Airport Authority Presentation

BIM -
Building Information Modelling

David Fung

Building Projects

Modelling
図面上

Plan
Section
Elevation
Area Diagrams
Schematic Designs
General Building Plan
Structural Plans
E/M Drawings
Schematics
Details
Other Diagrams…

Information

Area Schedule
Finishing Schedules
Door/Window/Louvre Schedules
Beam/ Column Schedule
Equipment Schedule…

Program

Cost Estimate
Quantity Take Off
Bills of Quantities
Variation Assessments

As a result……

Inefficiencies（低生産性）, mistakes(エラー） and delays（工期延長） account for $200 billion of the $650 billion spent on construction in America every year.

New wiring, The Economist, January 13th, 2000

In the UK alone, the annual cost of rectifying construction defects(デフェク） caused by poorly detailed drawings and operatives being given incorrect instructions has been put a £1bn (≈$1.66bn).

IT Construction Best Practice service, http://www.itcbp.org.uk

The process of construction is itself repeated in its essentials from project to project. Indeed, research suggests that up to 80% of inputs into buildings are repeated.

M4i, http://www.m4i.org.uk

Modelling

CAD SYSTEMs

e.g. AutoCAD, Microstation

Information

- Area Schedule
- Door/Window/Louvre Sch
- Beam/Column Schedule
- Program

Word

Excel (spreadsheet)

Access (Data Base)

MS Project

BQ Softwares

Quantity Take Off

……

Bills of Quantities

Variations

Building Projects

Modelling

- Plan
- Section
- Elevation
- Area Diagrams
- Schematic Designs
- General Building Plan
- Structural Plans
- E/M Drawings
- Schematics
- Other Diagrams

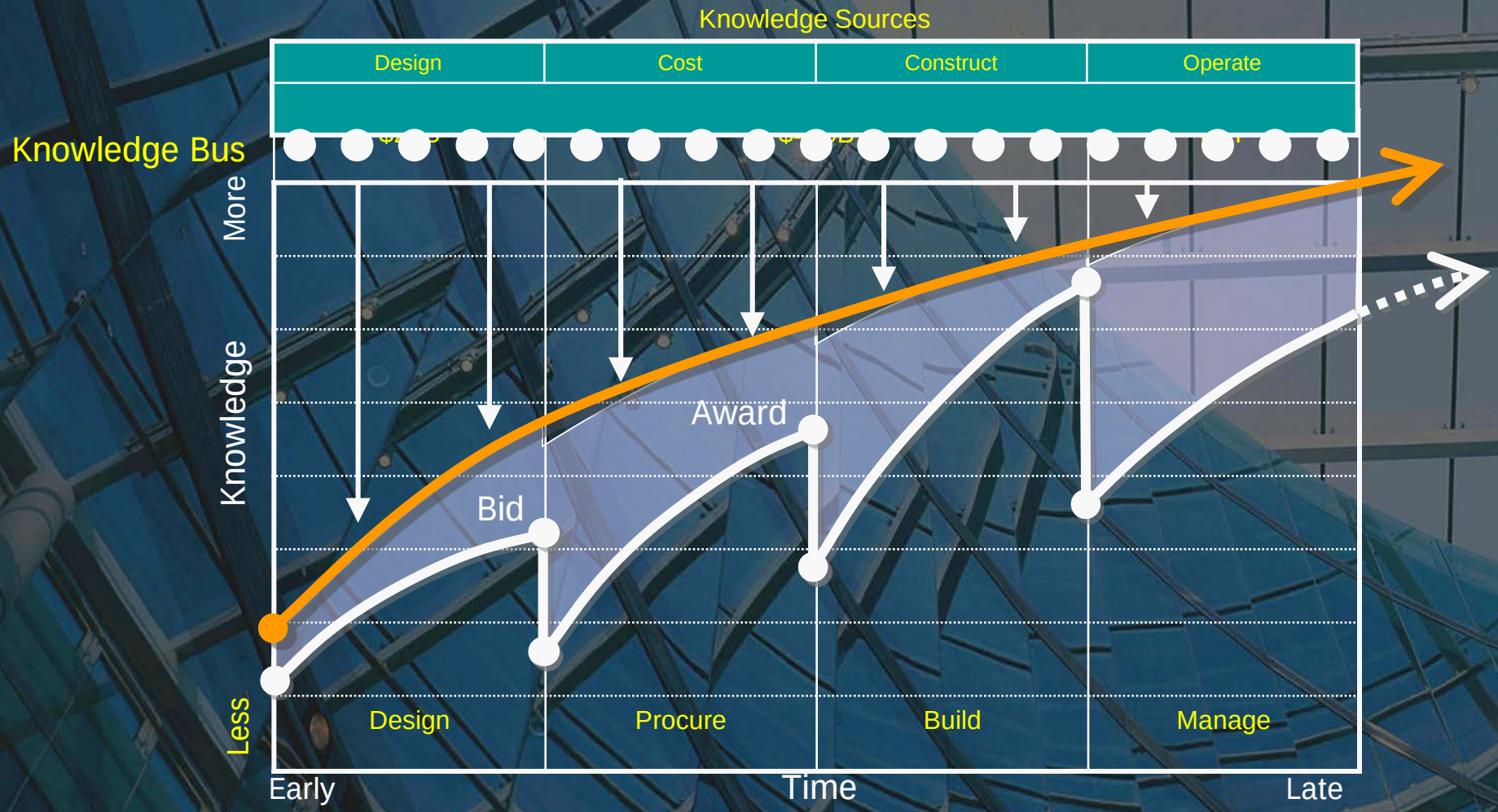
BIM

Information

- Area Schedule
- Finishing Schedules
- Door/Window/Louvre Sch
- Beam/Column Schedule
- Equipment Schedule
- Cost Estimate
- Quantity Take Off
- Bills of Quantities
- Variations

Building Information Modeling

信息化建築模型



INFORMATION “BACKFLOW”

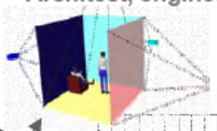
National Institute of Building Sciences
Facilities Information Council
National BIM Standard Committee

Tier 3 – Derived Lifecycle View

Laws and regulations
-Building regulations
-Building specifications

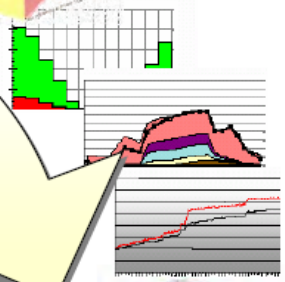
CAD software
-Drawings, calculations
-Architect, engineer,…

Knowledge databases
-Best practise knowledge
-Own practice

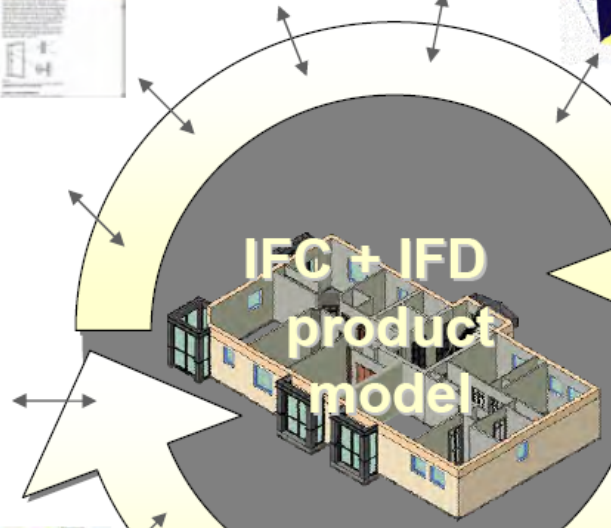


VRML
-Visualisation, 3D models

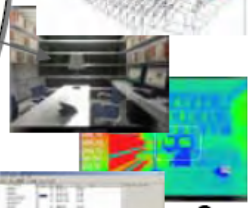
Briefing
-Functional req.
-Estimates
-Conditions
-Requirements



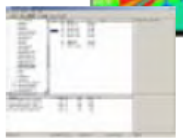
Simulations
-Comfort
-Ventilation, heating
-Life cycle cost
-Light, sound
-Insulation
-Fire, usage
-Environment
-Life time predictions



Demolition, refurbishment
-Rebuild
-Demolition
-Restoration

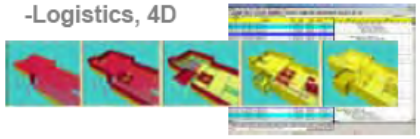


Facility management
-Letting, sale, operations
-Maintenance
-Guaranties



Specifications
-Specification sheets
-Classification standards
-Estimates, accounting

Construction management
-Scheduling
-Logistics, 4D



Procurement
-Product databases
-Price databases

What is BIM (Building Information Model)

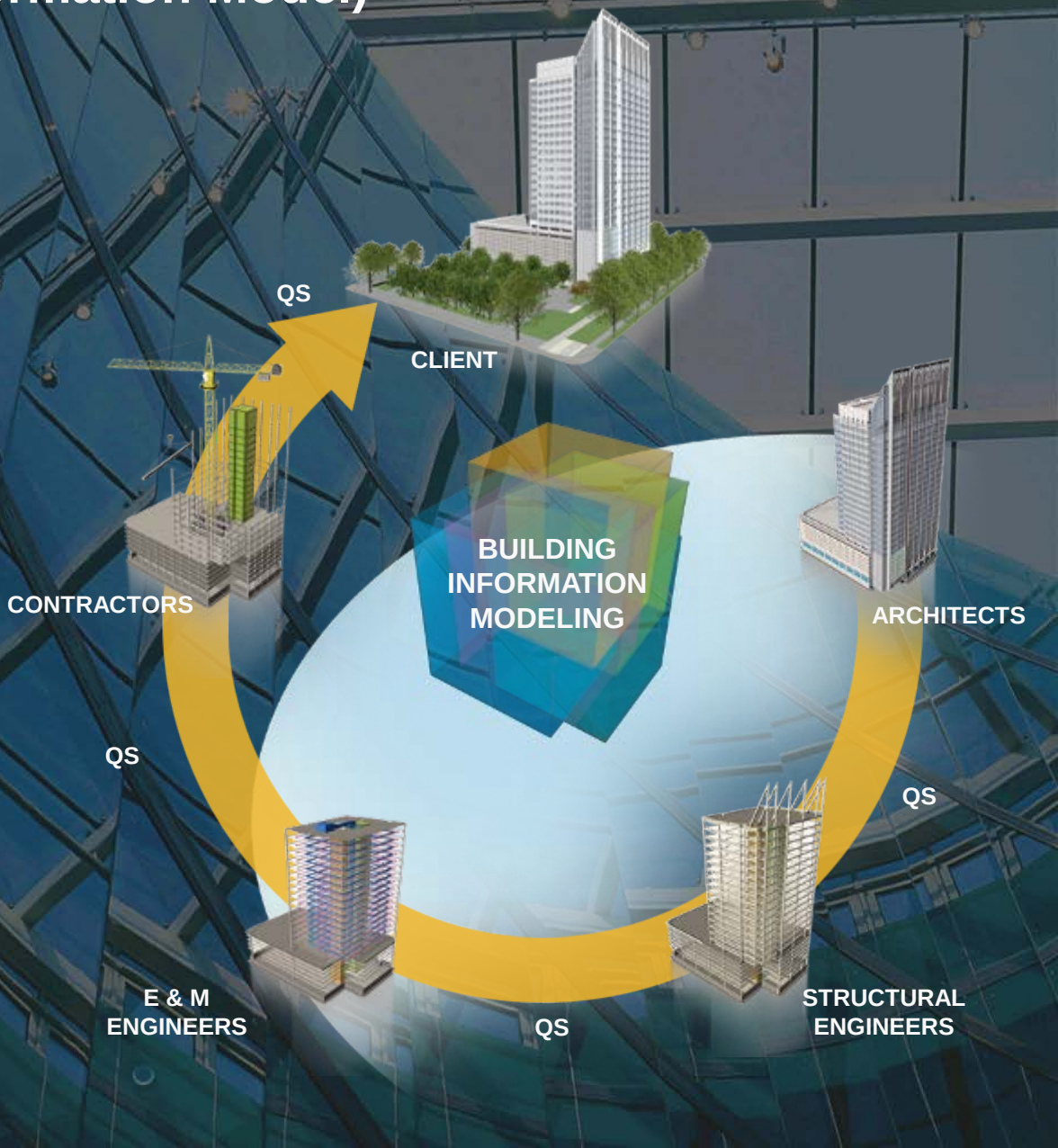
Graphical Data

+

Non-Graphical Data

+

New workflow



Use of Building Information Modeling (BIM)
BIMの活用

1. **Design visualization**　設計の可視化
2. **Drawing Productions**　図面製作
3. **Services Co-ordination and Clash detection with other disciplines**　多部門との連携と干渉チェック
4. **Quantity taking and preparation of Tender Document**　数量拾い及び入札書類の作成
5. **Automated Statutory Submission**　確認申請図書作成の自動化
6. **Scientific analysis of different environmental aspects**　様々な環境解析
7. **Supply Chain Integration with the manufacturing and production**　サプライヤとの連携
8. **Complex Geometry**　複雑な形状を実現可能

