AUTODESK. UNIVERSITY

Digital and BIM: Building a Better and More Sustainable World

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EMEA BIM Ecosystem Evangelist & Architect | @digiacomoemma

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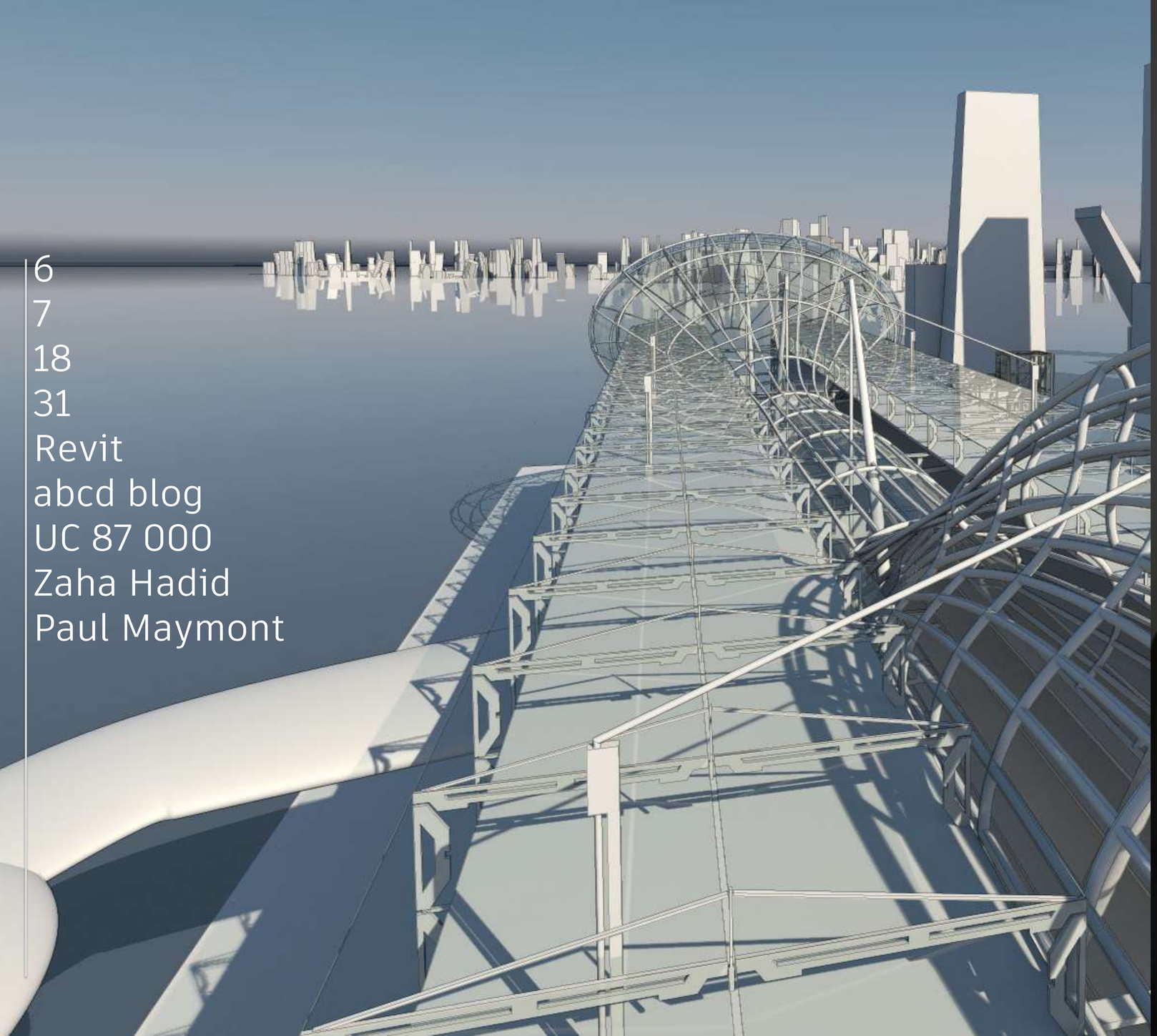
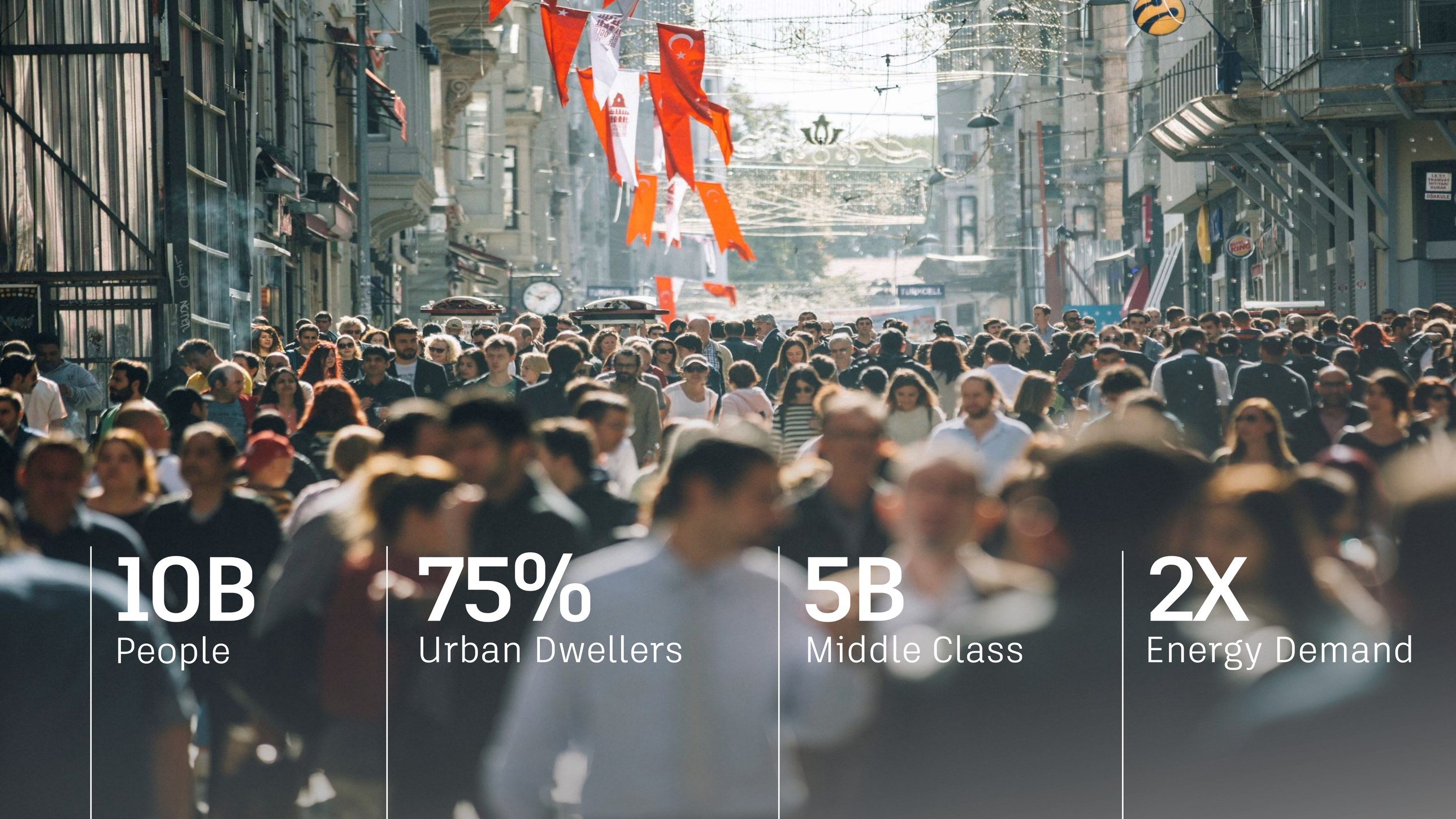
Revit
abcd blog
UC 87 000
Zaha Hadid
Paul Maymont

