

REALIZING THE FREEDOM TOWER



REALIZING THE FREEDOM TOWER



A HISTORY OF EXCELLENCE

RECAPTURING THE NEW YORK SKYLINE

PIONEERING PROCESS CHANGE



REALIZING THE FREEDOM TOWER

DESIGN EXCELLENCE: GLOBAL



Lever House, New York



JFK Terminal 4, New York



San Francisco International, San Francisco



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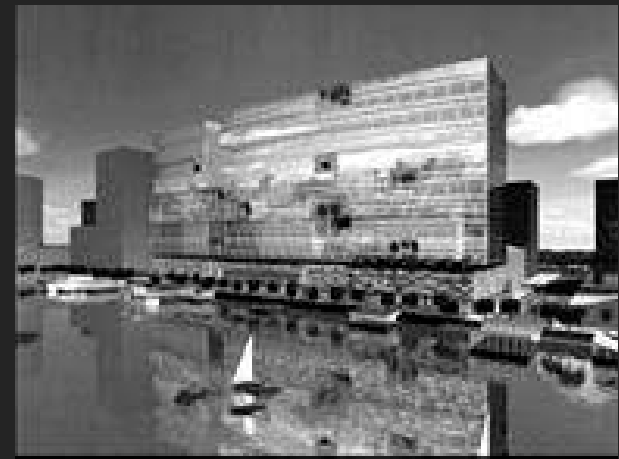
DESIGN EXCELLENCE: GLOBAL



Broadgate Exchange House, London



Singapore Mass Rapid Transit System



Bank HQs, Marina Bay, Singapore



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DESIGN EXCELLENCE: **CHINA**



Jin Mao Tower, Shanghai



Pearl River Tower, Nanjing



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DESIGN EXCELLENCE: CHINA



China World Trade Center



US Embassy, Beijing



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DESIGN EXCELLENCE: CHINA



Beijing Finance Street



Hong Kong International Airport



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DESIGN EXCELLENCE: SUPERTALL BUILDINGS



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RECAPTURING THE SKYLINE



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RECAPTURING THE SKYLINE: THE URBAN GRID



PRIOR TO SEPTEMBER 11, 2001

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RECAPTURING THE SKYLINE: **THE URBAN GRID**



SEPTEMBER 11, 2001



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RECAPTURING THE SKYLINE: THE URBAN GRID



7 WTC - SOM

FREEDOM TOWER - SOM

Building 2 – Norman Foster
Transportation Hub – S. Calatrava

Memorial – Michael Arad

Building 3 – Fumihiko Maki

Building 4 – Richard Rogers

FUTURE SITE - POST SEPTEMBER 11, 2001



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RECAPTRURING THE SKYLINE: 7 WTC FIRST TO RE-OPEN





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RECAPTURING THE SKYLINE: 7 WTC FIRST TO RE-OPEN





REALIZING THE FREEDOM TOWER

RECAPTURING THE SKYLINE: 7 WTC FIRST TO RE-OPEN





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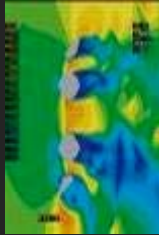
RECAPTURING THE SKYLINE: **THE TOWER**



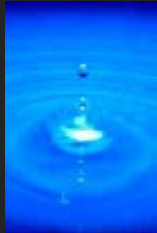
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RECAPTURING THE SKYLINE: **PROJECT REQUIREMENTS**

