



• August 15-18, 2010 • Dallas, Texas •
• Dallas Convention Center •



Sustainability + BIM + Integration

Experience

Sustainability

- 20 Million Sq. Ft. of sustainable buildings, 3 Million Sq. Ft. LEED Certified.
- 40% of all disciplines are LEED AP.

BIM

- 17 Million Sq. Ft. in BIM, 3 Billion dollars in construction.
- Over 100 Projects and 4 Million Sq. Ft. designed in Revit.

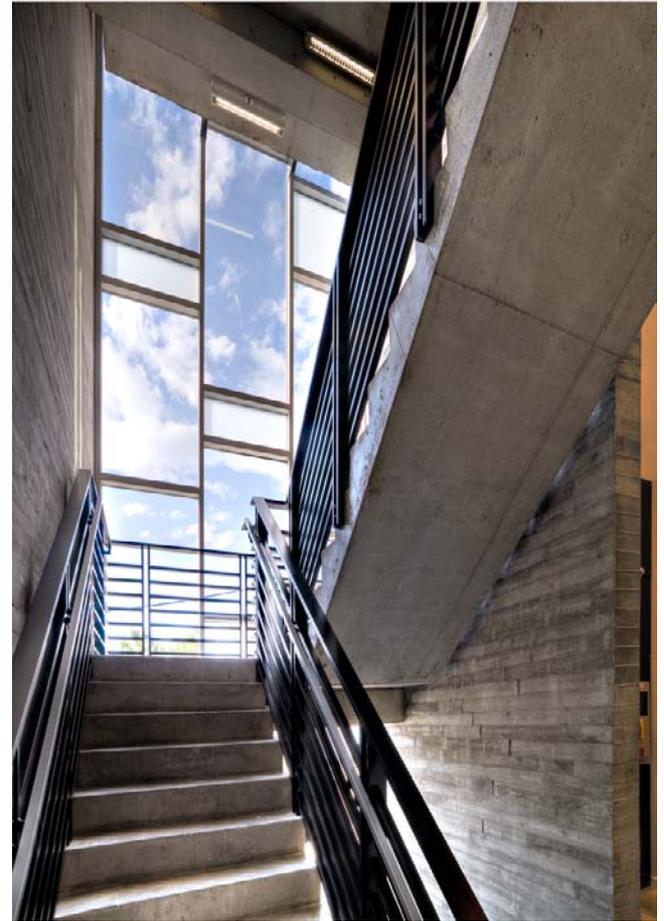
Integration

- Started Beck Technology in 1996 to create integrated software solutions.
- Integrated Design and Construction 1999.



Sustainability

- What makes a building eco-responsive?
- Eco-effective?
- How do you measure it?



Who is involved?

Developer

End User

Subcontractors

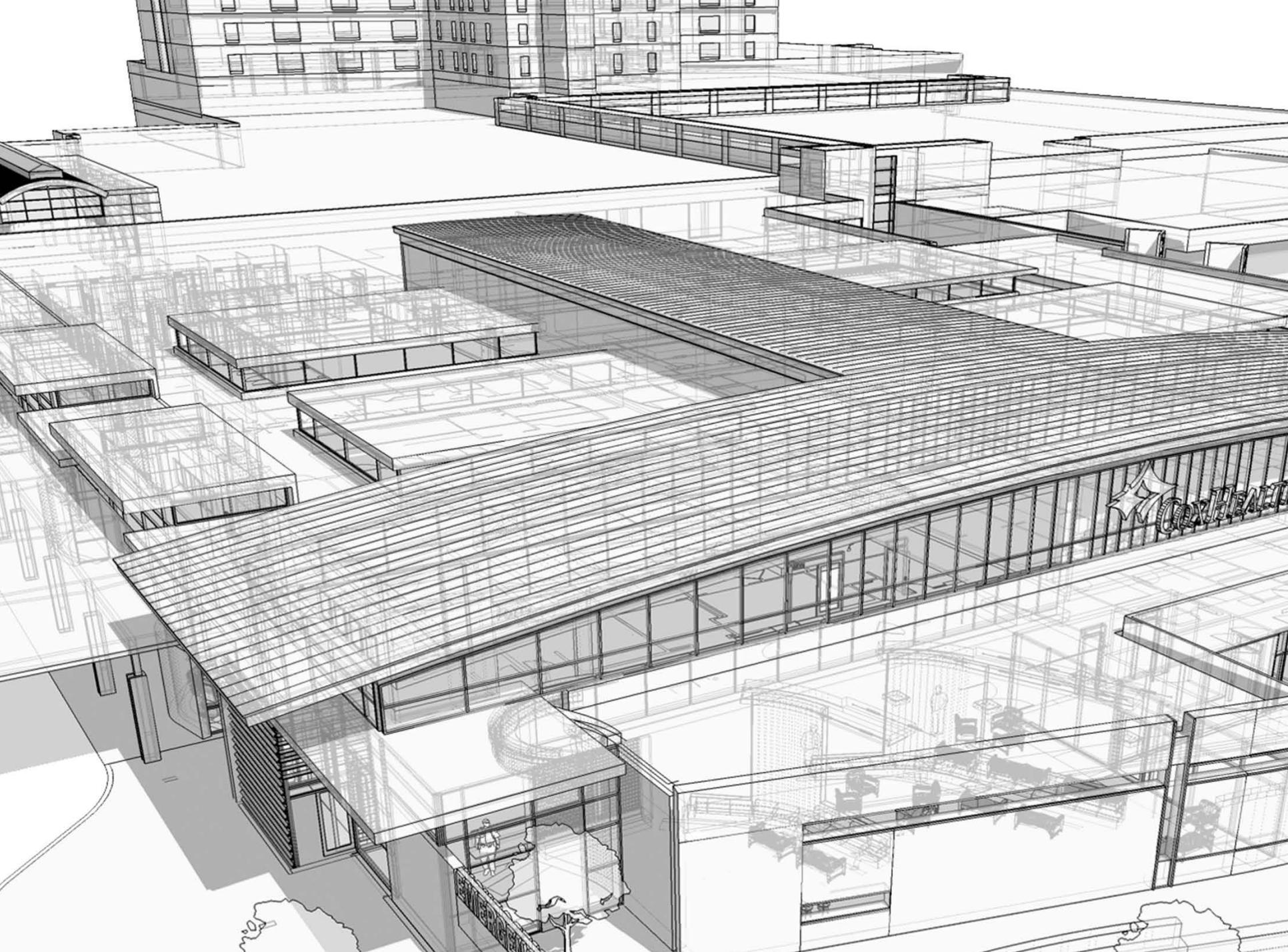
Consultants

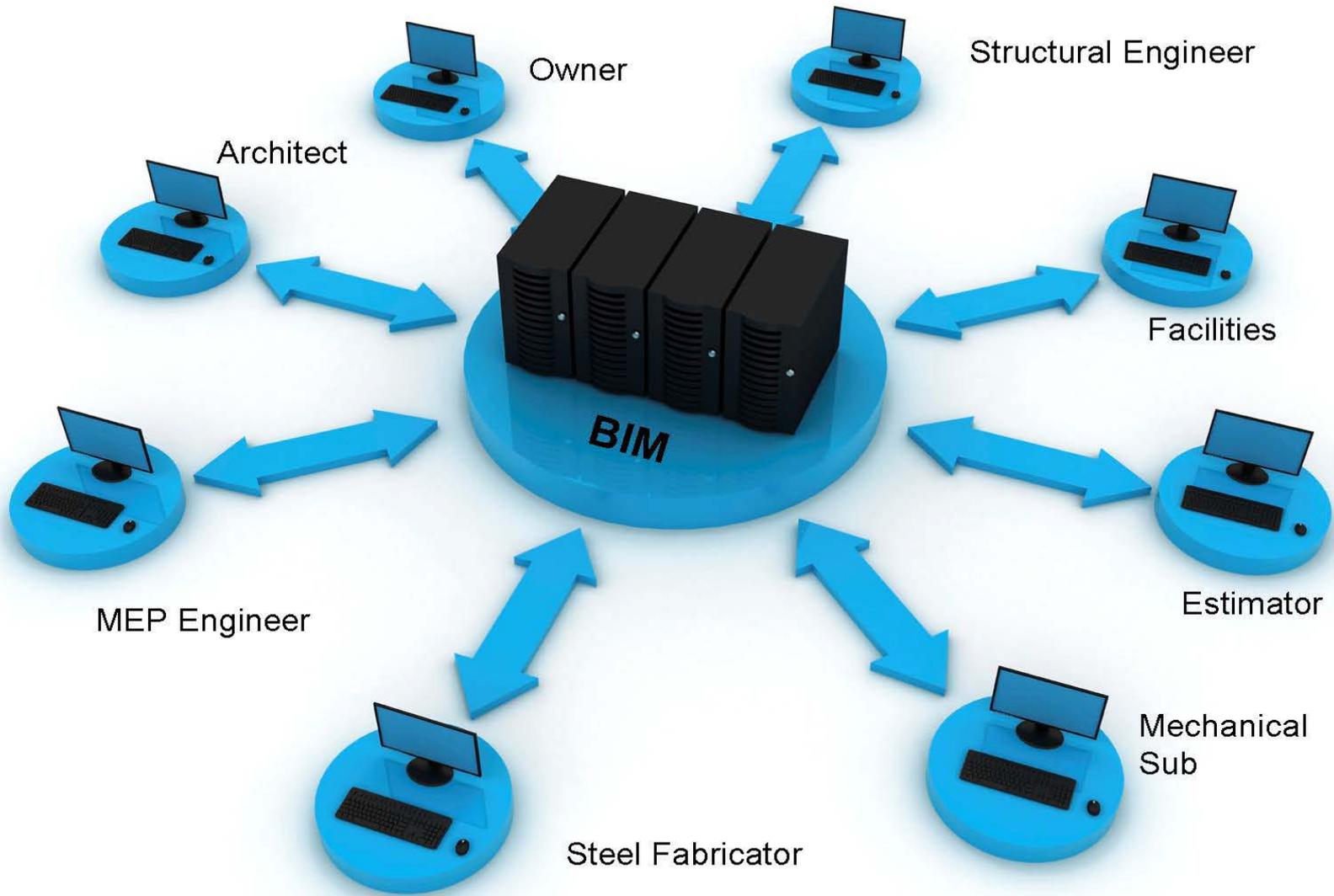
Owner

Architect

Contractor

Facilities Mngr.





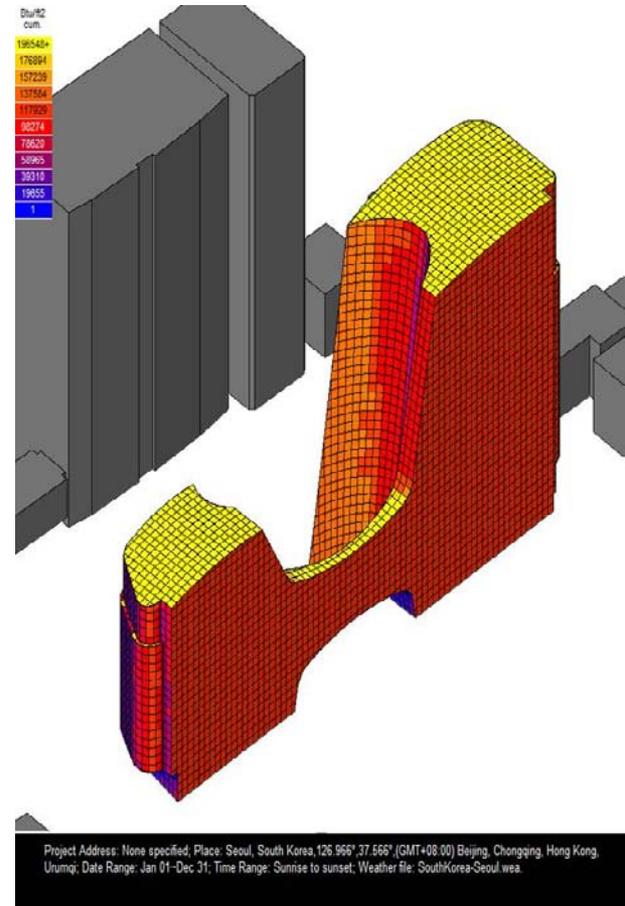
DProfiler

- **Macro BIM tool**
- **Real time estimating**
- **Rapid Prototyping**
- **Scope definition**
- **Energy Analysis**