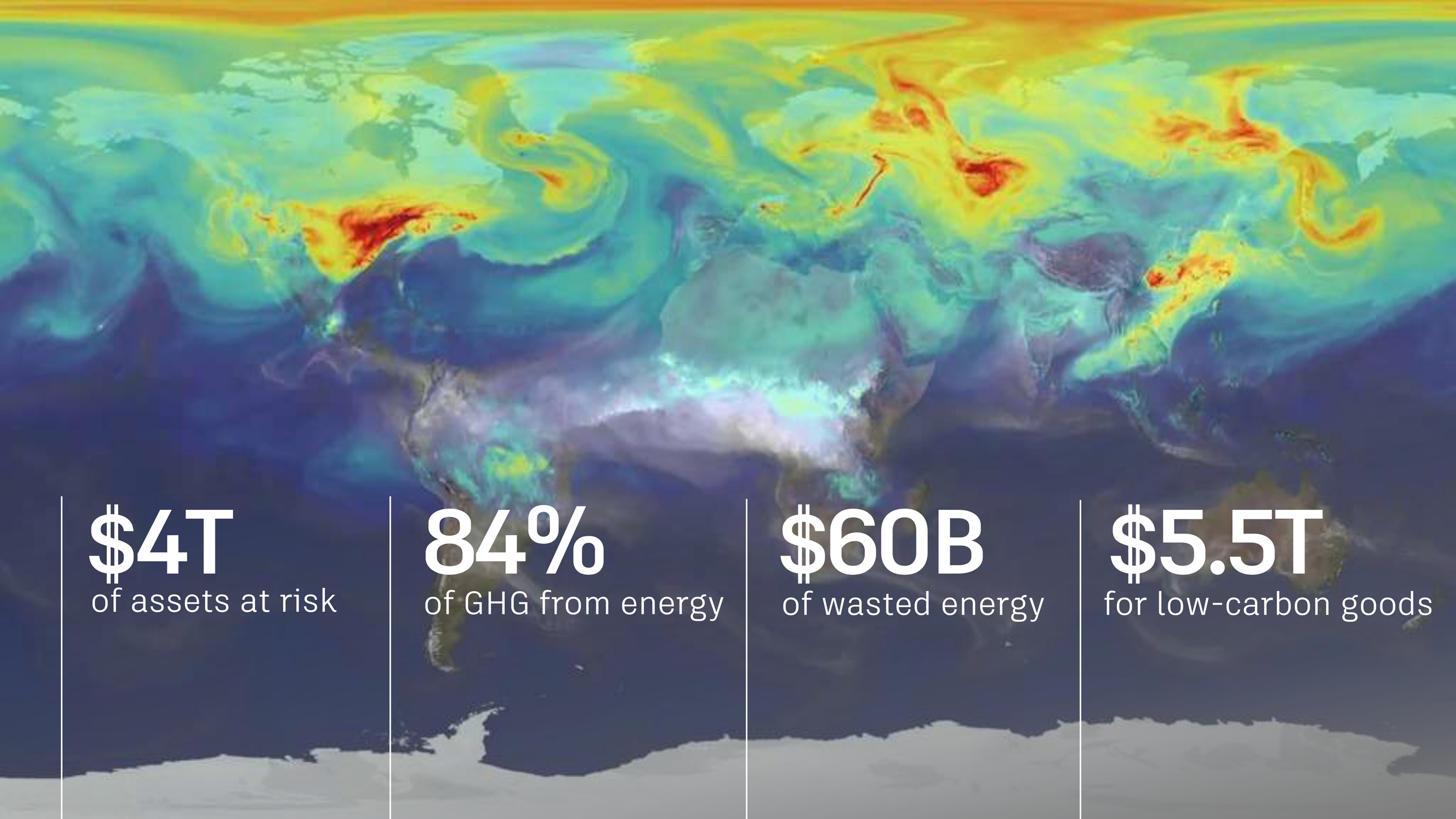



Context

Rapid Urbanization

A design challenge and opportunity


10B
People
75%
Urban Dwellers
5B
Middle Class
2X
Energy Demand



$4T
of assets at risk

84%
of GHG from energy

$60B
of wasted energy

$5.5T
for low-carbon goods

We can address the challenges of climate change through better building design. Autodesk is here to make that possible.

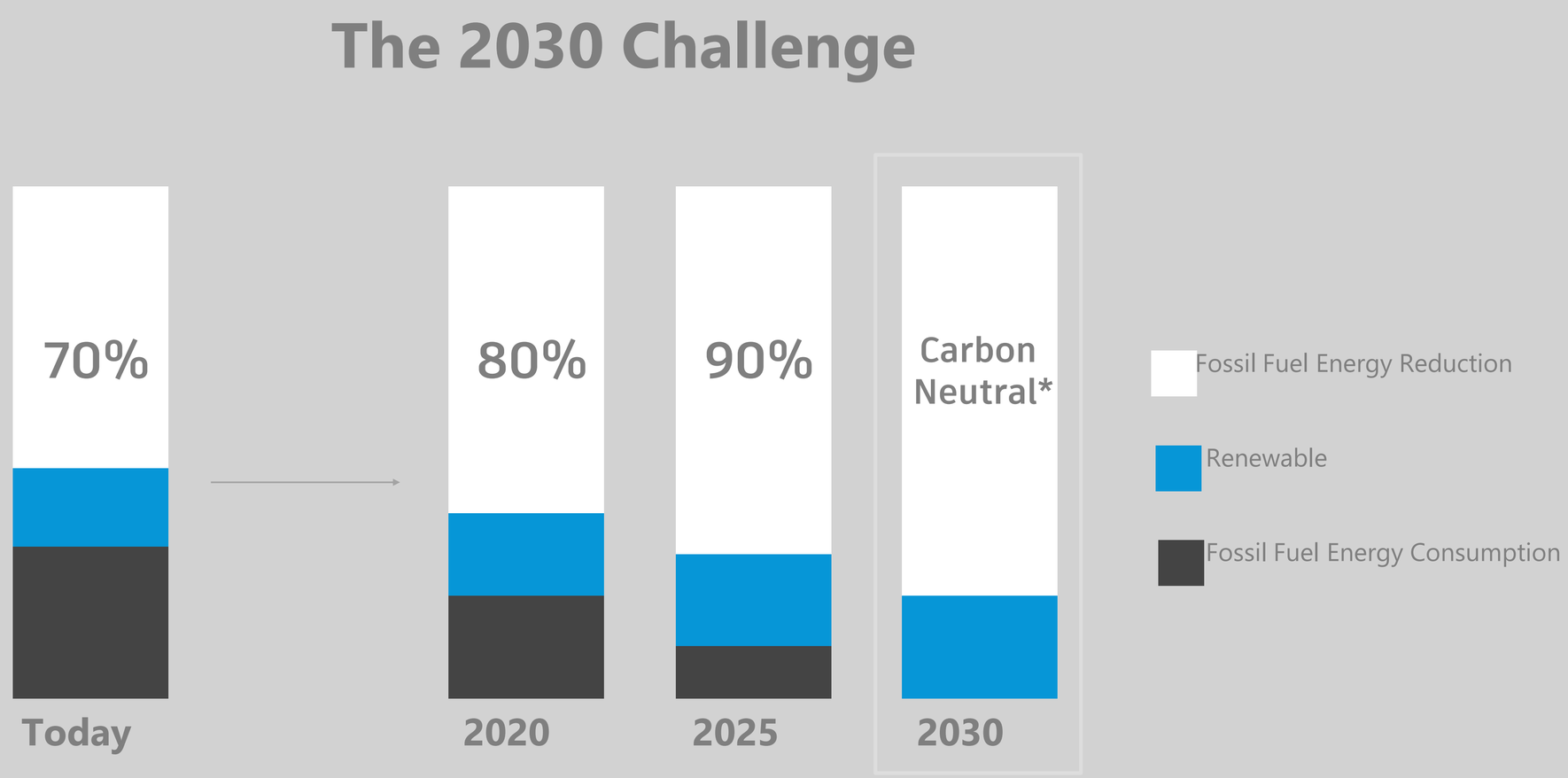
A critical need, and a huge business opportunity, for a net-positive, carbon-neutral built environment lies ahead.

Meeting Your Customers' Needs

- Save money – reduce operational costs over the life of the building
- Save time – faster design process getting to best design
- Achieve sustainability & climate goals – reduce their footprint, promote leadership

Image courtesy of SHOP Architecture

Addressing climate change means designing a carbon-neutral built environment by 2030




Digital technologies helps
meeting sustainability goals

Macro Trends
The Future of Design

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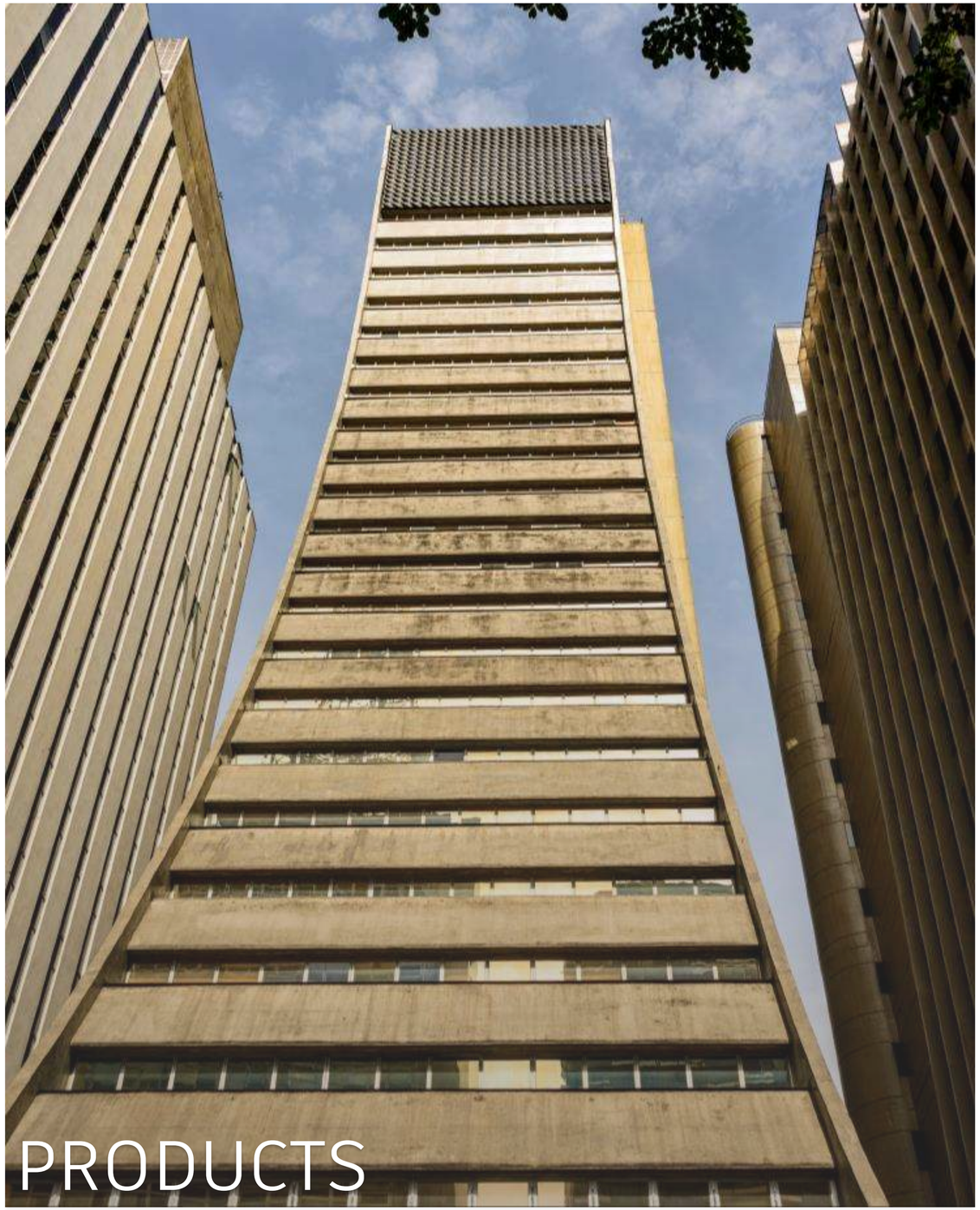
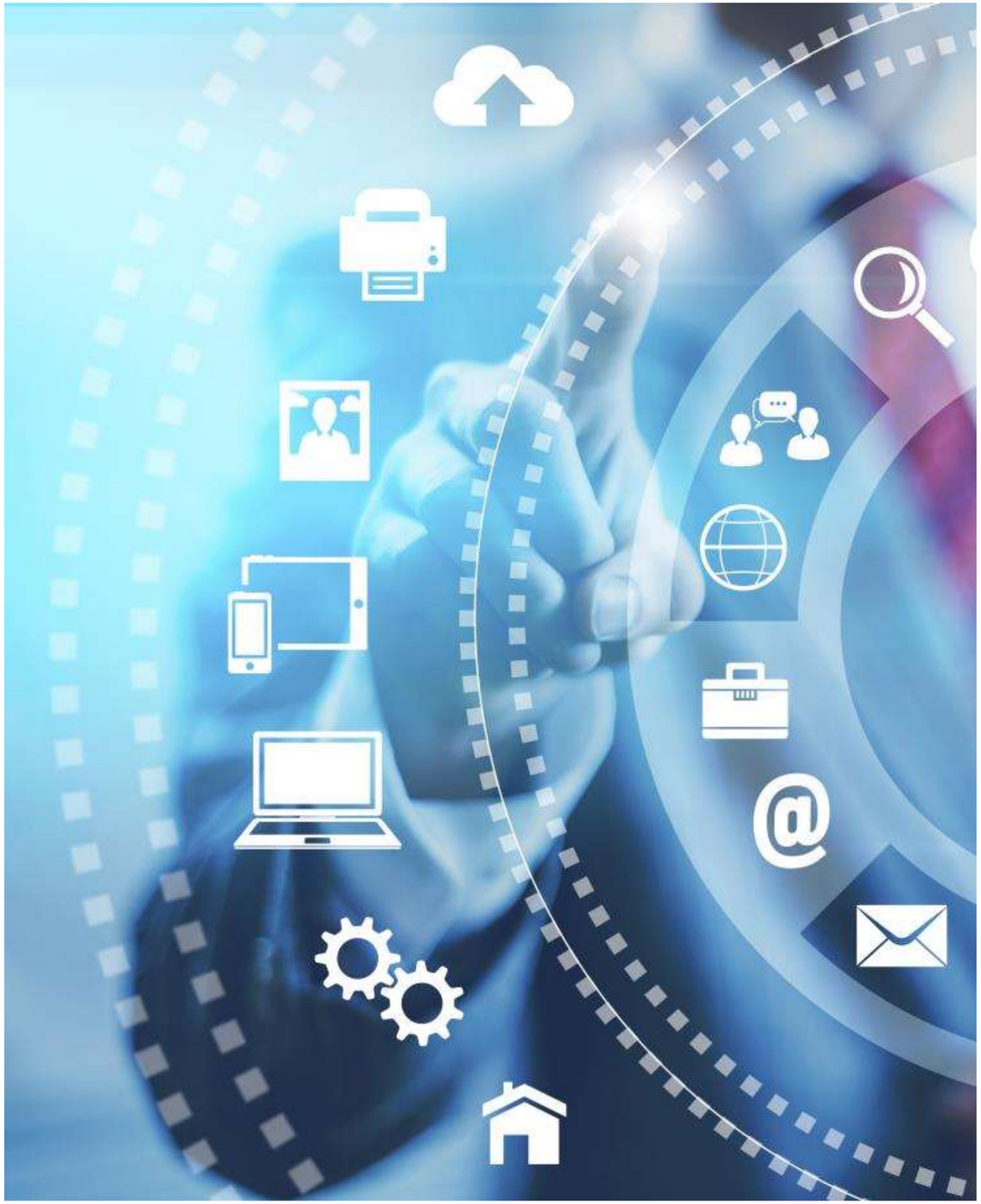
PRODUCTION