World Trade Center Sustainable Design Guidelines



**Low
Energy Usage**



**Water
Efficient**



**Indoor
Environment
Quality**



**Sustainable
Material**



**Sustainable
Site
Development**

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RECAPTURING THE SKYLINE: **PROJECT REQUIREMENTS**

World Trade Center Safety and Security Guidelines



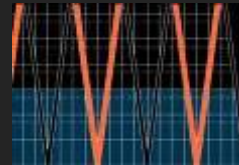
Enhanced
Firefighter Access



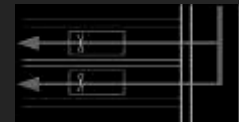
Structurally Robust
Core



Multiple
Stair Exits



Reinforced
Lobby Exterior



Filtered Air

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A HISTORY OF EXCELLENCE

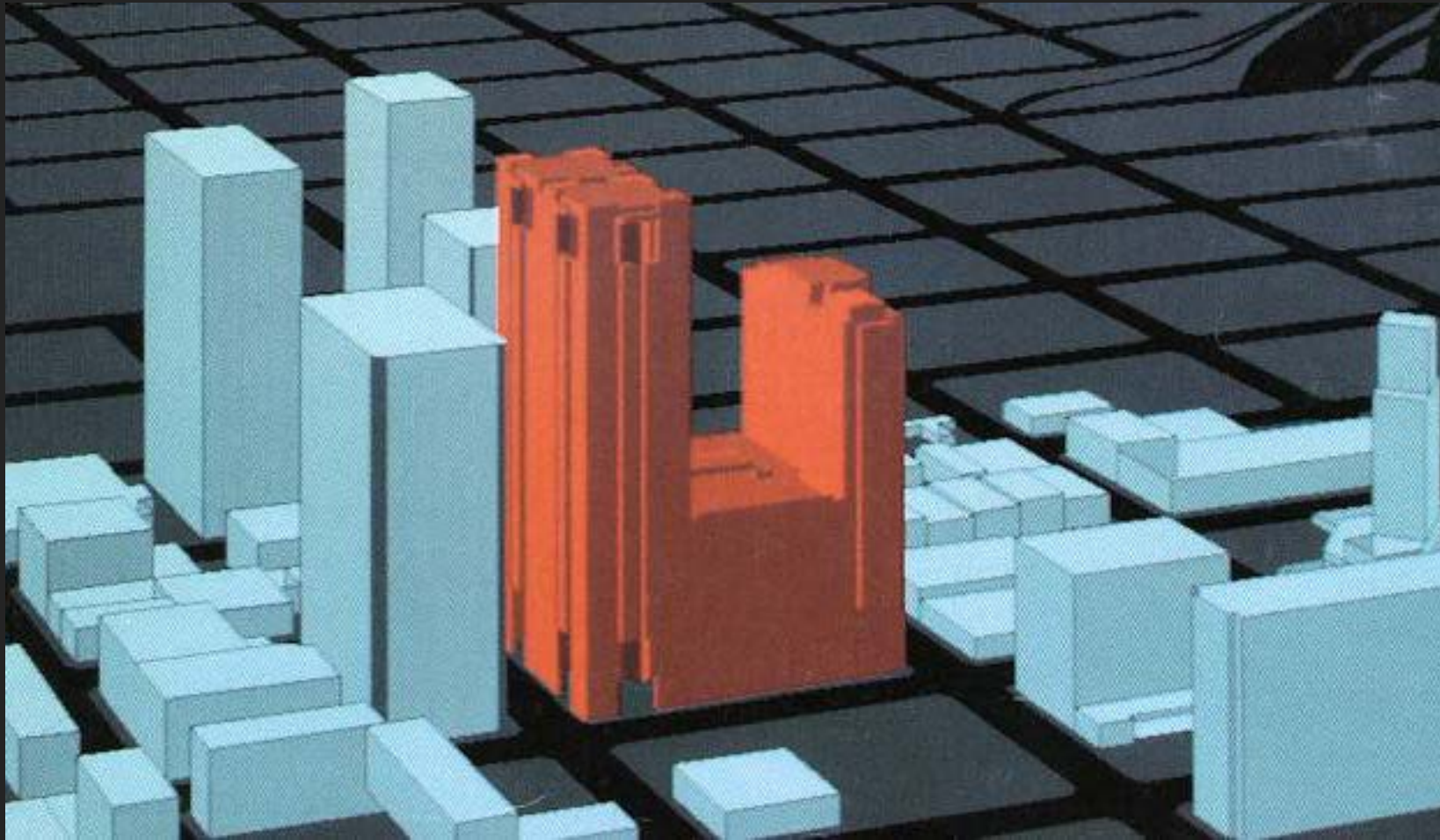
