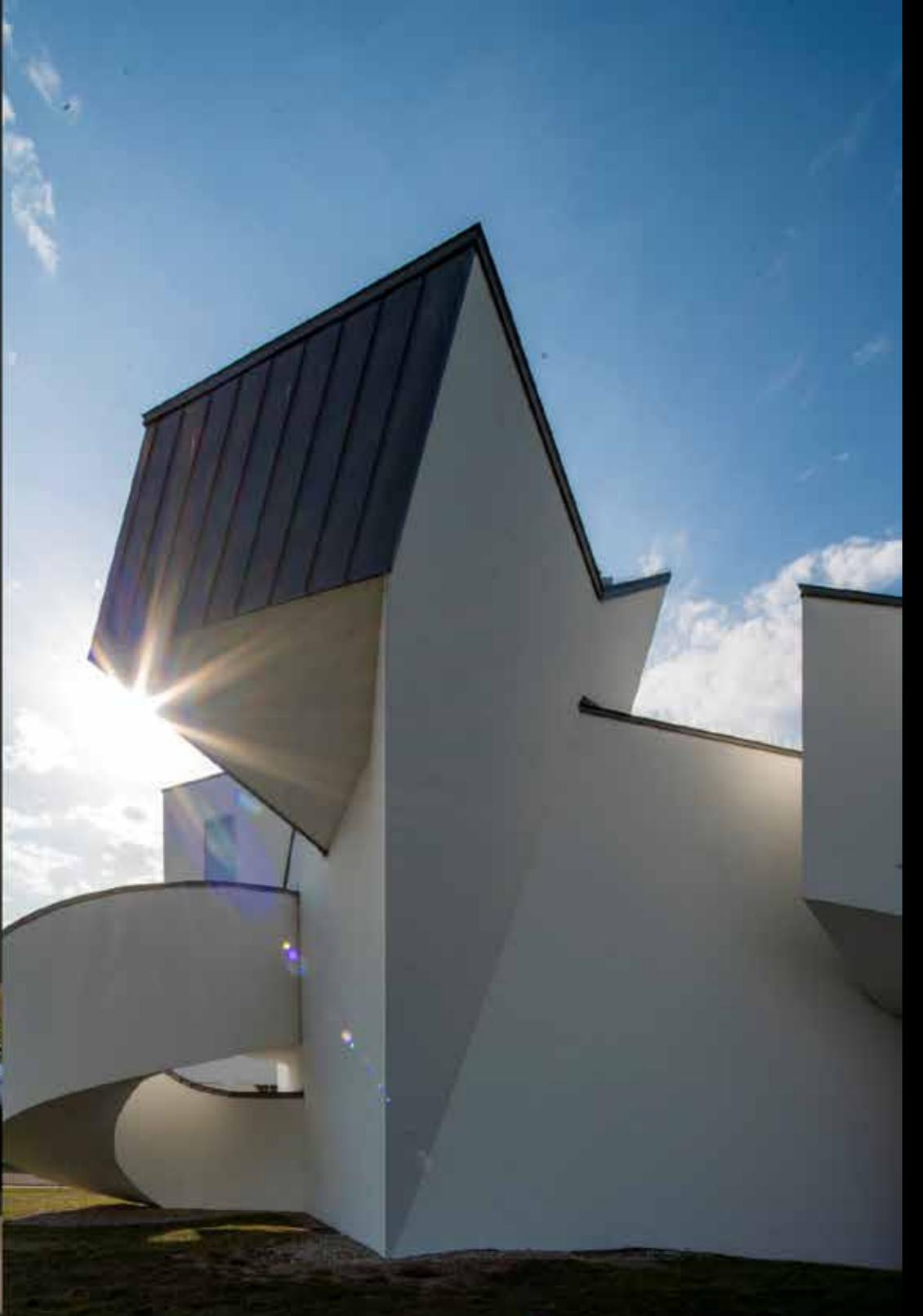


**Nora Fehlbaum**  
Vitra CEO



**Fire Station**  
Zaha Hadid





Vitra Design Museum  
Frank Gehry





Congress Center Basel  
Herzog & de Meuron



Roche Pharma Research  
Herzog & de Meuron





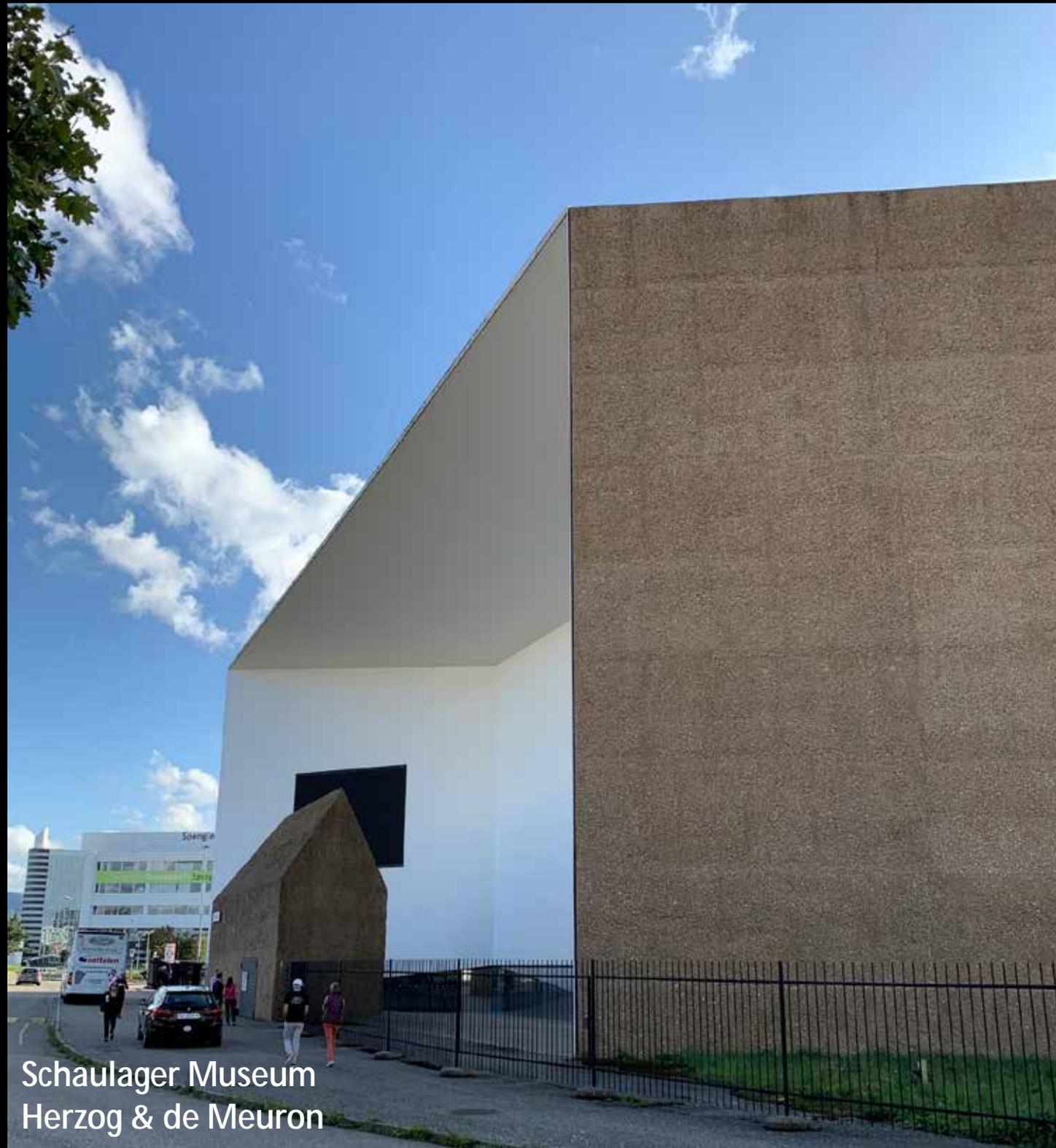
Novartis  
Herzog & de Meuron



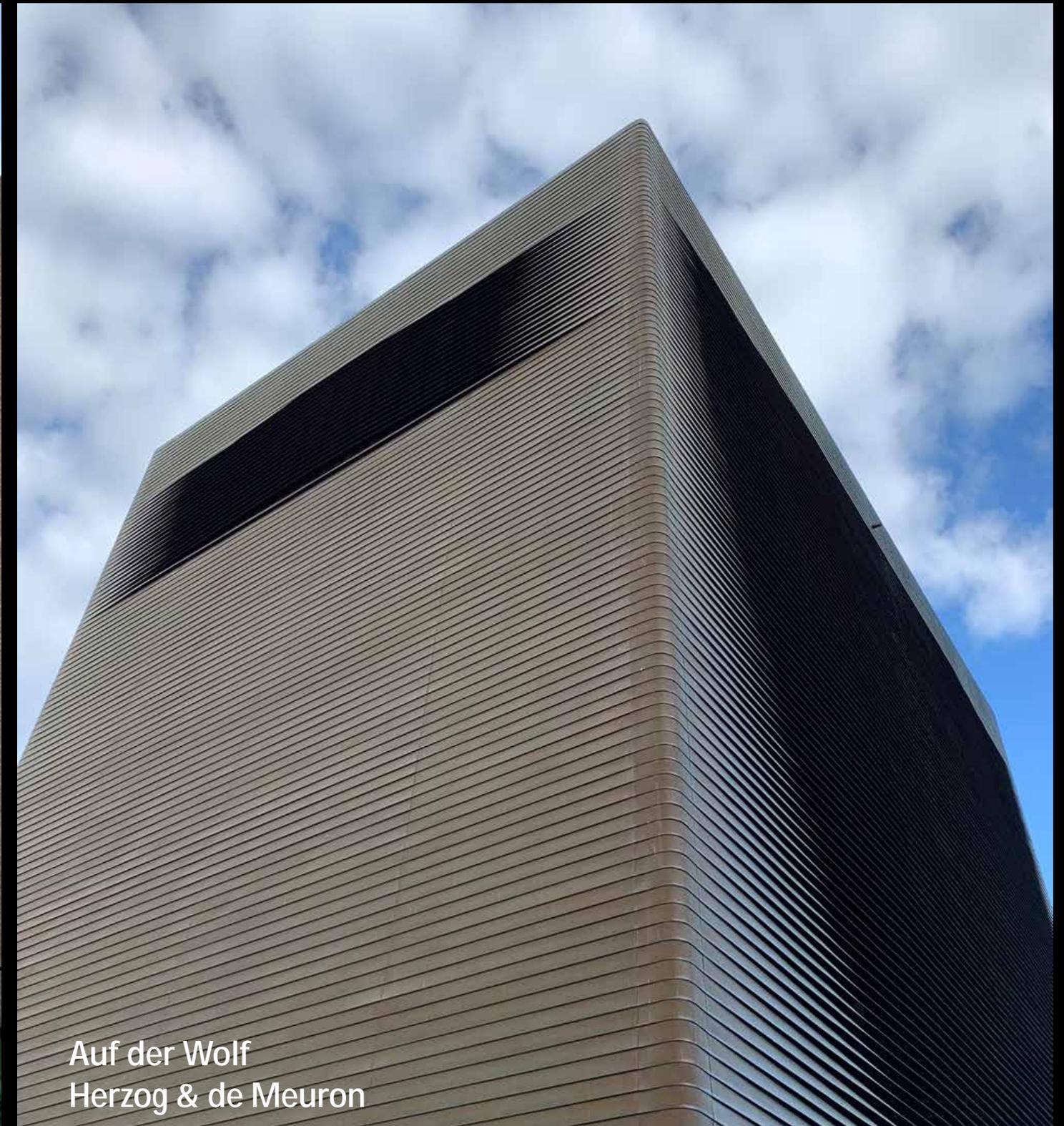
Dreispitzareal and Kabinett  
Herzog & de Meuron