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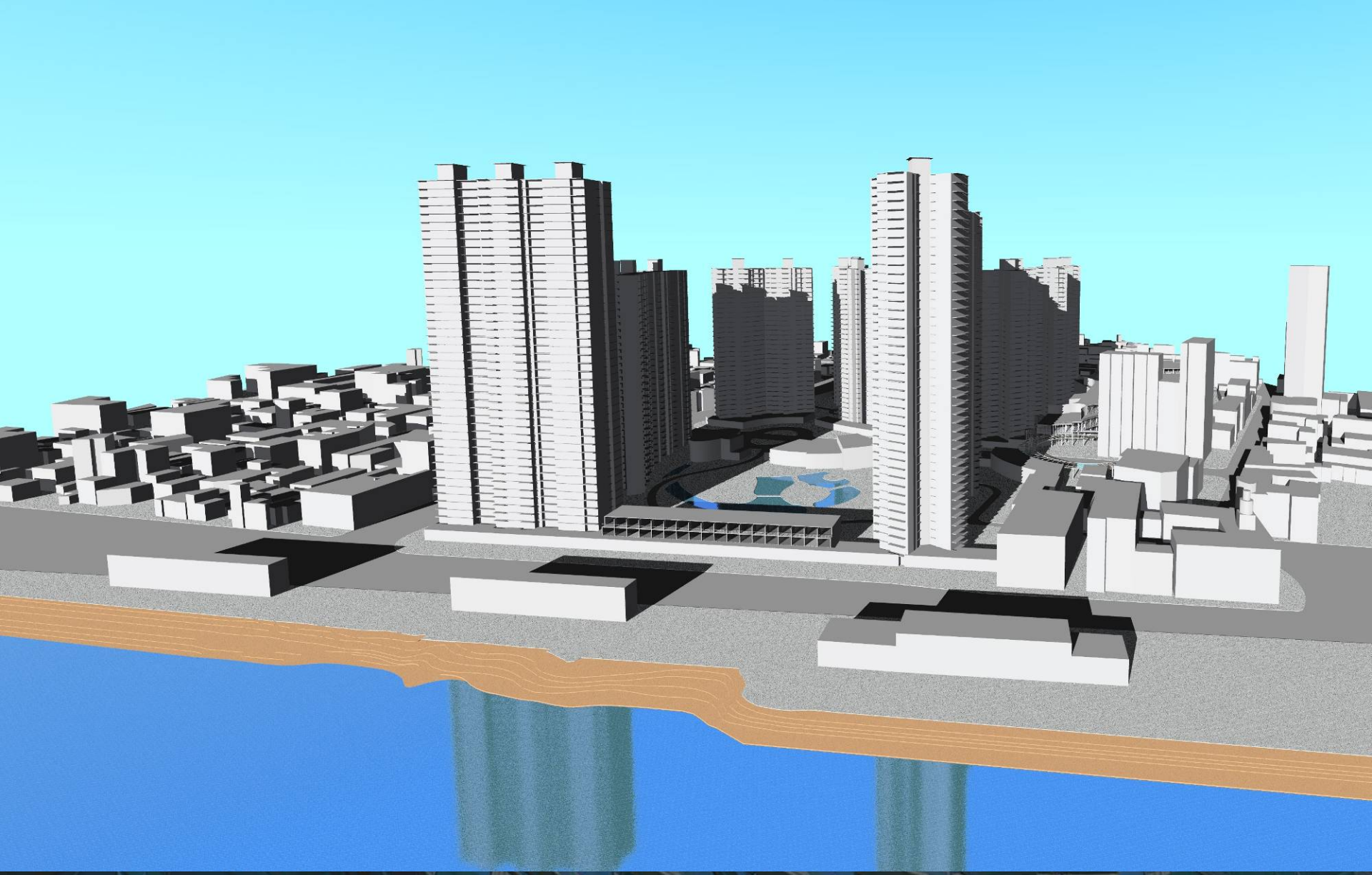
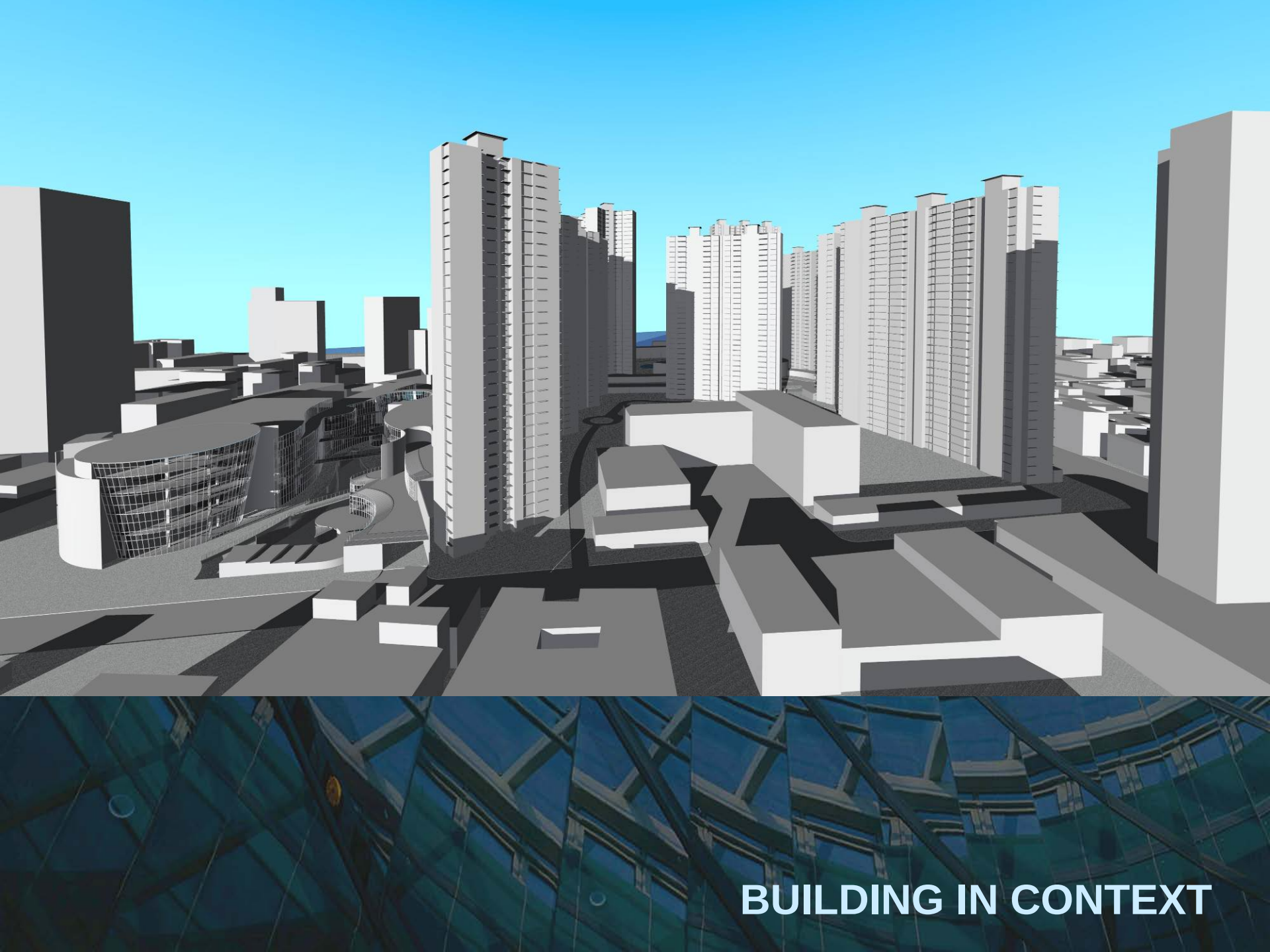
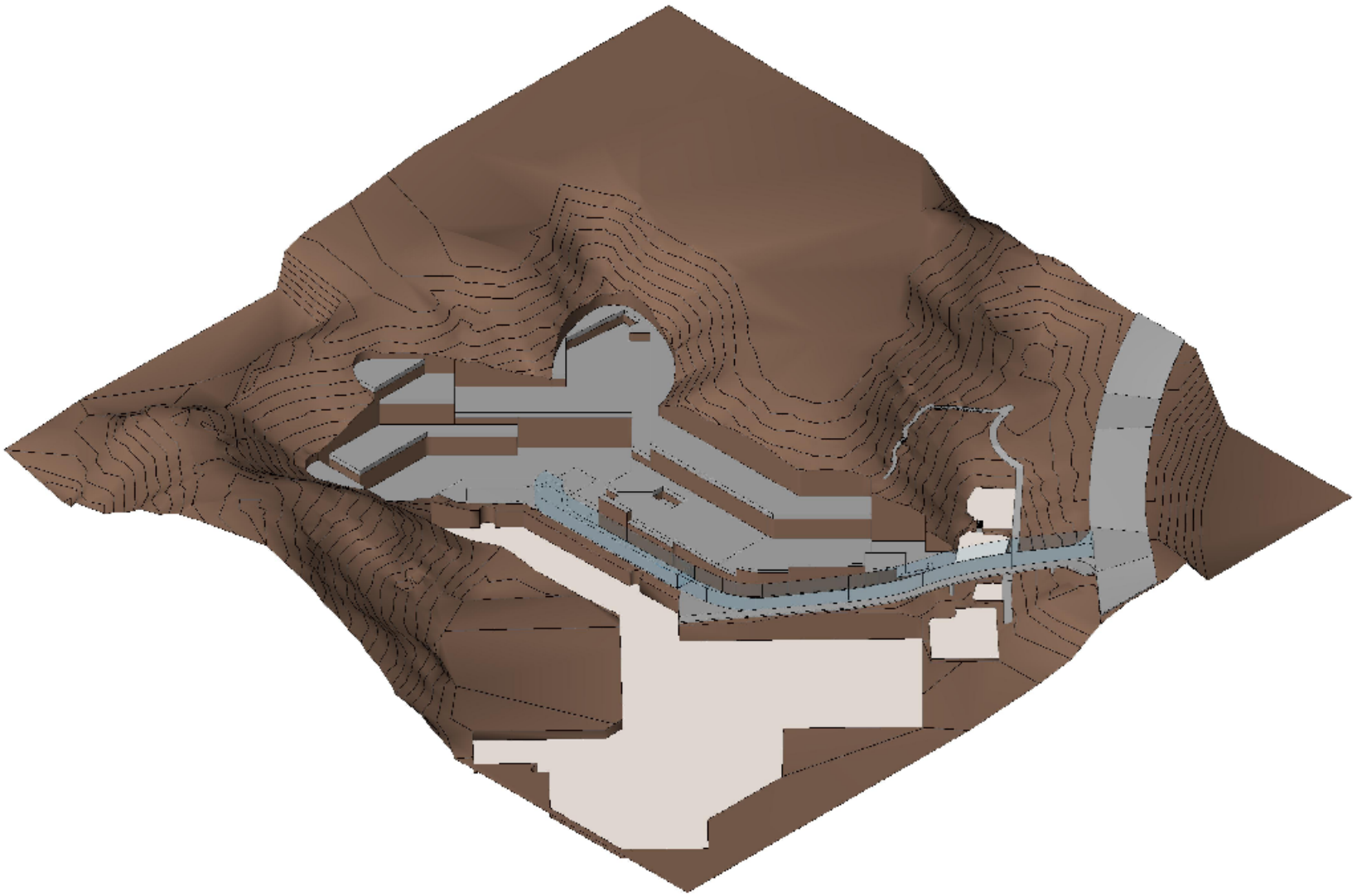


