Digital and BIM: Building a Better and More Sustainable World

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

The 2030 Challenge

Today: 70% Carbon Neutral*

2020: 80% Carbon Neutral*

2025: 90% Carbon Neutral*

2030: 100% Renewable

Source: © 2015-2030, Inc / Architecture 2030 All rights reserved / *Using no fossil fuel GHG-emitting energy to operate
Digital technologies helps meeting sustainability goals
Macro Trends
The Future of Design
The 3 eras of disruption

1st Documentation (Reproduction)

2nd Optimization (BIM)

3rd Connectivity (various BIM)
The actual challenges in the AEC Industry

- Shared data
- Documentation continuity
- Project delivery
- Contracts
Catalysts – Process are evolving

DECISIONS

INFORMATION

COMMUNICATION

IDEAS
High performance buildings

BIM, a collaborative integrated process
Le BIM, un processus de conception intégré
Exceptional & iconic projects

© SOM - One World Trade Center

© Gensler Architects – Shanghai Tower
Usual and simple projects...
Capture existing conditions
Relevé d'états existants par technologie laser
Analysis & simulations
Generative design to go further
Artificial Intelligence
1E: This geometric system can generate thousands of design options by varying a few input parameters.
BIM et maîtrise des phénomènes climatiques
BIM, analyse d'impact et risques technologiques

Carte des contraintes

Exemple d'une analyse d'interdistances entre une ligne électrique et des zones habitées
Operation & maintenance
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