Schaulager Museum  
Herzog & de Meuron

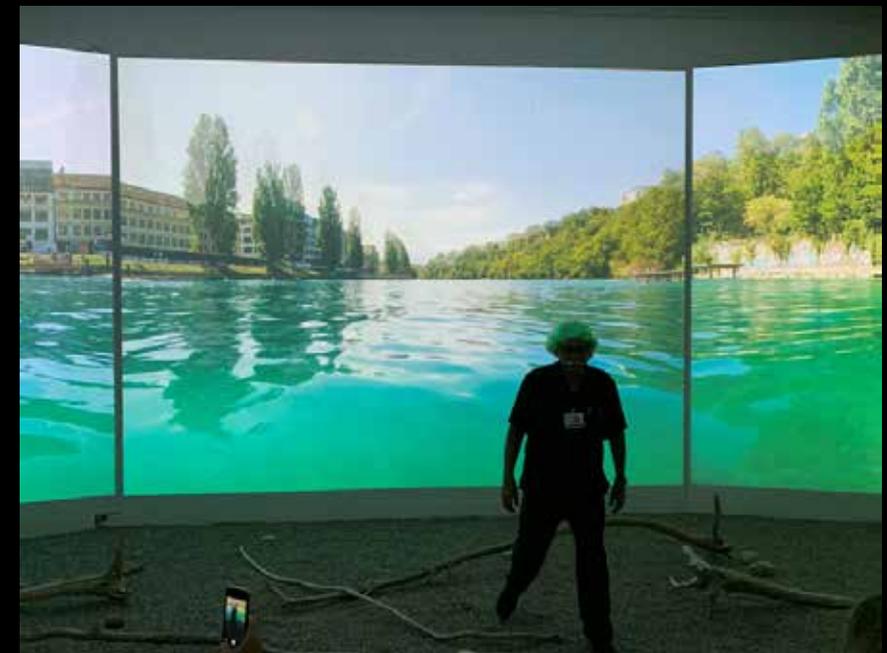


Auf der Wolf  
Herzog & de Meuron



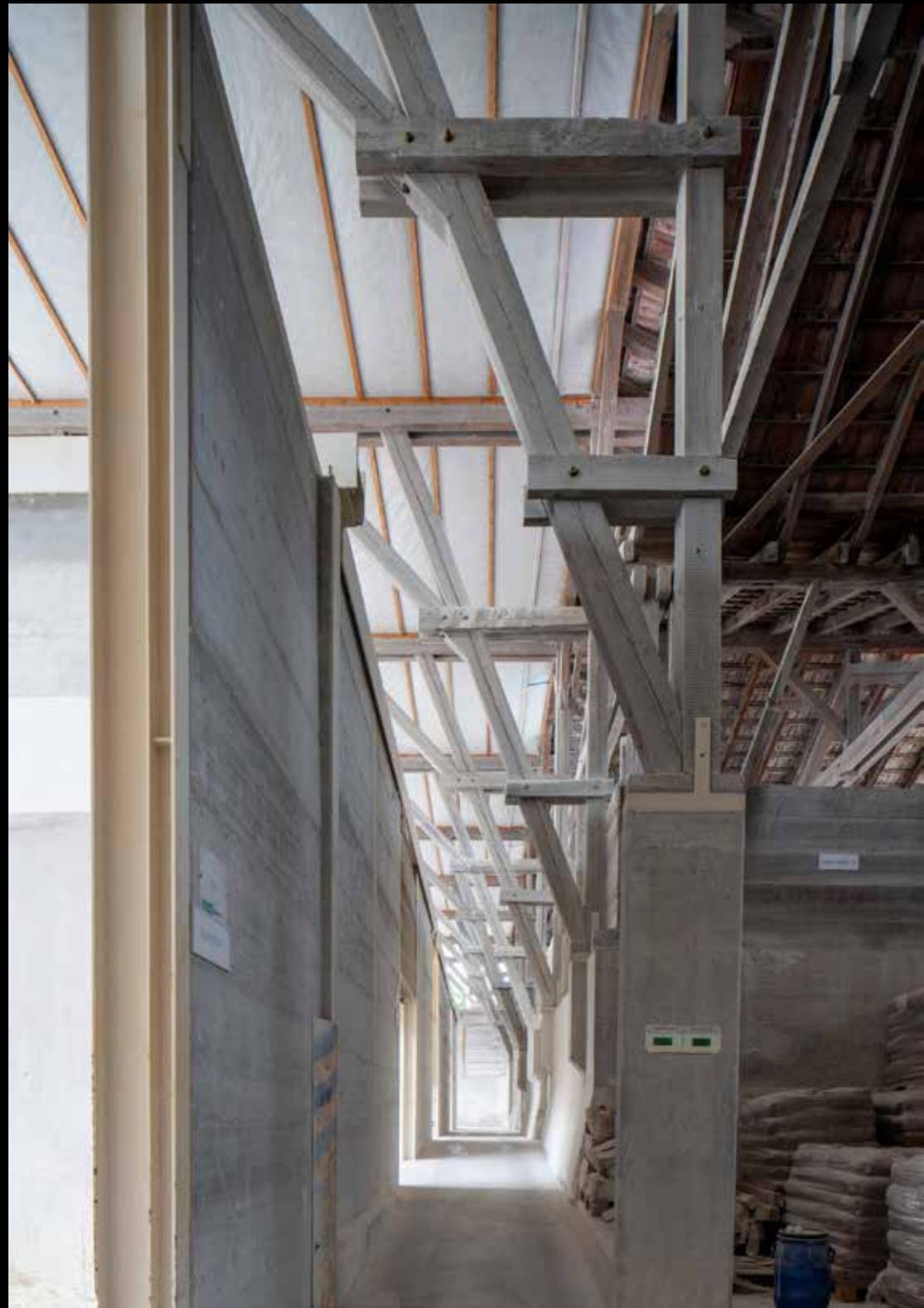


Andreas Ruby  
Swiss Architecture Museum, Swim City Exhibit





Save! Project by EOOS Design and  
Laufen Bathrooms  
Laufen Ceramics Factory Tour





Ricola Storage Building, and Ricola Kreuterzentrum  
Herzog & de Meuron



Audemars Piguet Museum,  
Bjarke Ingels Group (BIG)