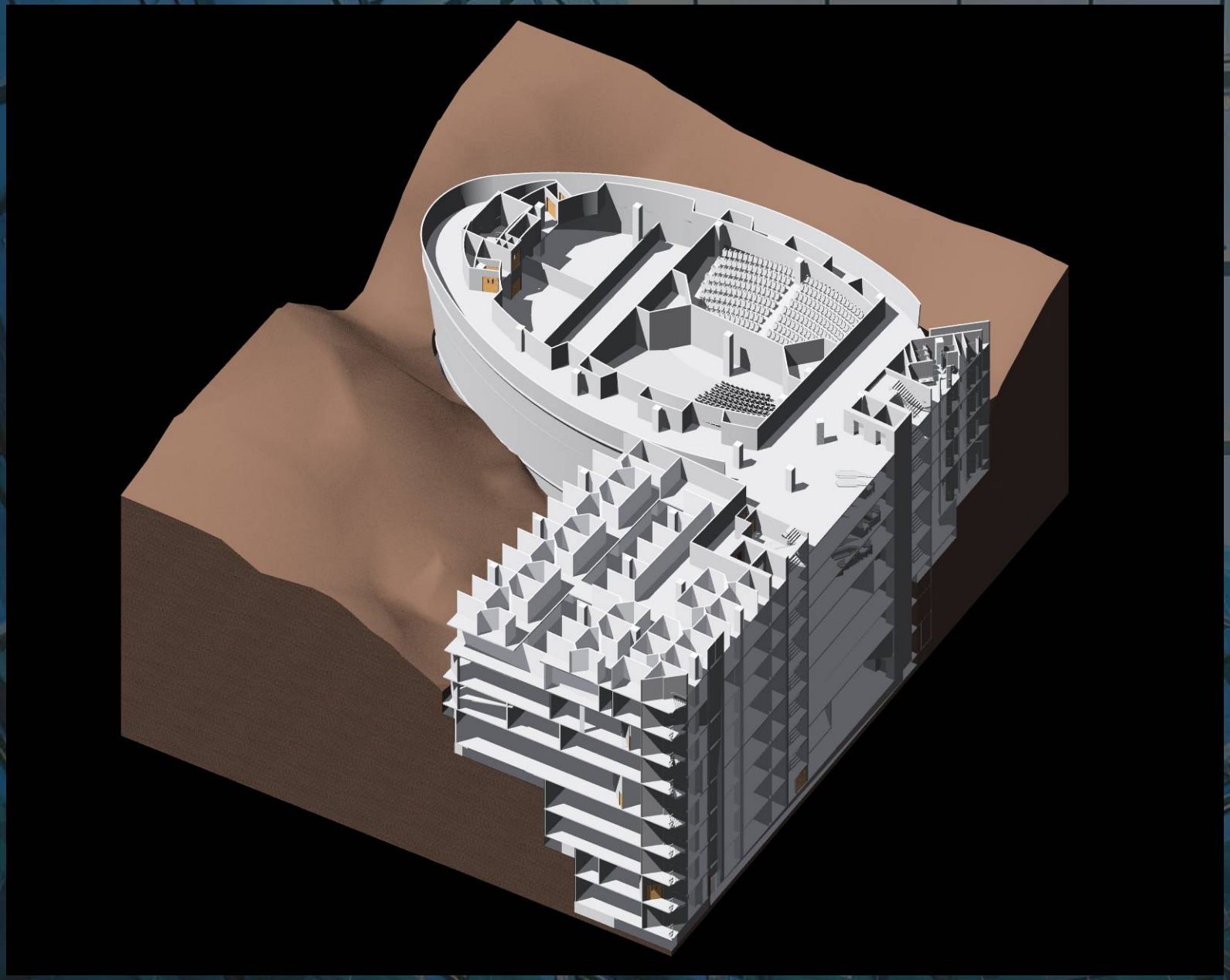
BUILDING IN CONTEXT


BUILDING IN CONTEXT

BUILDING IN GOOGLE EARTH

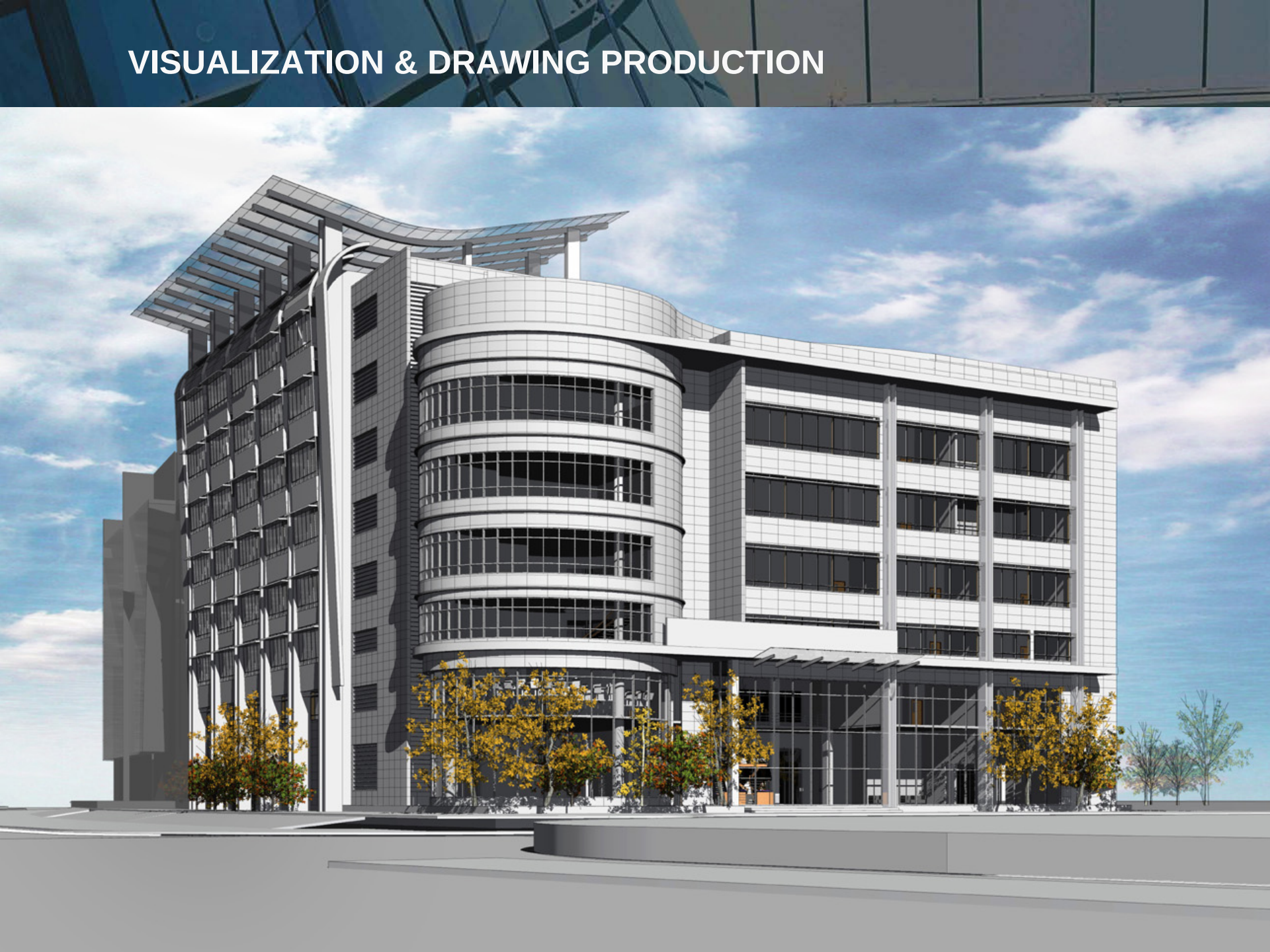


TOPOGRAPHY HANDLING



BUILDING IN SITE CONTEXT

VISUALIZATION & DRAWING PRODUCTION



VISUALIZATION & PRODUCTION

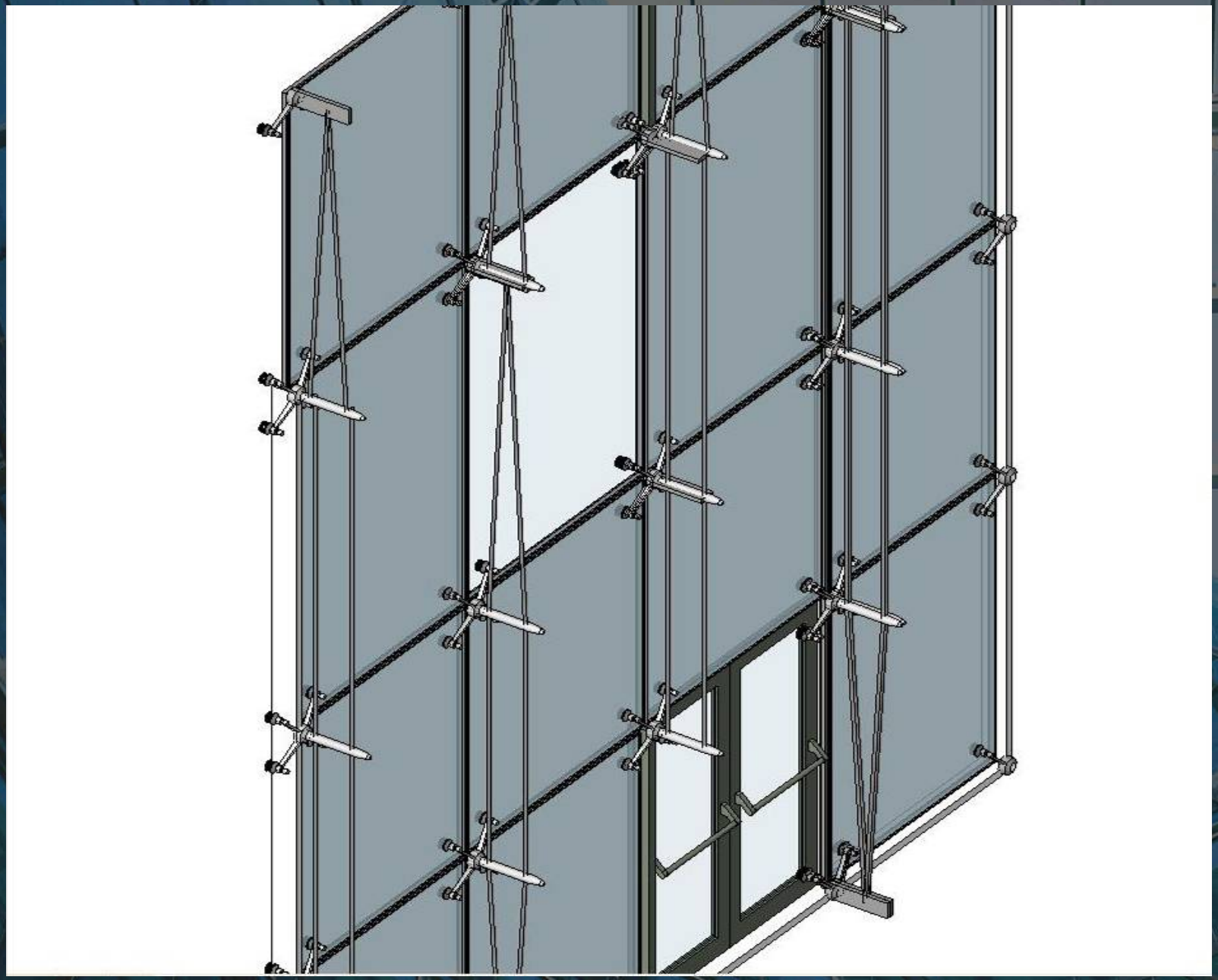
PERSPECTIVE

VISUALIZATION & PRODUCTION

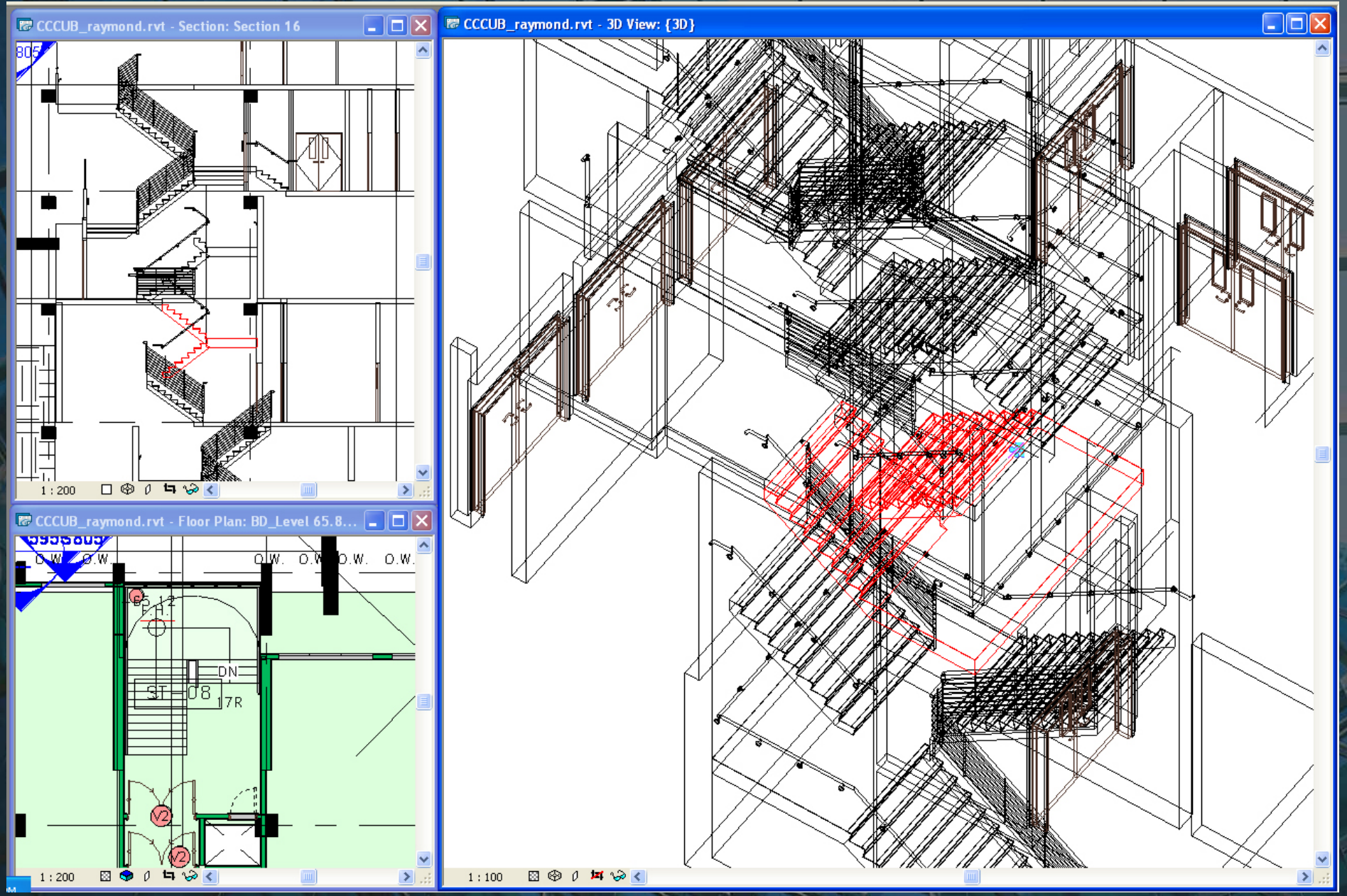
VISUALIZATION & PRODUCTION

VISUALIZATION & PRODUCTION

VISUALIZATION

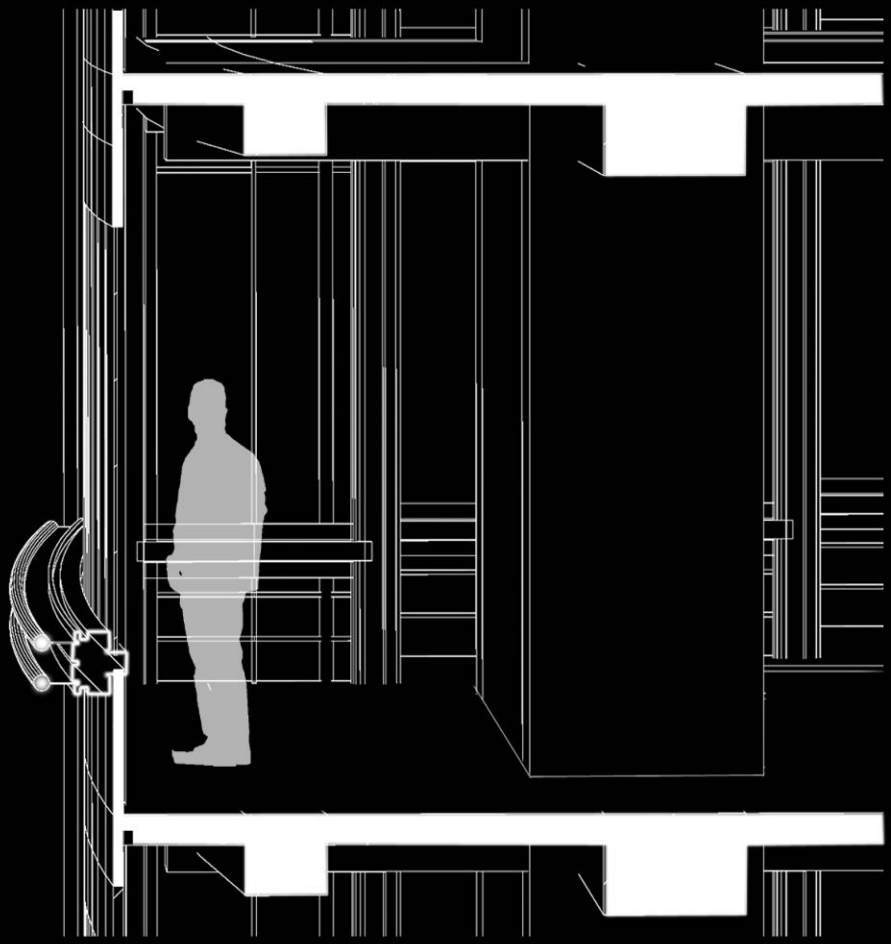