RECAPTURING THE NEW YORK SKYLINE

PIONEERING PROCESS CHANGE



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PIONEERING PROCESS CHANGE

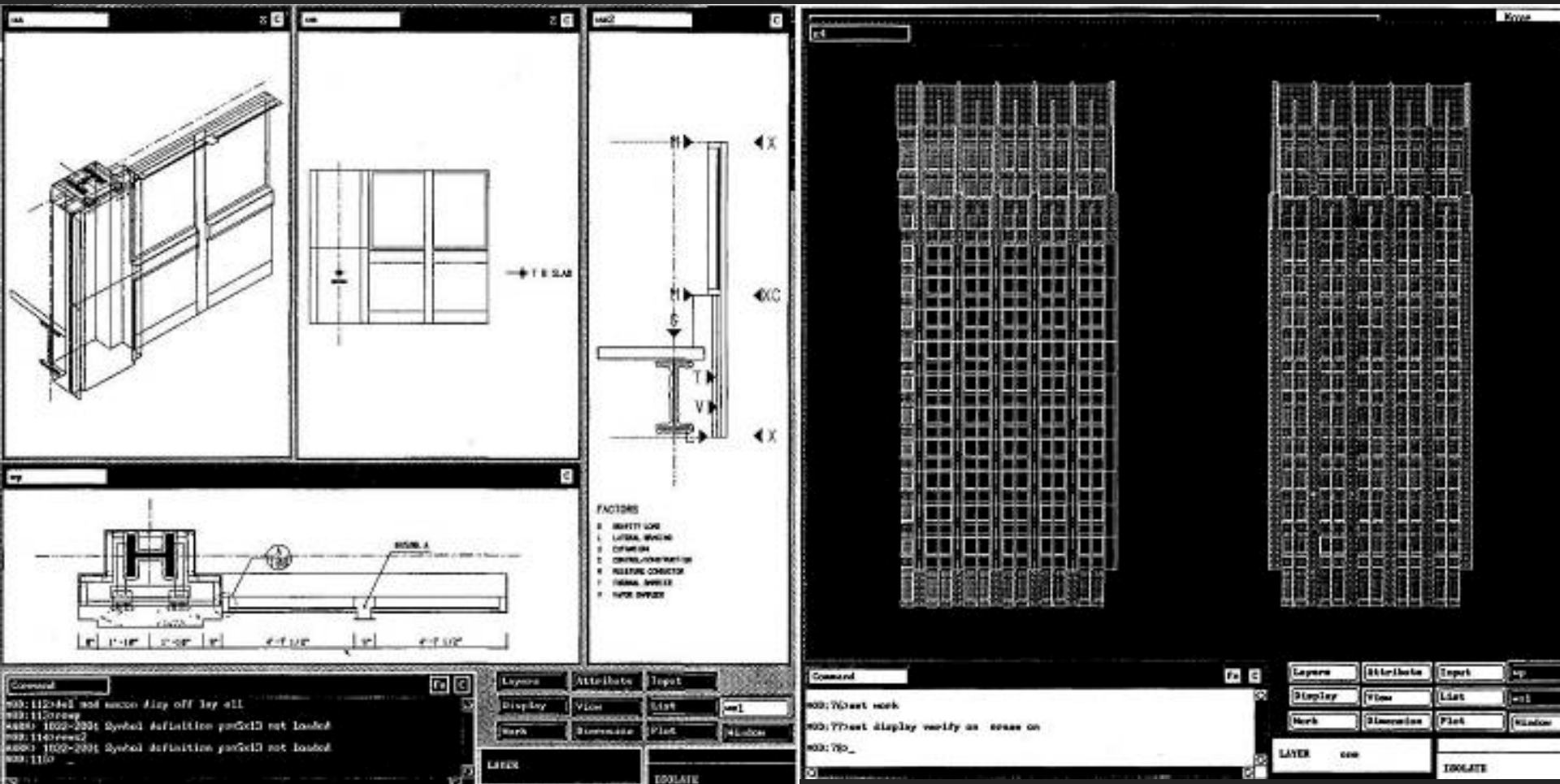


IBM Architecture Engineering Series [AES] – Building Massing – 1980s



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PIONEERING PROCESS CHANGE: REALITY BEFORE REALITY

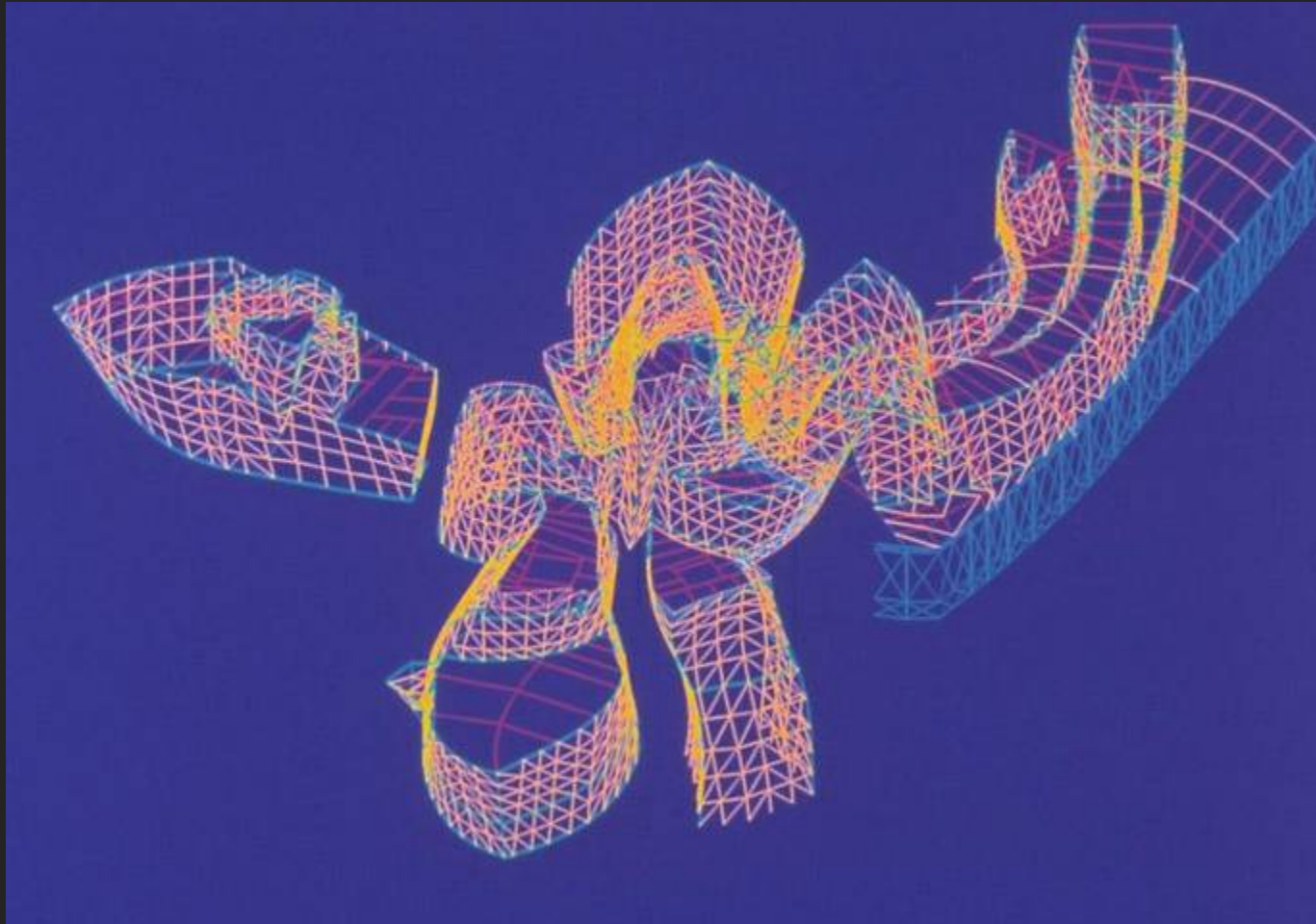


IBM Architecture Engineering Series [AES] – Curtain Wall Design – 1980s



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PIONEERING PROCESS CHANGE: **REALITY BEFORE REALITY**

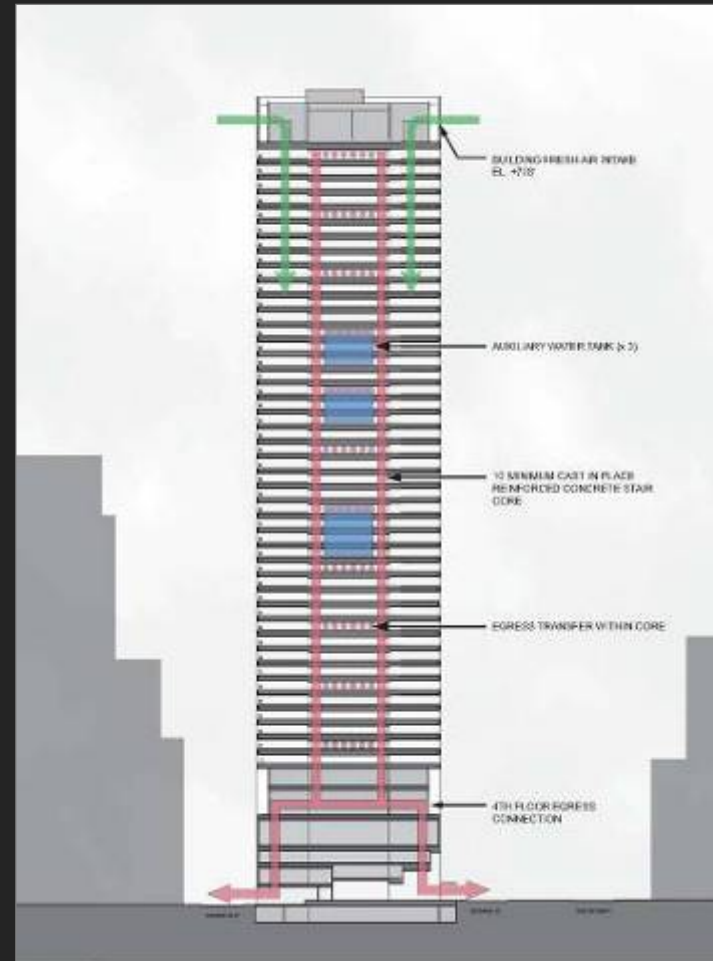
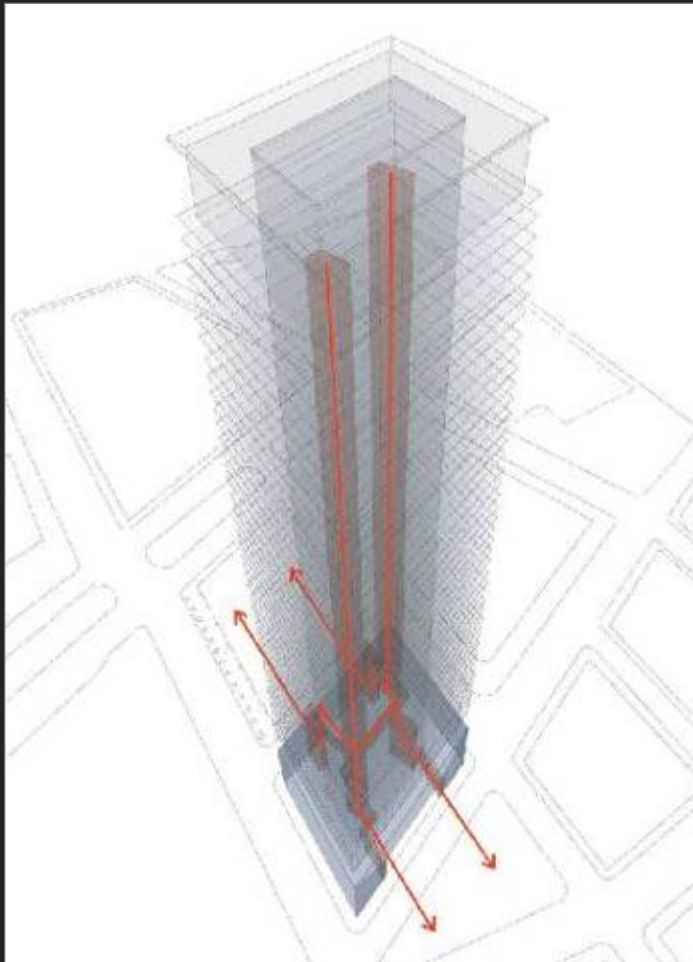