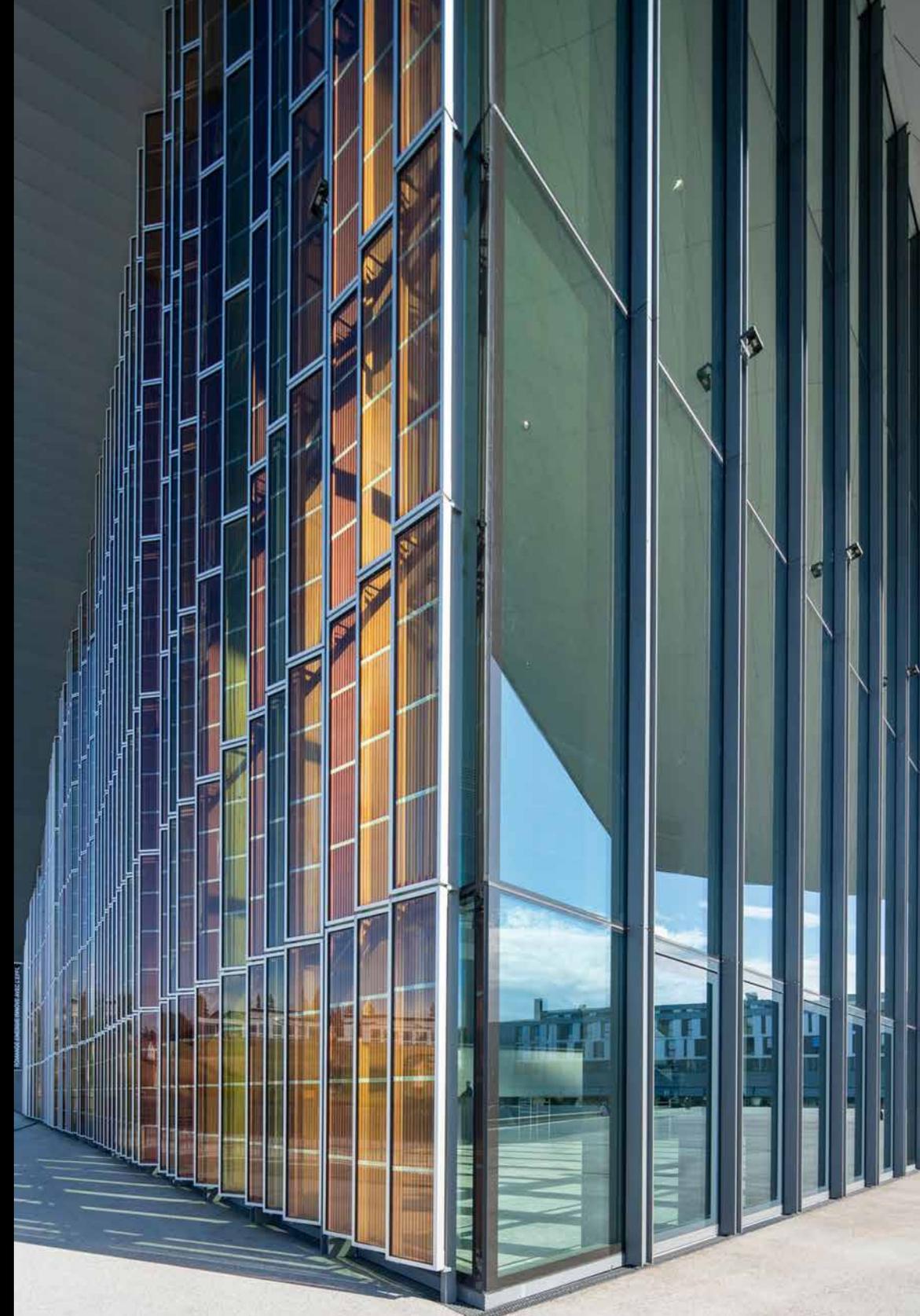


Hotel Savoy  
Lausanne



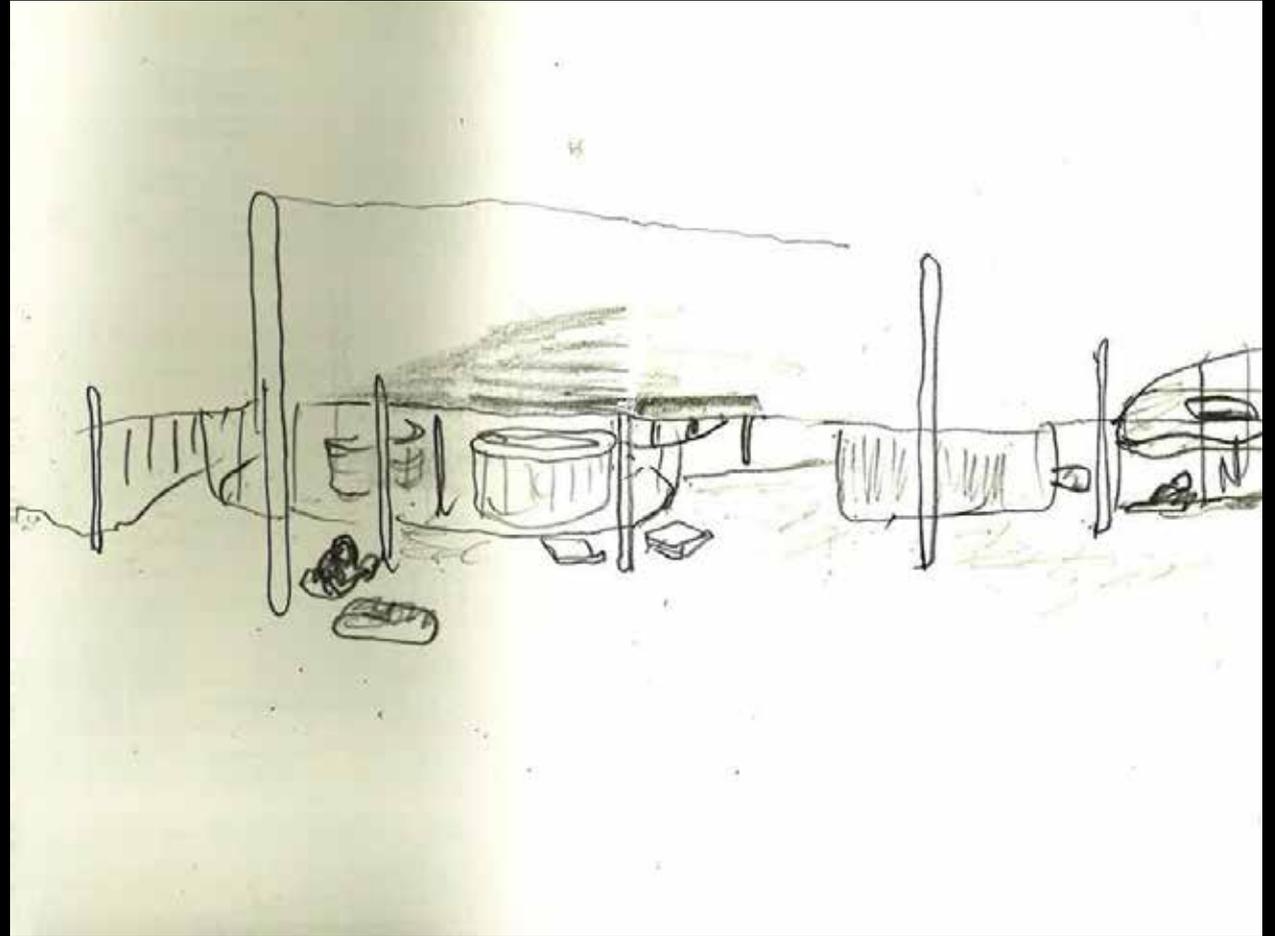


SwissTech Convention Center, EPFL  
Richter Dahl Rocha & Associés





EPFL Student Housing  
Richter Dahl Rocha & Associés





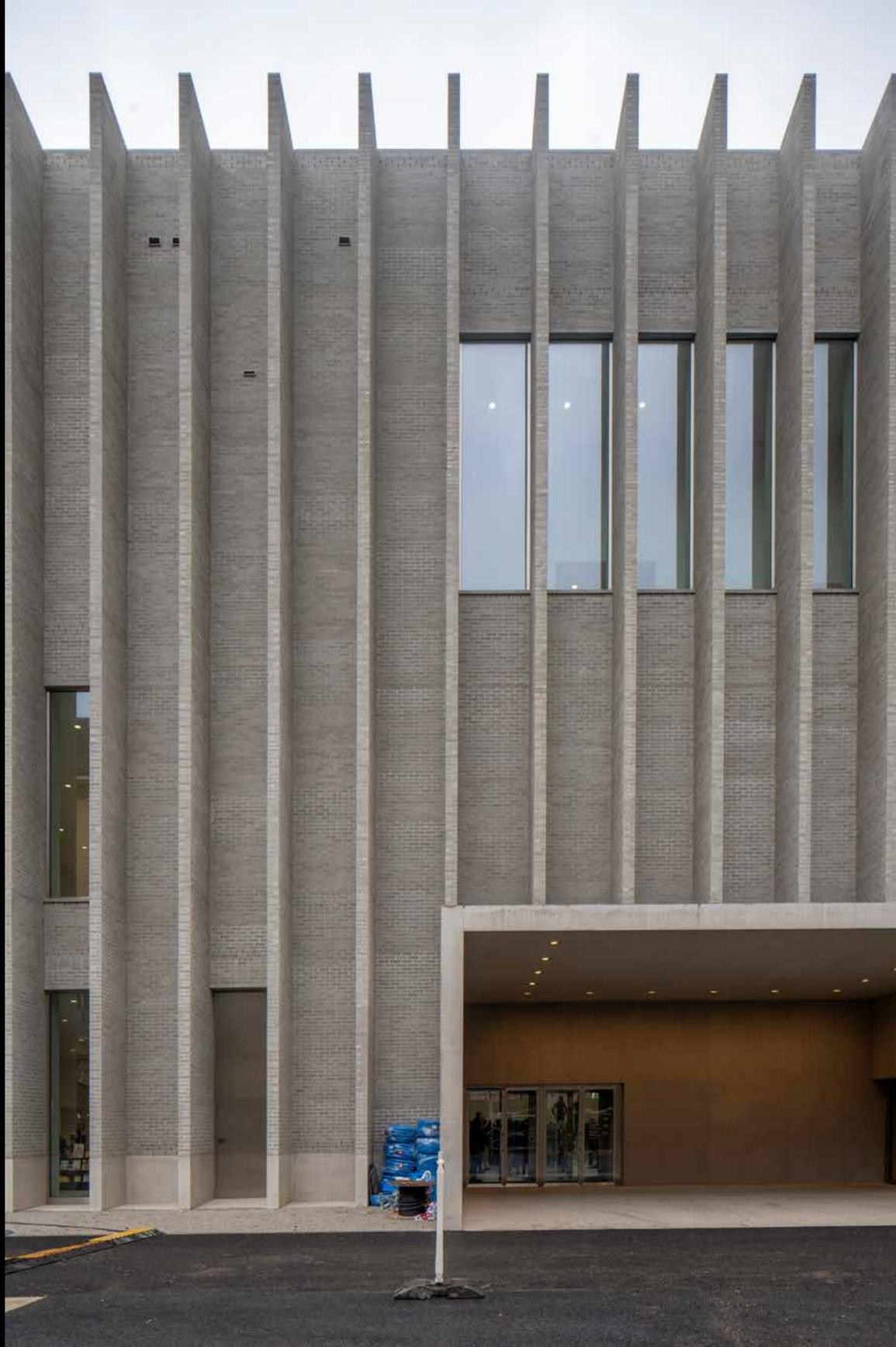
Rolex Learning Center  
Sanaa



Art Lab  
Kengo Kuma & Associates



**Mechanical Engineering Building, EPFL**  
Dominique Perrault Architecture



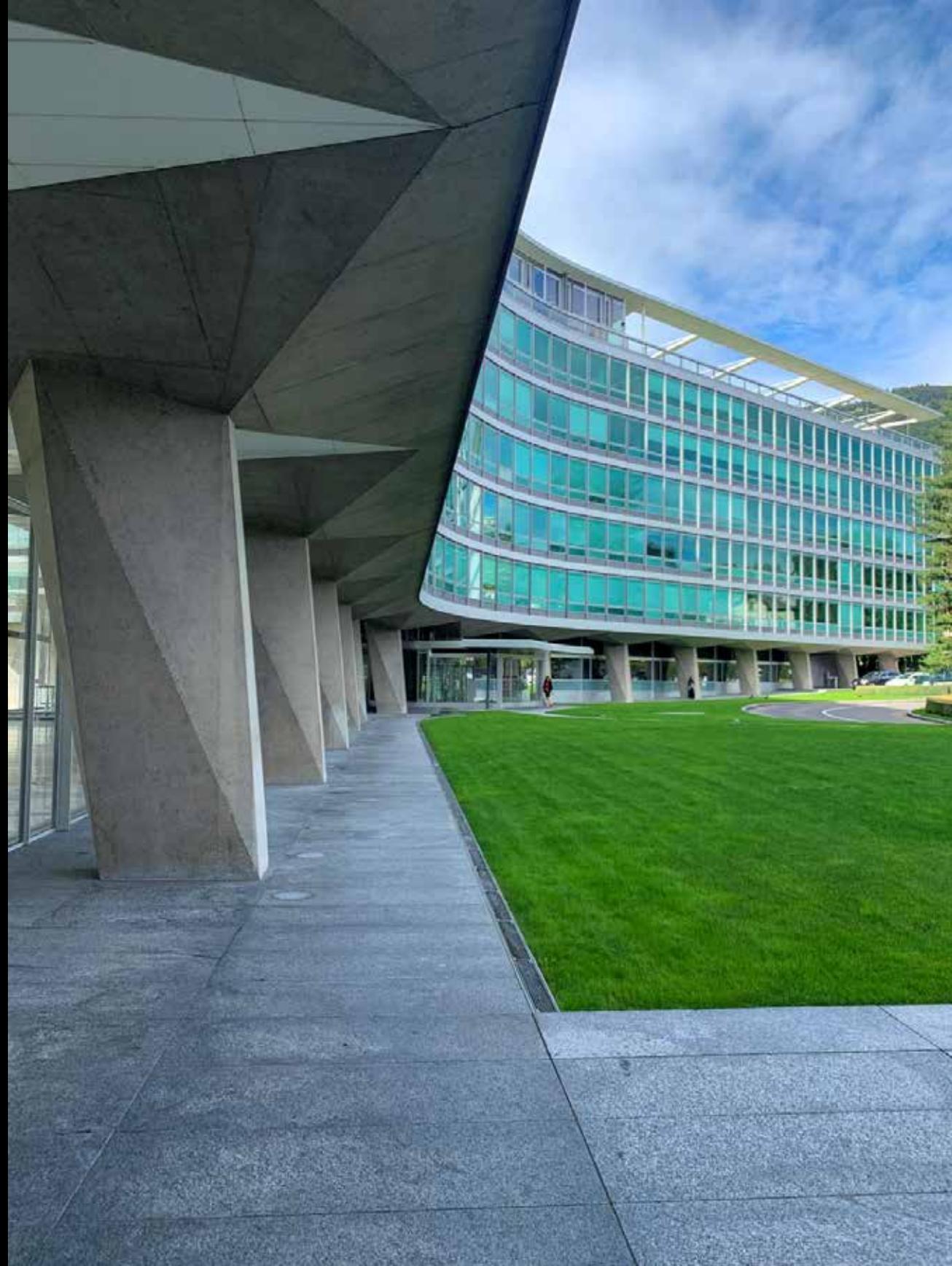
Apple Visitors Center  
Foster and Partners