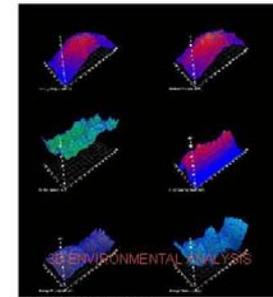
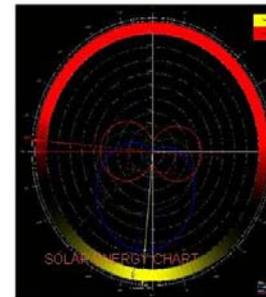
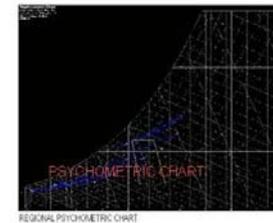
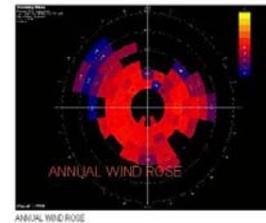
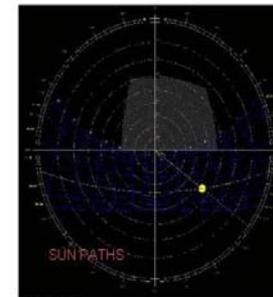
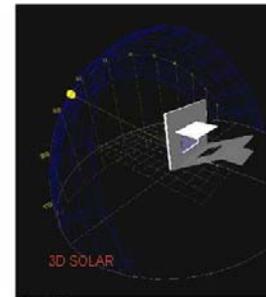
Revit

- Micro BIM tool
- Model authoring
- Create documentation
- Energy Analysis

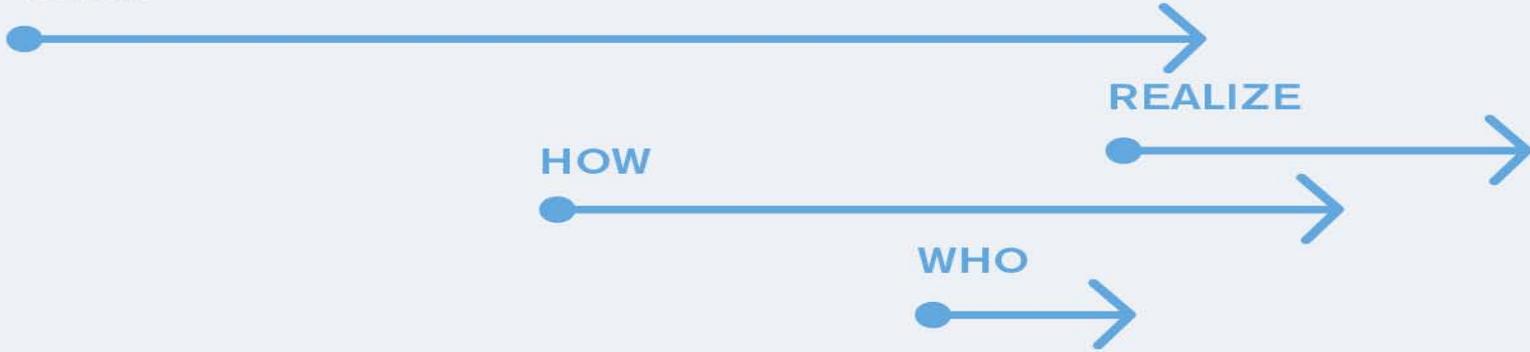


Ecotect Analysis

- Whole building energy analysis
- Thermal performance
- Water usage
- Solar radiation
- Daylighting