IBM Architecture Engineering Series [AES] – Structural Engineering – 1980s



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PIONEERING PROCESS CHANGE: **REALITY BEFORE REALITY**

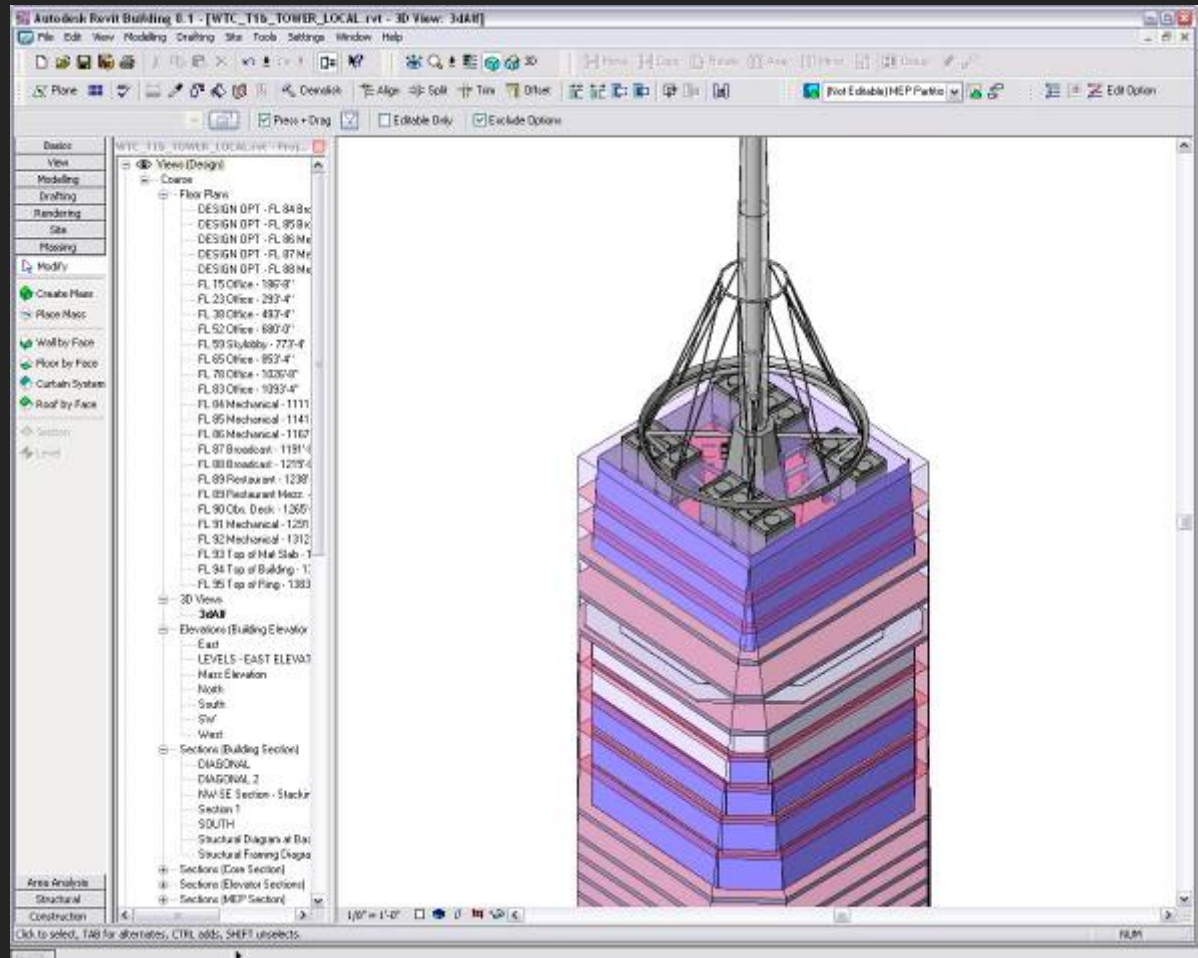


Autodesk AutoCAD and Architectural Desktop [ADT] – 1990s - present



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PIONEERING PROCESS CHANGE: REALITY BEFORE REALITY

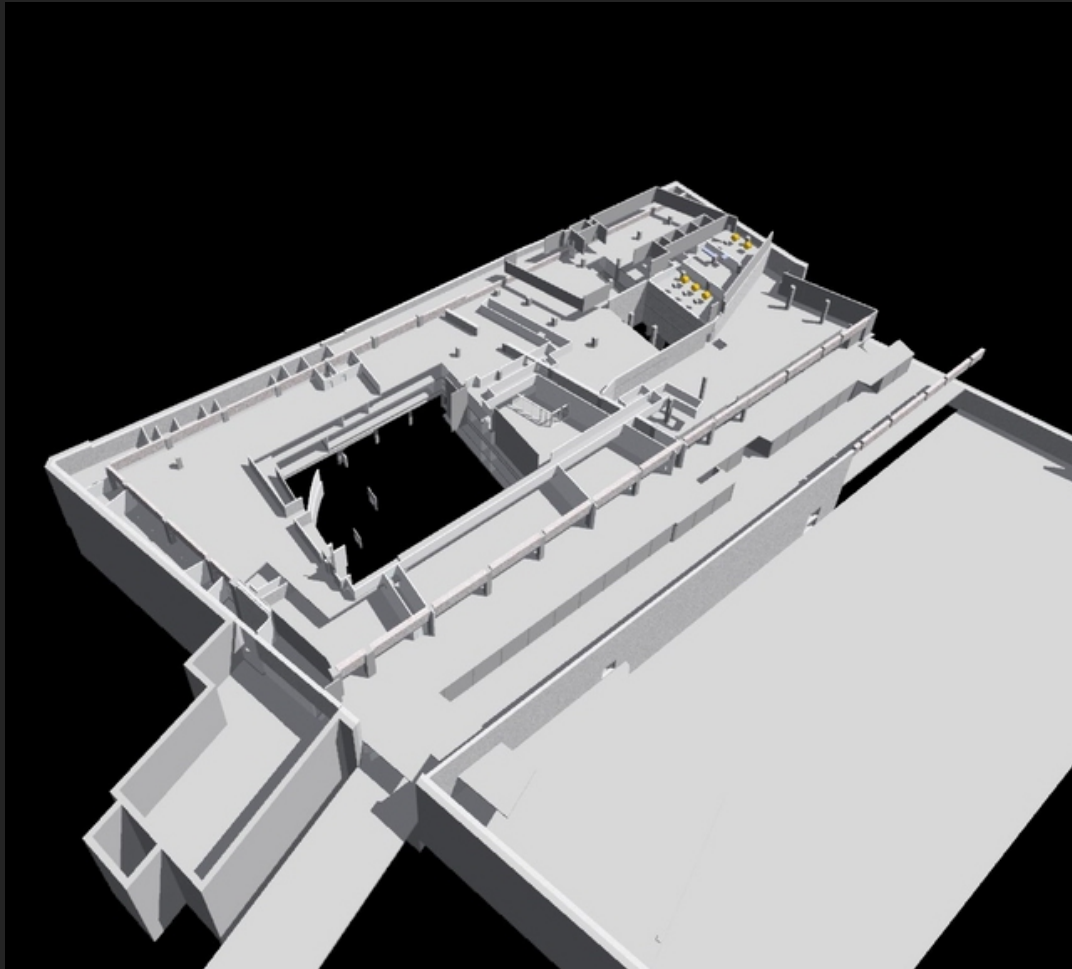


Autodesk Revit Platform