DEMAND


PRODUCTS

BIM

Better Information Management



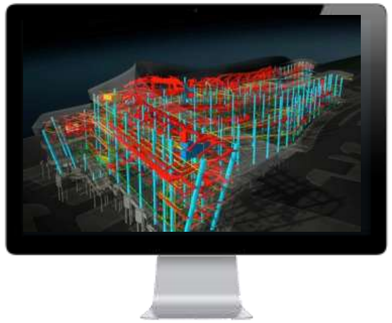
The 3 eras of disruption

1st Documentation
(Reproduction)

2D CAD

80ies / 90ies

2nd
Optimization
(BIM)



BIM

2000-now

3rd
Connectivity
(various BIM)

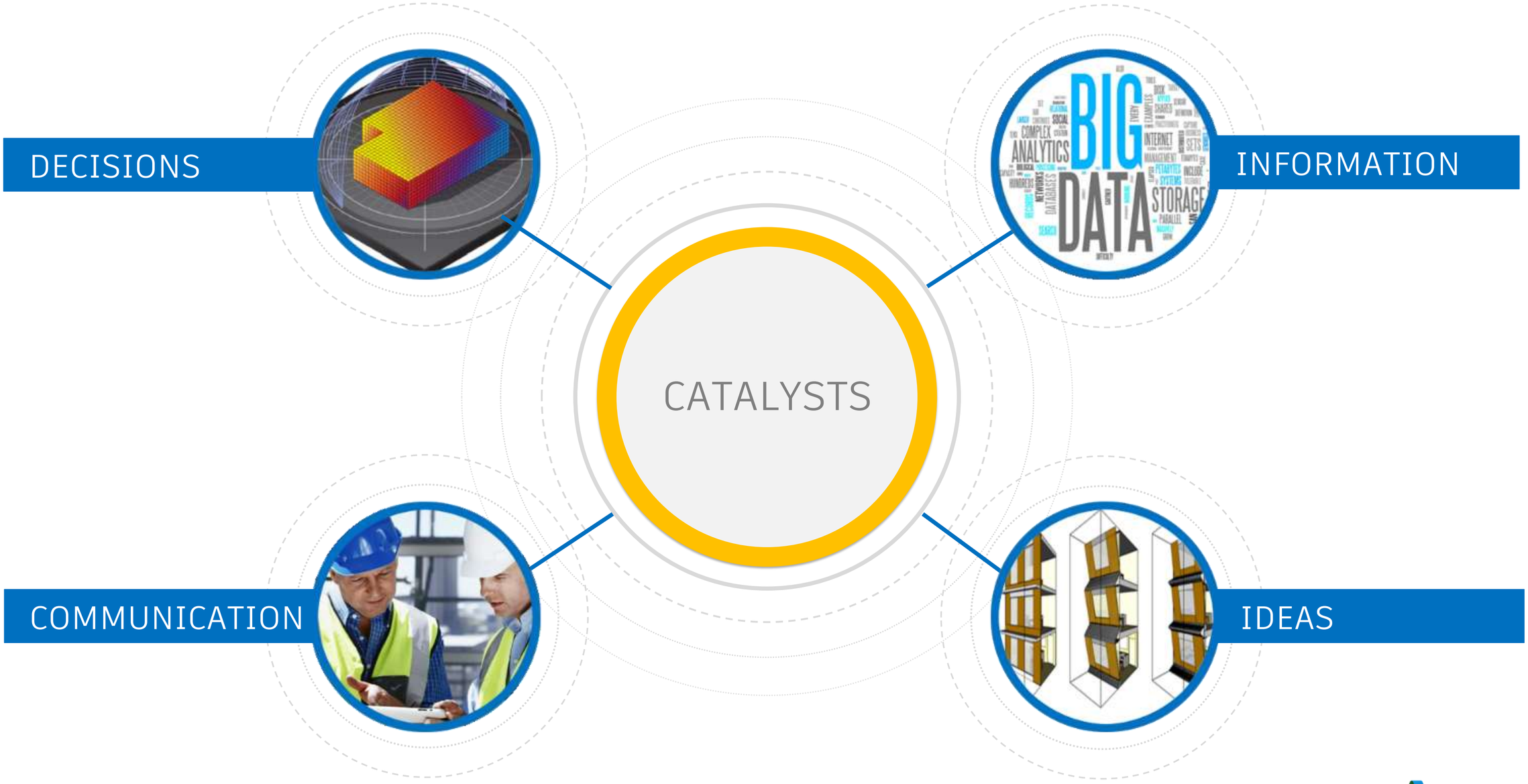
BIM

The future

The actual challenges in the AEC Industry

- Shared data
- Documentation continuity
- Project delivery
- Contracts

Catalysts – Process are evolving



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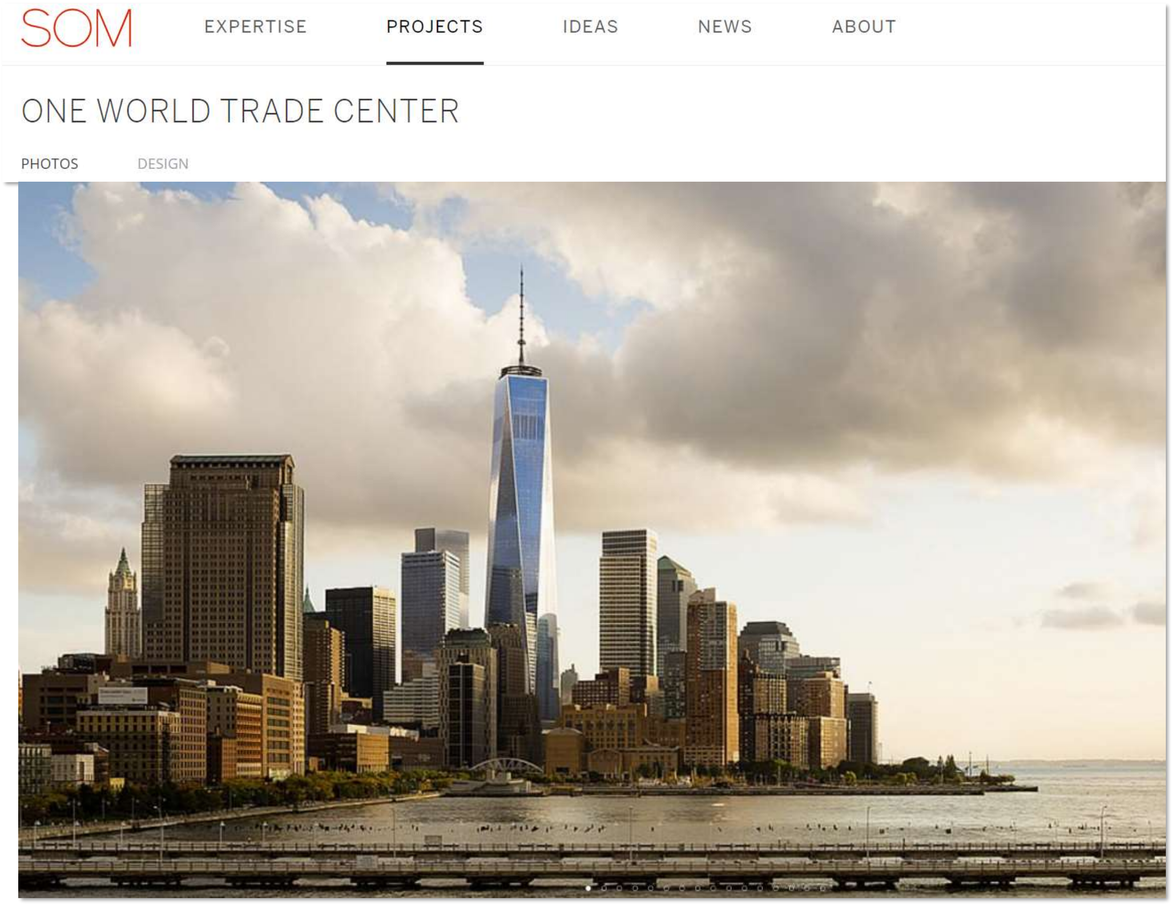
High performance buildings