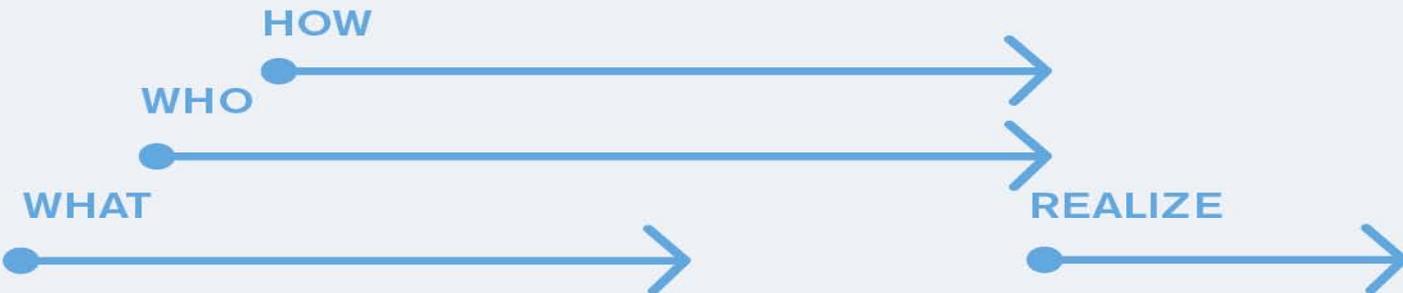
WHAT



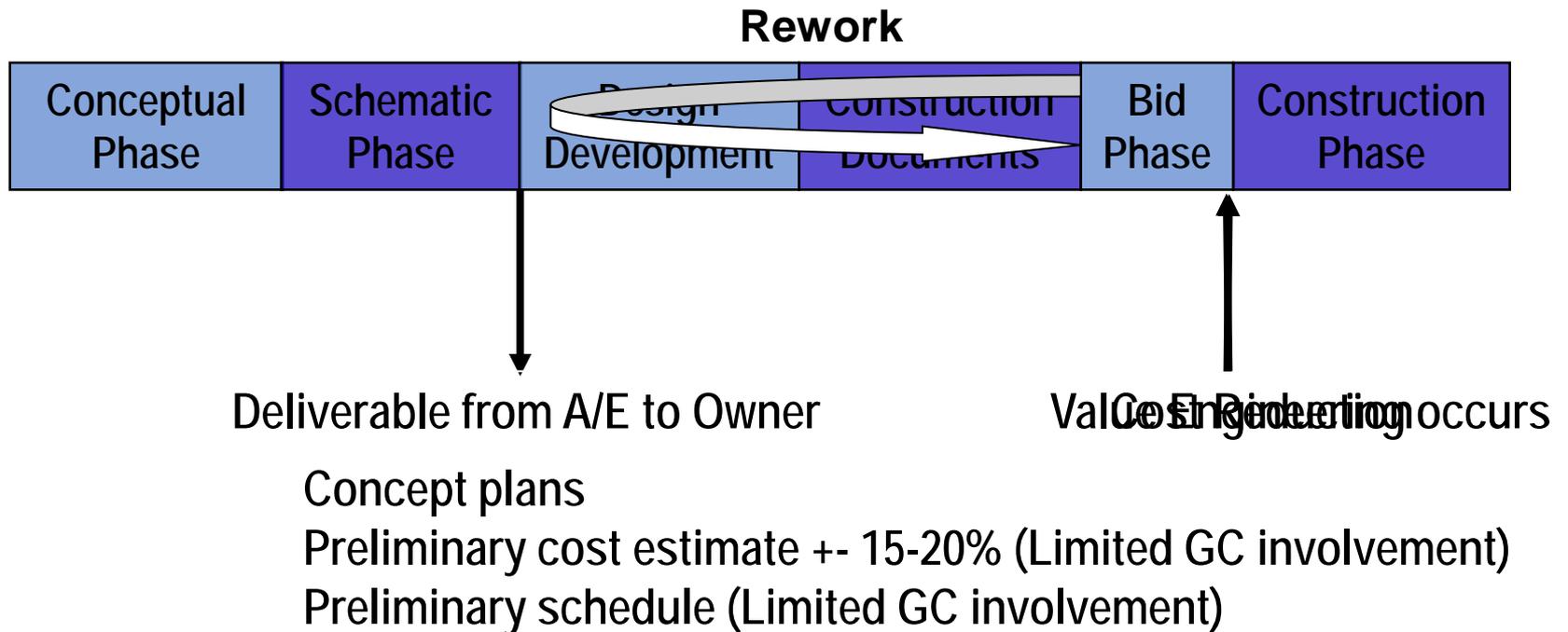
TRADITIONAL



INTEGRATED



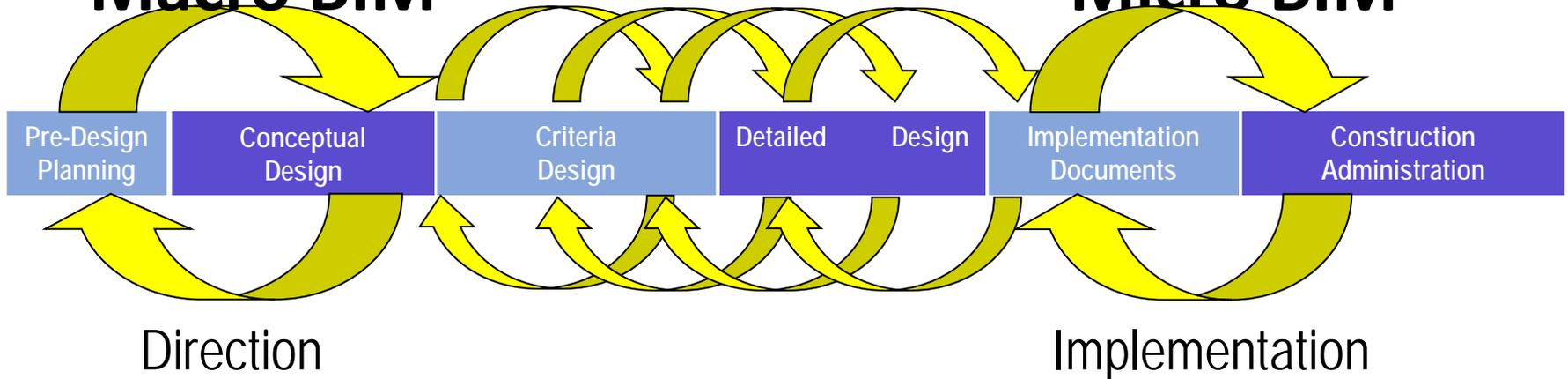
Traditional Delivery Models



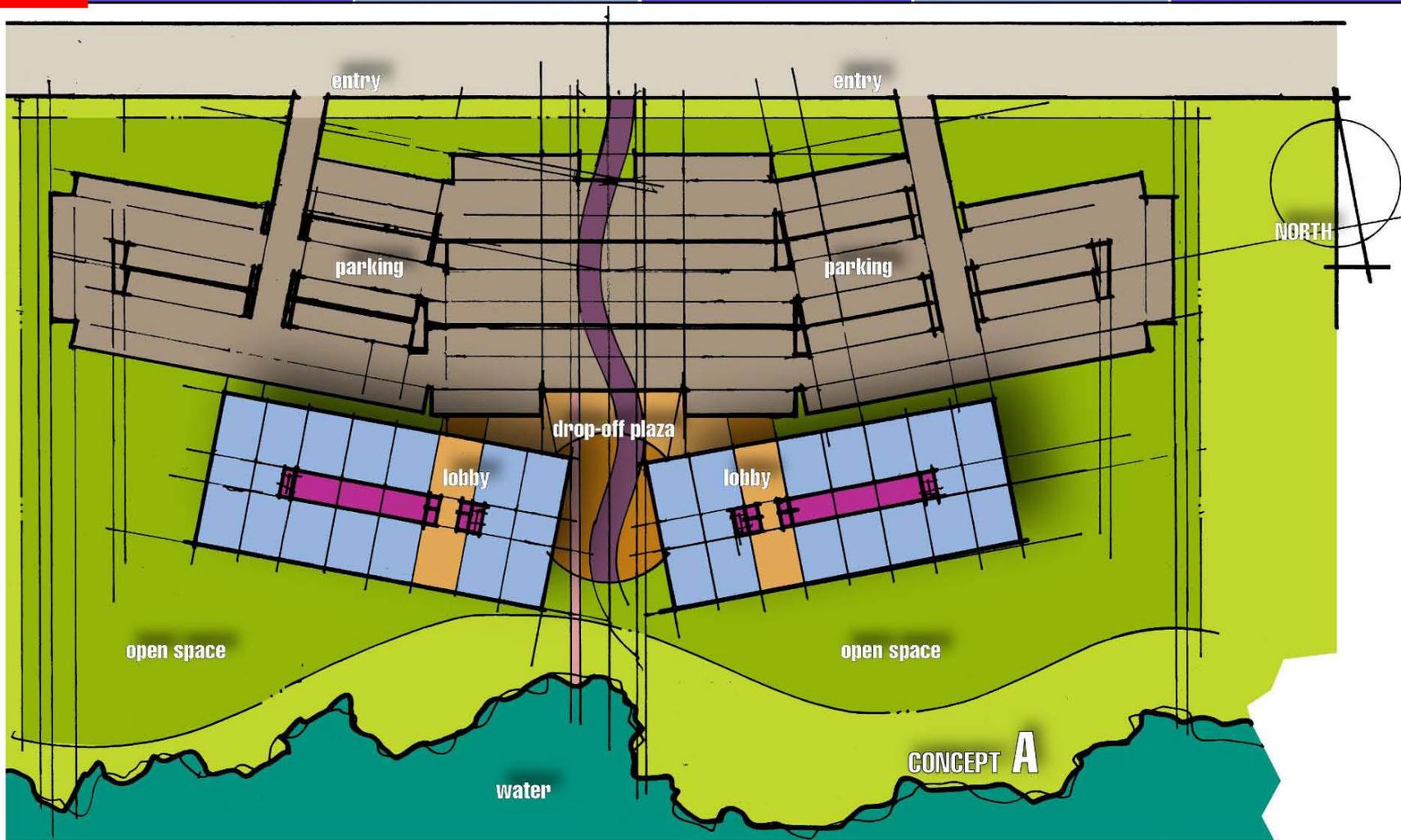
Integrated Approach

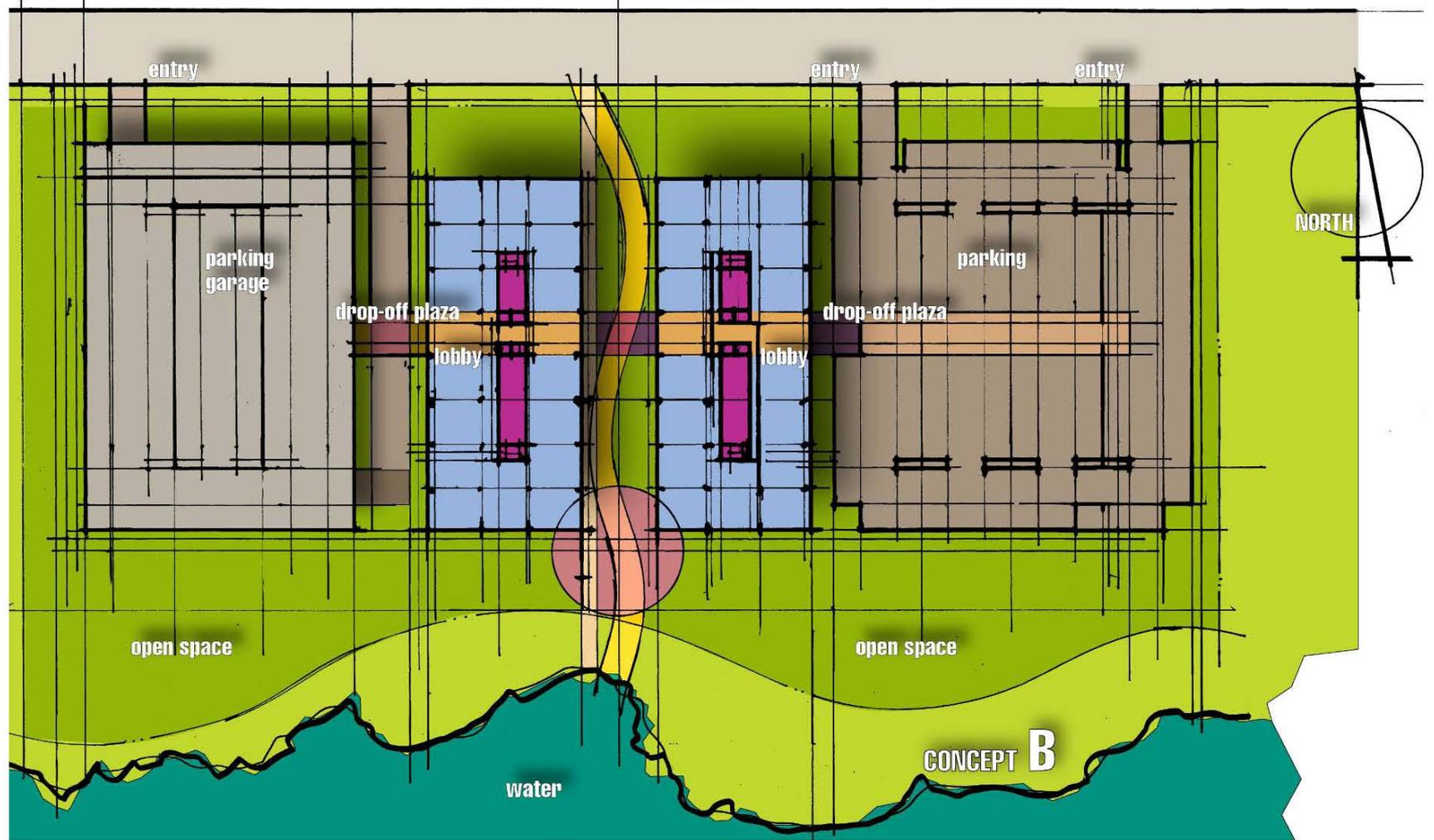
- **Macro BIM**

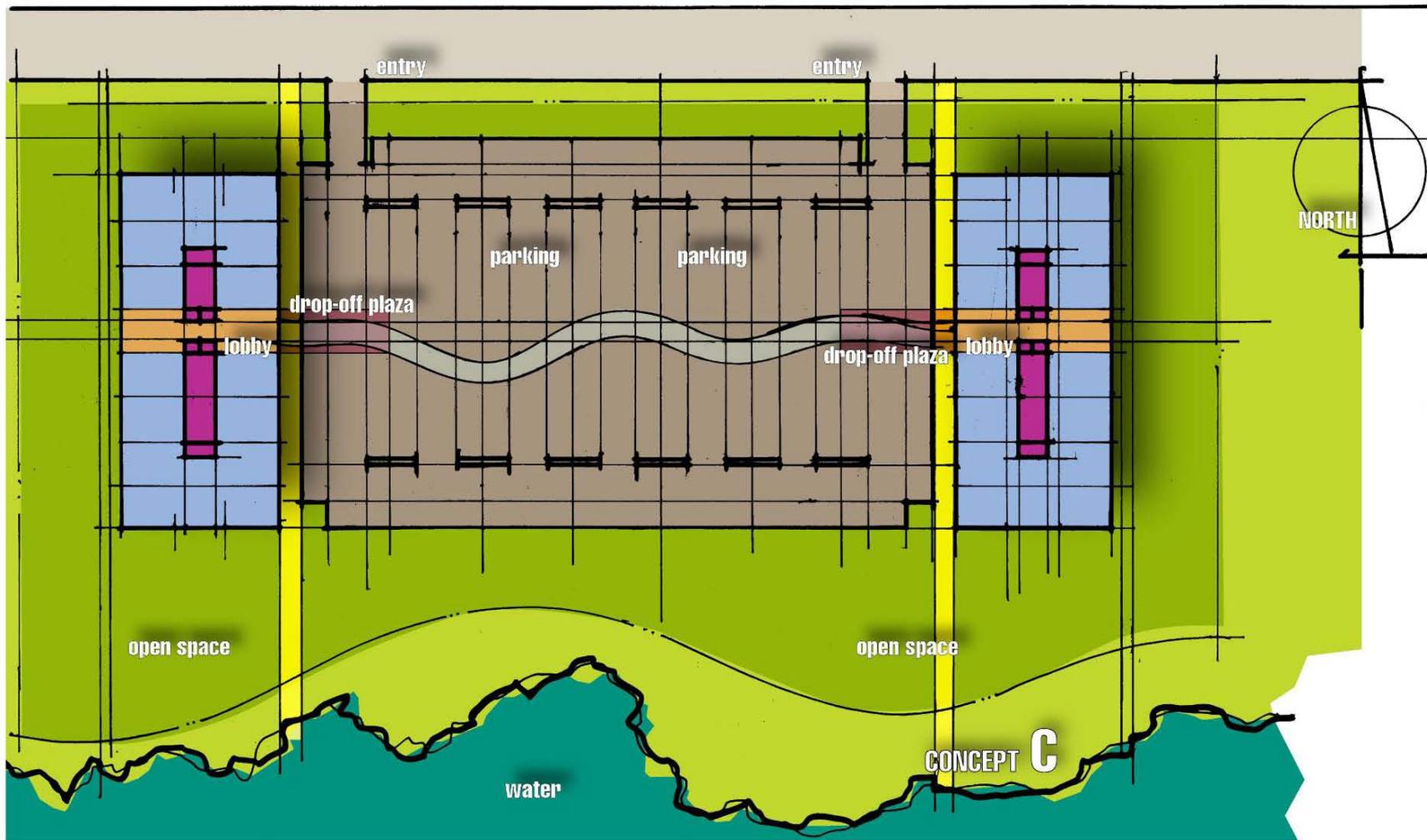
- **Micro BIM**

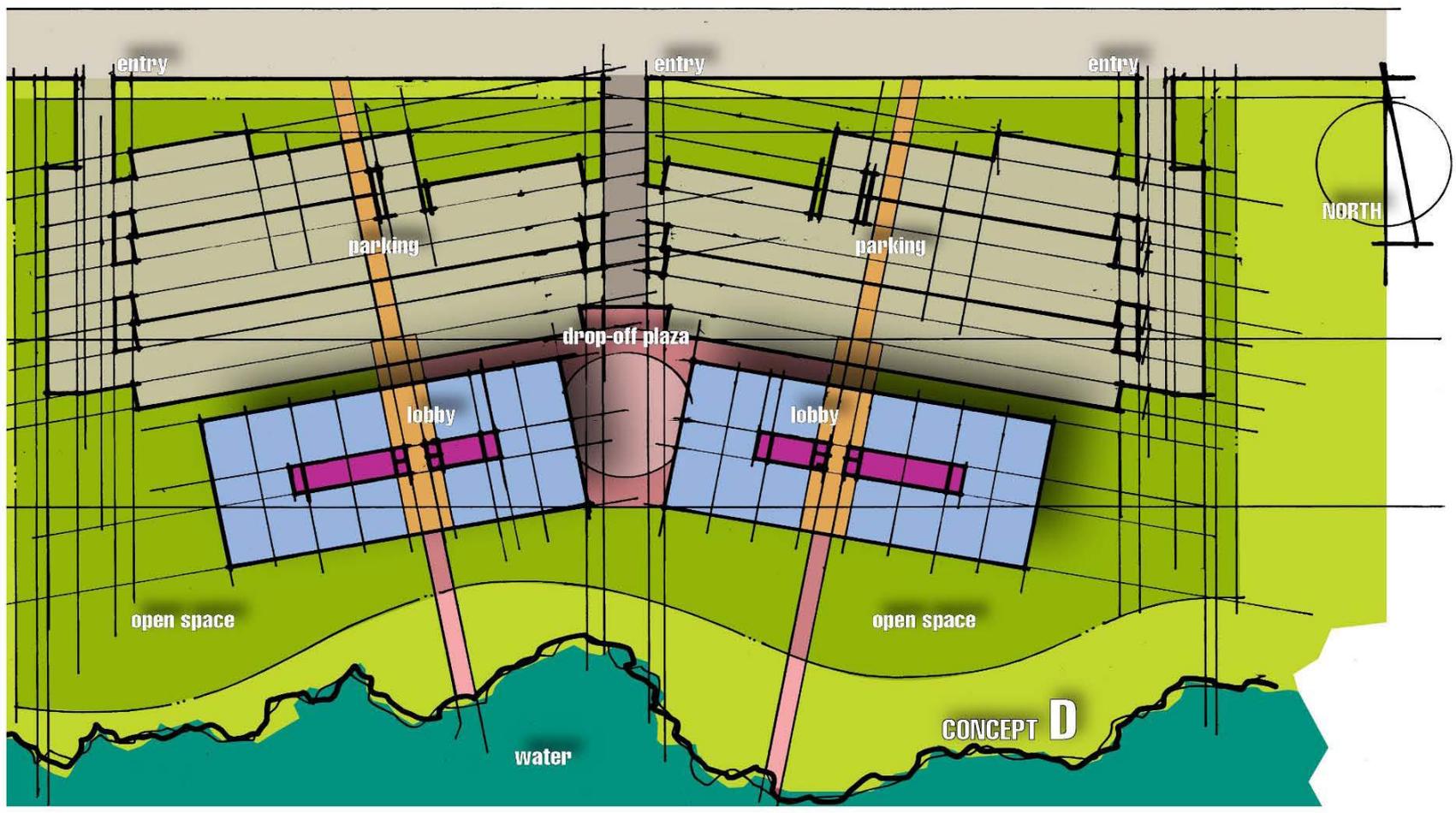












Building the Master Plan

DPProfiler

File Edit Costing View Windows Tools Analysis Help

Start Page

BECK

Dynamic Help

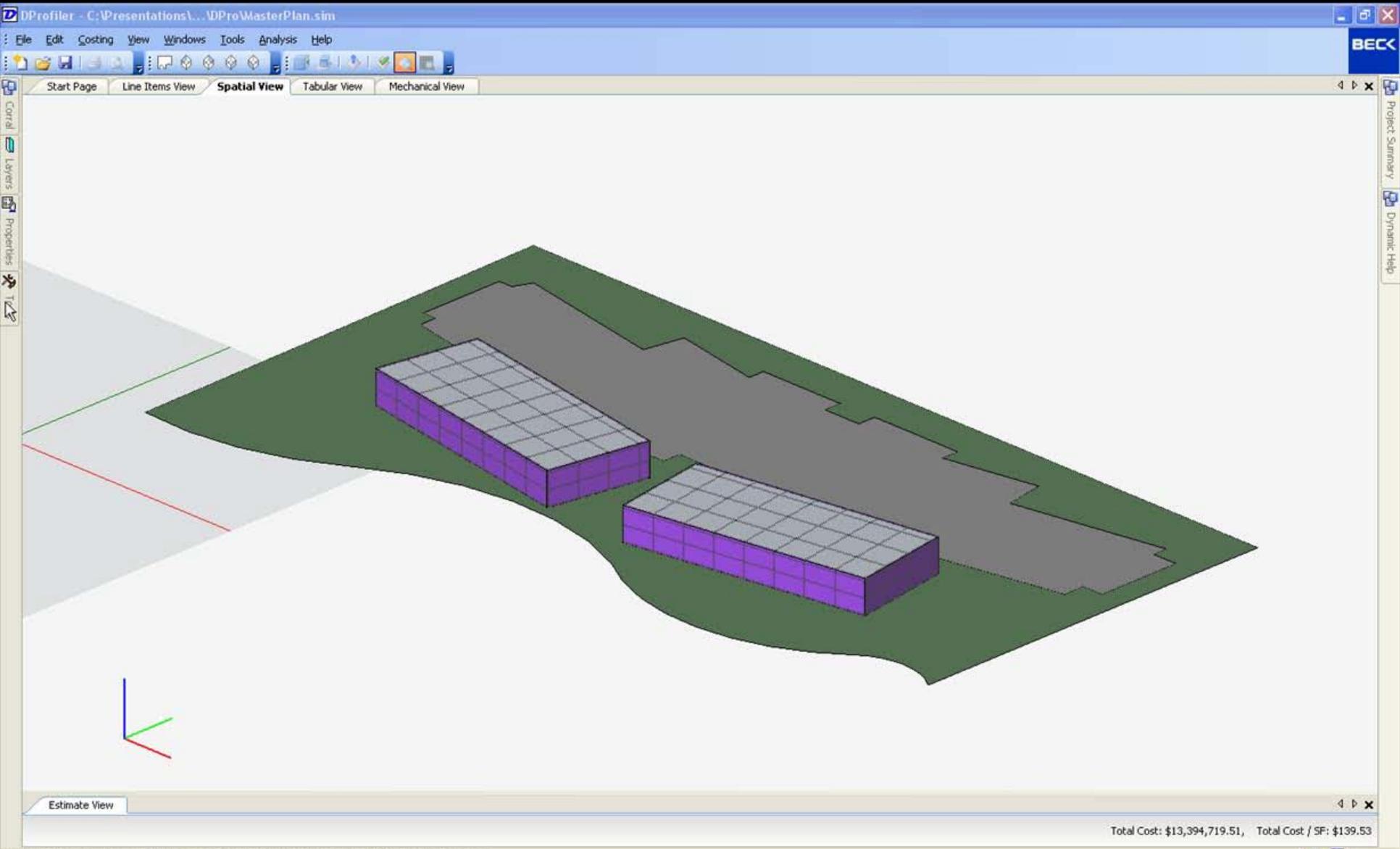
Open a recent Model

Name	Modified
C:\Presentations\...\DPro\MasterPlan.sim	09/21/2009
T:\Abbott\Demo d.sim	09/18/2009
C:\Presentations\OBO\exampersp.sim	09/03/2009
C:\...\OBO\Bandar\SSmC-Site-Adapt-Bandar.sim	09/05/2008
C:\...\30MinuteDemo\Mixed Use Example.sim	08/18/2008

Open New Open Existing

Ready

Analyzing the Master Plan

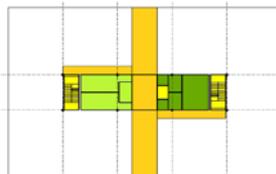


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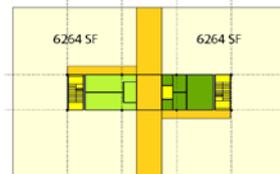
SCHEME A

First Floor -
Leasable Space - 12,528 SF
Efficiency Ratio - 77.5%

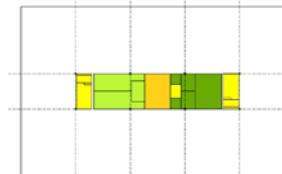
Second Floor -
Leasable Space - 13,615 SF
Efficiency Ratio - 84.3%



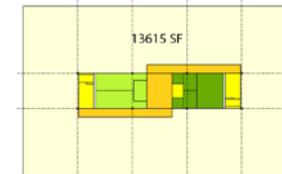
FIRST FLOOR LAYOUT



FIRST FLOOR TENANT DIVISION



SECOND FLOOR LAYOUT

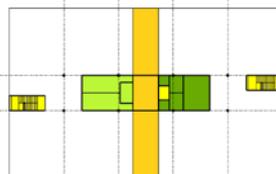


SECOND FLOOR TENANT DIVISION