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PIONEERING PROCESS CHANGE: **USE OF REVIT, HOW IT STARTED**

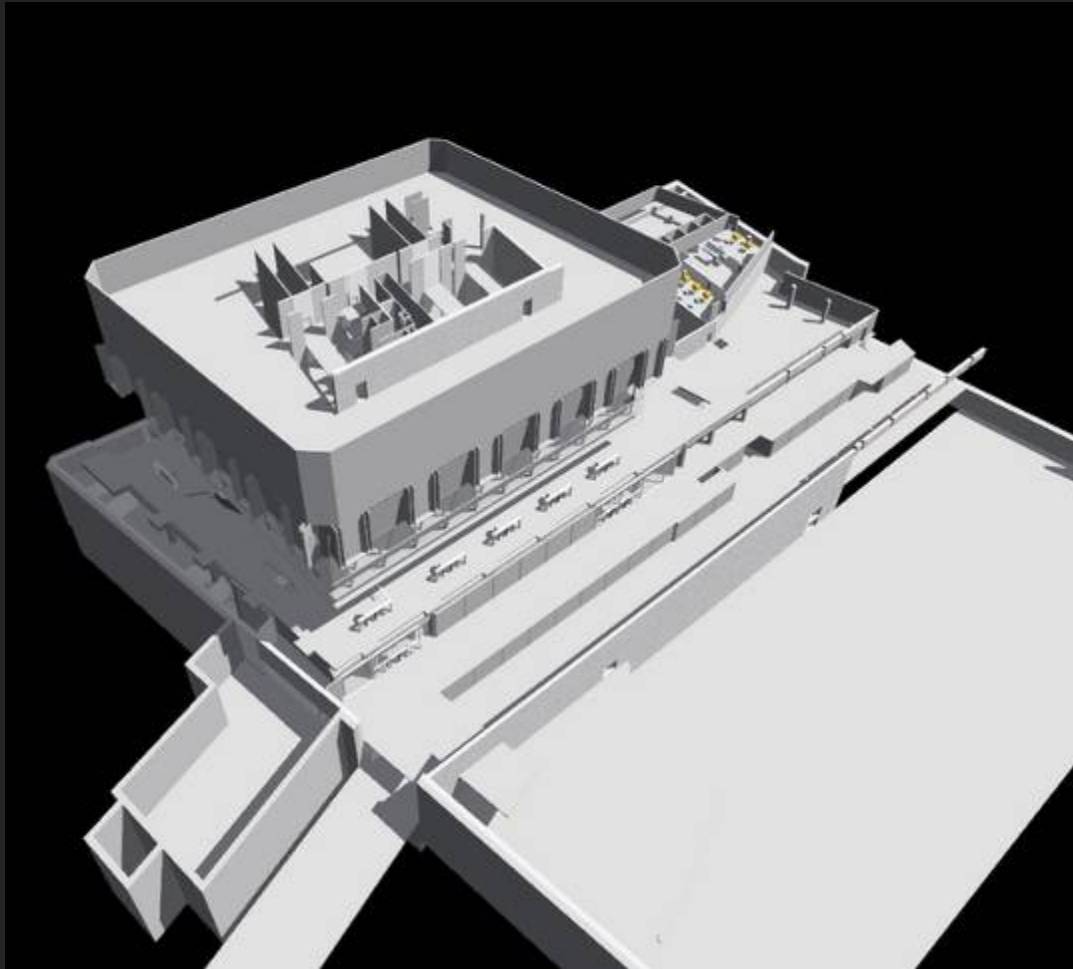


Below Grade



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PIONEERING PROCESS CHANGE: **USE OF REVIT, HOW IT STARTED**



Lower Core



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PIONEERING PROCESS CHANGE: **USE OF REVIT, HOW IT STARTED**

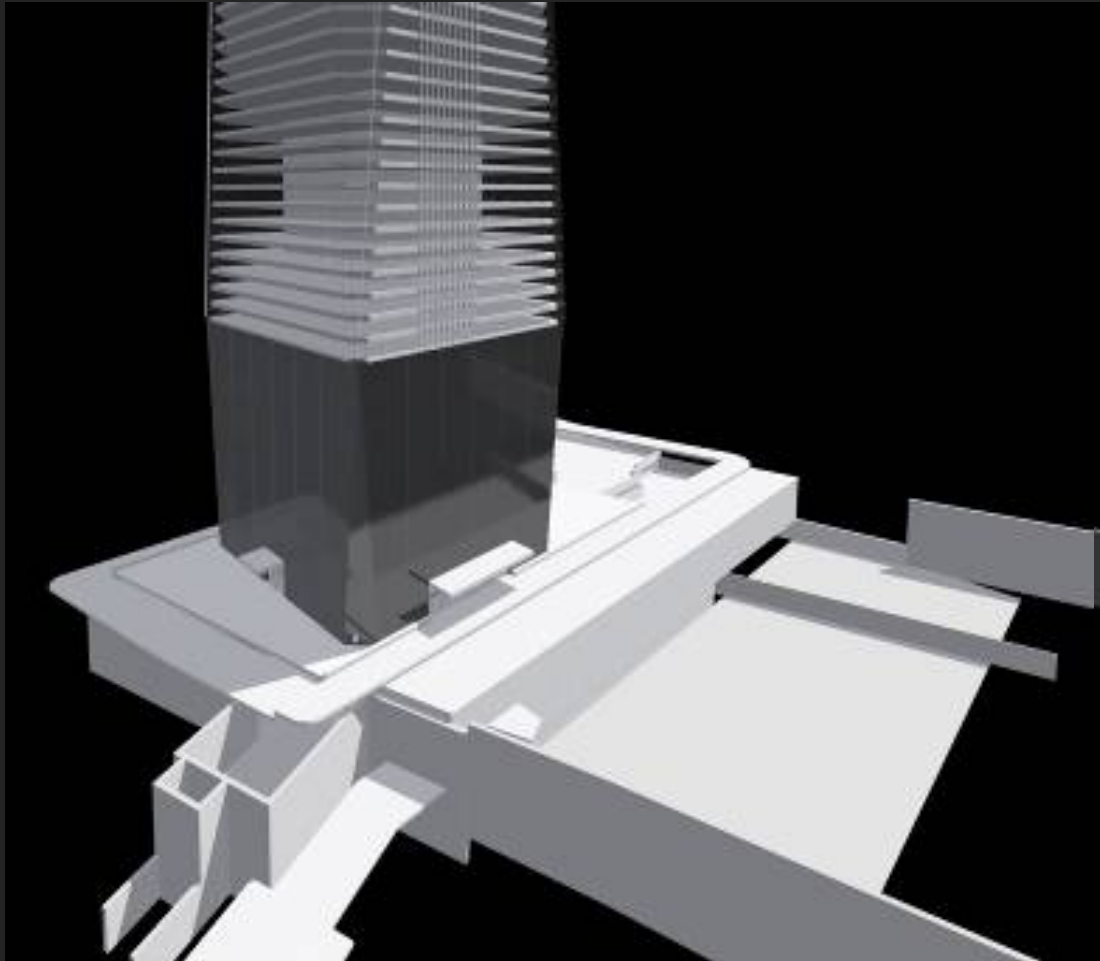


Entire Building