BIM, a collaborative integrated process

Image courtesy of HFB

Exceptional & iconic projects



© SOM - One World Trade Center

© Gensler Architects – Shanghai Tower

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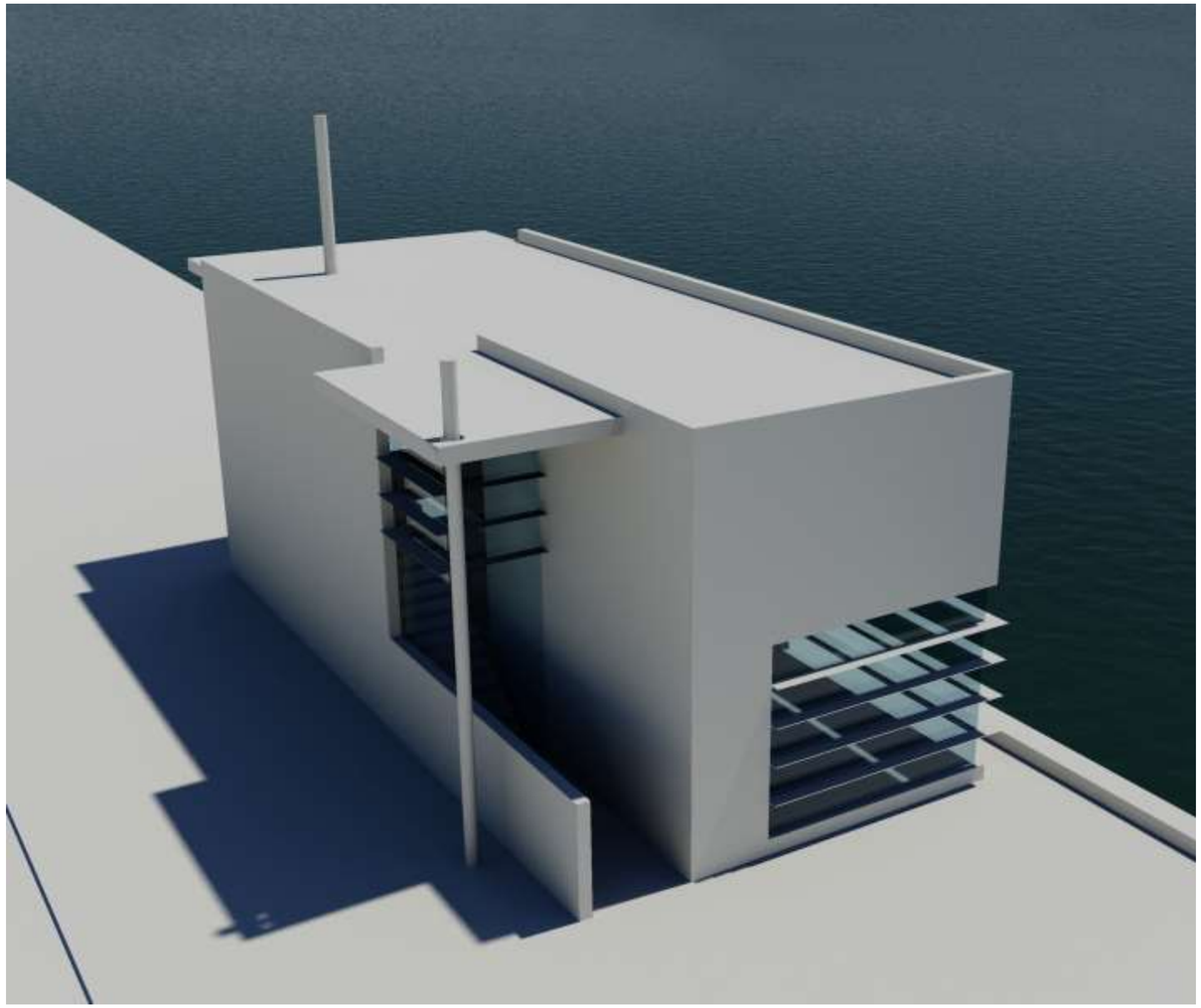
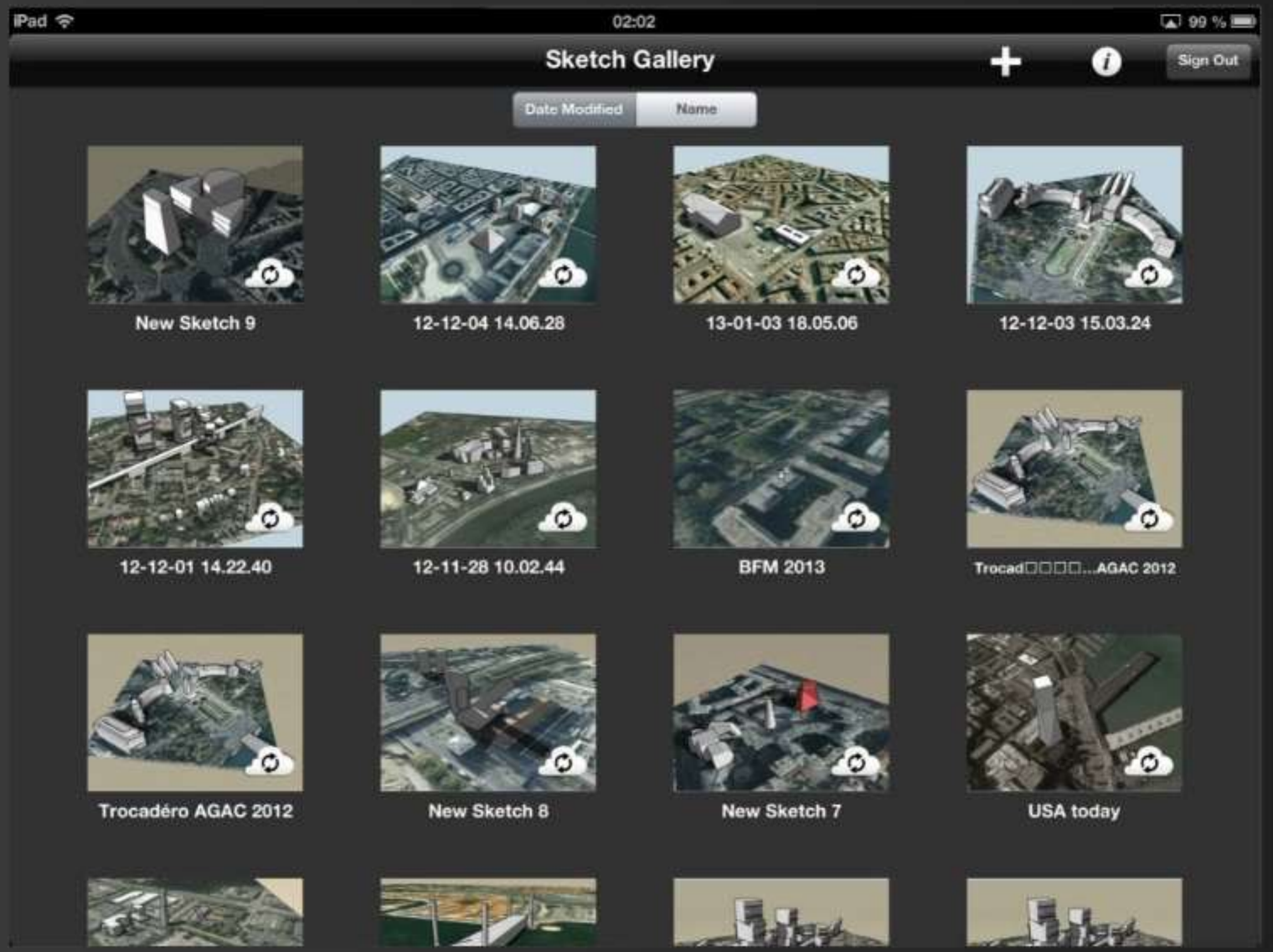
Usual and simple projects...