FAÇADE PANEL DESIGN



VERTICAL CO-ORDINATION

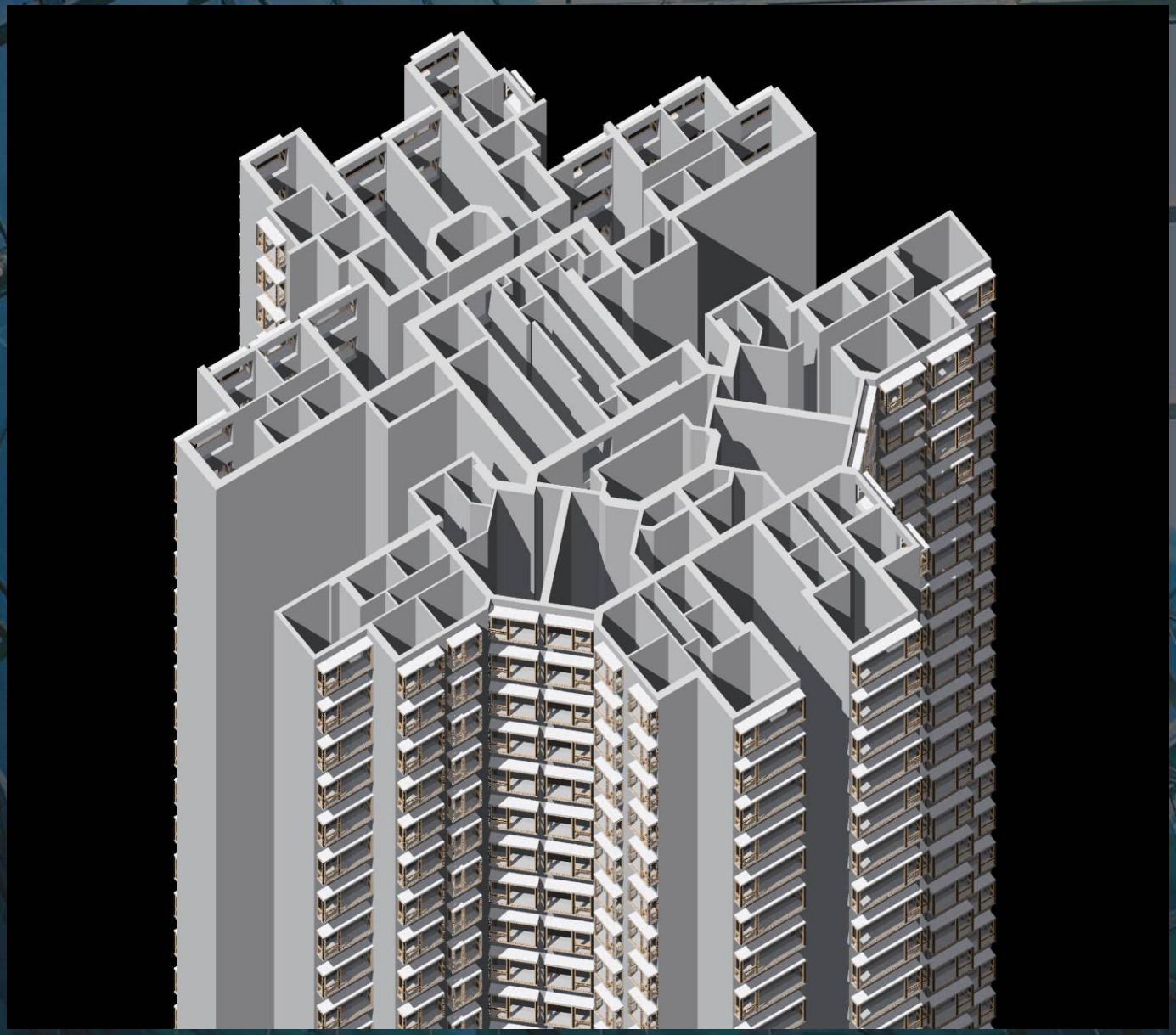
FAÇADE DESIGN and CO-ORDINATION



FAÇADE DESIGN and CO-ORDINATION

REPETITIONS vs VARIATIONS

PARAMETRIC MODELLING



Autodesk Revit Building 9.1 - [AED-Bay Window.rfa - 3D View: View 1]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Family

Modify
Family Typ
Dimension
Model Lines
Symbolic Lir
Opening...
Ref Plane
Reference L
Control
Text
Model Text
Section
Component
Symbol
Detail Comp
Solid Form
Void Form
Load into Pr