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PIONEERING PROCESS CHANGE: **USE OF REVIT TODAY**



Experience from the First Model Expedited the Second

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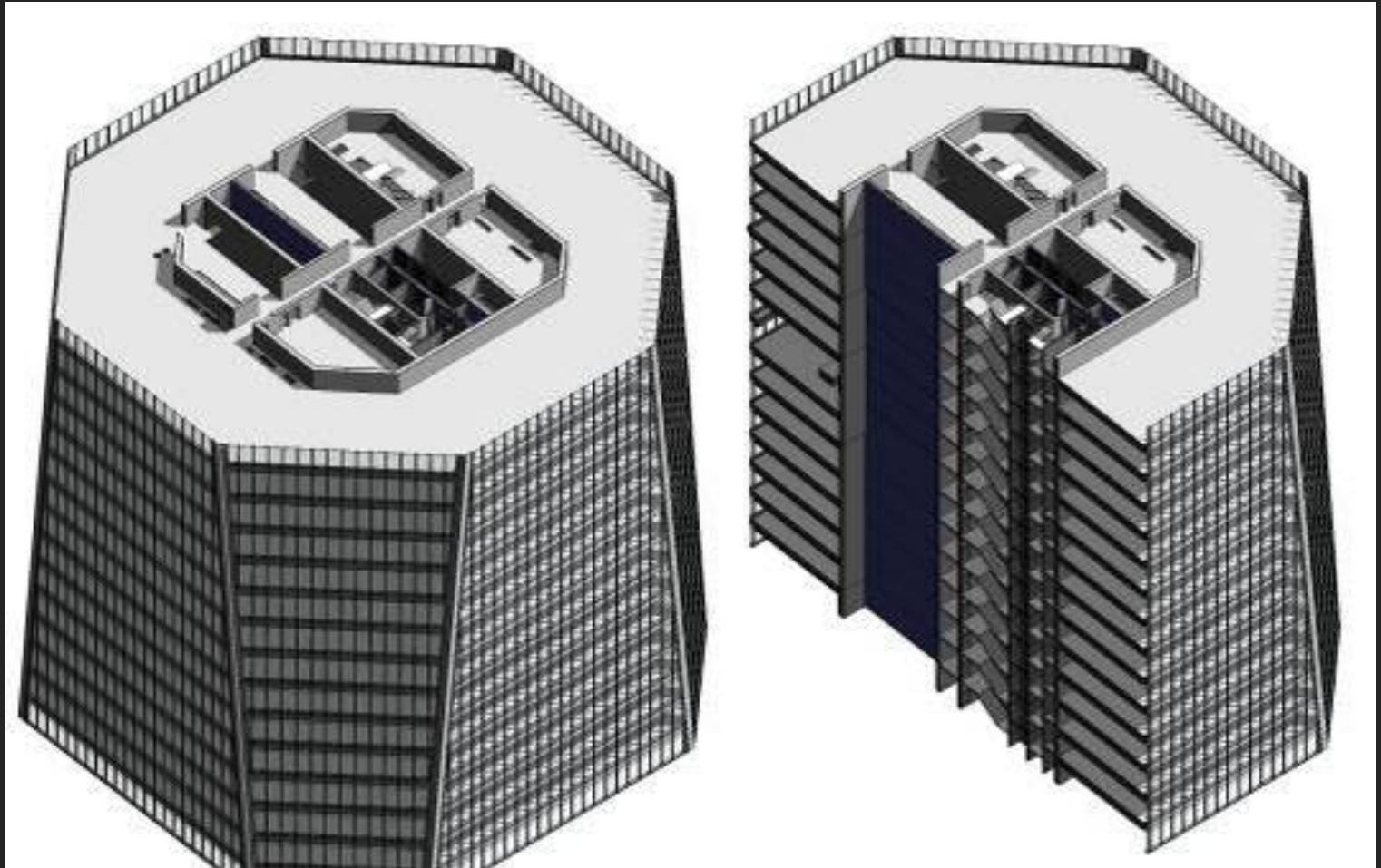
PIONEERING PROCESS CHANGE: **USE OF REVIT TODAY**



Autodesk Revit Building

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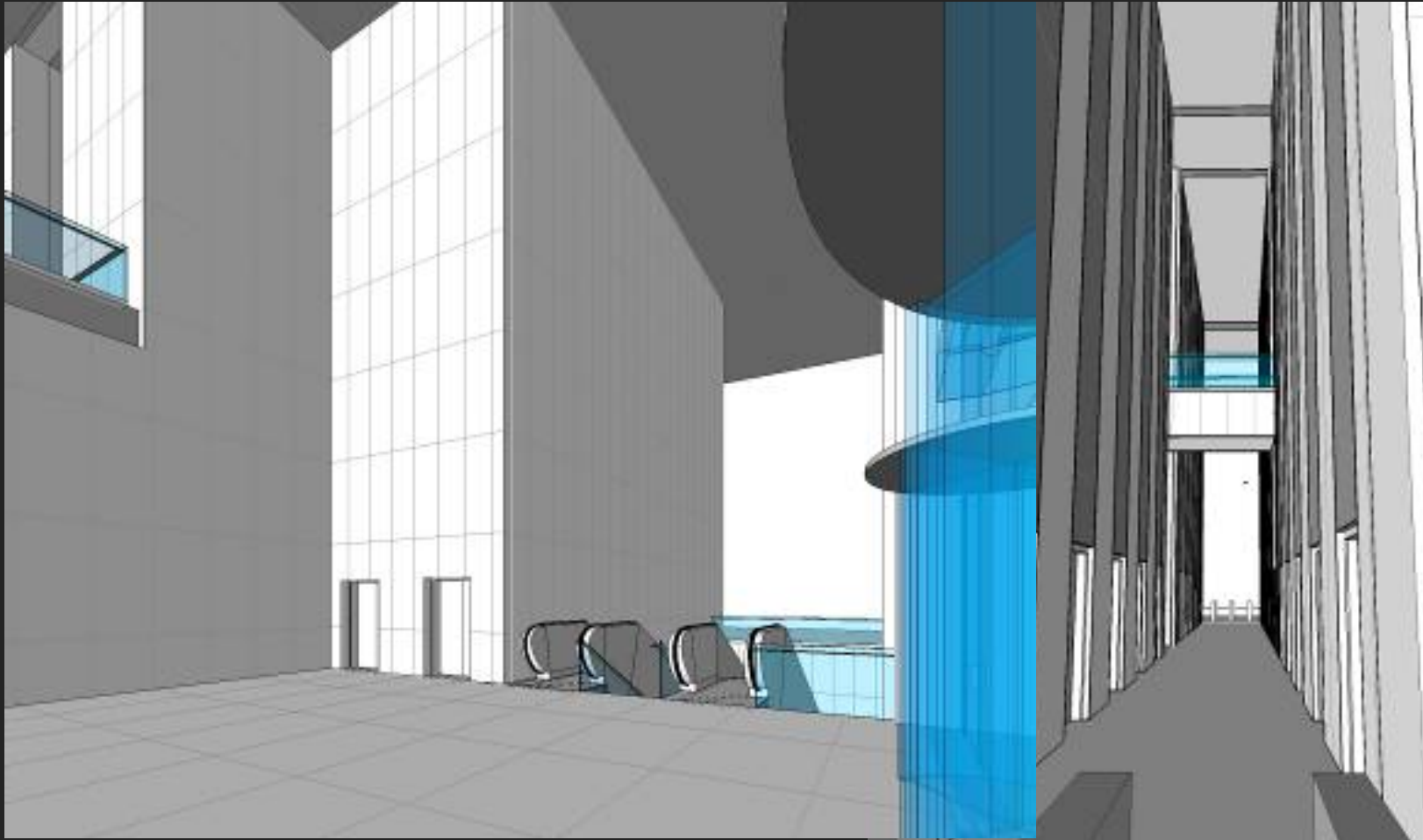
PIONEERING PROCESS CHANGE: **USE OF REVIT TODAY**