Capture
existing
conditions


Analysis &
simulations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BFM 2013
Trocad□□□□...AGAC 2012
Trocadéro AGAC 2012
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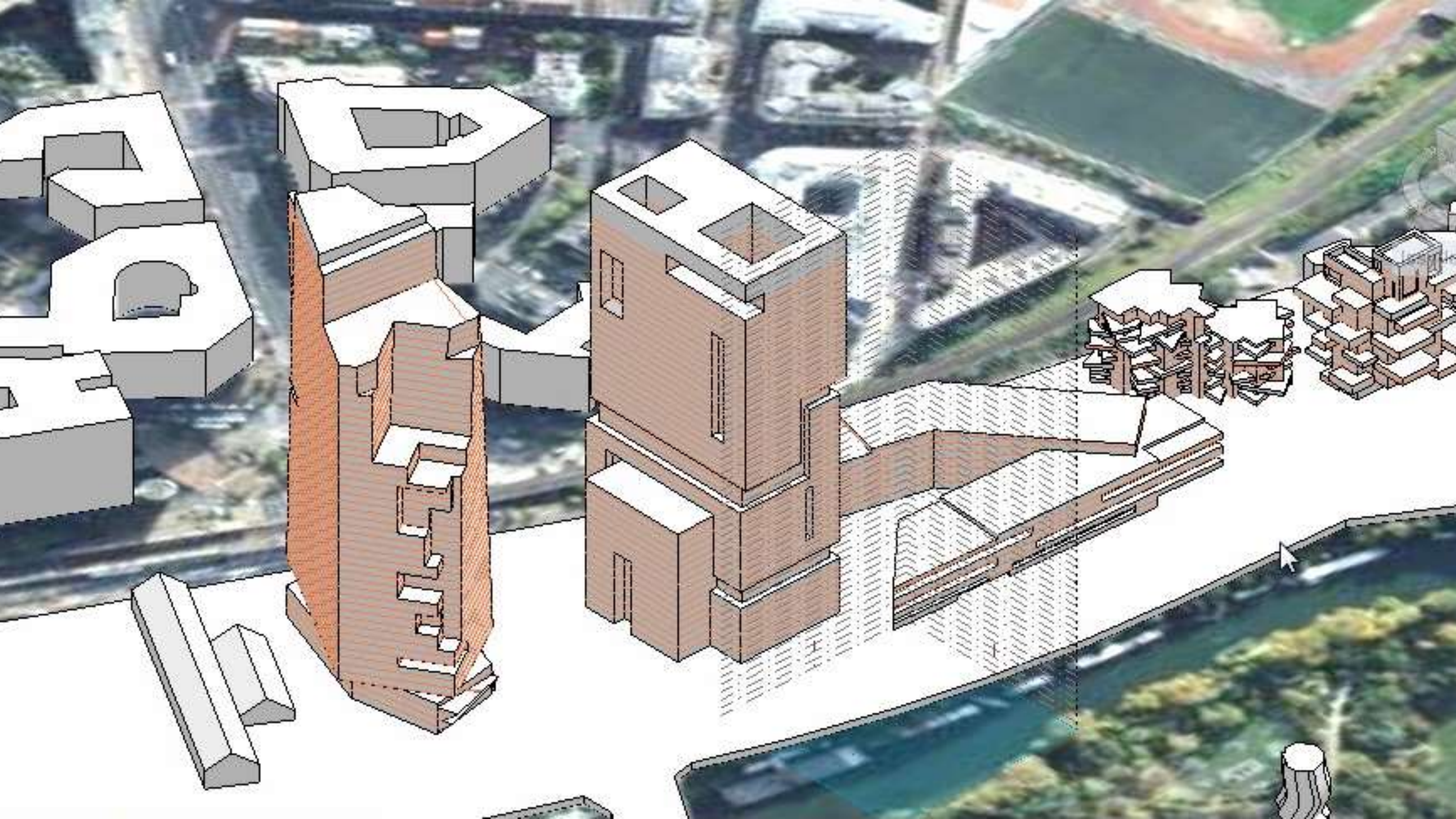
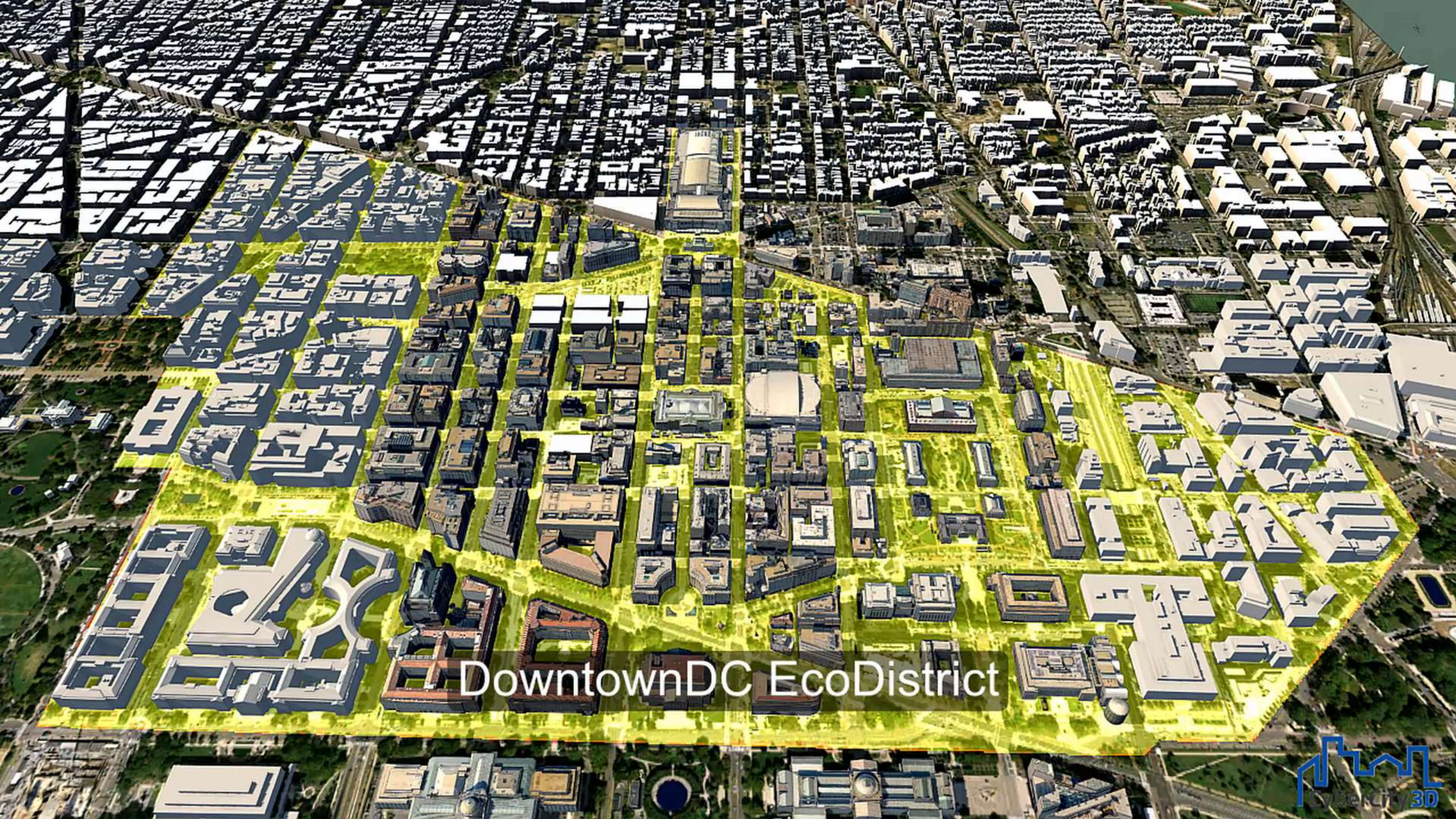
USA today




DowntownDC EcoDistrict


SAMSUNG
AUTODESK


Gregory Burgess
MarketStreet...
ROUNDABOUT
Roads > Roundabout
Summary
Intersection 103
Add note
Junction Type
Junction Type
Rounda...
Roundabout
Standard
FHWA 2010: R...
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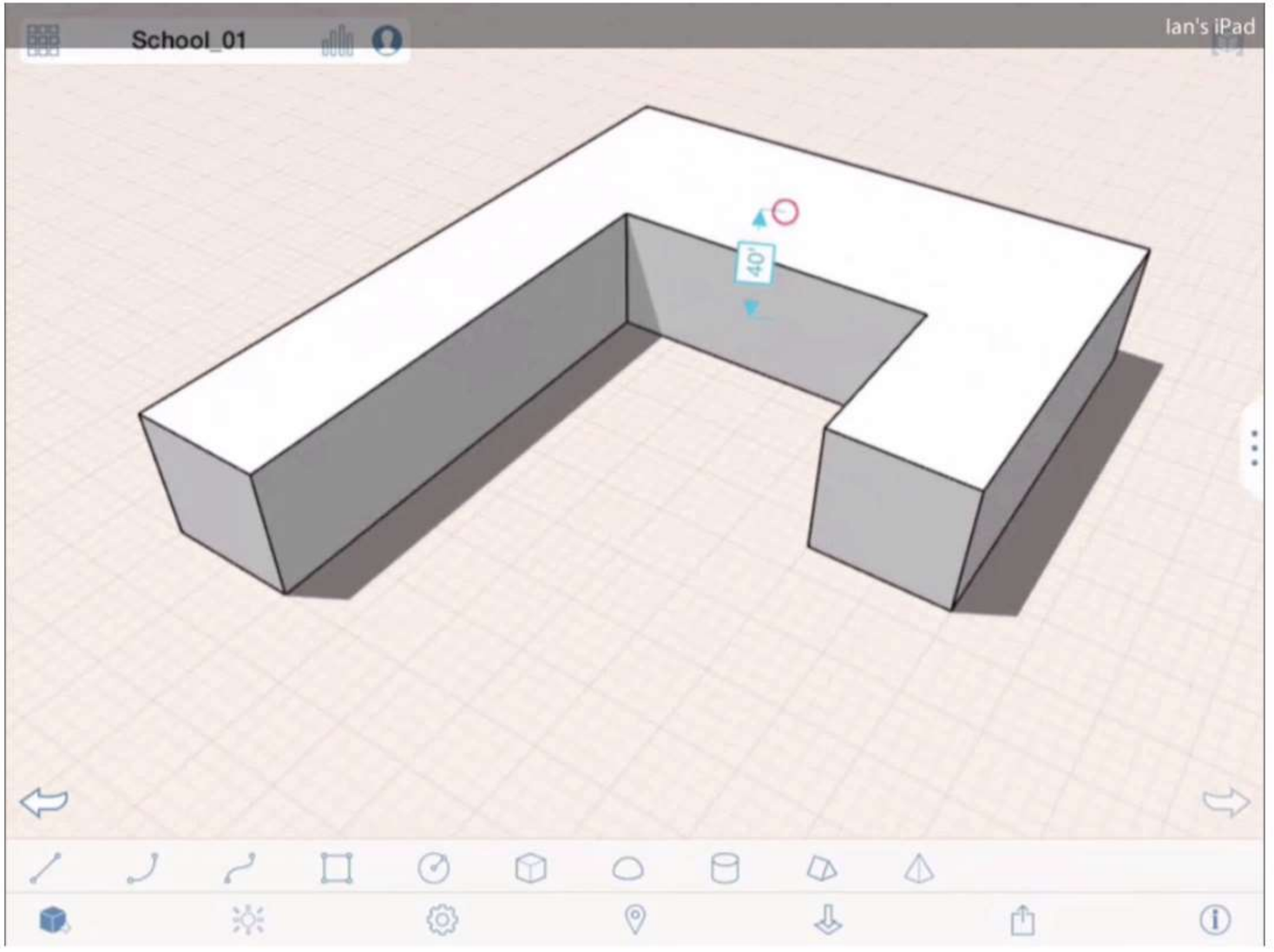
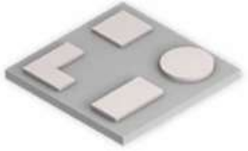
Annual Energy Cost Range (For Demonstration Only)
USD / m² / yr



Building Form

Building Form determines how the building surfaces interact with the sun.