Family Types

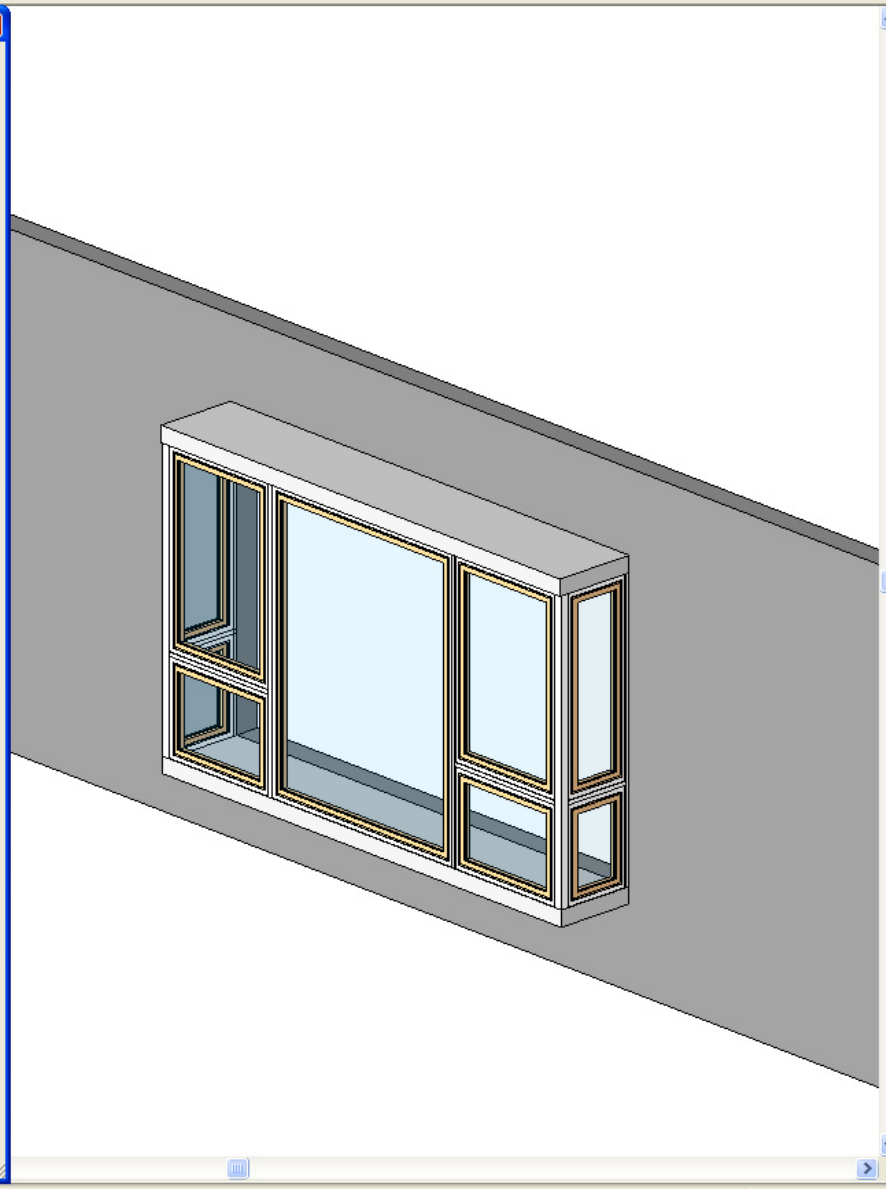
Name: AED-Bay Window

Parameter	Value	Formula
Lslab Overhang_Right	0.0	=
Lslab Overhang_Left	0.0	=
Lslab Overhang_Dept	0.0	=
Left Window Width	800.0	=
Height	1800.0	=Wall Height - (Openning Offset *
Width	3000.0	=
Bay Depth	500.0	=
Rough Width		=
Rough Height		=
Identity Data		
IFC Parameters		
Operation		=
Other		
Vmullion Edge	12.5	=Middle Vmullion Thickness / 2
Uslab_Top	2500.0	=Uslab_Bottom + Slab Thickness
Uslab_Bottom	2400.0	=Wall Height - Openning Offset
Sash Offset	70.0	=
Right Window	☑	=Right Window Width > 0 mm
Openning Offset	600.0	=Window Offset + Slab Thickness
Open Window Middle	593.8	=(Uslab_Bottom - Hmullion_Top) /
Lslab_Top	600.0	=Openning Offset
Lslab_Bottom	500.0	=Lslab_Top - Slab Thickness
Left Window	☑	=Left Window Width > 0 mm
Hmullion_Top	1212.5	=Middle Mullion Height + Openning
Hmullion_Bottom	1187.5	=Middle Mullion Height + Openning
Hmullion Edge	12.5	=Middle Hmullion Thickness / 2
Glass Offset	65.0	=65 mm
Glass Height_Top	2335.0	=Uslab_Bottom - Glass Offset
Glass Height_Mtop	1122.5	=Hmullion_Bottom - Glass Offset
Glass Height_MBotto	1277.5	=Hmullion_Top + Glass Offset
Glass Height_Bottom	665.0	=Lslab_Top + Glass Offset

Family Types: New... Rename... Delete

Parameters: Add... Modify... Remove

OK Cancel Apply Help



Ready

start | Control Panel | 20070107 Shunde Re... | Autodesk Revit Buildi... | Adobe Photoshop | EN | 51% | 9:33 AM

Autodesk Revit Building 9.1 - [AED-Bay Window.rfa - 3D View: View 1]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Zoom

Family

Modify
Family Typ
Dimension
Model Lines
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Height	1800.0	=Wall Height - (Openning Offset *
Width	4500.0	=
Bay Depth	500.0	=
Rough Width		=
Rough Height		=
Identity Data		
IFC Parameters		
Operation		=
Other		
Vmullion Edge	12.5	=Middle Vmullion Thickness / 2
Uslab_Top	2500.0	=Uslab_Bottom + Slab Thickness
Uslab_Bottom	2400.0	=Wall Height - Openning Offset
Sash Offset	70.0	=
Right Window	☑	=Right Window Width > 0 mm
Openning Offset	600.0	=Window Offset + Slab Thickness
Open Window Middle	593.8	=(Uslab_Bottom - Hmullion_Top) /
Lslab_Top	600.0	=Openning Offset
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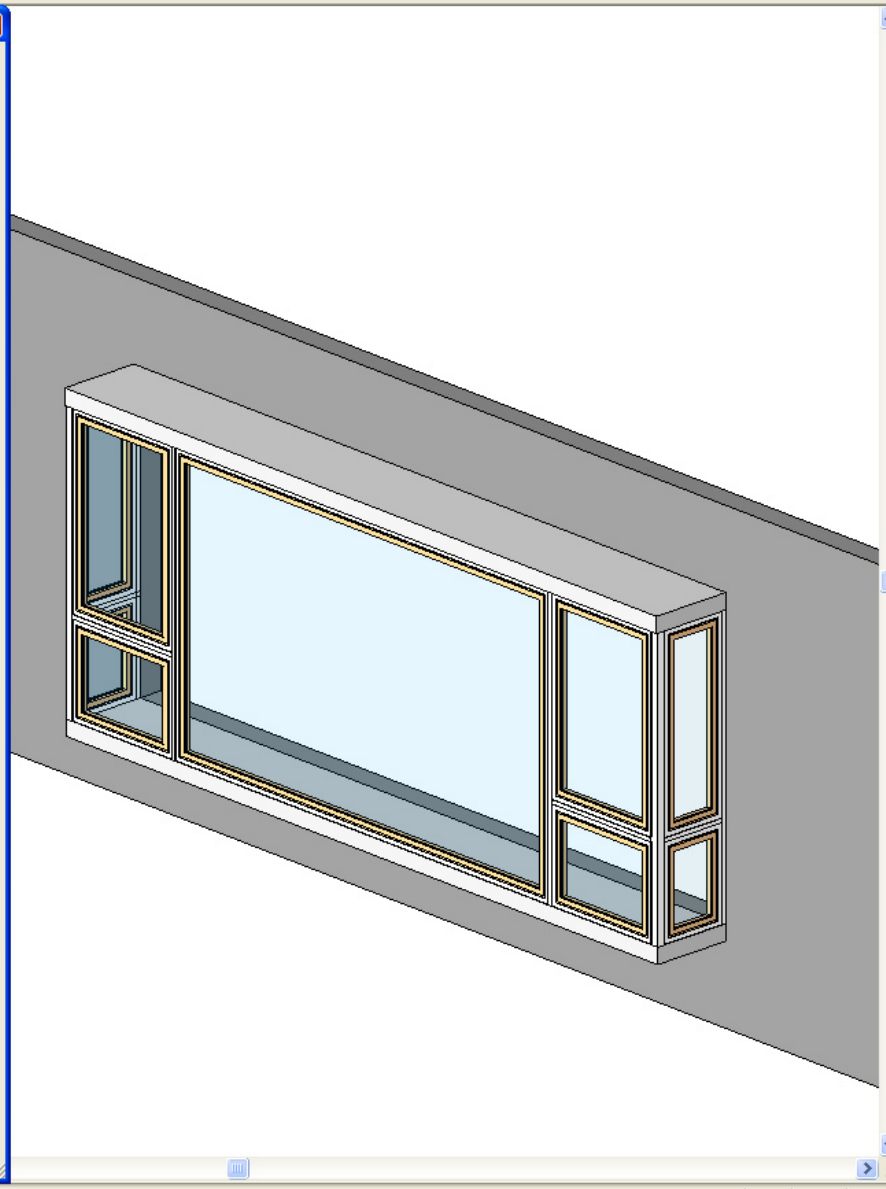
Family Types: New... Rename... Delete

Parameters: Add... Modify... Remove

OK Cancel Apply Help



Ready

start | Control Panel | Microsoft PowerPoint ... | 20070107 Shunde Re... | Autodesk Revit Buildi... | Adobe Photoshop | EN | 55% | 9:36 AM

Use of Building Information Modeling (BIM)

1. Design visualization
2. **Drawing Productions** 図面製作
3. Services Co-ordination and Clash detection with other disciplines
4. Quantity taking and preparation of Tender Document
5. Automated Statutory Submission
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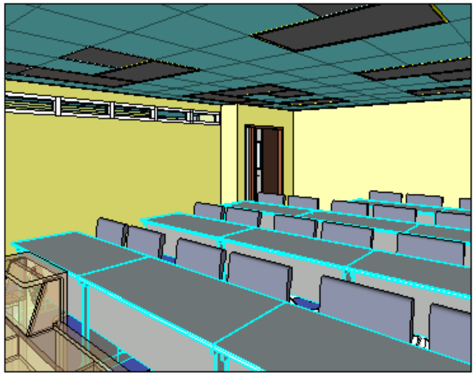
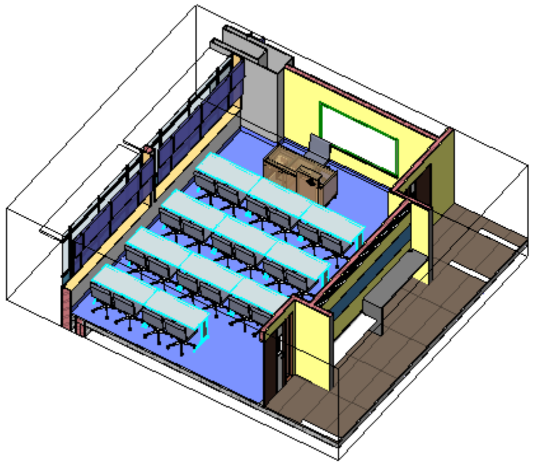
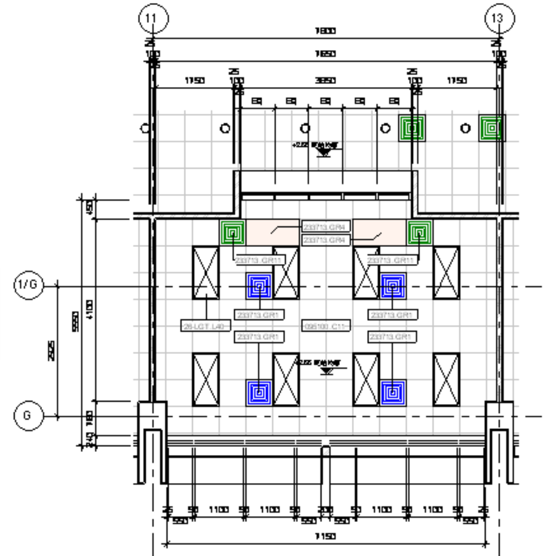