International Olympic Committee Headquarters  
3XN, IttenBrechtbuehl



Nestlé Headquarters  
Jean Tschumi



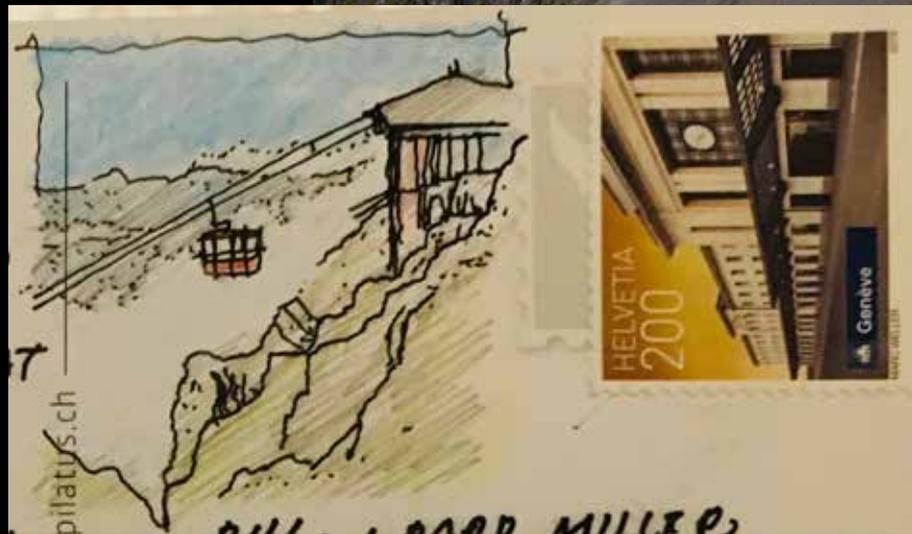
Villa Le Lac  
Le Corbusier





Villa Chardonne  
MADE IN







Mt. Pilatus Visitor Center  
Graber & Steiger



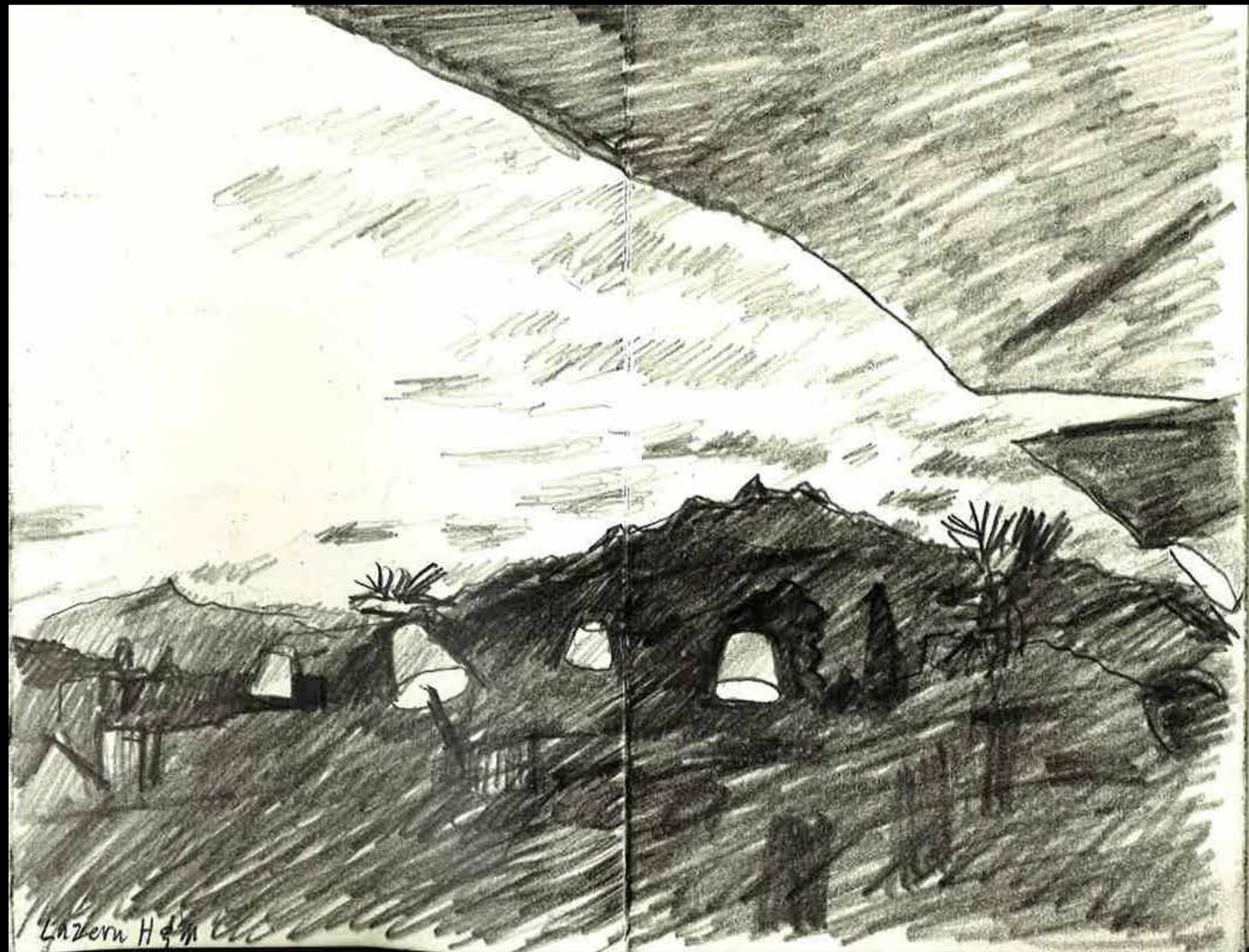
**Point Cloud Modeling**  
Matthias Vollmer, Johannes Rebsamen







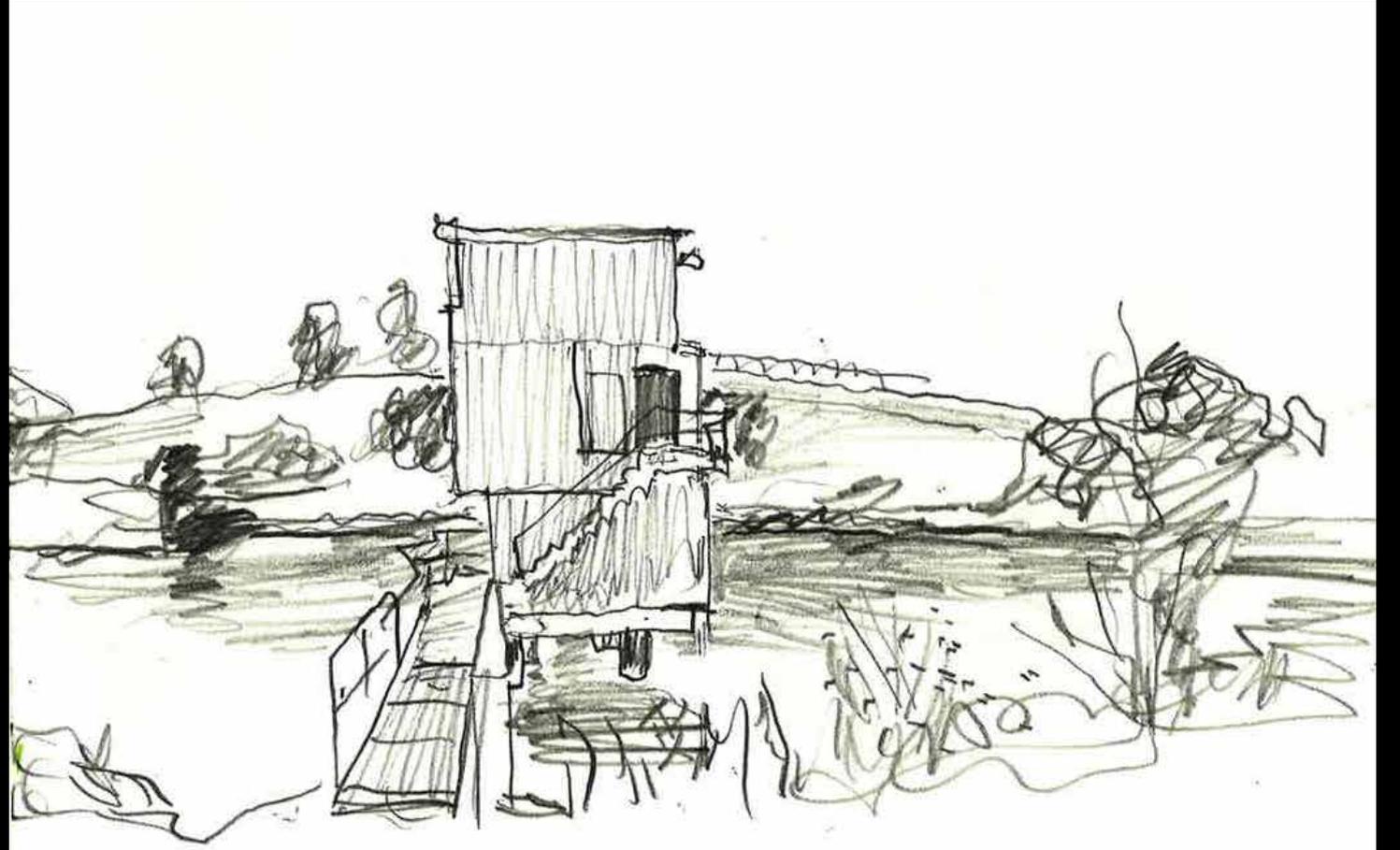
**Sportarena Allmend / Towers**  
Marques Architects, Ivan Bühler Architects, Lucerne



Lazern H & M



Lucerne Culture and Convention Center  
Ateliers Jean Nouvel





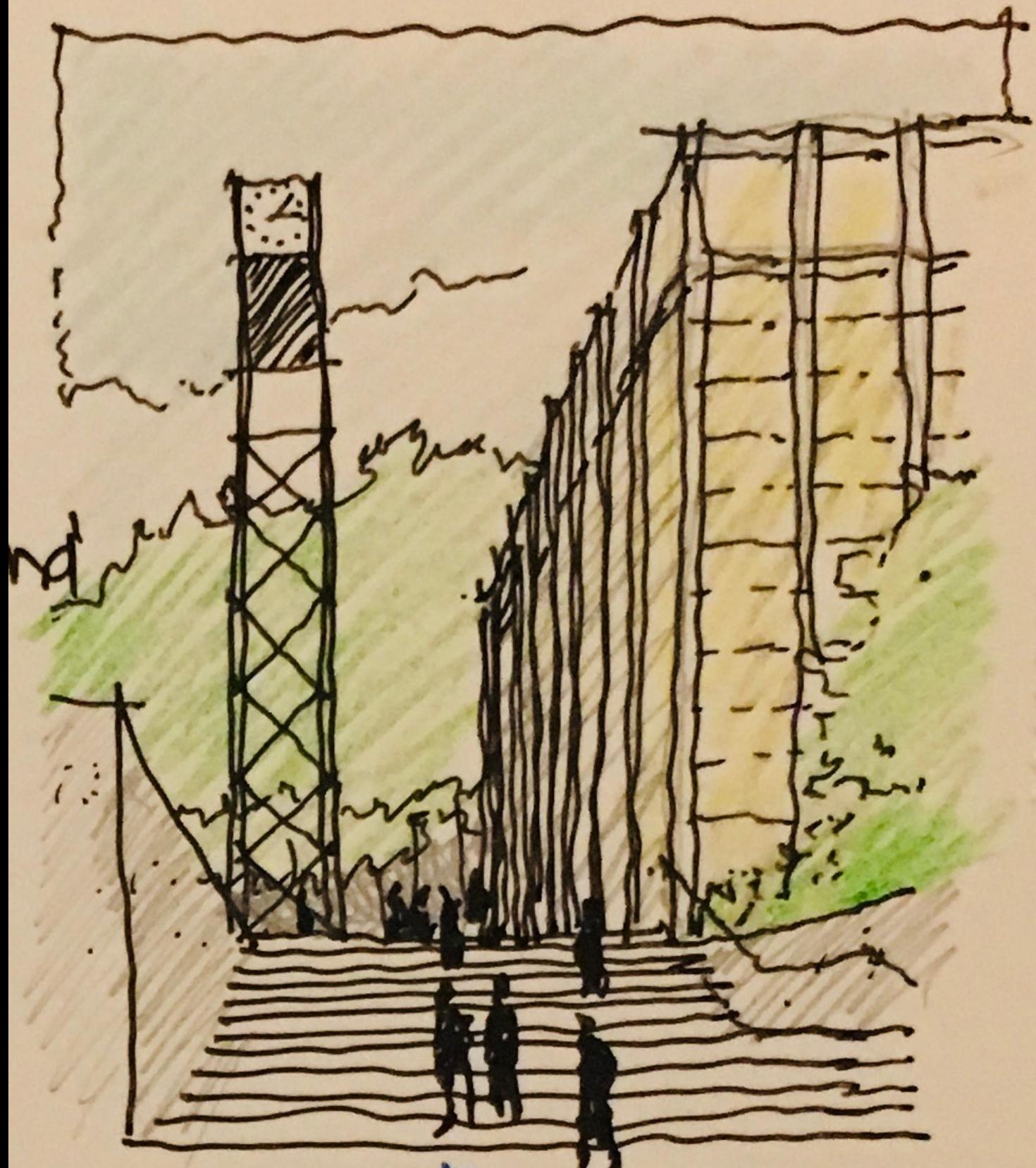
Finish Tower, Rowing Center  
Andreas Fuhrmann Gabrielle Hächler Architects