Current Settings:
All Building Form



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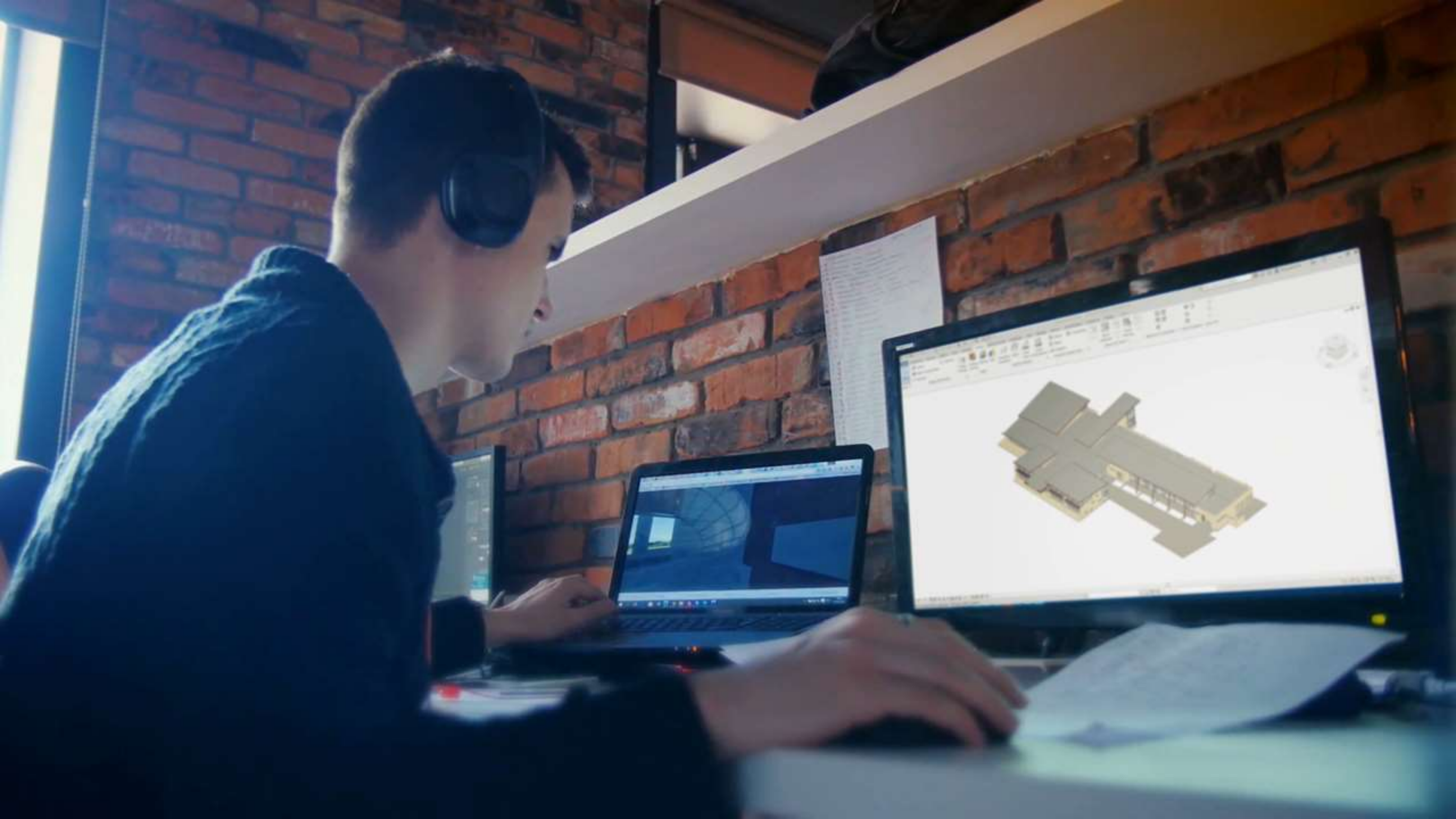
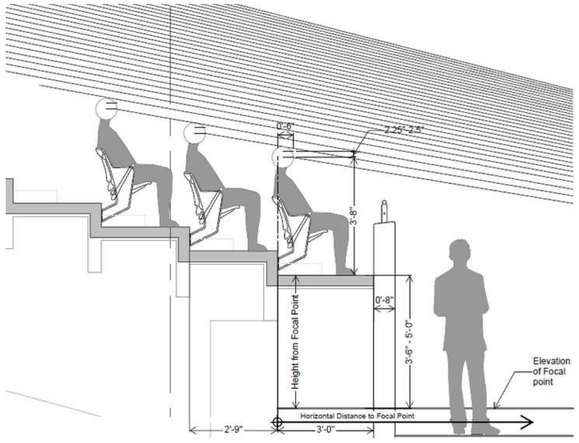
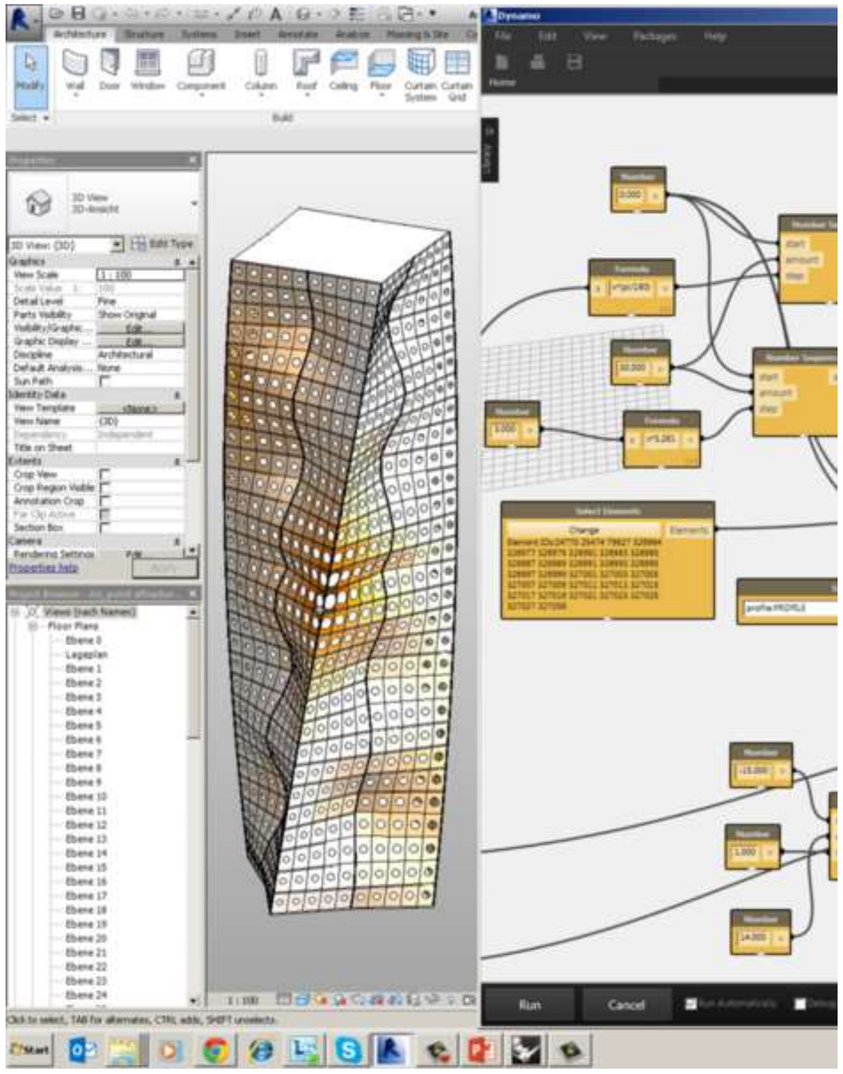
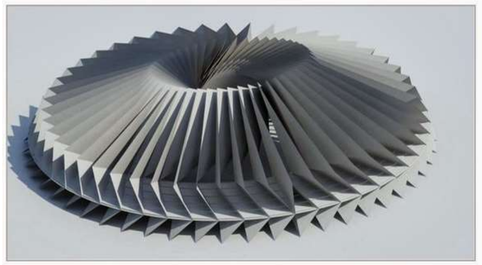
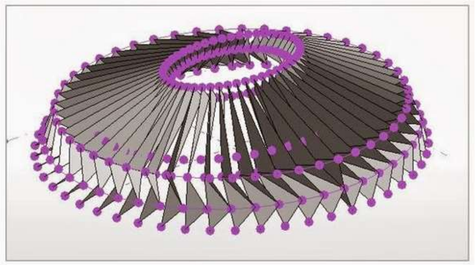