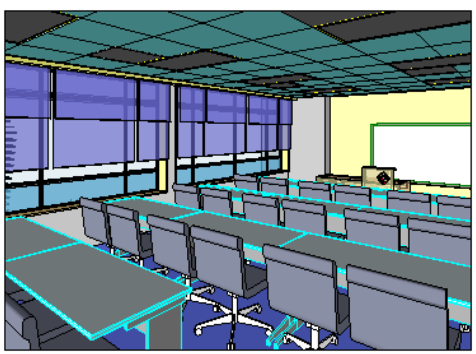
6 行政人员培訓室立体示意图2



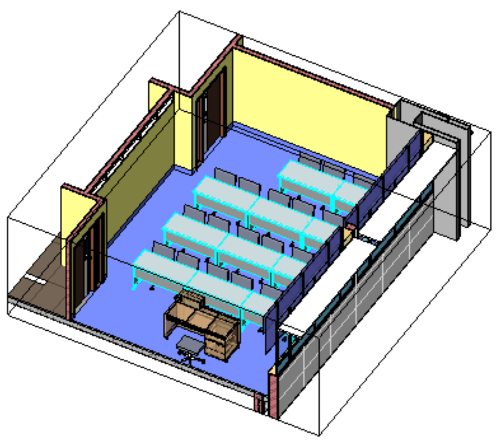
4 行政人员培训室立体剖面示意图2



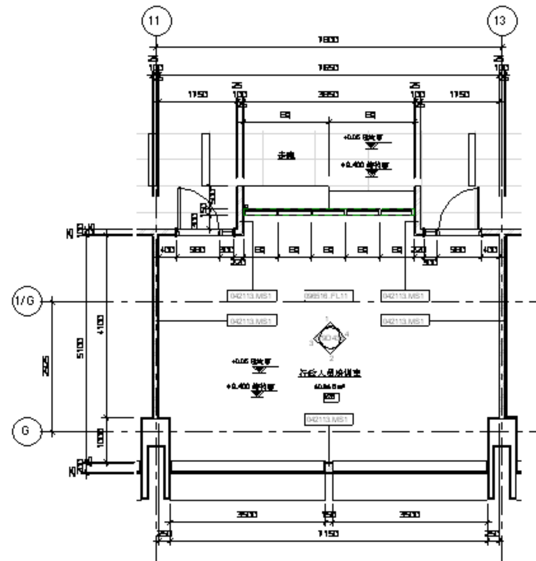
2 行政人员培训室天花平面图(高楼三层)1
1 : 50



5 行政人员培訓室立体示意图1



3 行政人员培训室立体剖面示意图1



1 行政人员培训室平面图(高楼三层)1
1 : 50

Drawing Type	B.D. SUMBISSION
B.D. Reference No.	GOVERNMENT_REFERENCE_NO.
F.S.D. Reference No.	GOVERNMENT_REFERENCE_NO.
Authorize By	AUTHORIZE PERSON ENDORSE AREA
Notes	

Rev.	Description	Issue Date	Initial

Originally / Date / Draw / Check / App.

Structural Engineer: BENAIM — benaim

E & M: J.ROGER PRESTON

Q.S: 利比 RLB | Rider Levett Bucknall

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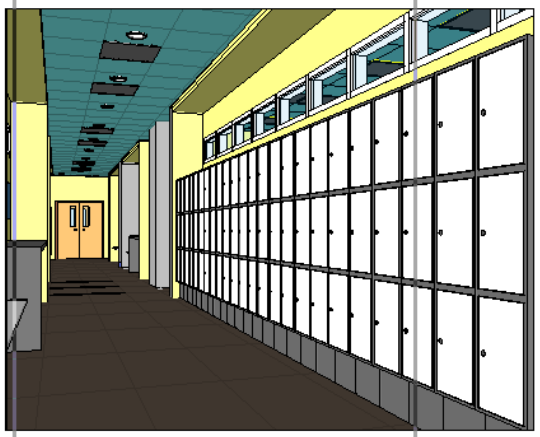
aedas.com

Client: The Hong Kong Polytechnic University 香港理工大學

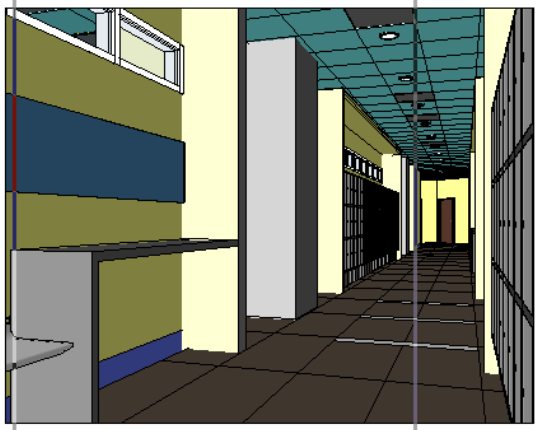
Project

Drawing: 行政人员培训室平面图(高楼三层)1

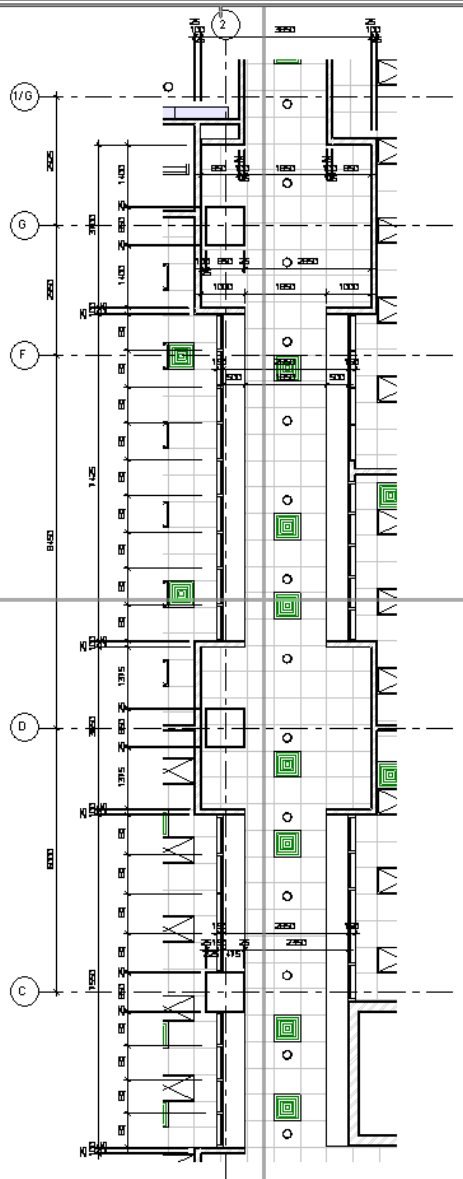
Computer File	Plot Date
Project Number	Scale 1 : 50
Drawing Number	Rev. REV.