Swiss Museum of Transport  
Gigon Guyer







Pius Church  
Franz Fueg



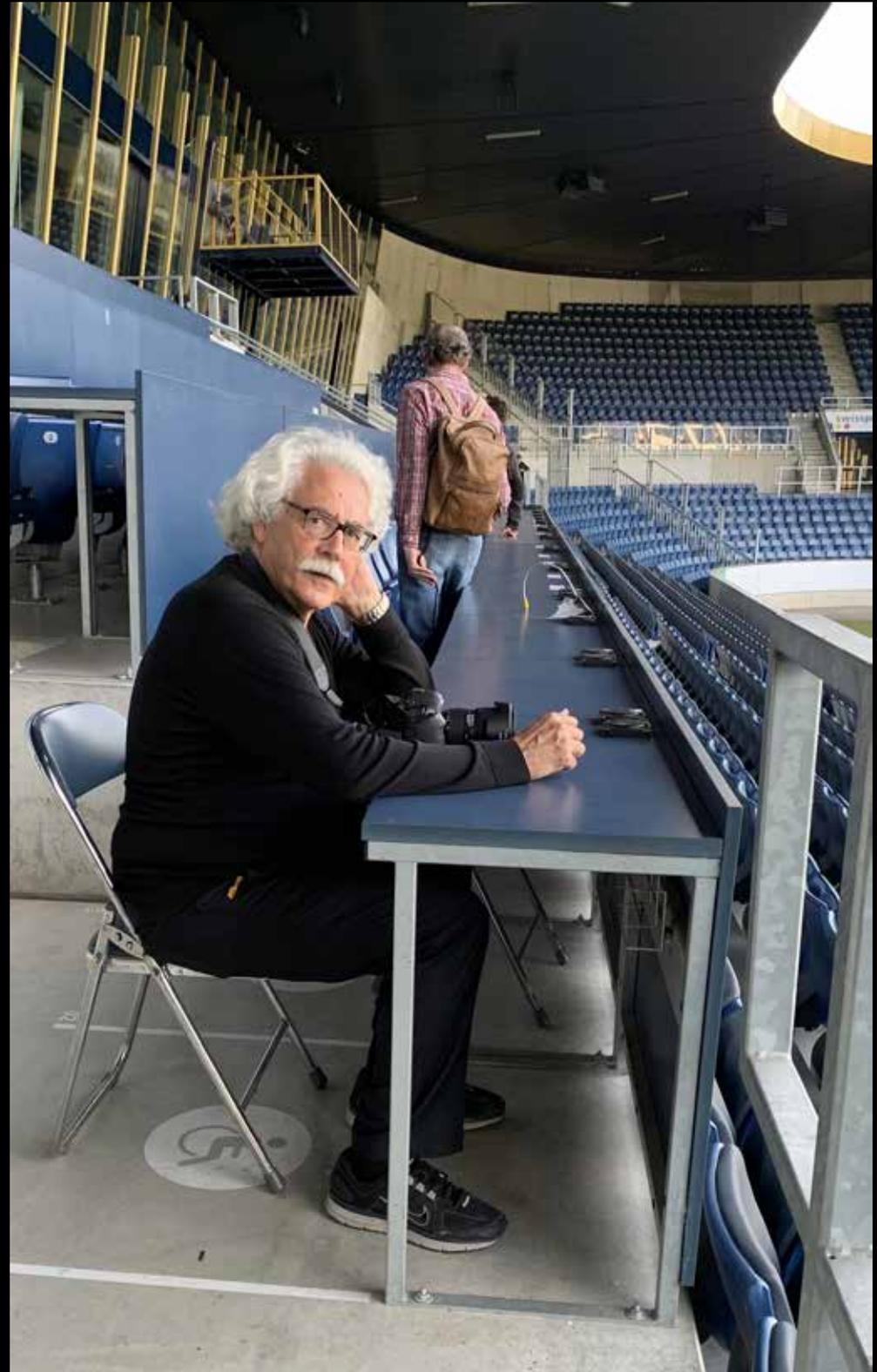
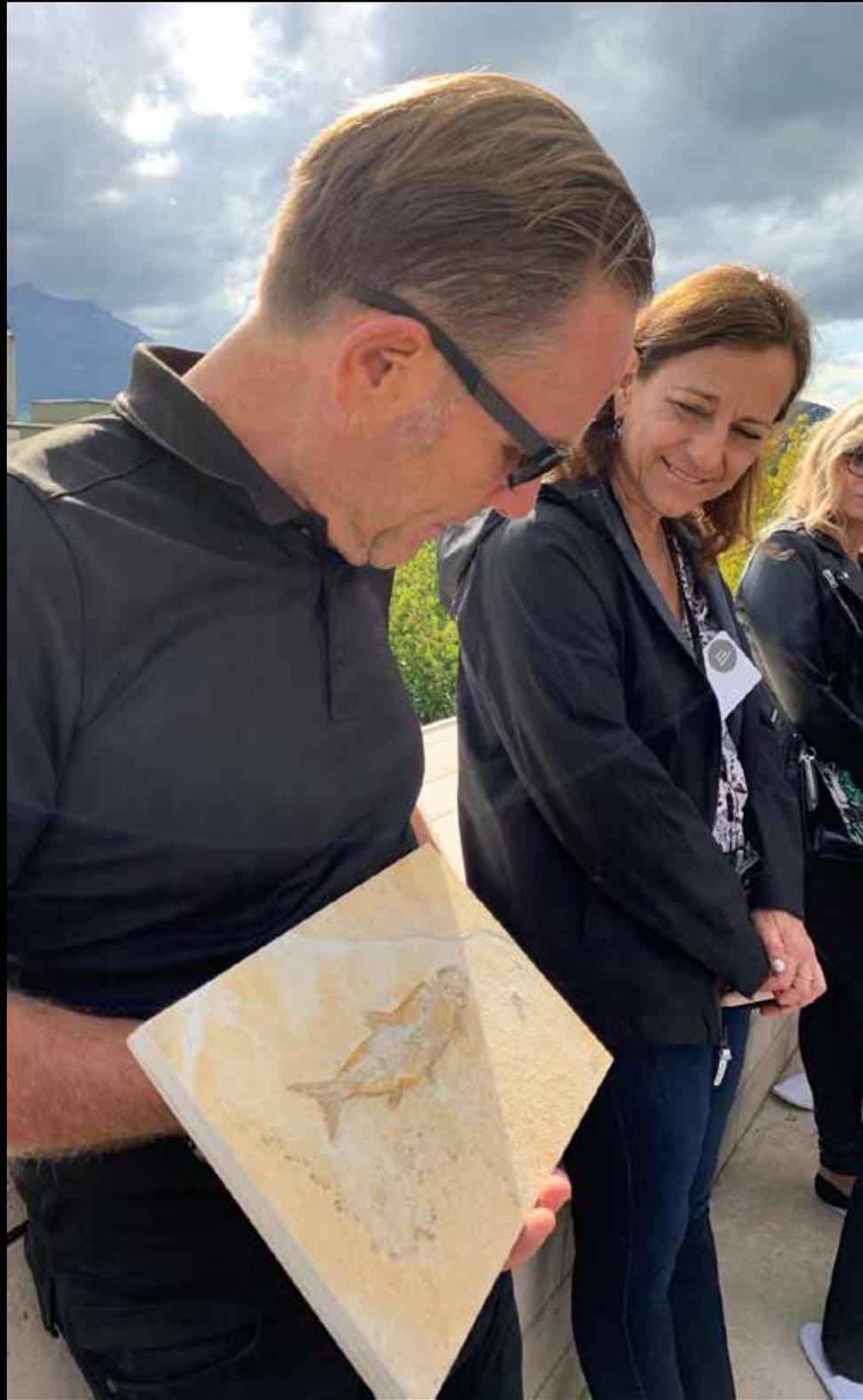
Pius Church  
Franz Fueg