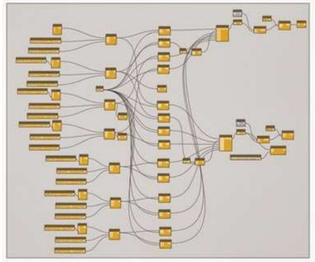
Generative design to go further

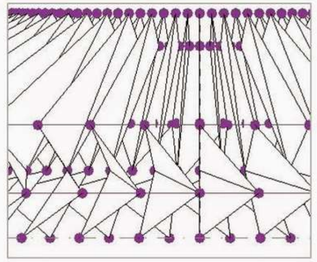


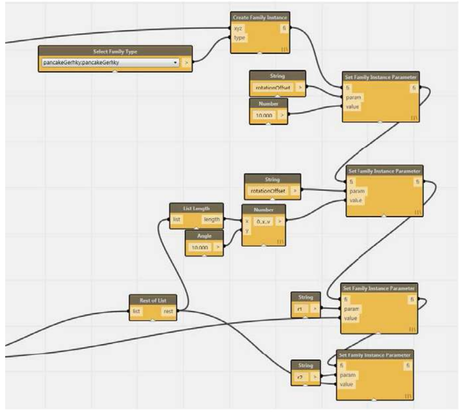






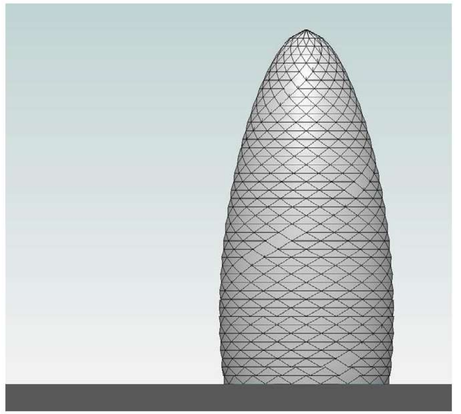






FAMILY INSERTION

The floor family is fed into the project file using the parameters of the insertion points and the profile curve.



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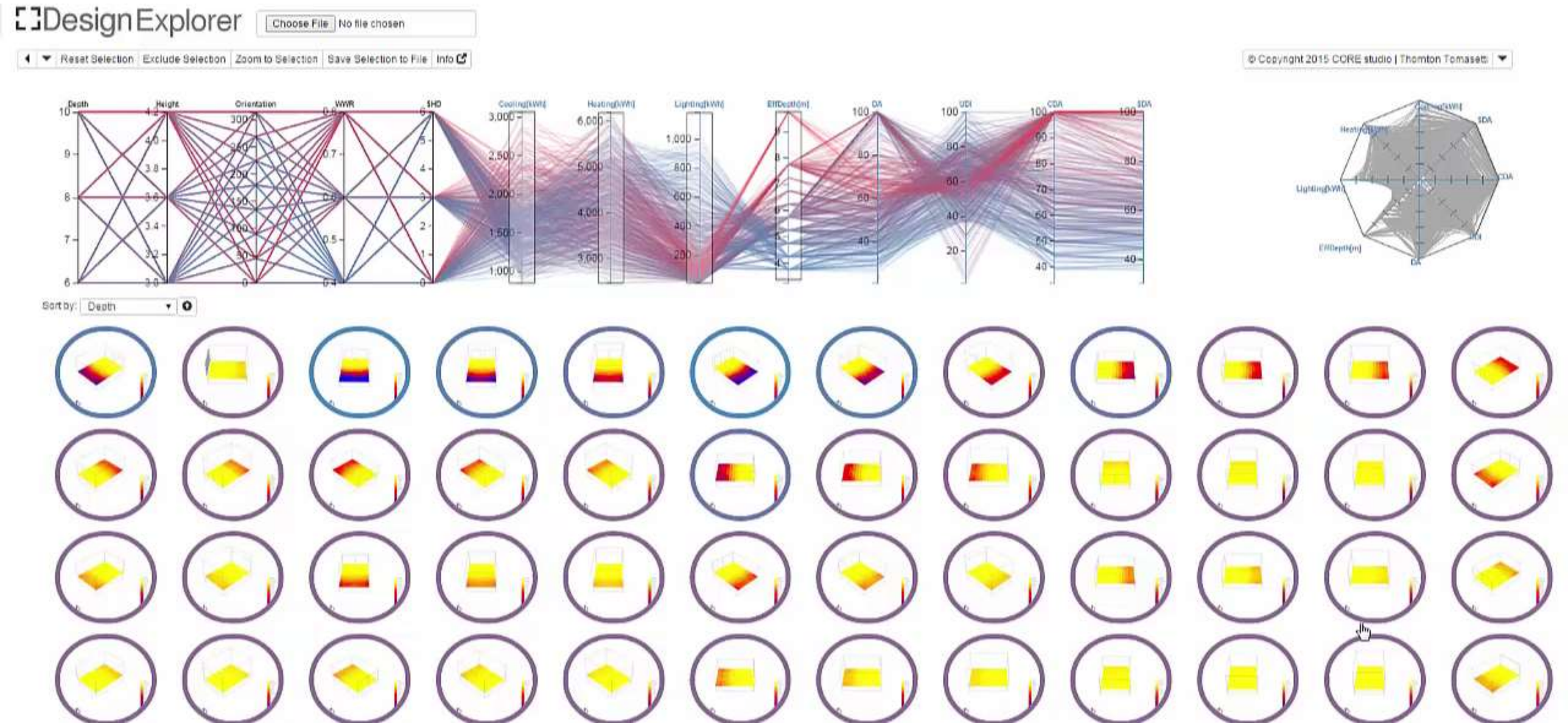