Autodesk Revit Building

REALIZING THE FREEDOM TOWER

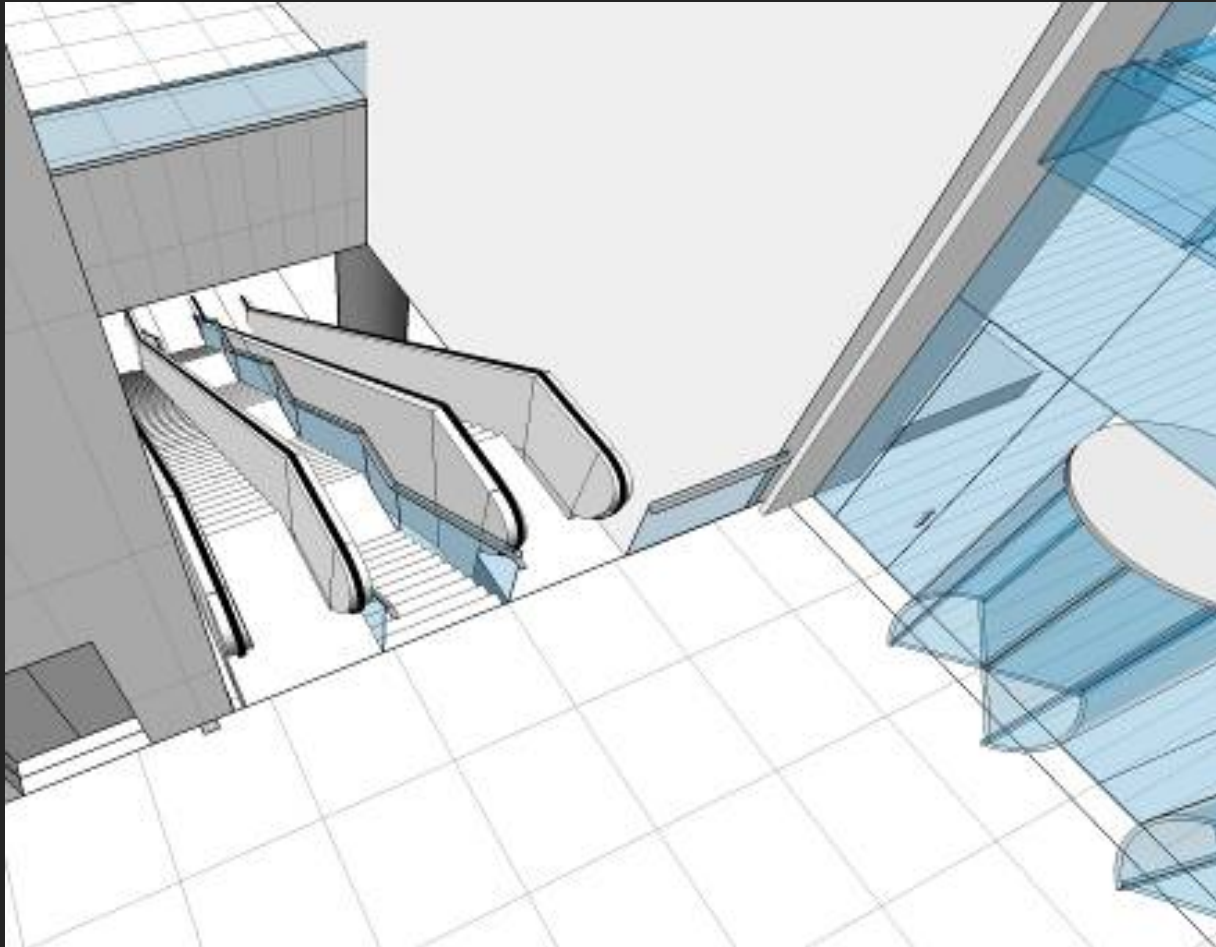
PIONEERING PROCESS CHANGE: **USE OF REVIT TODAY**



Autodesk Revit Building

REALIZING THE FREEDOM TOWER

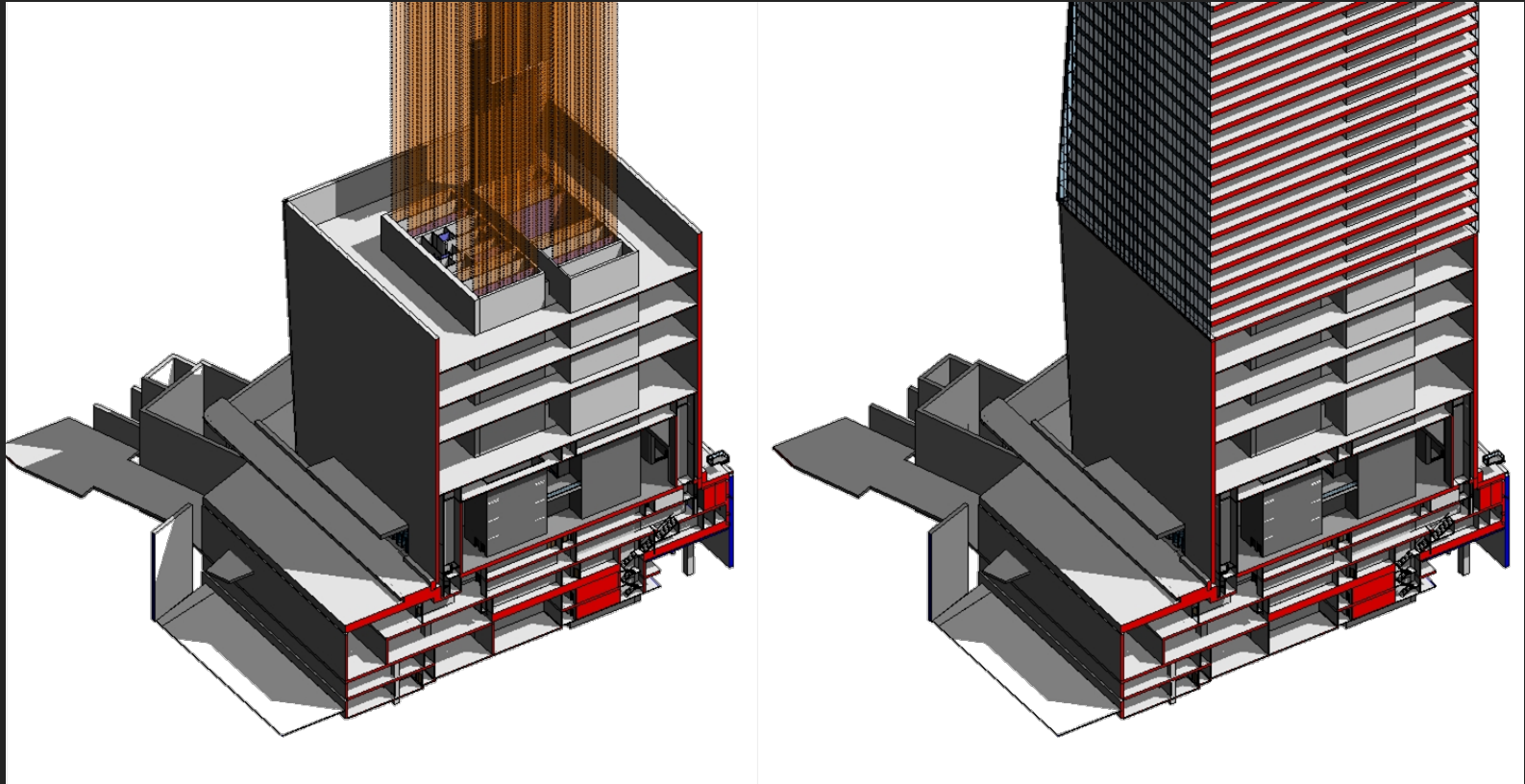
PIONEERING PROCESS CHANGE: **USE OF REVIT TODAY**



Autodesk Revit Building

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PIONEERING PROCESS CHANGE: **USE OF REVIT TODAY**



Autodesk Revit Building



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PIONEERING PROCESS CHANGE: **OPEN INFORMATION PROJECT TEAM**

Architect

SOM

Revit Building

Lead Building Information Modeling and project co-ordination

MEP Engineers

JAROS BAUM & BOLLES (JBB)