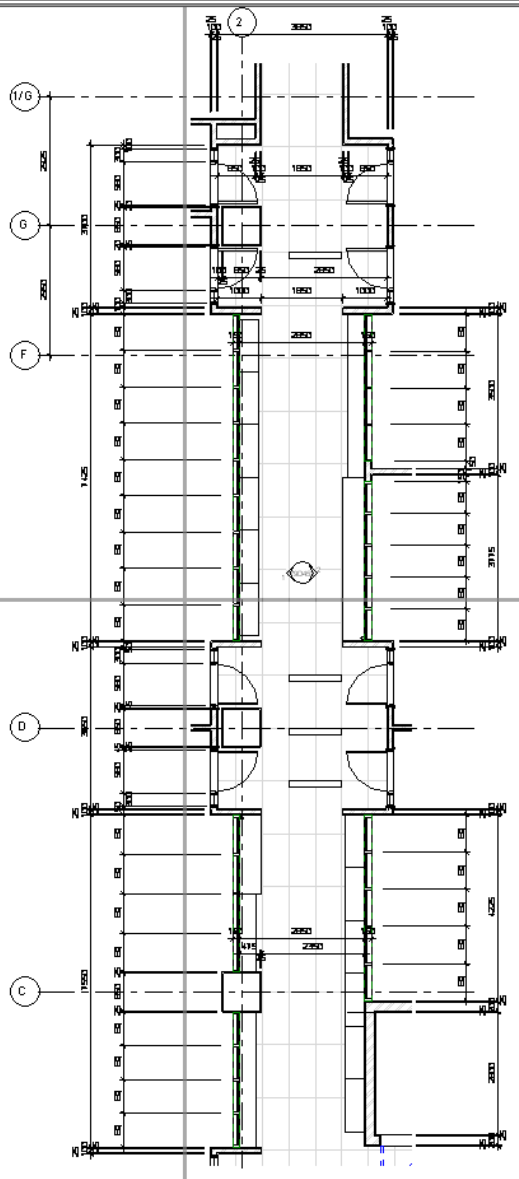
4 走廊立体示意图(低楼三至四层)2



3 走廊立体示意图(低楼三至四层)1



2 走廊天花平面图(低楼三至四层)
1 : 50



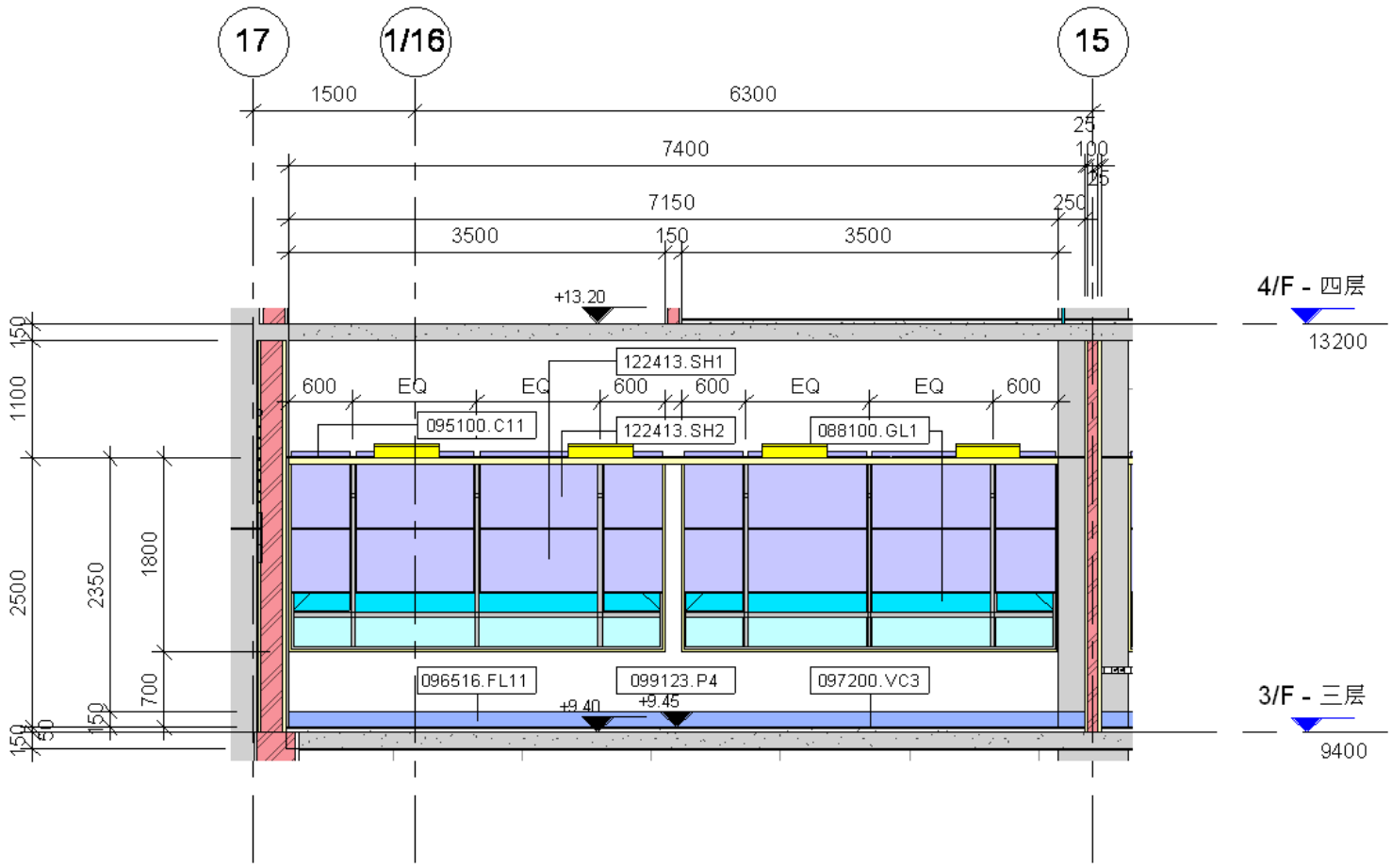
1 走廊平面图(低楼三至四层)
1 : 50

benaim

利比 RLB Rider Levett Bucknall

Aedas

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學



2 行政人员培训室立面图(高楼三层)6

1 : 50

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2. Drawing Productions
3. **Services Co-ordination and Clash detection with other disciplines**
   多部門との連携と干渉チェック
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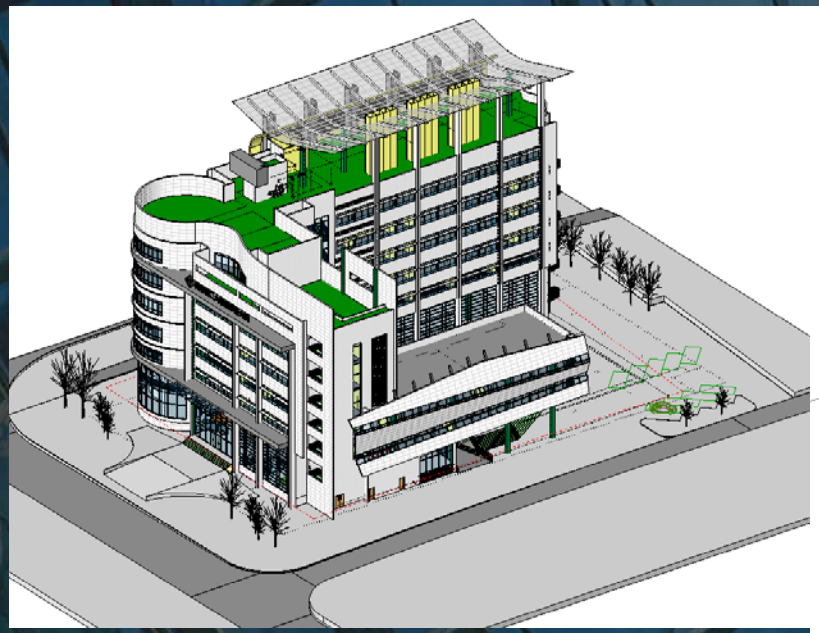
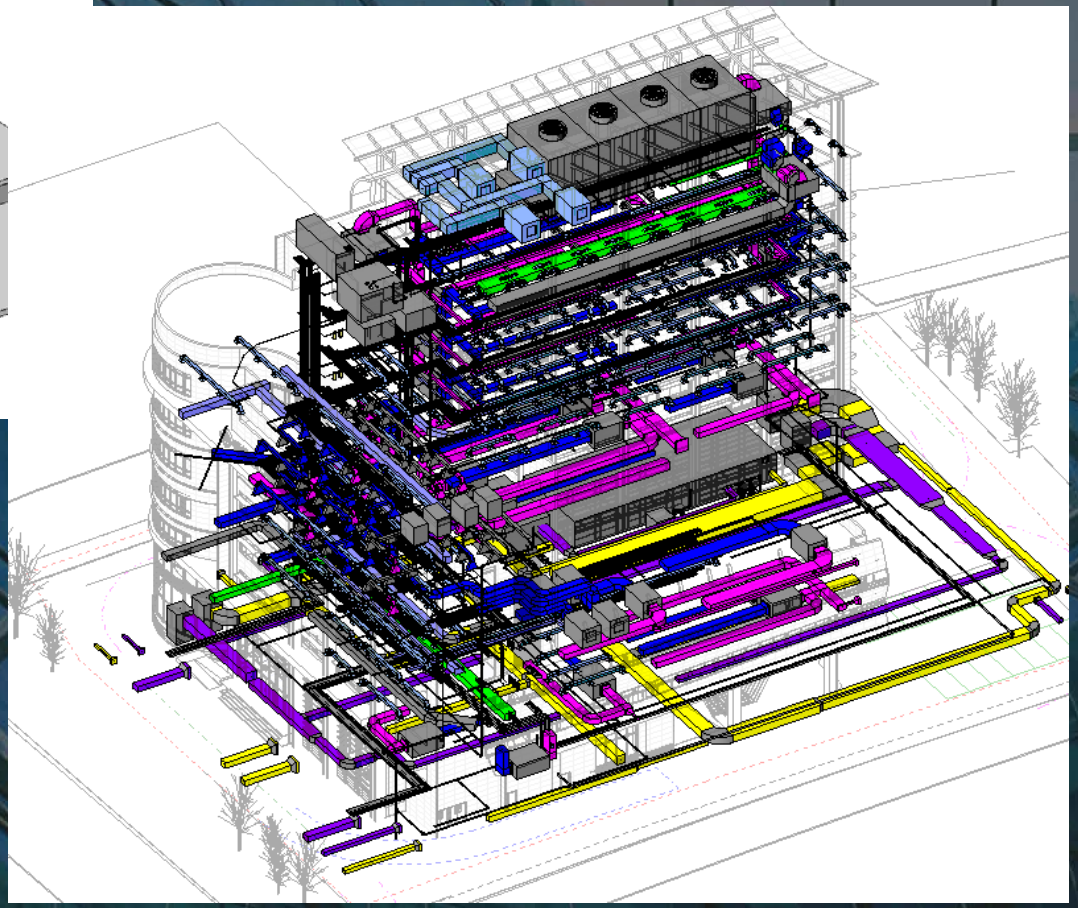
8. Complex Geometry