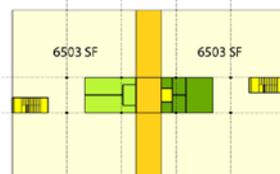
SCHEME B

First Floor -
Leasable Space - 13,006 SF
Efficiency Ratio - 80.4%

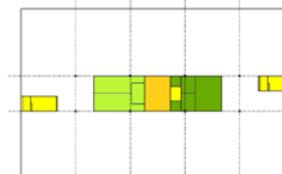
Second Floor -
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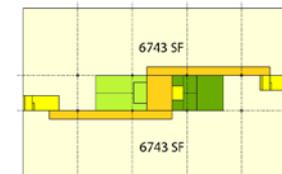
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FIRST FLOOR TENANT DIVISION



SECOND FLOOR LAYOUT

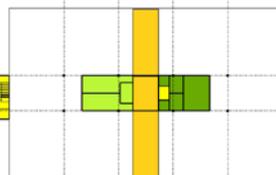


SECOND FLOOR TENANT DIVISION

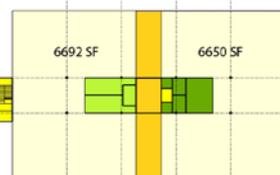
SCHEME C

First Floor -
Leasable Space - 13,342 SF
Efficiency Ratio - 80.2%

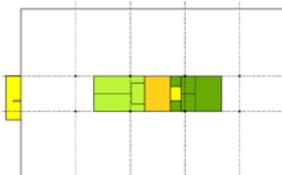
Second Floor -
Leasable Space - 13,710 SF
Efficiency Ratio - 82.5%



FIRST FLOOR LAYOUT



FIRST FLOOR TENANT DIVISION



SECOND FLOOR LAYOUT

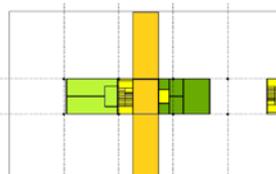


SECOND FLOOR TENANT DIVISION

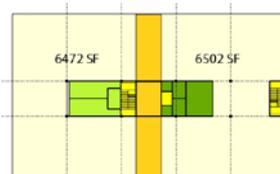
SCHEME D

First Floor -
Leasable Space - 12,974 SF
Efficiency Ratio - 80.3%

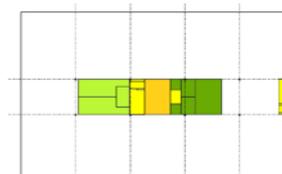
Second Floor -
Leasable Space - 13,527 SF
Efficiency Ratio - 83.7%



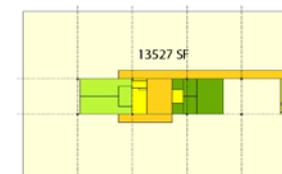
FIRST FLOOR LAYOUT



FIRST FLOOR TENANT DIVISION



SECOND FLOOR LAYOUT

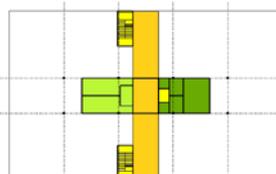


SECOND FLOOR TENANT DIVISION

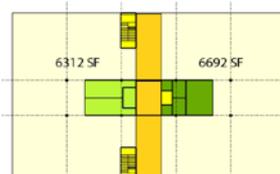
SCHEME E

First Floor -
Leasable Space - 13,004 SF
Efficiency Ratio - 80.5%

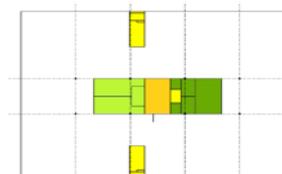
Second Floor -
Leasable Space - 13,806 SF
Efficiency Ratio - 85.4%