Revit Systems

Structural Engineers

WSP CANTOR SEINUK

Revit Structure / AutoCAD

Construction Manager

TISHMAN CONSTRUCTION

Material Quantification from BIM

Digital Design Tools and Services

AUTODESK

Internal Partner / Consultant



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PIONEERING PROCESS CHANGE: OPEN INFORMATION PROJECT TEAM



JAROS BAUM & BOLLES (JBB) Autodesk Revit Systems



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PIONEERING PROCESS CHANGE: OPEN INFORMATION PROJECT TEAM



WSP CANTOR SEINUK Autodesk Revit Structure

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PIONEERING PROCESS CHANGE : AUTODESK CONSULTING ROLE



Integrated member of project team

Assists team in planning
technology needs for future phases

Provides comprehensive training for
entire team

Speeds content development

Offers creative technology solutions to
project challenges



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PIONEERING PROCESS CHANGE : COLLABORATIVE PROJECT MANAGEMENT

SOM:
Architect,
Project Manager

TISHMAN:
General Contractor

Subcontractors

AUTODESK:
Digital Design Tools
and Services

Subconsultants

Port Authority of New
York and New Jersey:
Client

JBB:
MEP engineers

CANTOR SEINUK:
Structural engineers

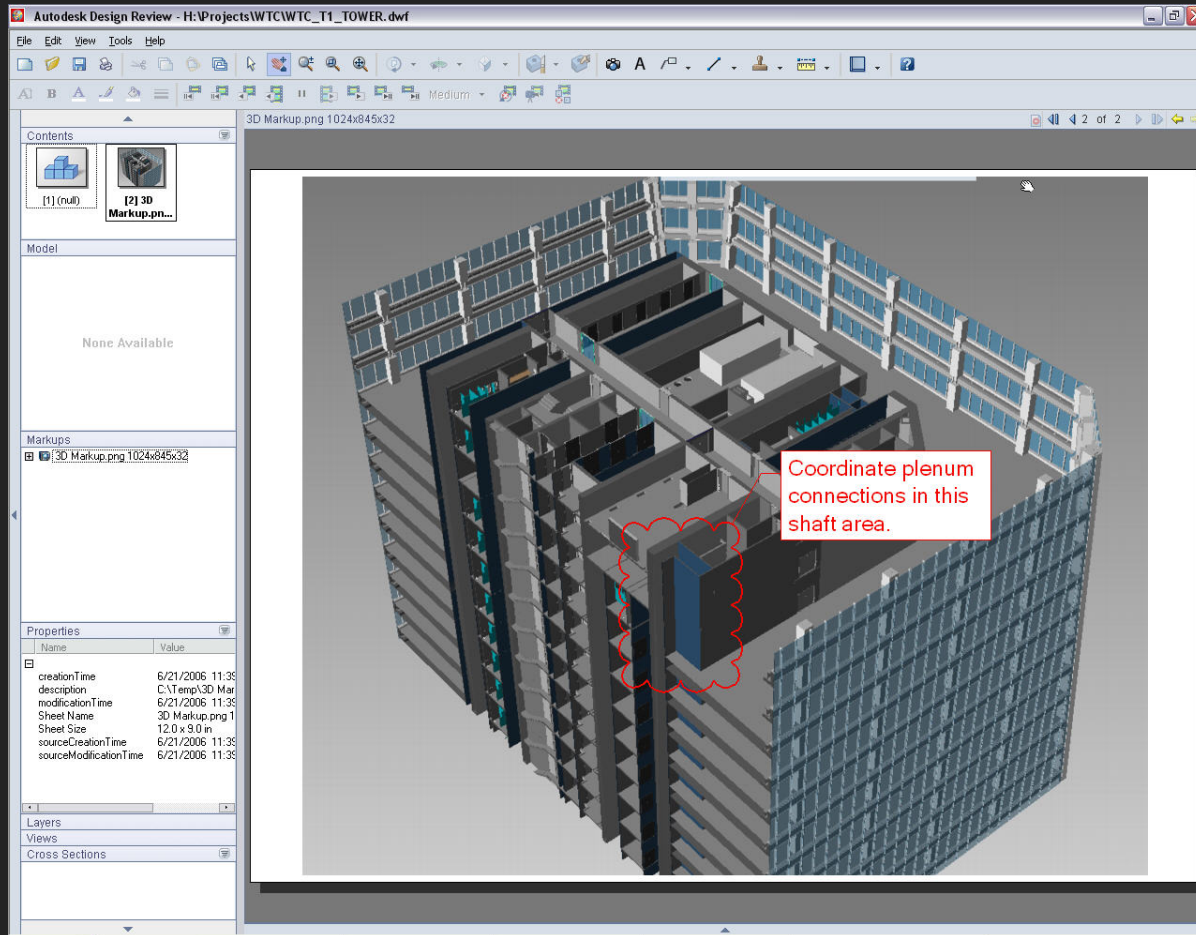


- Centralize all project documents and coordinate changes
- Control over construction / project communications
- Visibility into project status



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PIONEERING PROCESS CHANGE : COLLABORATIVE PROJECT MANAGEMENT



Autodesk Design Review

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PIONEERING PROCESS CHANGE: OTHER SOM PROJECTS USING REVIT



Hughes Center, Las Vegas

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PIONEERING PROCESS CHANGE: **OTHER SOM PROJECTS USING REVIT**



Cross Harbour, London

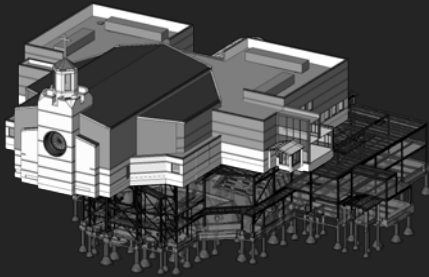


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PIONEERING PROCESS CHANGE: THE BENEFITS

Architectural
Model

Visualization
Model



Engineering
Model

Coordination
Model

Visualization

Facilitate design studies

Increase options available to client

Identify and avoid interferences

Reduce time on interdisciplinary coordination

Integration of geometry with analysis & simulation

Facilitate Quality Assurance Process

Increase Quality of Trade

Focus on our craft

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