**Three Terrace House**  
Marques Architects



**Urban Villas**  
Alp Architektur Lischer Parntner AG





Cruise on Lake Lucerne  
Closing Gala Dinner

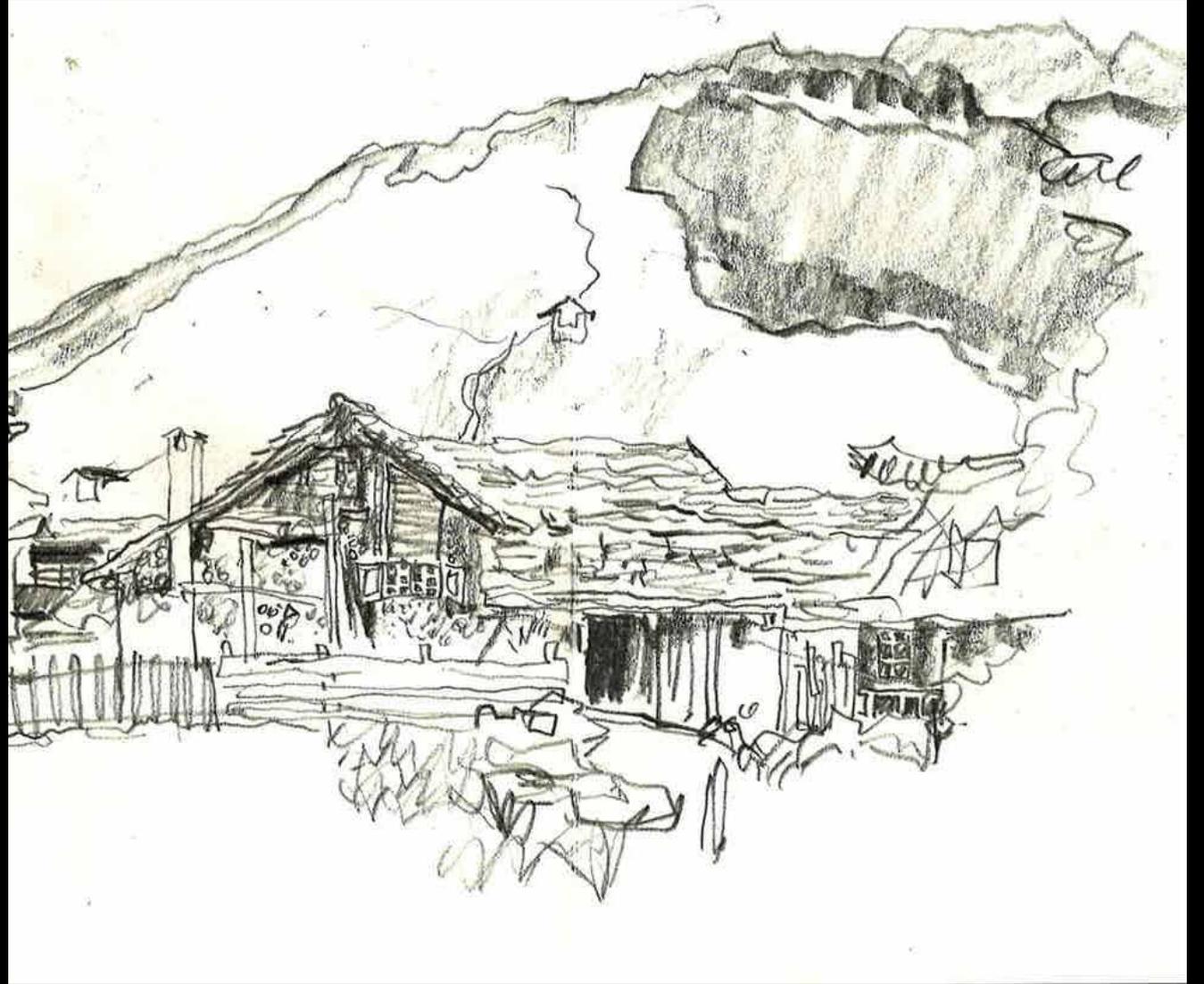




Current and Former Chairs  
Closing Gala Dinner



Conference Planning Team  
Closing Gala Dinner

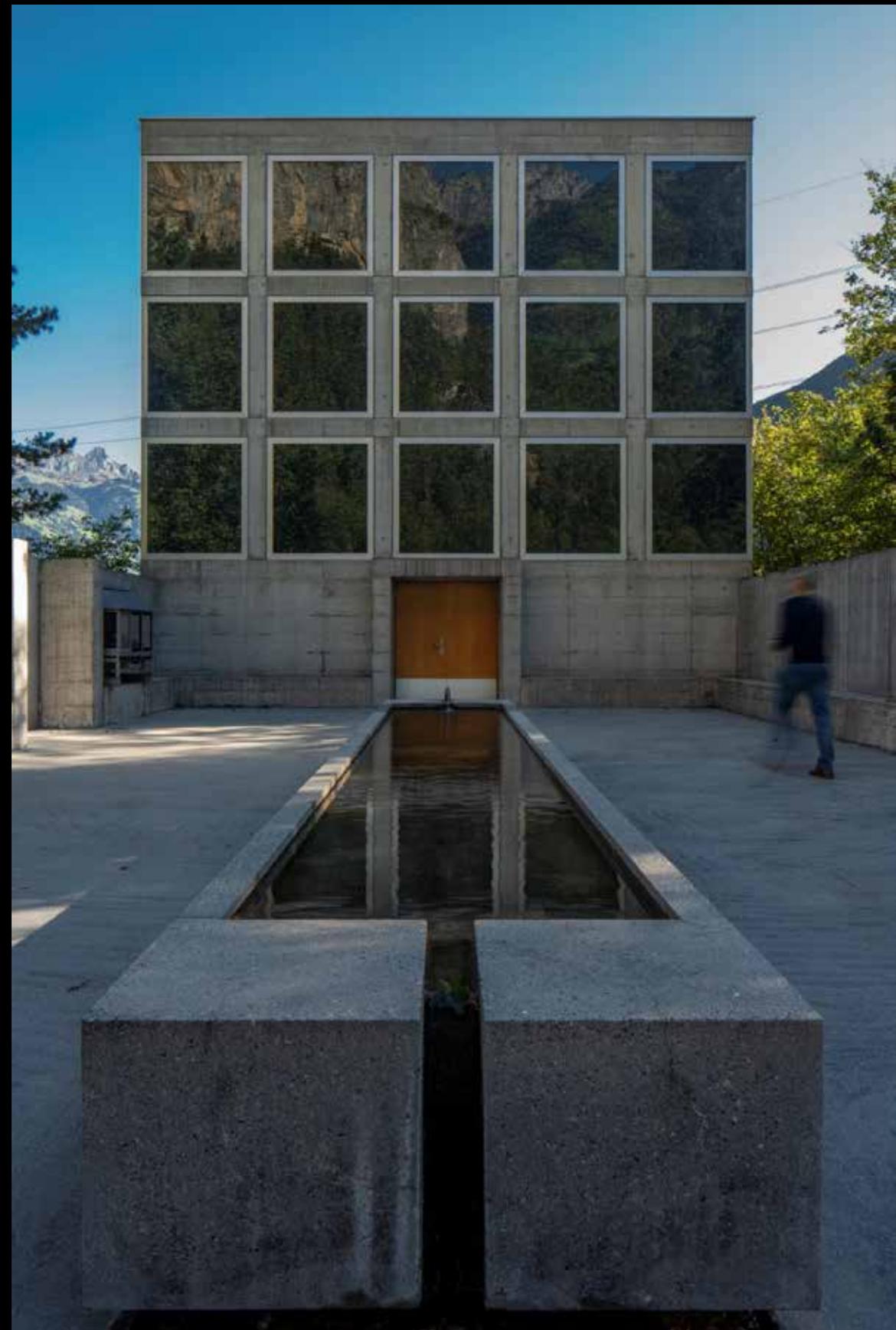






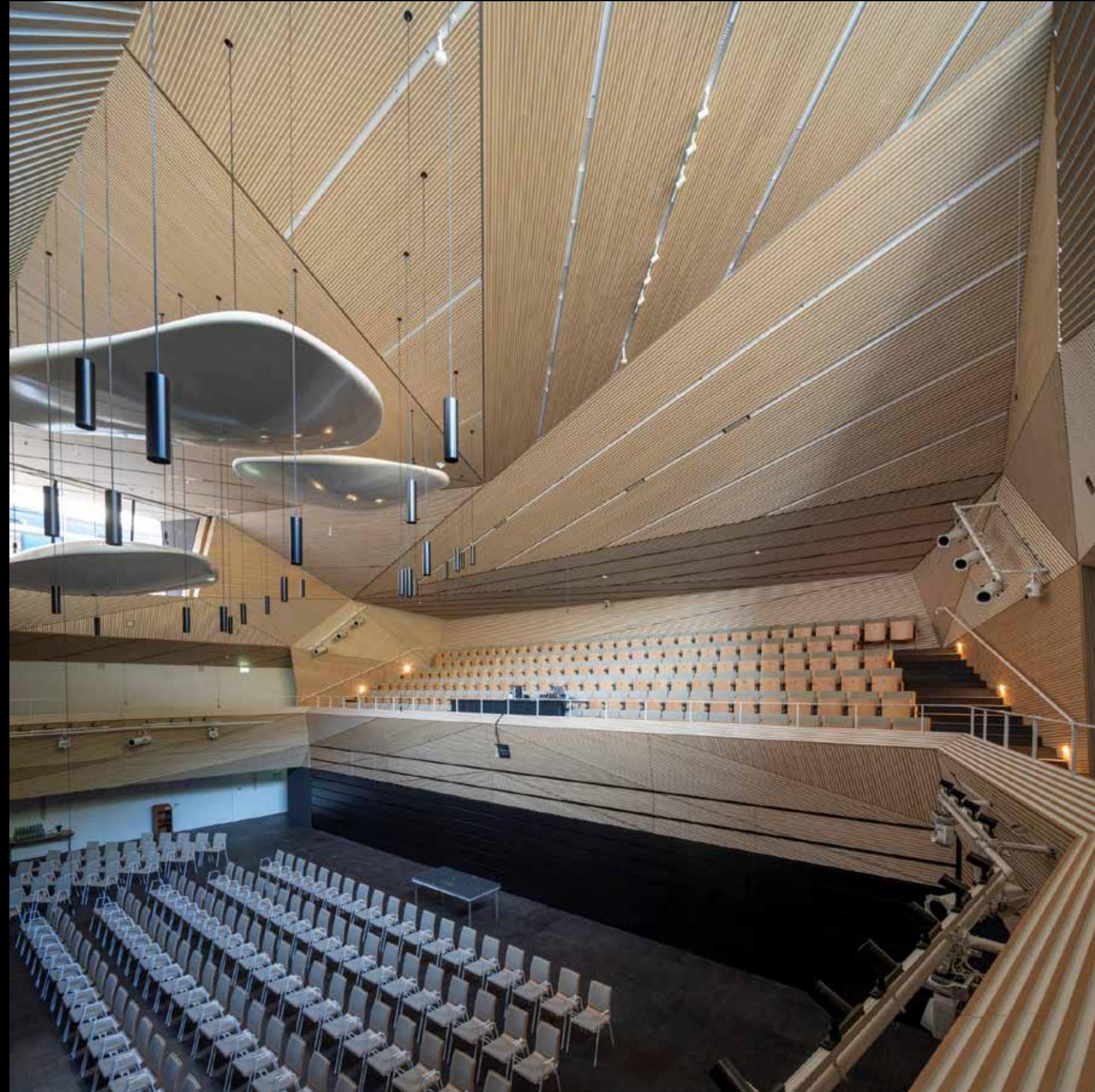
Gotthard Station  
Alp Architektur Lischer Partner AG

Chapel on Ruess River  
Bonus project  
Schattdorf



Radisson Blu Hotel Reussen  
Andermatt





Andermatt Concert Hall  
Studio Seilern



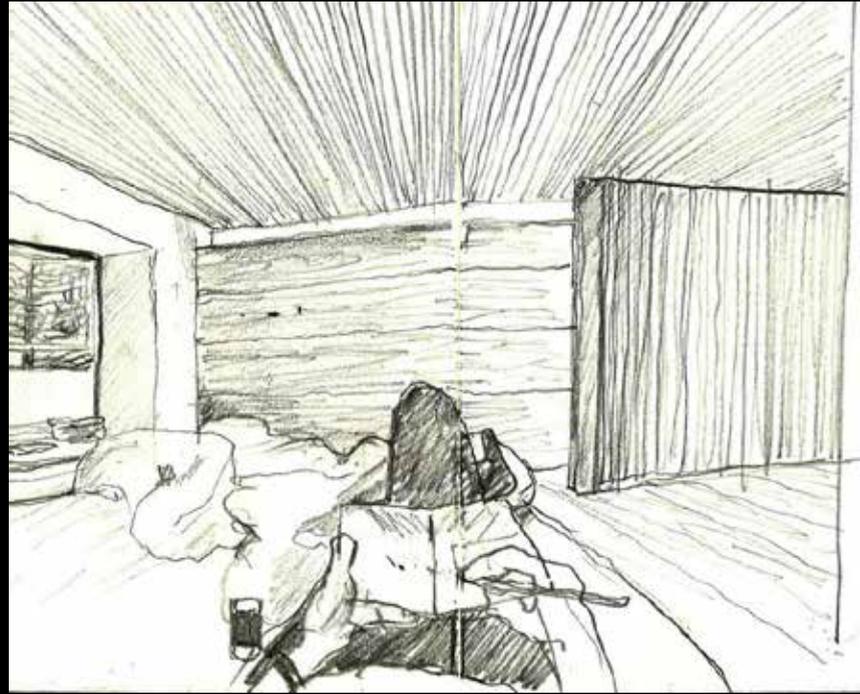
Caplutta Sogn Benedetg  
(Chapel Saint Benedict)

Peter Zumthor



Aerial View 7132 Hotel  
Vals



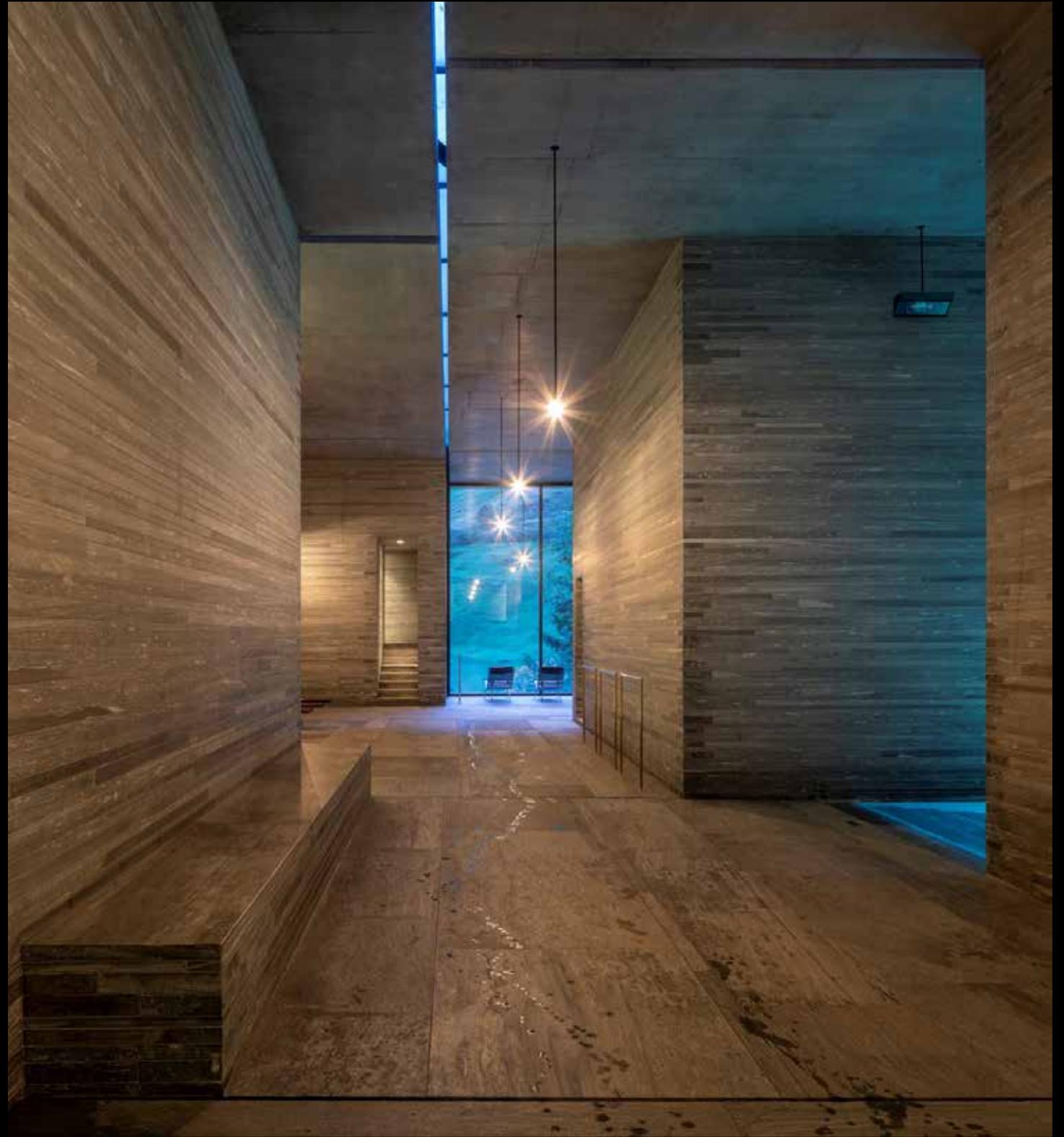
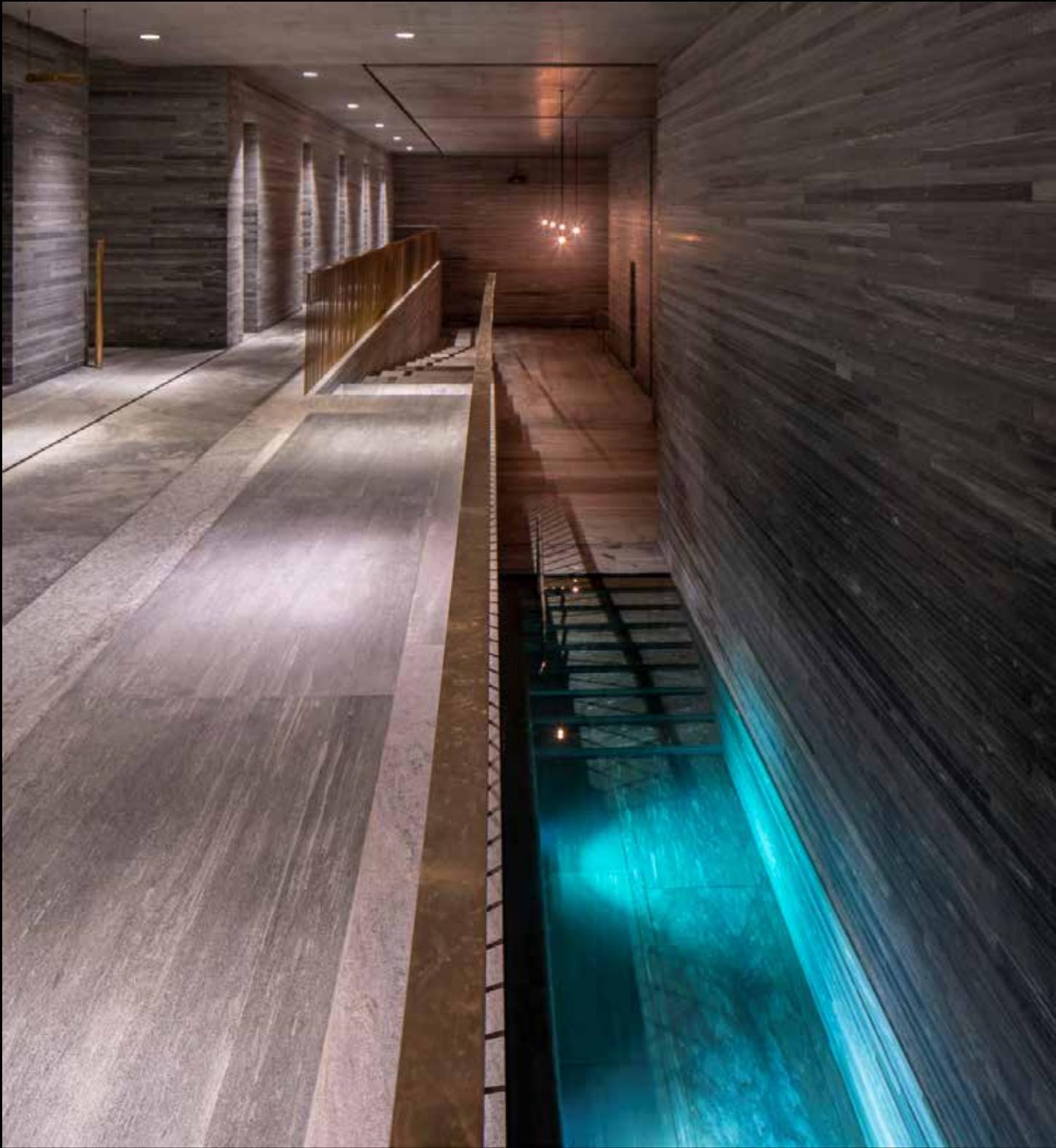