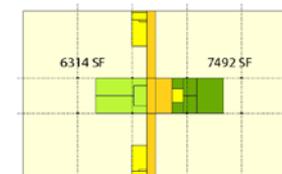
FIRST FLOOR LAYOUT



FIRST FLOOR TENANT DIVISION



SECOND FLOOR LAYOUT



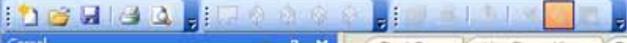
SECOND FLOOR TENANT DIVISION



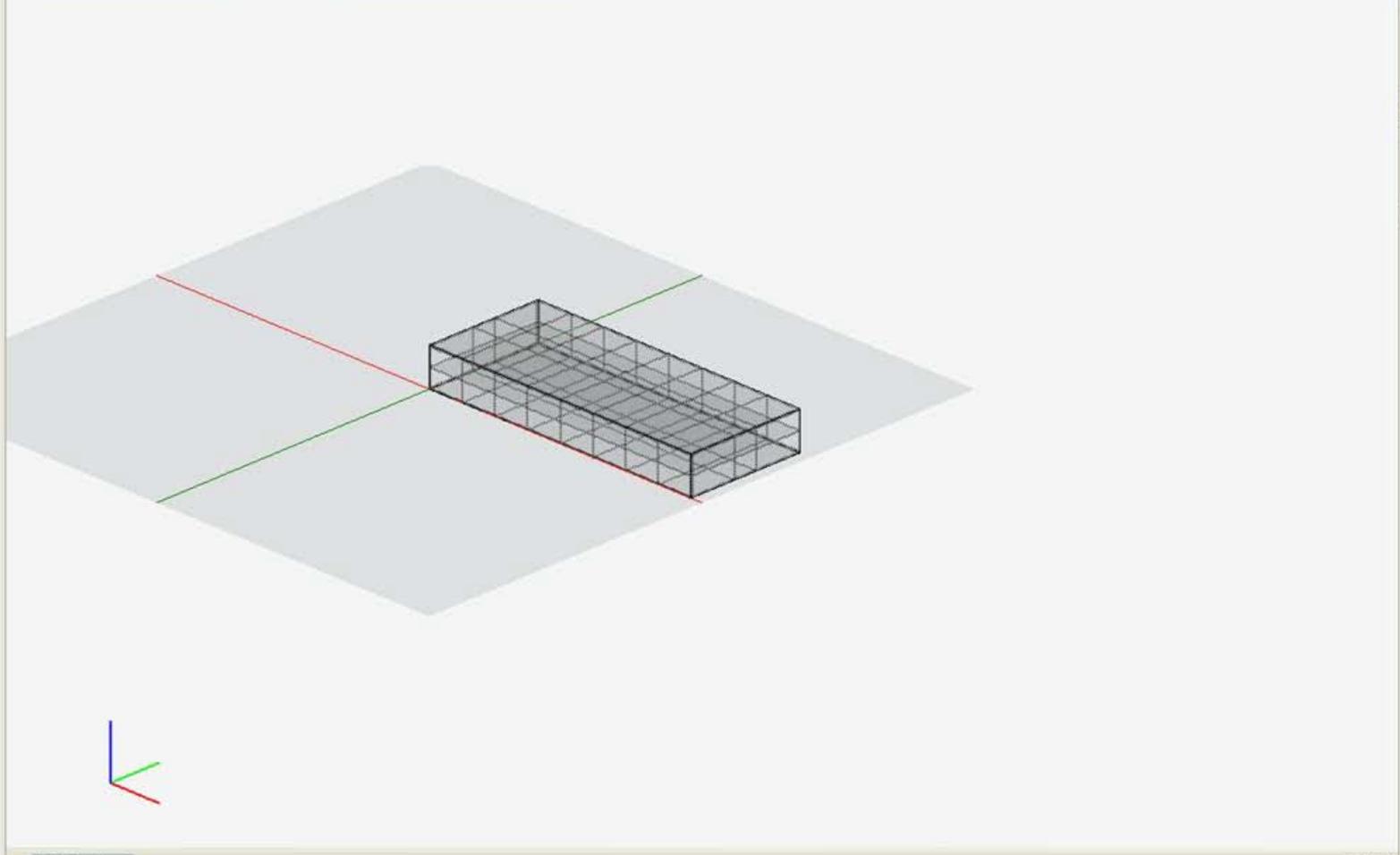
Studying the Tenant Spaces

DProfiler - C:\Presentations\AIA TAP Chicago\Space Plan.sim

File Edit Costing View Windows Tools Analysis Help



Corral Start Page Line Items View Spatial View Tabular View Mechanical View



Estimate View

Corral Layers Properties Tools

Total Cost: \$3,981,233.29, Total Cost / SF: \$82.94

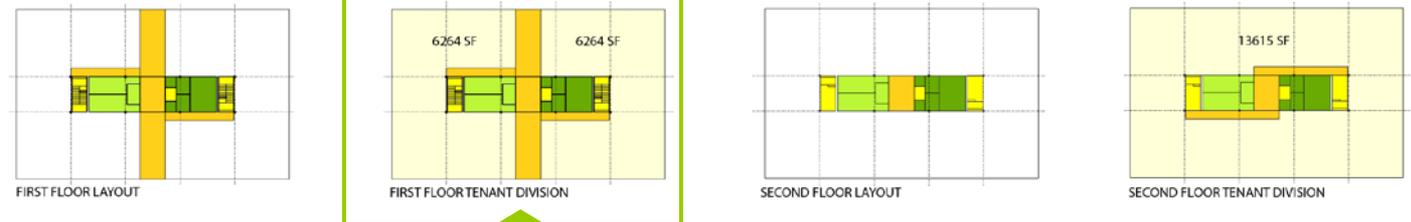
Ready

\$ 0

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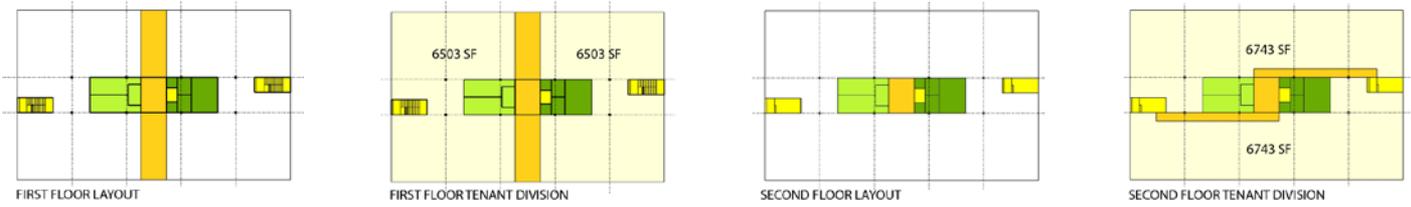
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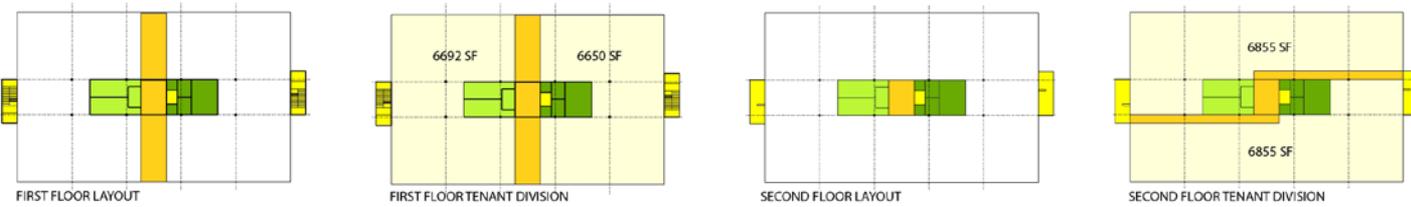
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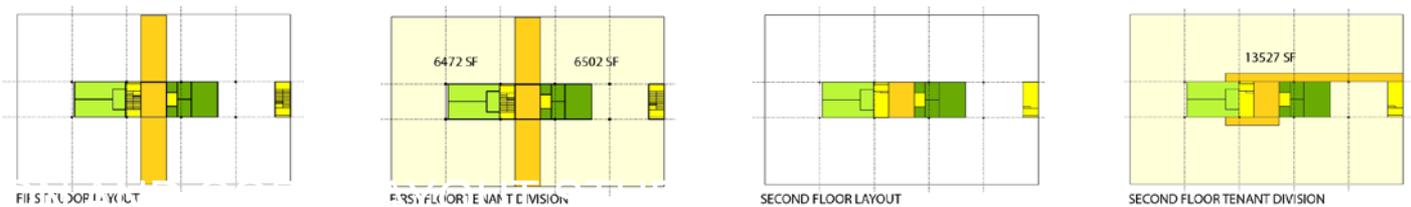
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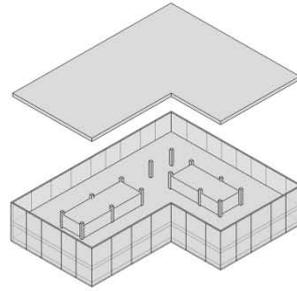
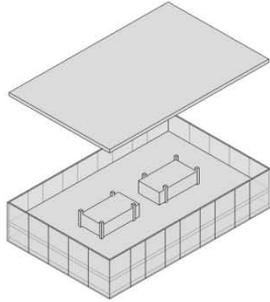
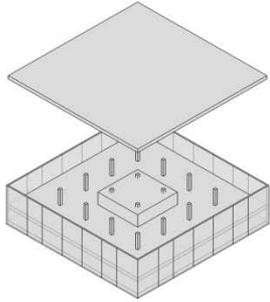
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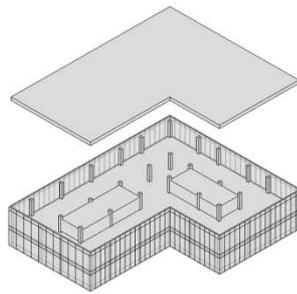
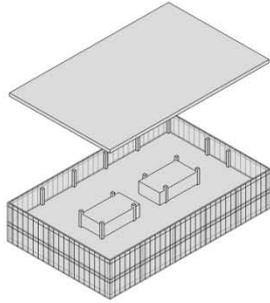
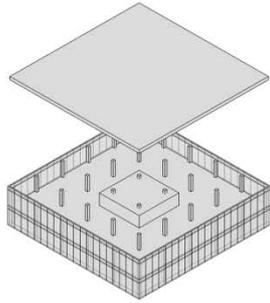
SQUARE PLAN -
97% - Envelope to Floor Area Efficiency
Many columns in tenant space

RECTANGLE PLAN -
92% - Envelope to Floor Area Efficiency
No columns in tenant space

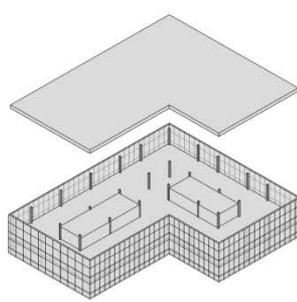
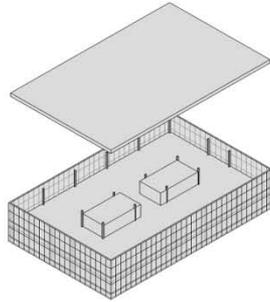
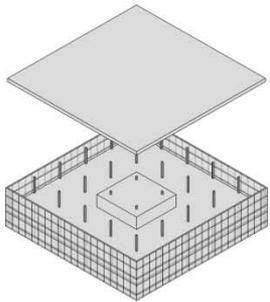
"L" SHAPED PLAN -
85% - Envelope to Floor Area Efficiency
Some columns in tenant space



STEEL STRUCTURE & TILT WALL PANELS



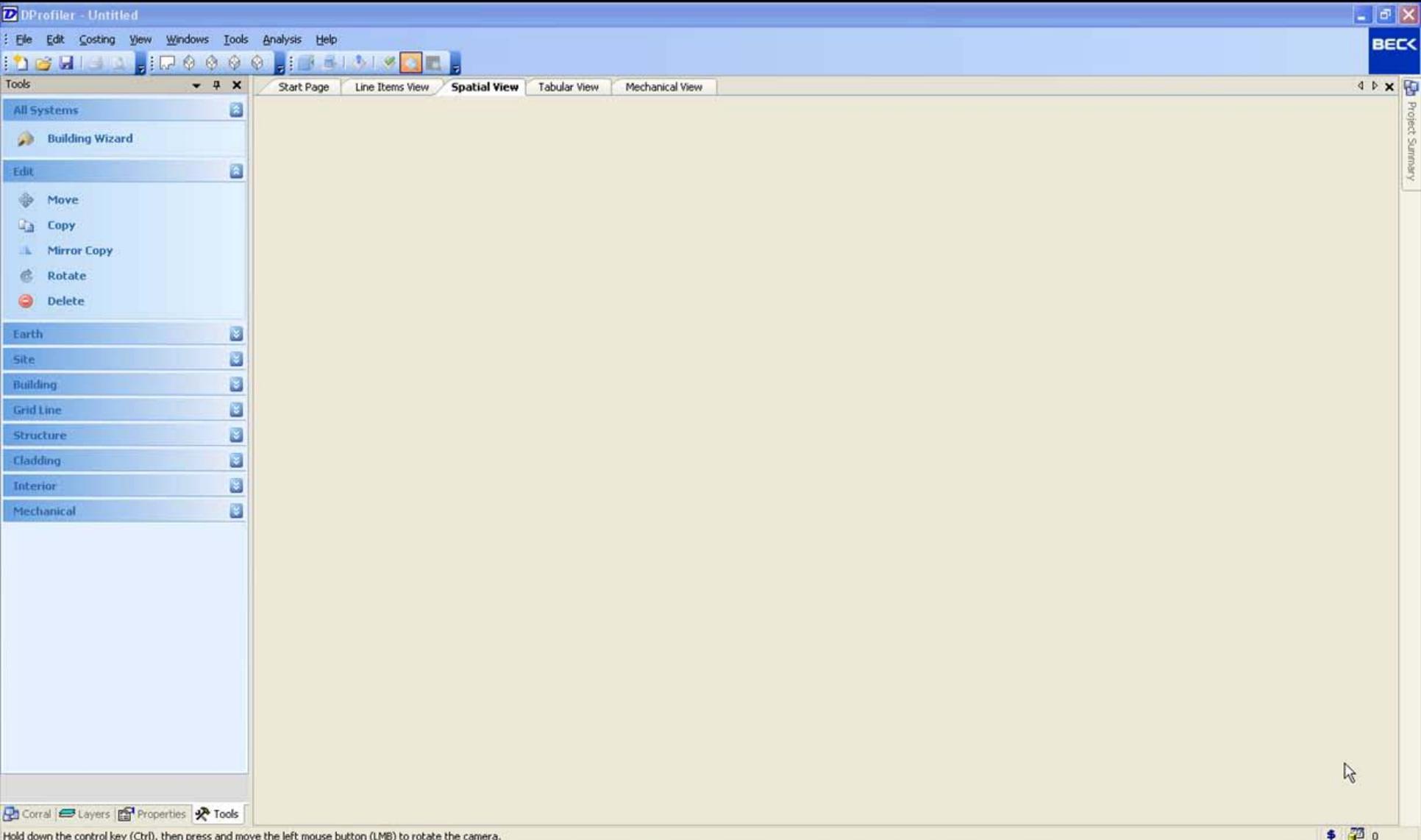
CONCRETE STRUCTURE & PRECAST PANELS



STEEL STRUCTURE & CURTAINWALL

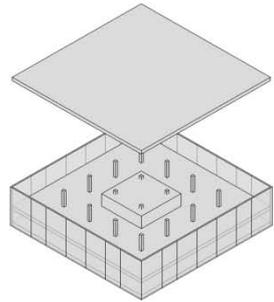
STRUCTURAL SYSTEM AND FAÇADE STUDY

Studying options

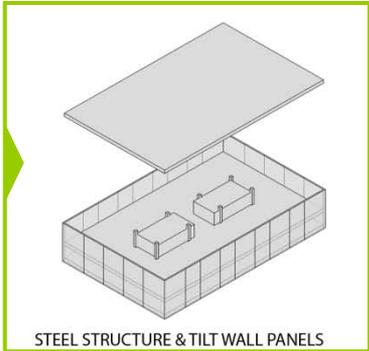


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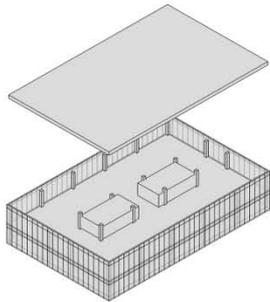
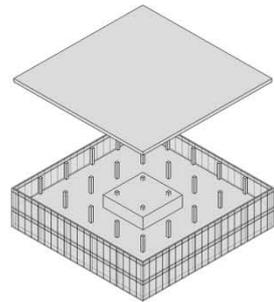
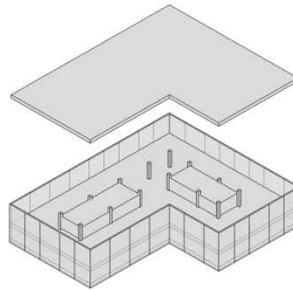
SQUARE PLAN -
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Many columns in tenant space



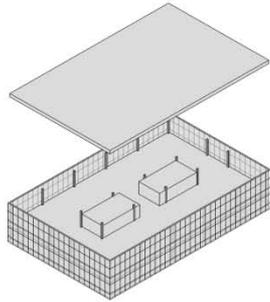
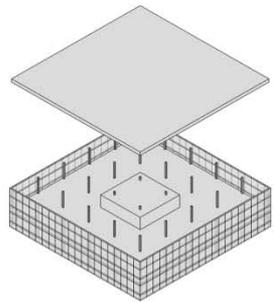
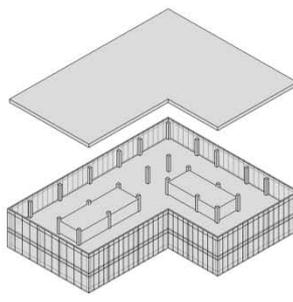
RECTANGLE PLAN -
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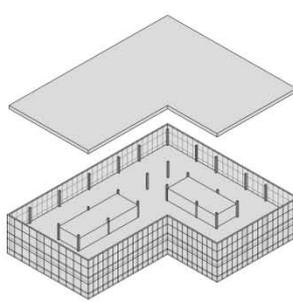
"L" SHAPED PLAN -
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CONCRETE STRUCTURE & PRECAST PANELS