Thornton Tomasetti

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Artificial
Intelligence

GENERATIVE DESIGN
FOR ARCHITECTURE

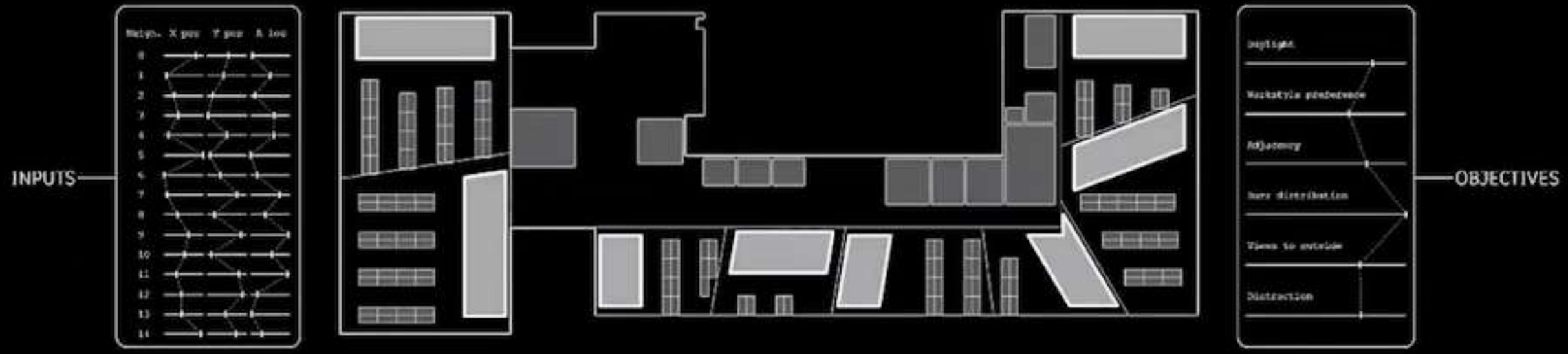
1. GENERATE

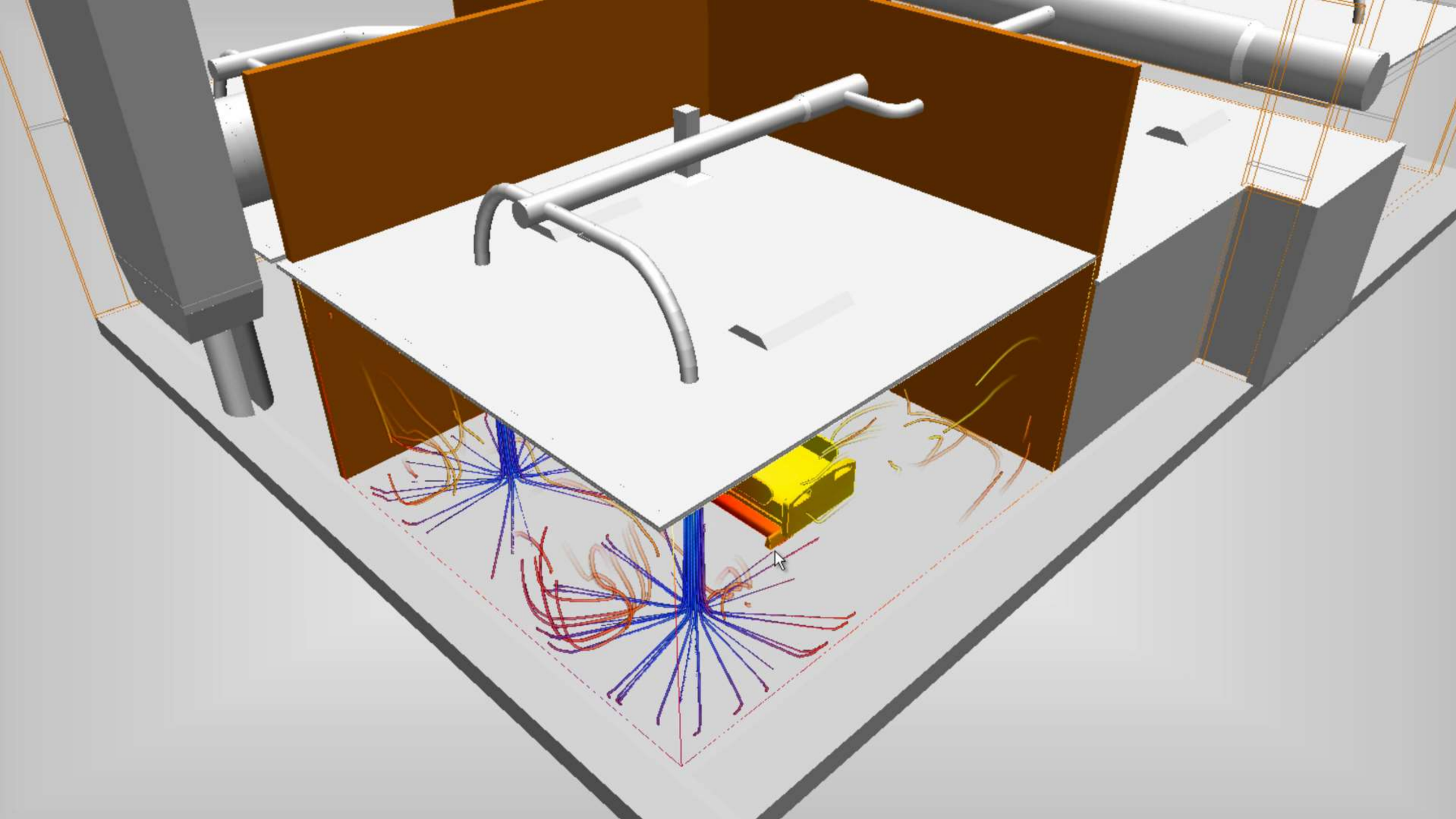
2. EVALUATE

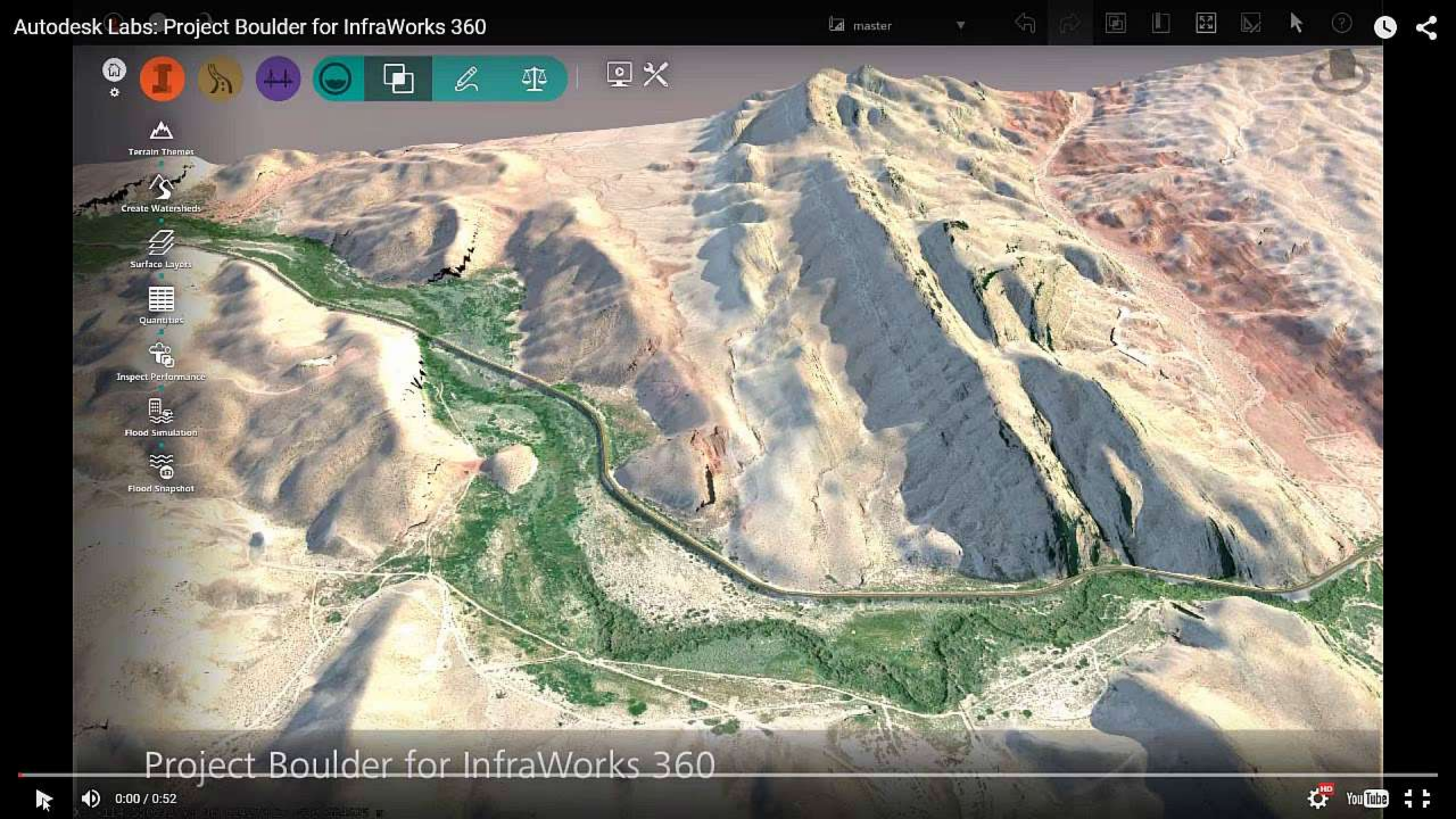
3. EVOLVE

4. EXPLORE

1E: This geometric system can **generate thousands of design options** by varying a few input parameters.






Autodesk Labs: Project Boulder for InfraWorks 360
master
Terrain Themes
Create Watersheds
Surface Layers
Quantities
Inspect Performance
Flood Simulation
Flood Snapshot
Project Boulder for InfraWorks 360
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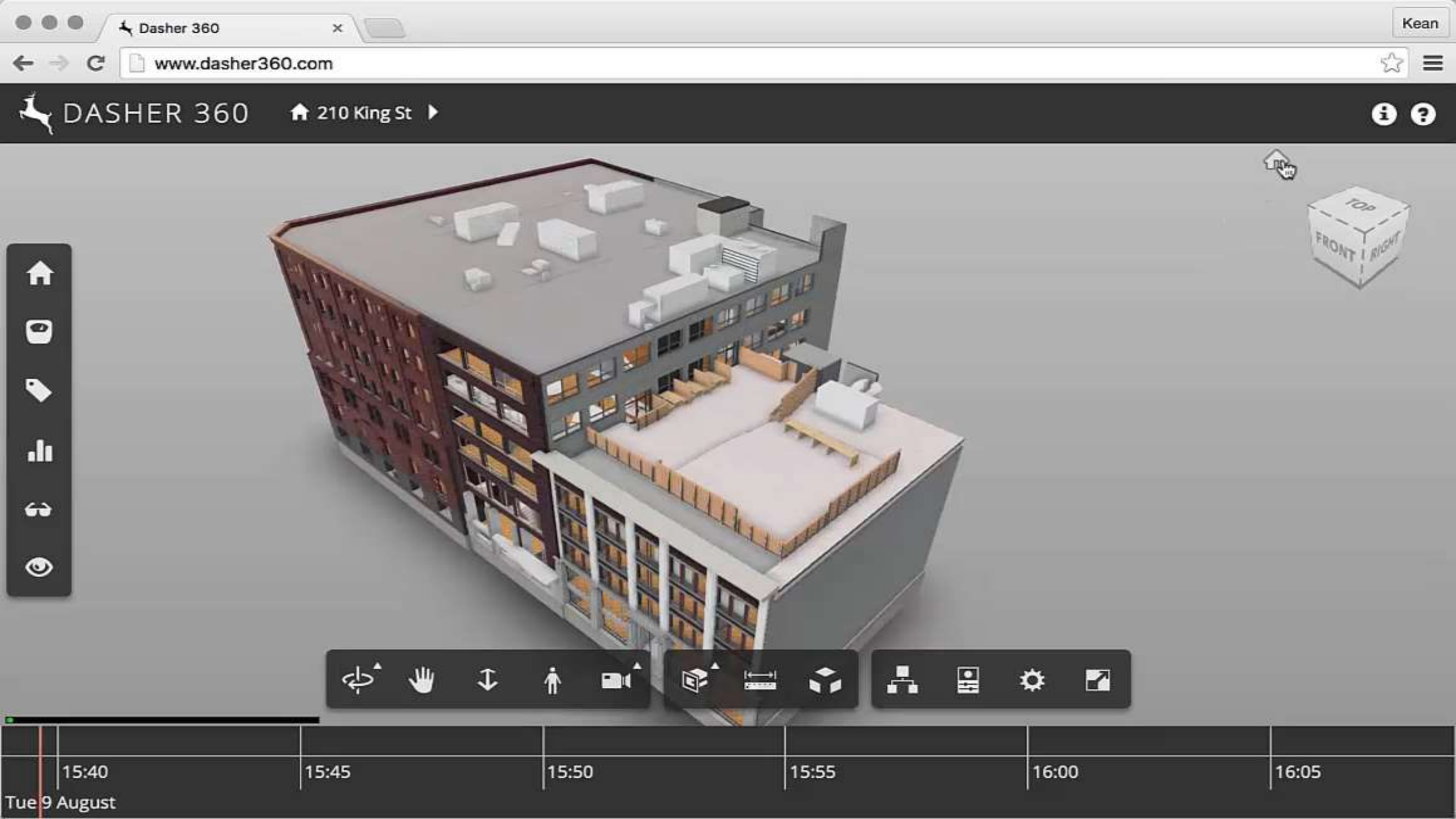
Cartes des contrai...
Poids
52
Poids
Appliquer
Ajouter un calque


Operation &
maintenance

Linear Technology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Tue 9 August

Case Study: CTA

Sustainability and Architectural Design Operating Side by Side

“Insight lets just about anybody into the energy modeling world, without having to know complex technical systems.”

—Needs attribution

Case Study: Eskew+Dumez+Ripple

High Design Meets High Performance

“Insight 360 gets architects interested in the intersection between performance and aesthetics,” says Dunn. “That not only leads to good design, but also high performance, low energy buildings, and good indoor environments.”

—Jacob Dunn

Case Study: US Air Force Academy

Energy savings for a modern masterpiece

The U.S. Air Force Academy prioritize retrofit opportunities using Insight 360 energy and daylighting performance analysis.

Addressing climate change while meeting the needs of the growing population is the greatest design challenge we have ever faced. It's also the business opportunity of a lifetime—representing an estimated $5.5 trillion market for low-carbon goods and services.

—Andrew Anagnost, President & CEO of Autodesk