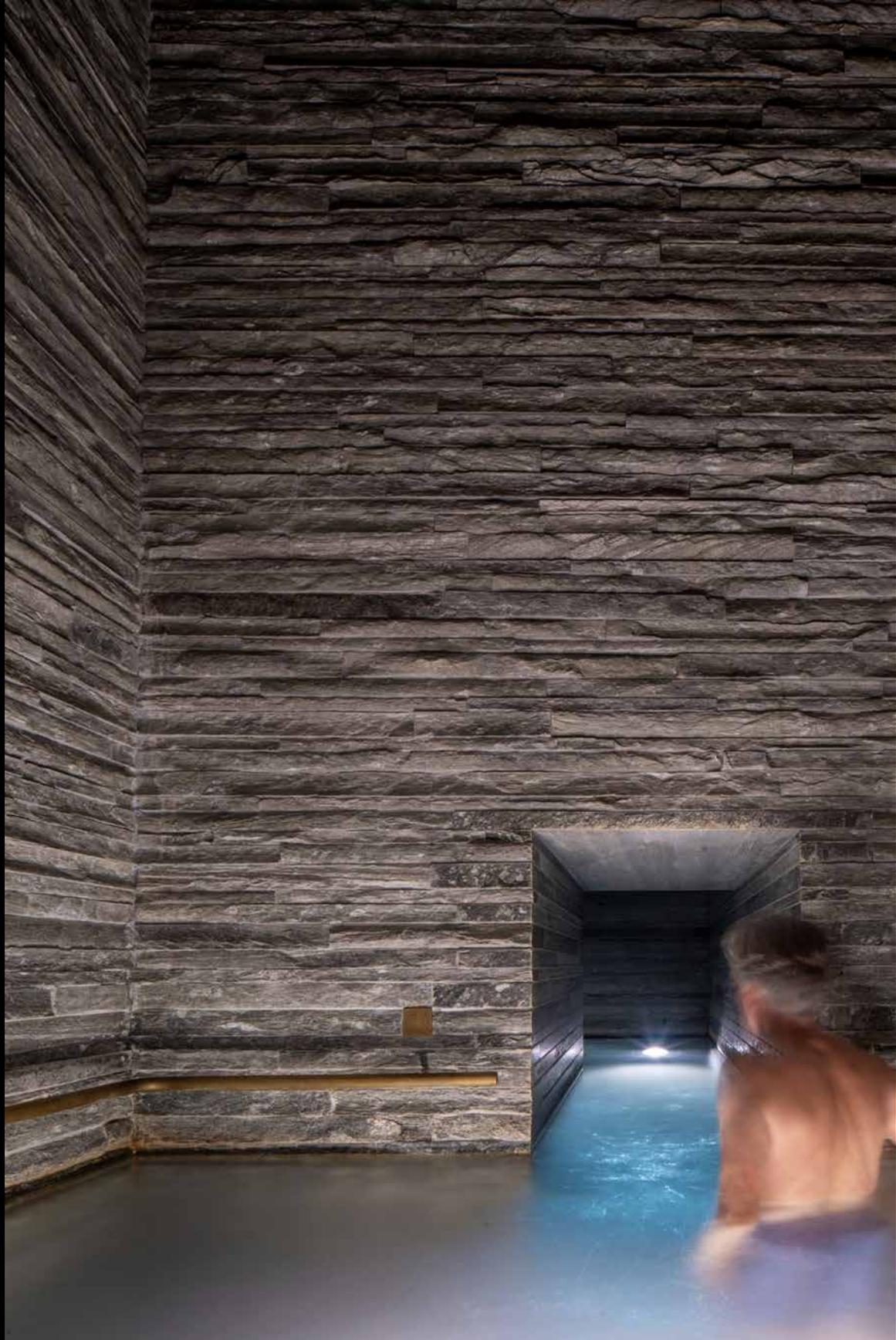
7132 Hotel Architect Rooms  
Kengo Kuma





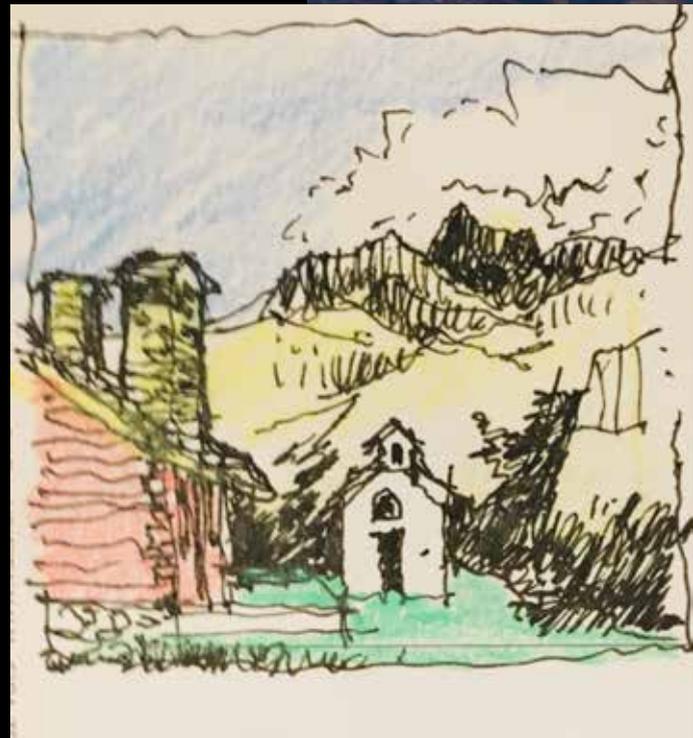
Therme Vals  
Peter Zumthor









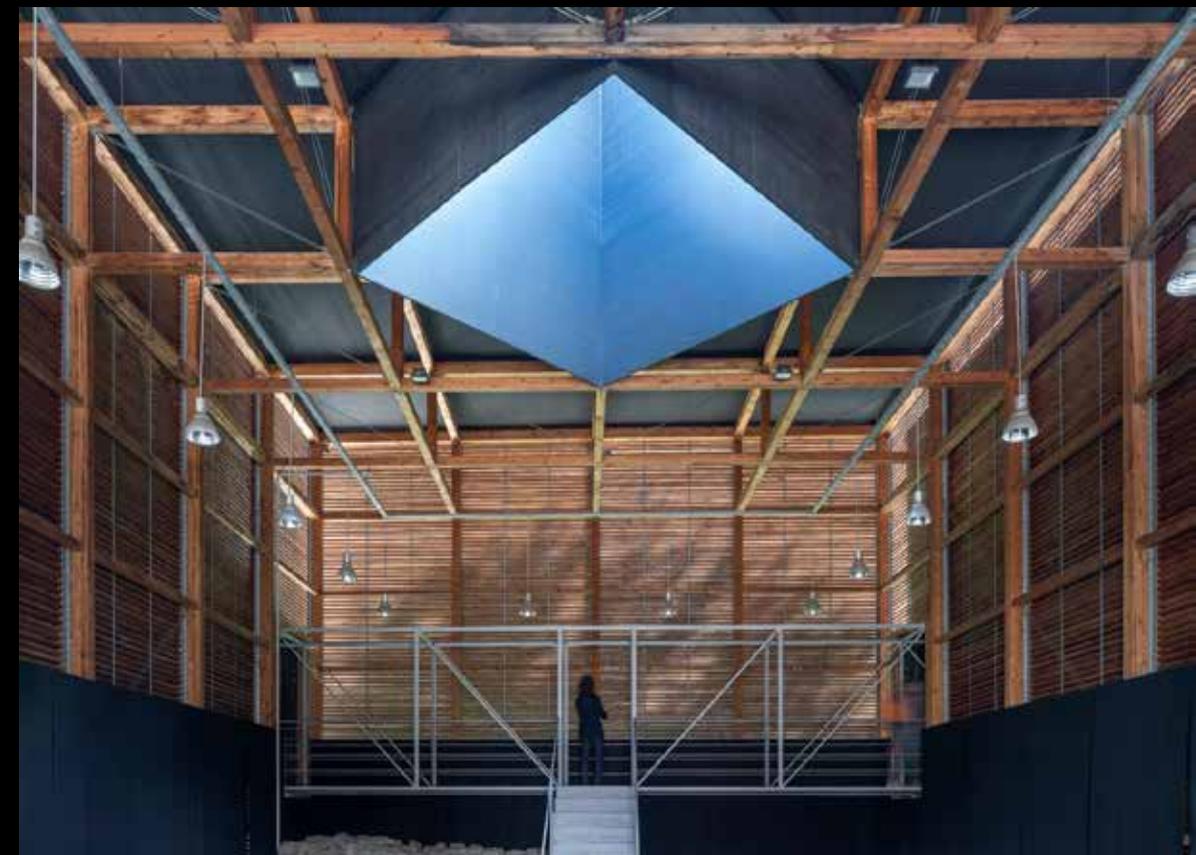




Truffer Stone  
Vals- bonus tour

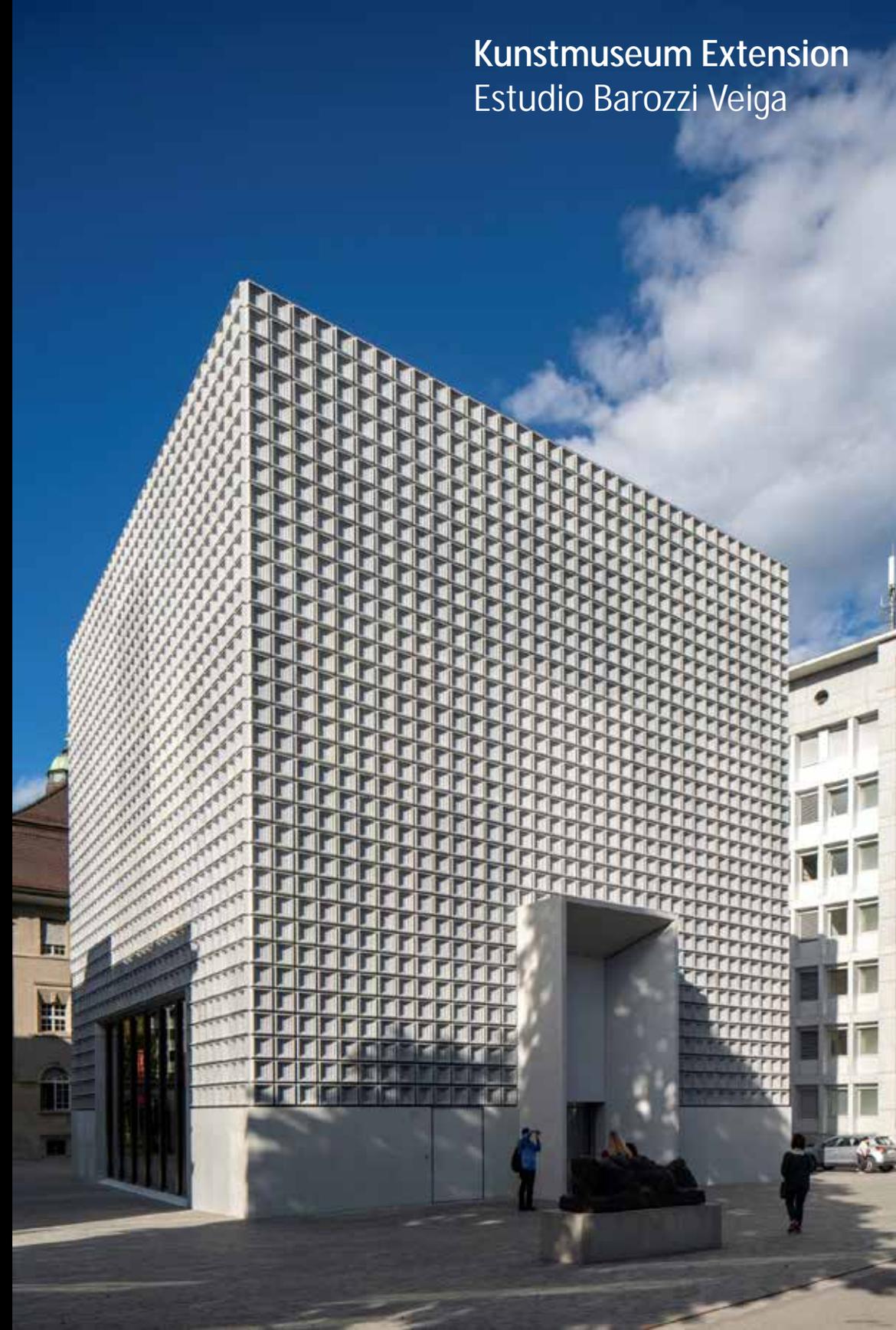


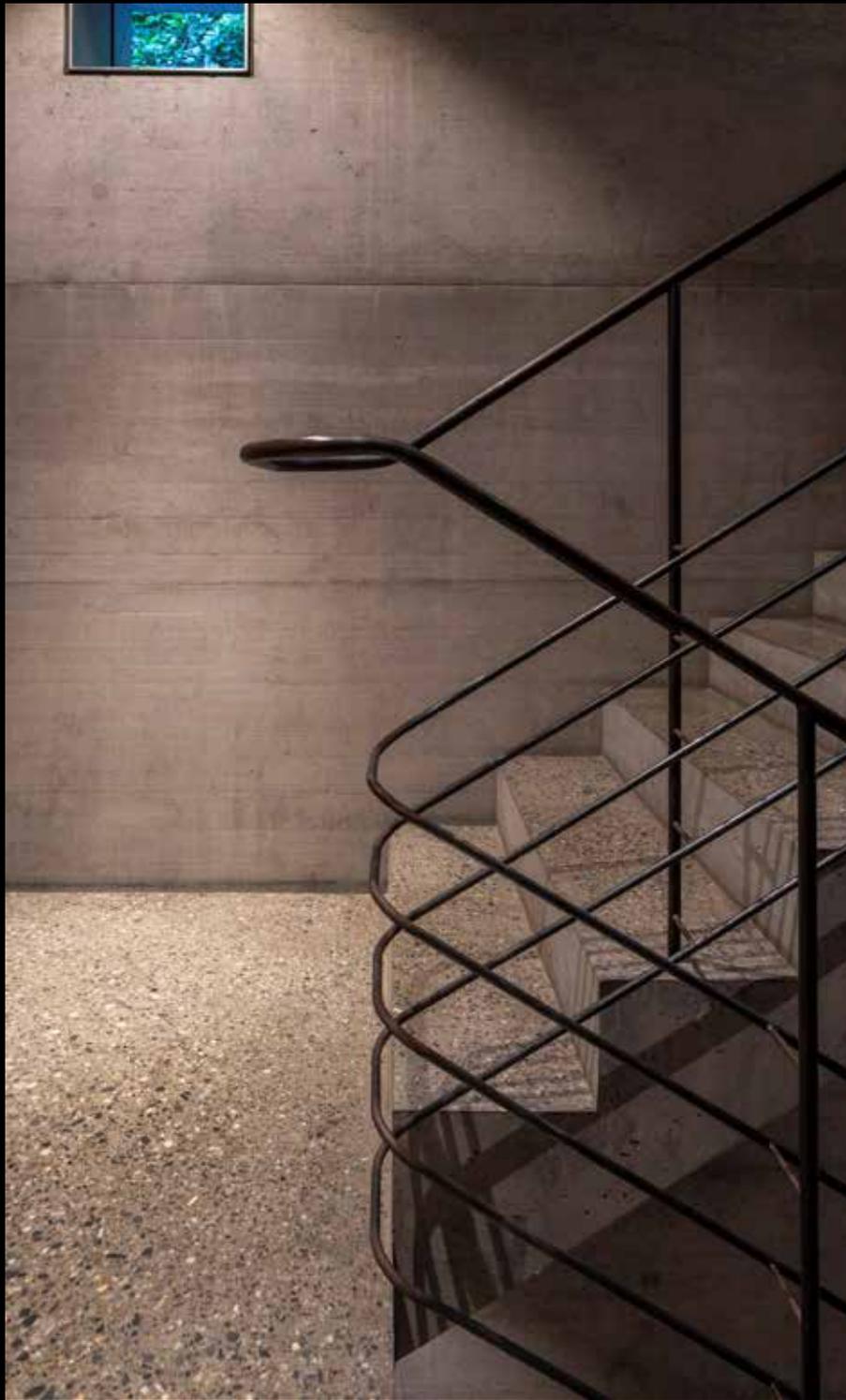
Shelter for Roman Archaeological Ruins  
Peter Zumthor





Kunstmuseum Extension  
Estudio Barozzi Veiga





Atelier Zumthor  
Peter Zumthor







# 50 YEARS

## of Committee on Design Leadership

This year we celebrate 50 years of COD Leadership, recognizing the past chairs of COD at The Exploratorium in San Francisco. A panel of former chairs to provide their insights on the importance of the committee and how we might plan for the future.

- 1969 Jean-Paul Carthian, FAIA
- 1970 Ralph P. Youngran, FAIA
- 1971 Henry N. Cobb, FAIA
- 1972 Ulrich Franzen, FAIA
- 1973 Hugh Newell Jacobsen, FAIA
- 1974 Harry C. Wolf, FAIA
- 1975 James Ingo Freed, FAIA
- 1976 Stanley Tigerman, FAIA
- 1977 George E. Hartman, FAIA
- 1978 William Newton Morgan, FAIA
- 1979 Thomas R. Vreeland, FAIA
- 1980 Roger H. Clark, FAIA
- 1981 Thomas S. Marvel, FAIA
- 1982 James L. Nagle, FAIA
- 1983 John Morris Dixon, FAIA
- 1984 Peter Q. Bohlin, FAIA
- 1985 John L. Field, FAIA
- 1986 Mark Simon, FAIA
- 1987 B. Mack Scogin, Jr., AIA
- 1988 Glenn Garrison, AIA
- 1989 Boone Powell, FAIA
- 1990 Harold Roth, FAIA
- 1991 John M. Syvertsen, AIA
- 1992 Richard S. Bundy, FAIA
- 1993 Margaret I. McCurry, FAIA
- 1994 Charles Dagit, Jr., FAIA
- 1995 Steven M. Goldberg, FAIA
- 1996 Barton Phelps, FAIA
- 1997 Joseph Valerio, FAIA
- 1998 Raymond L. Gindroz, AIA
- 1999 Frances Halsband, FAIA
- 2000 Henry "Dusty" Reeder, FAIA
- 2001 Wendy Evans Joseph, FAIA
- 2002 Robert Frasca, FAIA
- 2003 Kent L. Hubbell
- 2004 Windom Kimsey, FAIA
- 2005 Ronnette Riley, FAIA
- 2006 David Brems, FAIA
- 2007 Michael Ross, FAIA
- 2008 Carol Rusche Bentel, FAIA
- 2009 Louis R. Pounders, FAIA
- 2010 Thomas Howorth, FAIA
- 2011 Anne Schopf, FAIA
- 2012 Mike Mense, FAIA
- 2013 Marlene Imirzian, FAIA
- 2014 Steven Alspaugh, AIA
- 2015 Jim Childress, FAIA
- 2016 Phillip Laird, AIA
- 2017 James C. Lord, II, AIA
- 2018 George H. Miller, FAIA



# ***Upcoming COD presentations at A'20 in Los Angeles***

## **Honors and Awards Reception**

Curt Fentress, FAIA