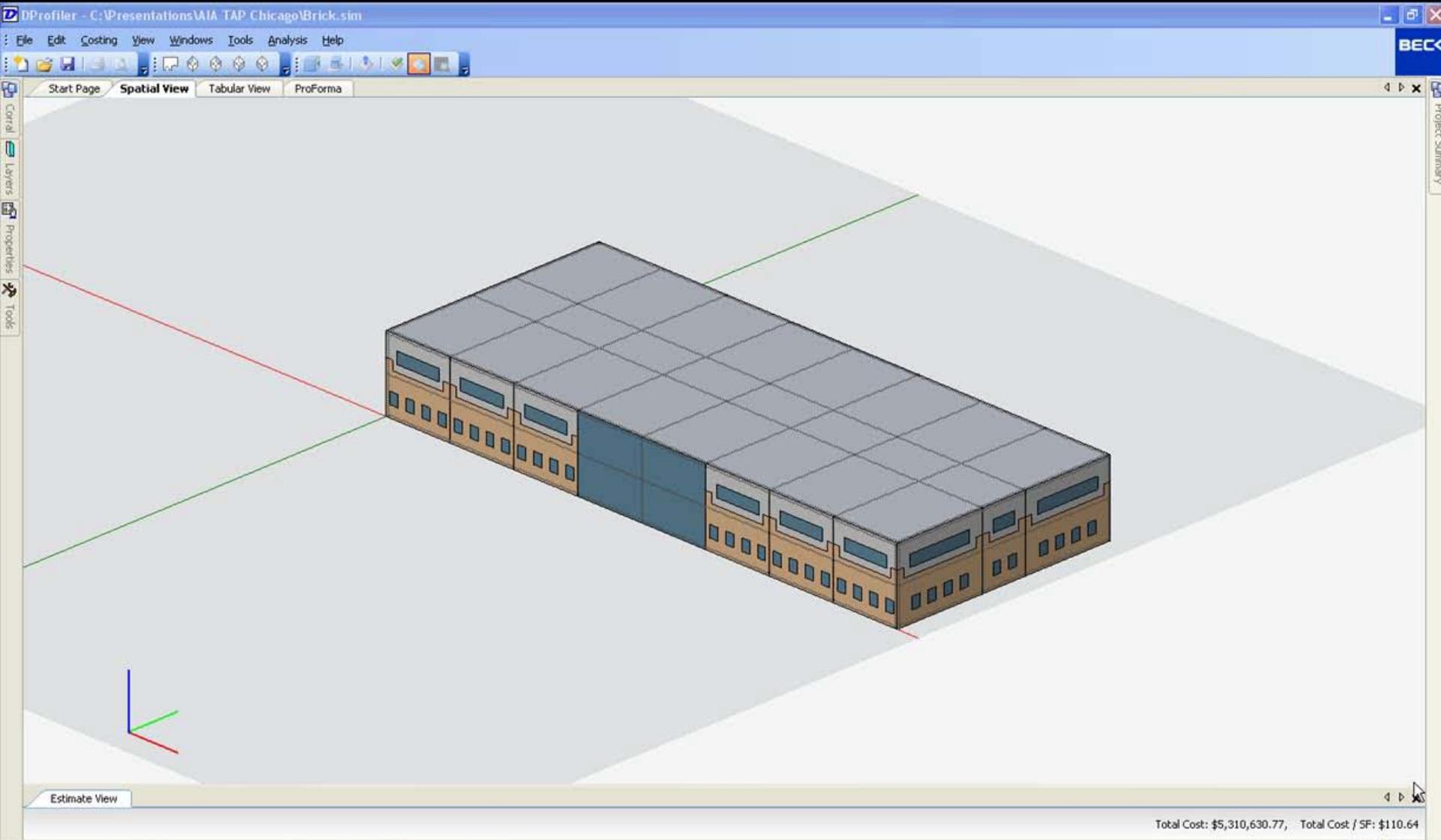


STEEL STRUCTURE & CURTAINWALL



STRUCTURAL SYSTEM AND FAÇADE STUDY

The Proforma



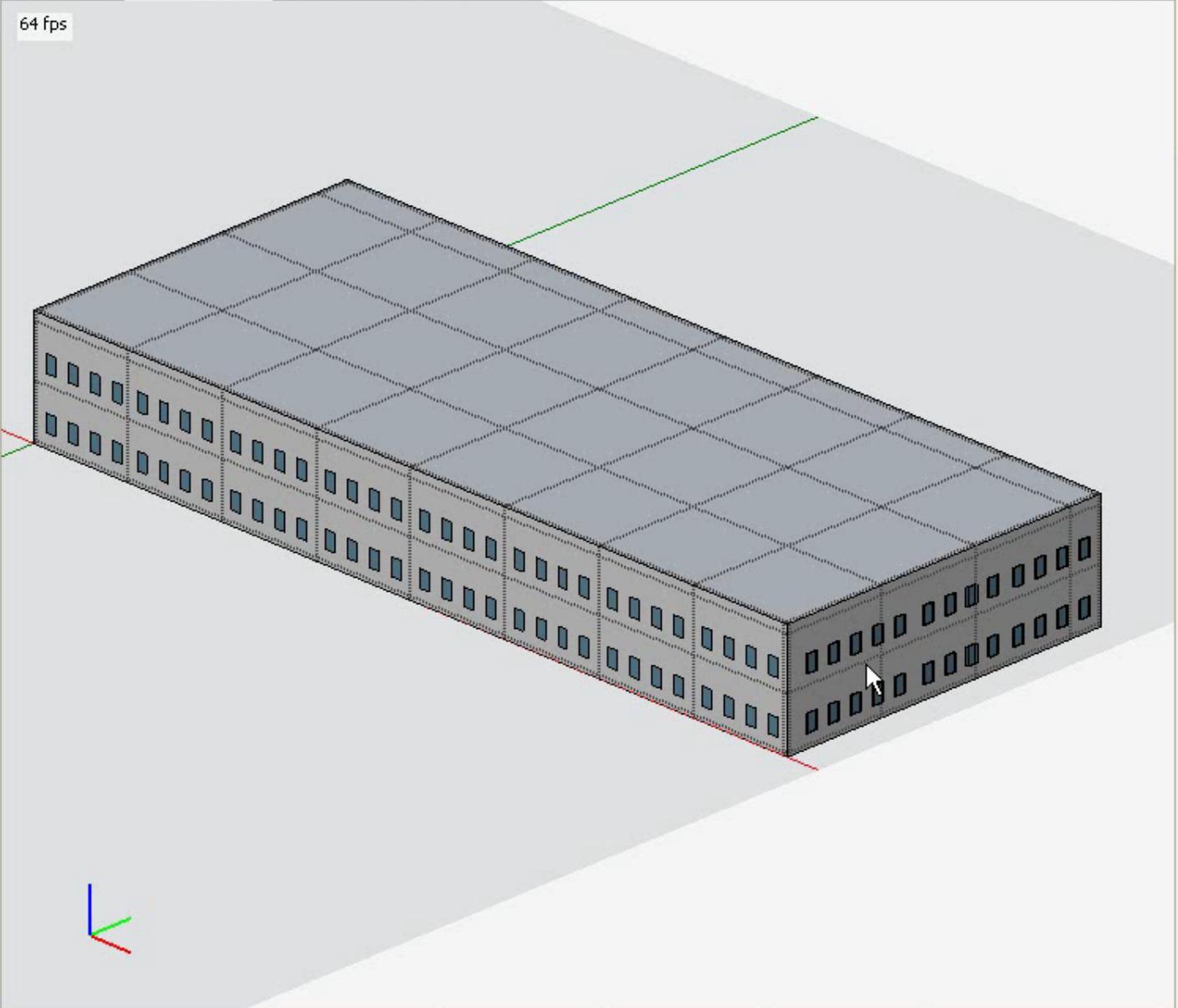
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Moving forward

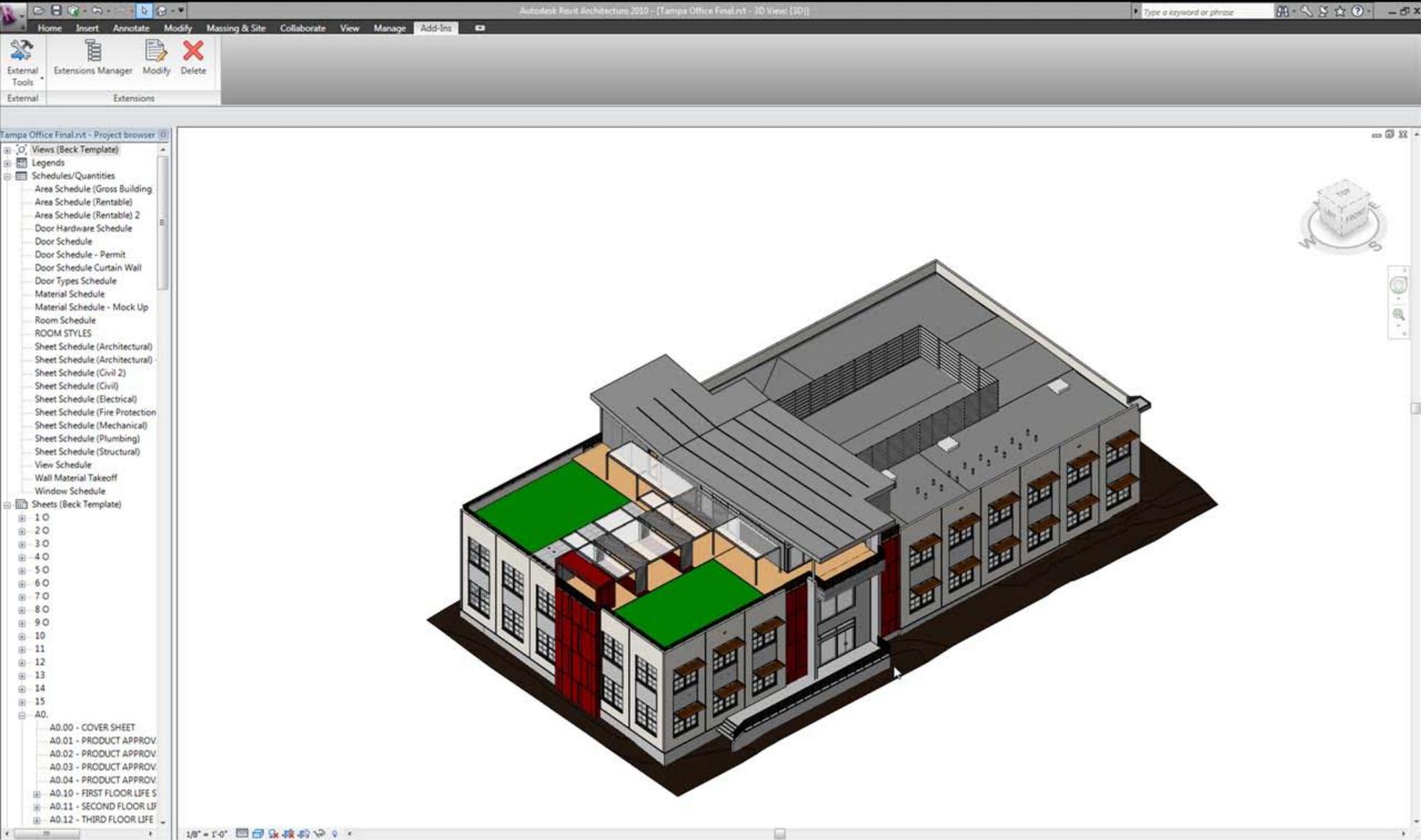
Tools

- All Systems
- Earth
- Site
- Building
 - Massing
 - Convert to Massing
 - Feature
- Edit
 - Move
 - Copy
 - Mirror Copy
 - Rotate
 - Delete
 - Modify
 - Divide
 - Add Features
 - Subtract Features
 - Intersect Features
 - Match Properties
- Grid Line
- Structure
- Cladding

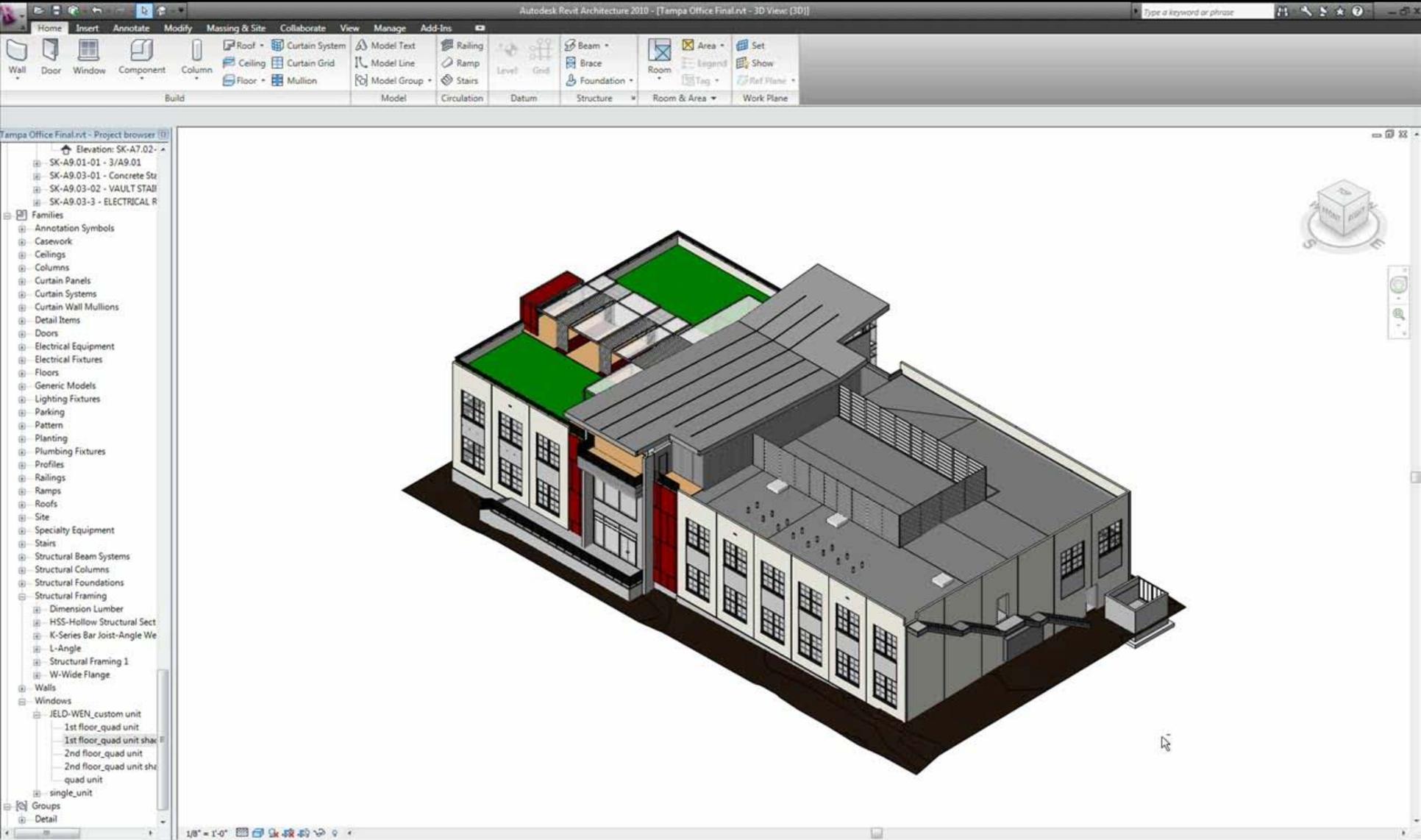
Tools | Layers | Properties



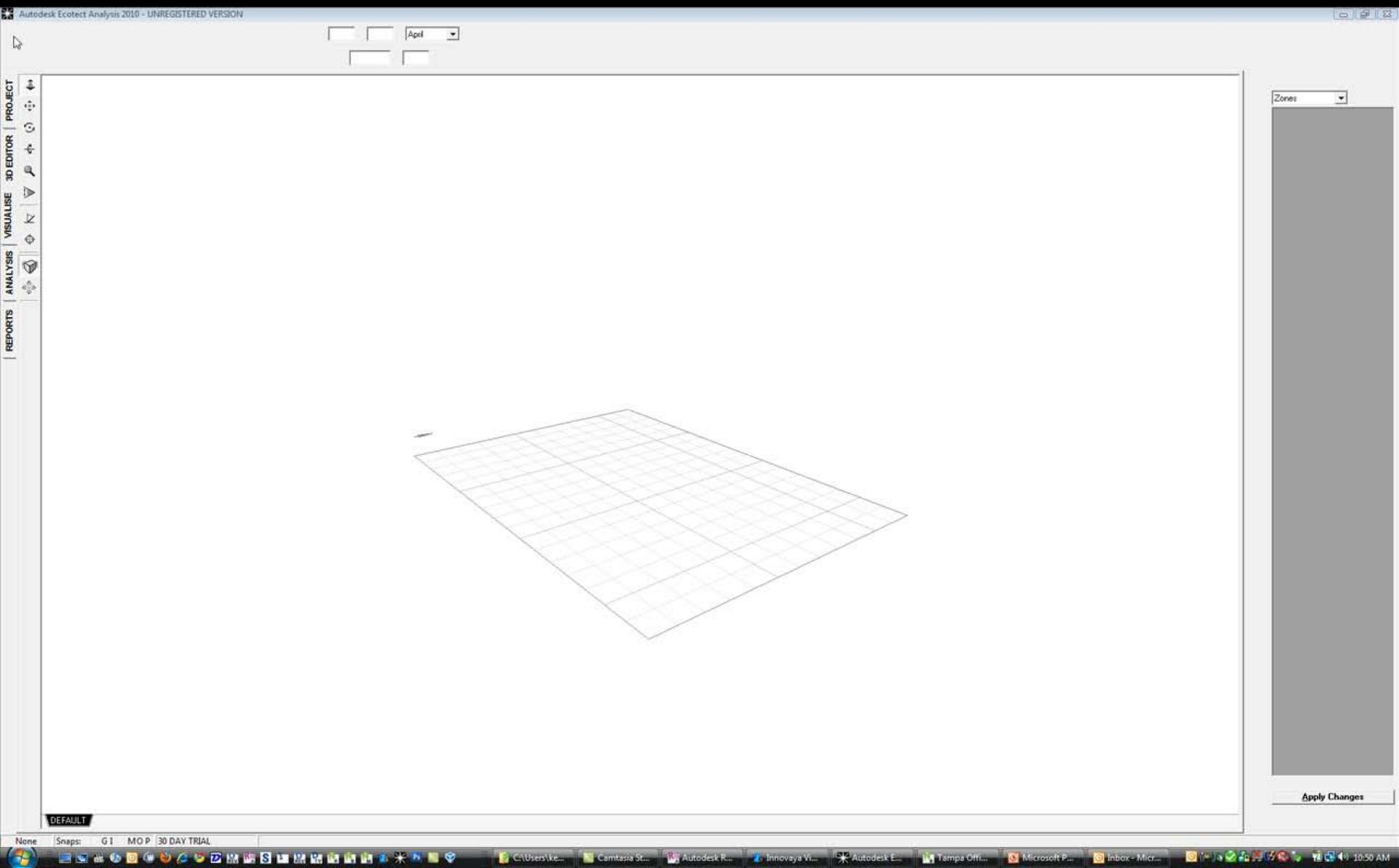
Revit

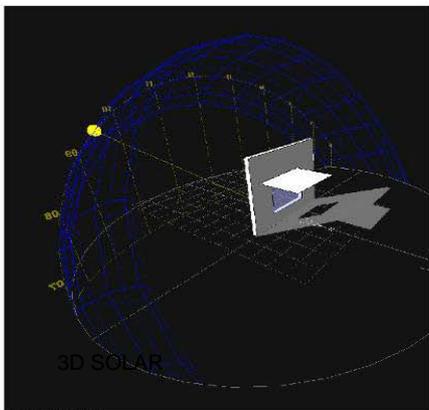


Revit to Ecotect

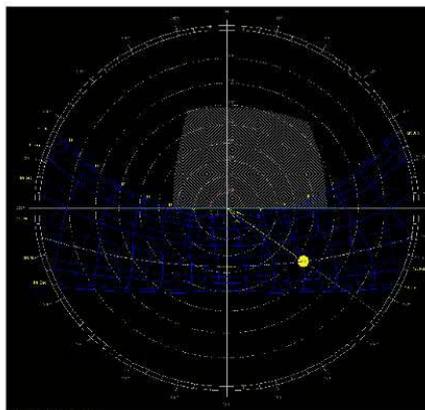


Ecotect Analysis



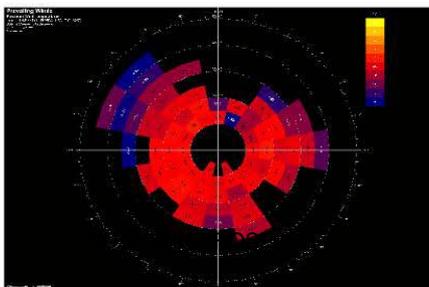


3D SOLAR STUDY

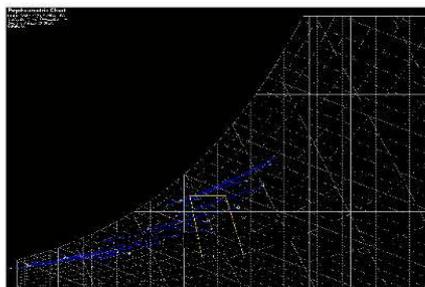


2D SOLAR STUDY

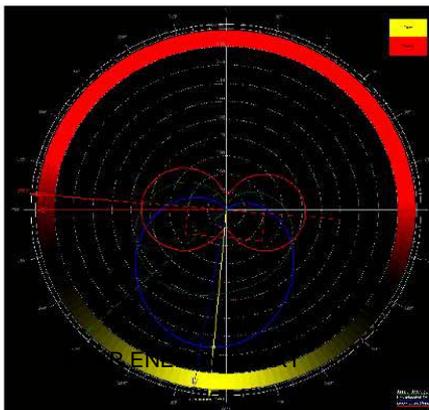
ENERGY ANALYSIS STUDY



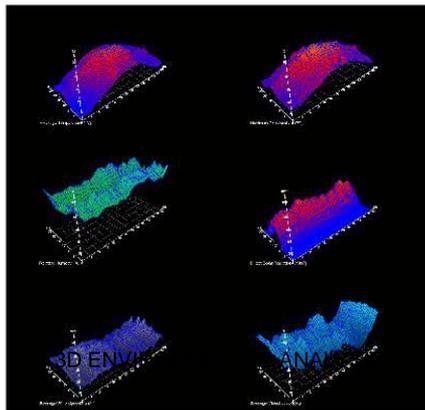
ANNUAL WIND ROSE



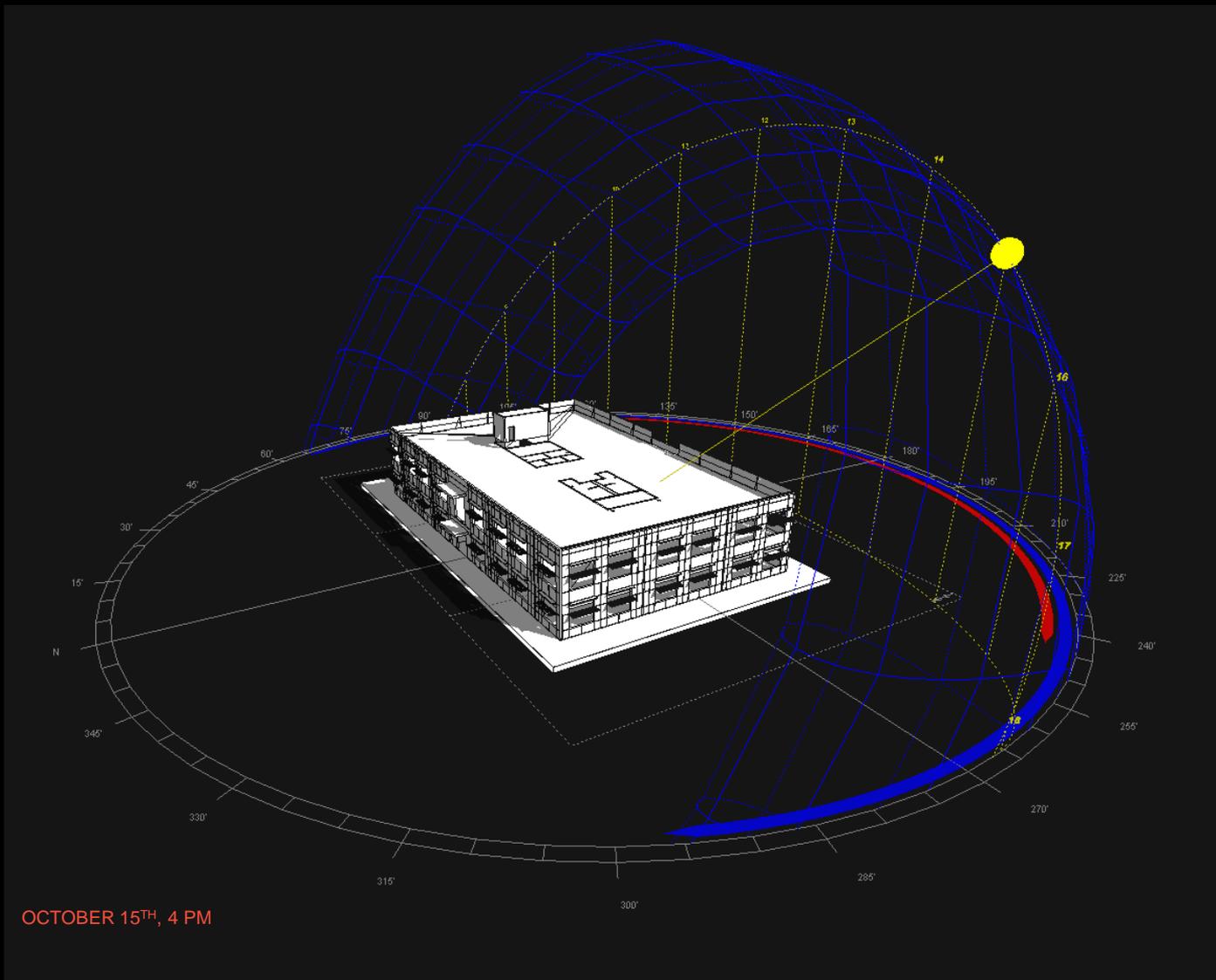
REGIONAL PSYCHROMETRIC CHART

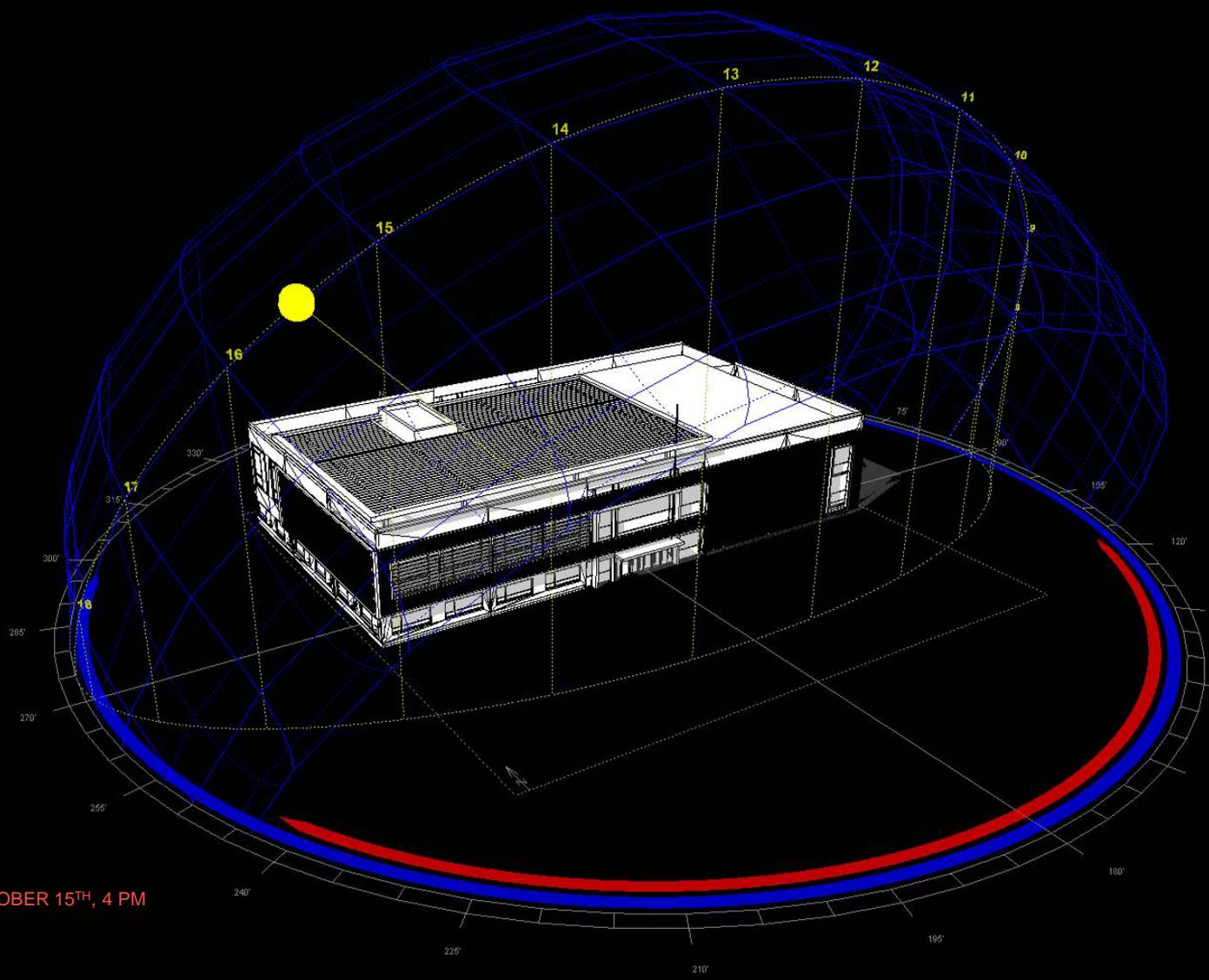


SOLAR ENERGY ANALYSIS



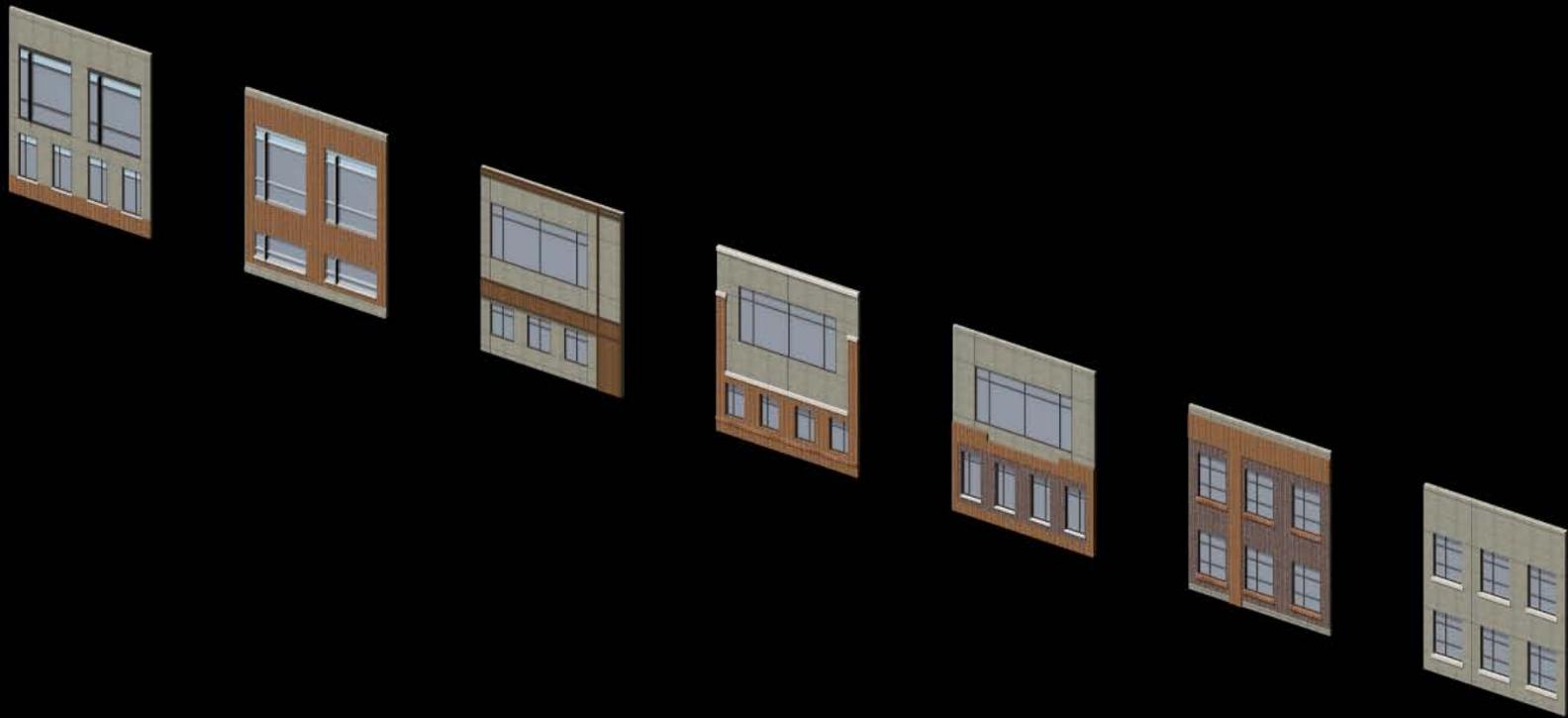
3D ENVIRONMENTAL ANALYSIS CHARTS

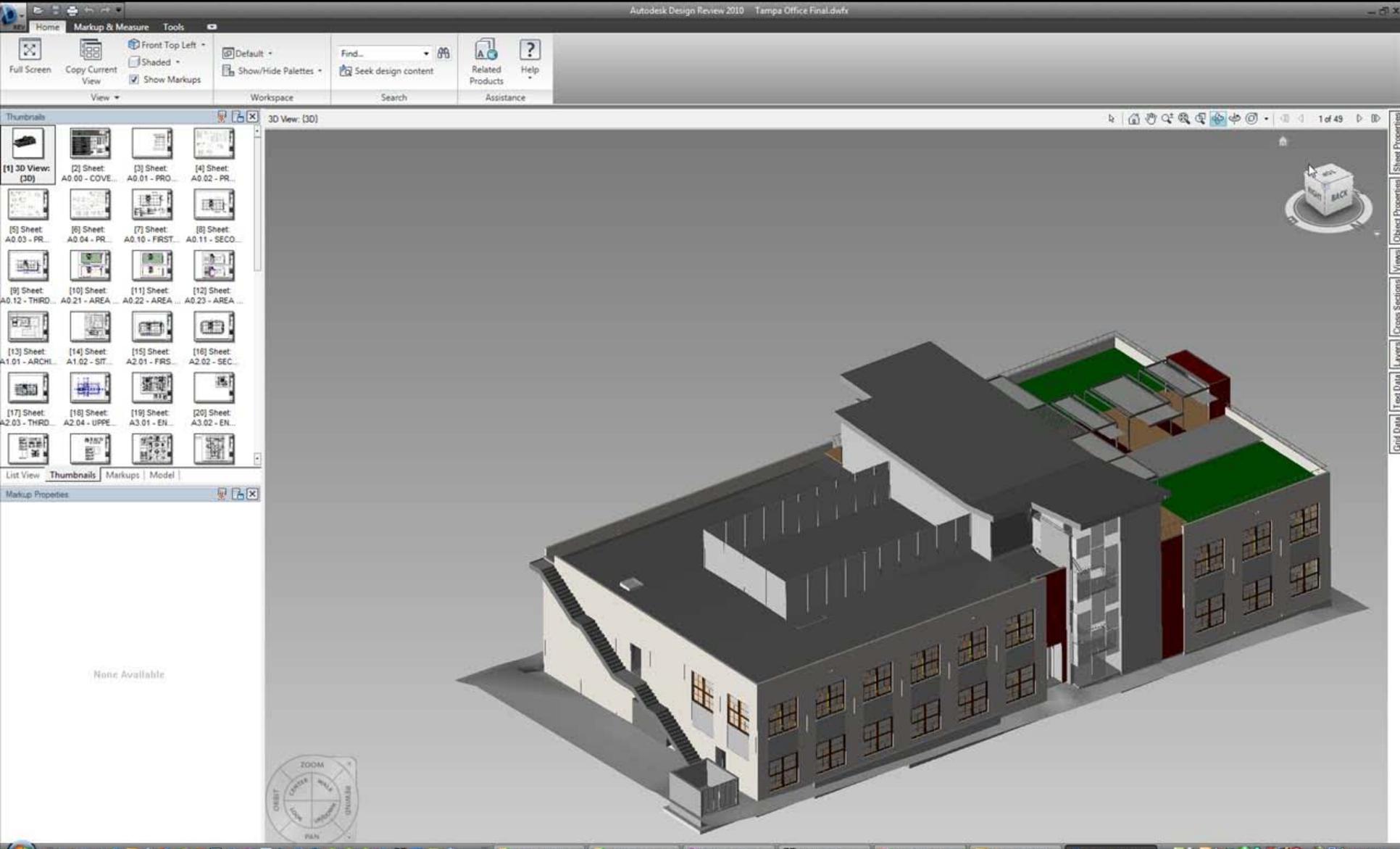




OCTOBER 15TH, 4 PM

Pre-Design Planning	Conceptual Design	Criteria Design	Detailed Design	Implementation Documents	Construction Administration
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Green Office

Tampa, FL





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Without Sustainable BIM Migration?

Cost would not have been available at all points of the project resulting in design and sustainability decisions being made in a vacuum.

VE would likely have claimed a substantial portion of the higher cost sustainable design features.

Actual operation of building is less likely to match the design.

More...



Without SustainaBIMegration?

Fewer Alternatives would have been analyzed, or many additional man hours would have been required.

Visualization of analysis data would have been difficult.

E-mail and FTP would have been our communication tool instead of a graphics rich tools

More...