- Celebration/recognition for Honor Award recipients and applicable awardees
- Sponsorship: \$3,000 for gift to awardees

## **AIA Gold Medal Nomination**

Doug Benson, FAIA and Paul Mankins, FAIA

- As a KC, COD prepares nominations for the Gold Medal
- Convention education session
- Chair of COD or a designated Moderator

## **AIA Firm Award Nomination**

Doug Benson, FAIA and Paul Mankins, FAIA

- As a KC, COD prepares nominations for the Firm Award
- Convention education session

## **Twenty-five Year Award Nomination**

Heather Young AIA and Daniel Garber, FAIA\*

- As a KC, COD prepares nominations for the 25 Year Award
- Convention education session

## ***Upcoming COD presentations at A'20 in Los Angeles***

### **Institute Honors for Collaboration Achievement Nomination**

Craig Brandt, AIA

- As a KC, COD prepares nominations for Collaborative Achievement
- Convention education session

### **Honorary Fellows Nomination**

Phillip Hamp, FAIA

- As a KC, COD prepares nominations for Honorary Fellows
- Convention education session)

### **AIA Institute Honor Awards for Architecture**

David Greenbaum, FAIA

- Convention education session

*Under direction from Robert Miller, FAIA*

## ***New programs and events in 2019***

### **50 Years of COD Leadership Celebration**

held during the San Francisco conference formal dinner

### **Annual Ideas Competition**

Windom Kimsey, FAIA

Support the local community and leave positive impact

### **AIA Academy of Architecture for Health Awards Jury and Charrette**

Recurring year commitment, COD Chairs are volunteered for successive years

### **Campaign to engage Emerging Professionals**

Led by current Chair and Conference Chairs, through outreach to local components/chapters

### **COTE Metrics Awards Task Force**

Review COTE's new "Common APP." Providing feedback and comments

Awards criteria metrics for Knowledge Communities and Honors and Awards.

**THE INNOVATORS & MAINTAINERS:  
SWISS INNOVATION IN ARCHITECTURE,  
INFRASTRUCTURE & TECHNOLOGY**

2019 AIA  
COMMITTEE  
ON DESIGN  
INTERNATIONAL  
CONFERENCE

**SWITZERLAND**

September 21-29, 2019

Add-On Tour:

September 29-October 2, 2019



2020 Chair at Villa Le Lac  
Curt Fentress (and Agatha Kessler)