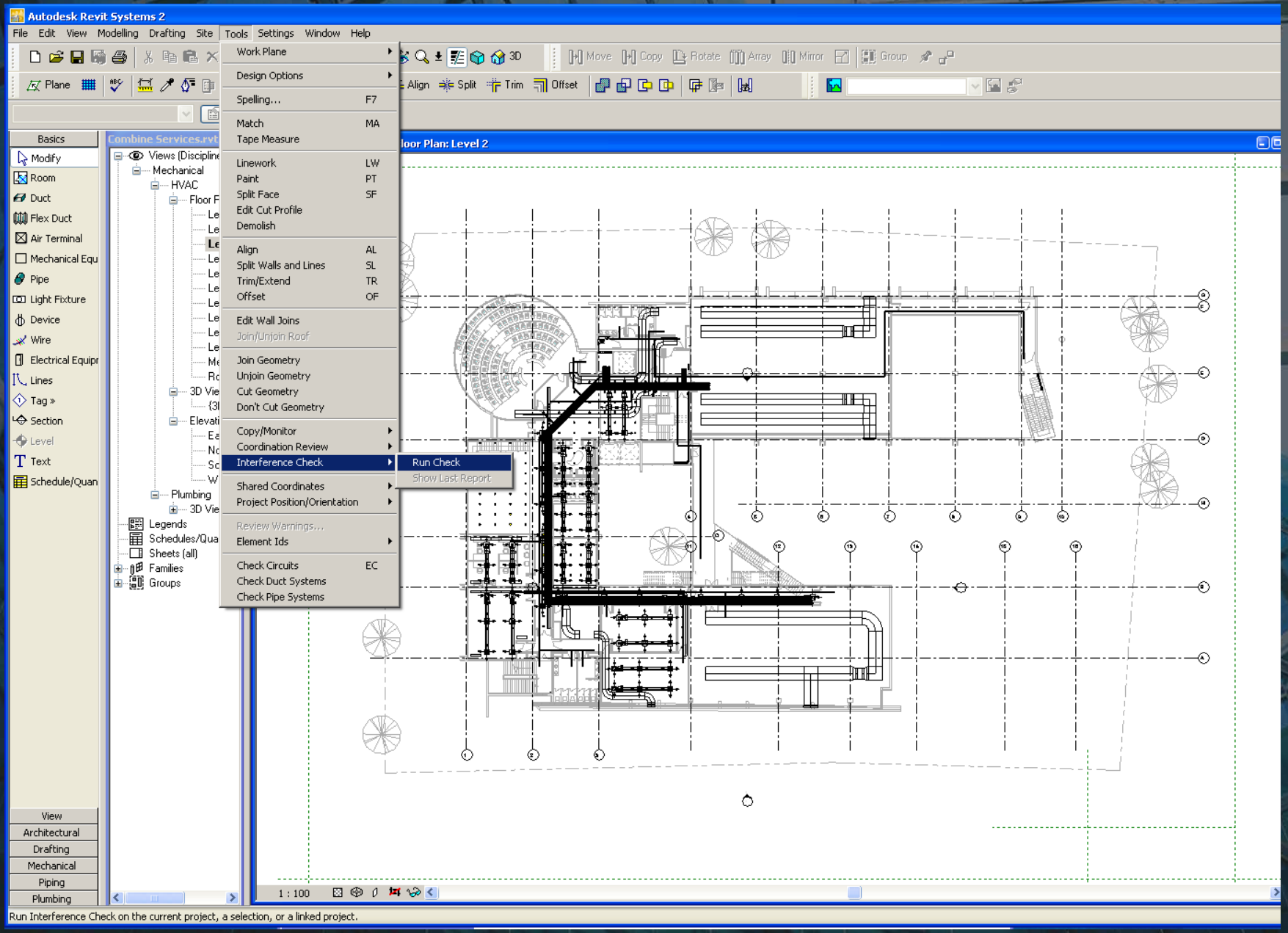
CO-ORDINATION / COLLABORATION

Work Flow – Establish BIM Models



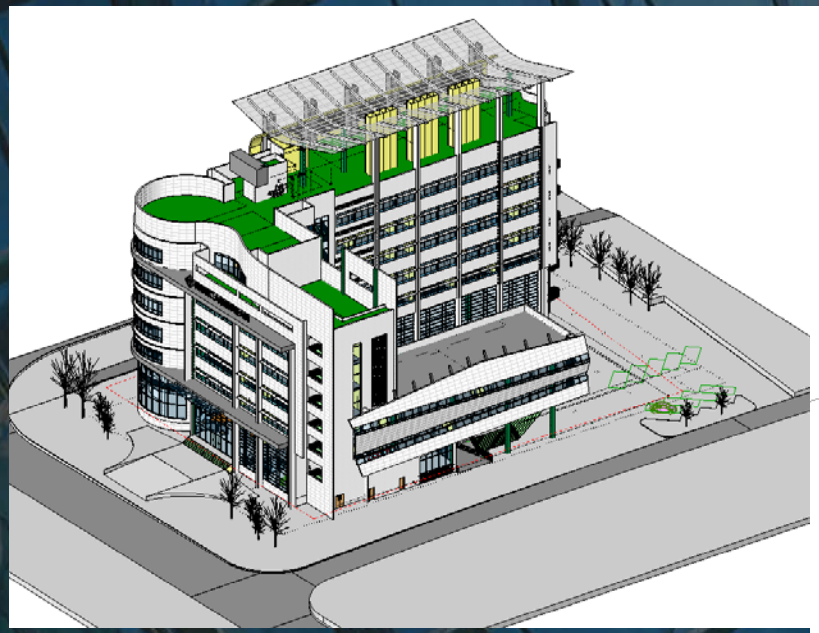


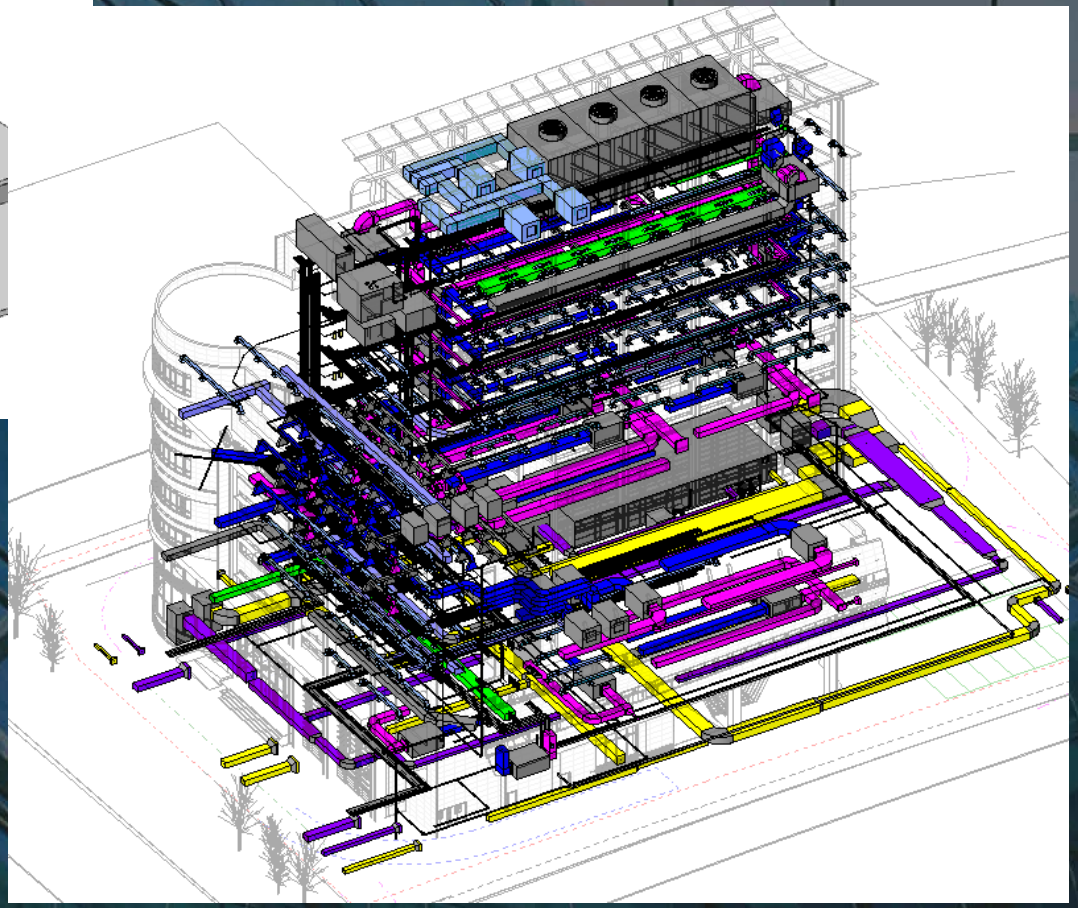
Work Flow – Clashes Report

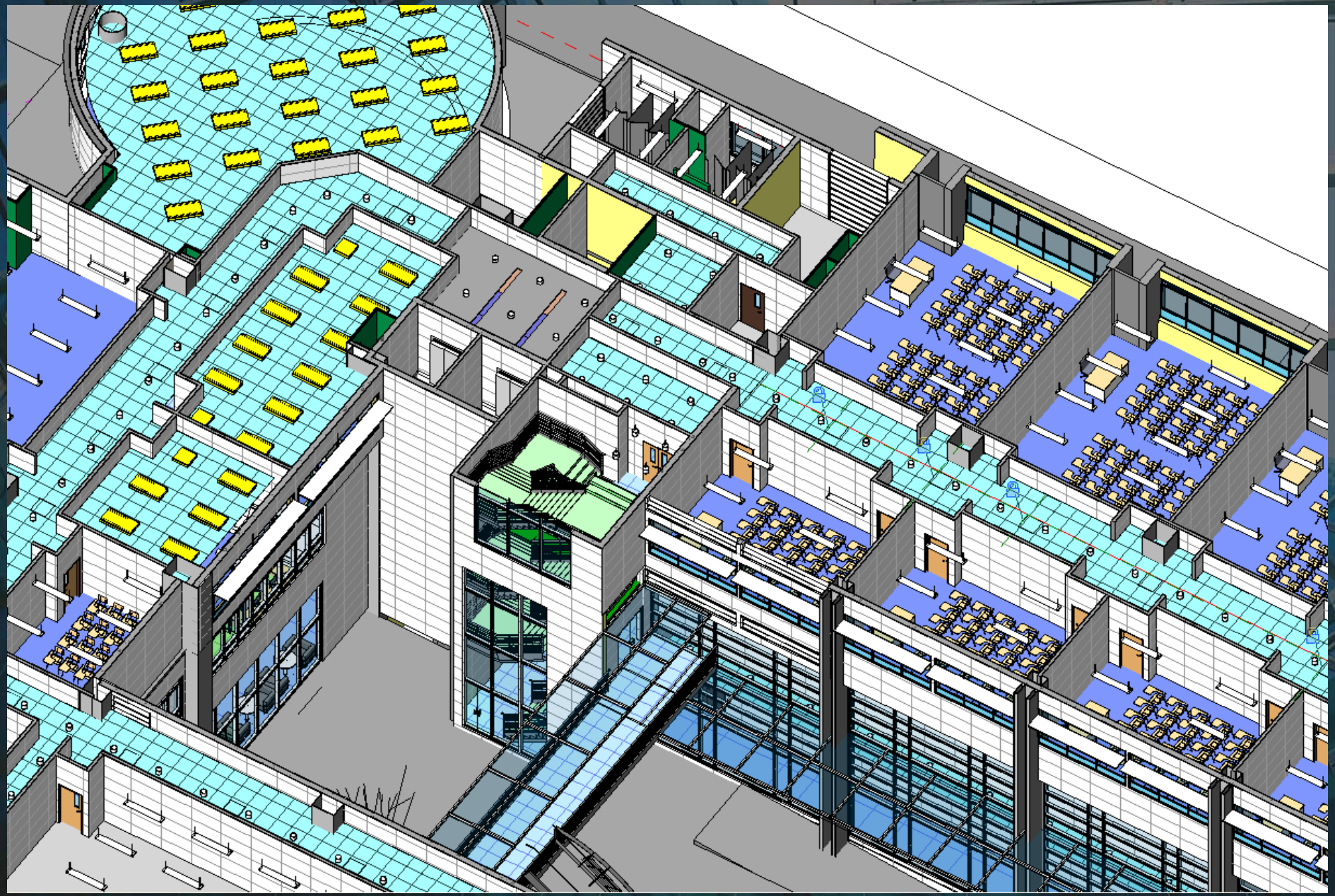


CO-ORDINATION / COLLABORATION

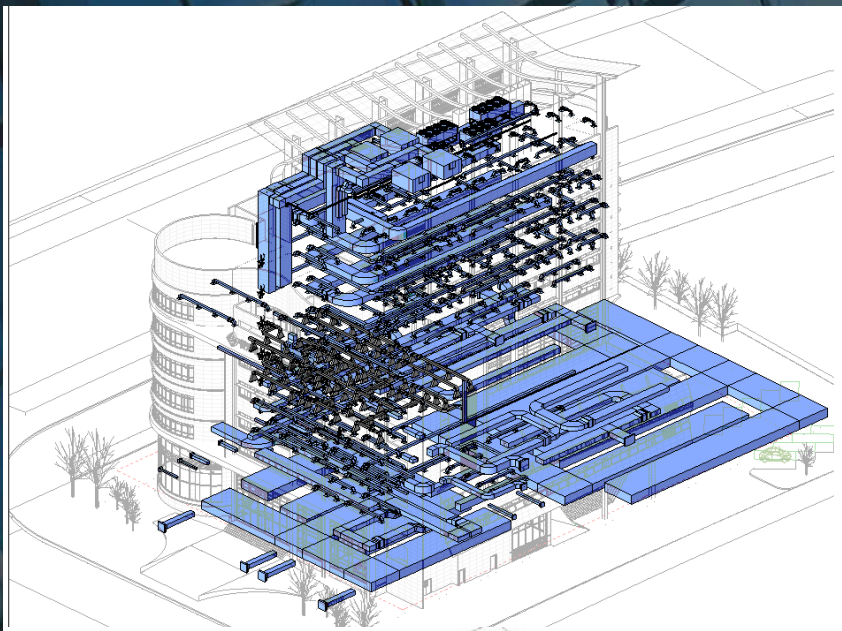
Work Flow – Establish BIM Models



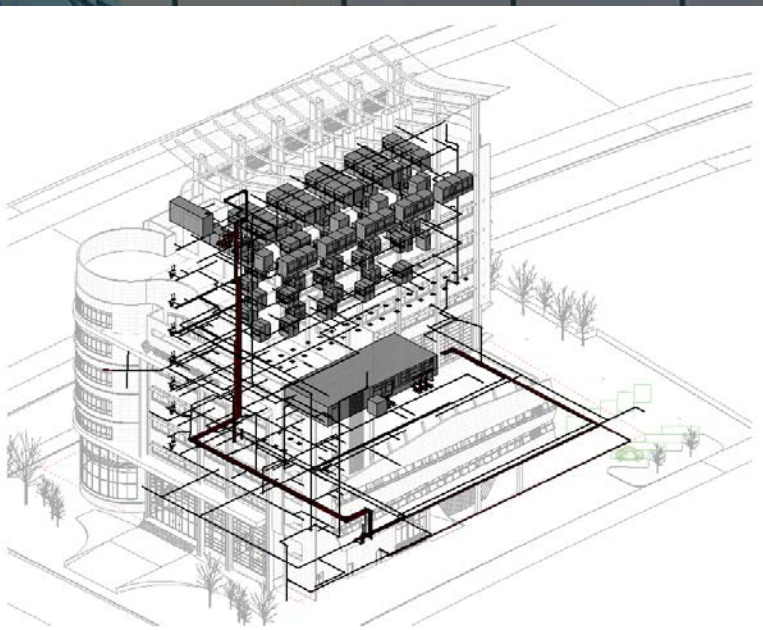


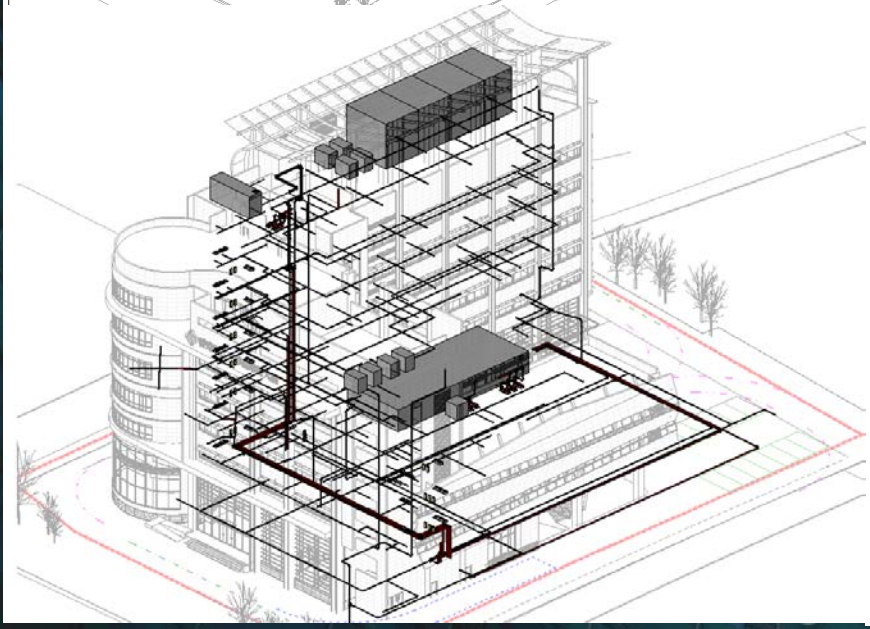


HVAC Installation

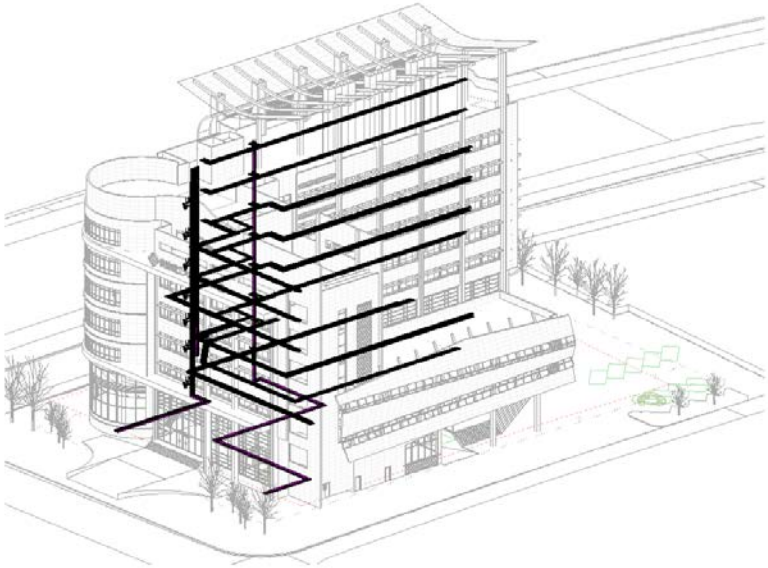


Fire Services Installation



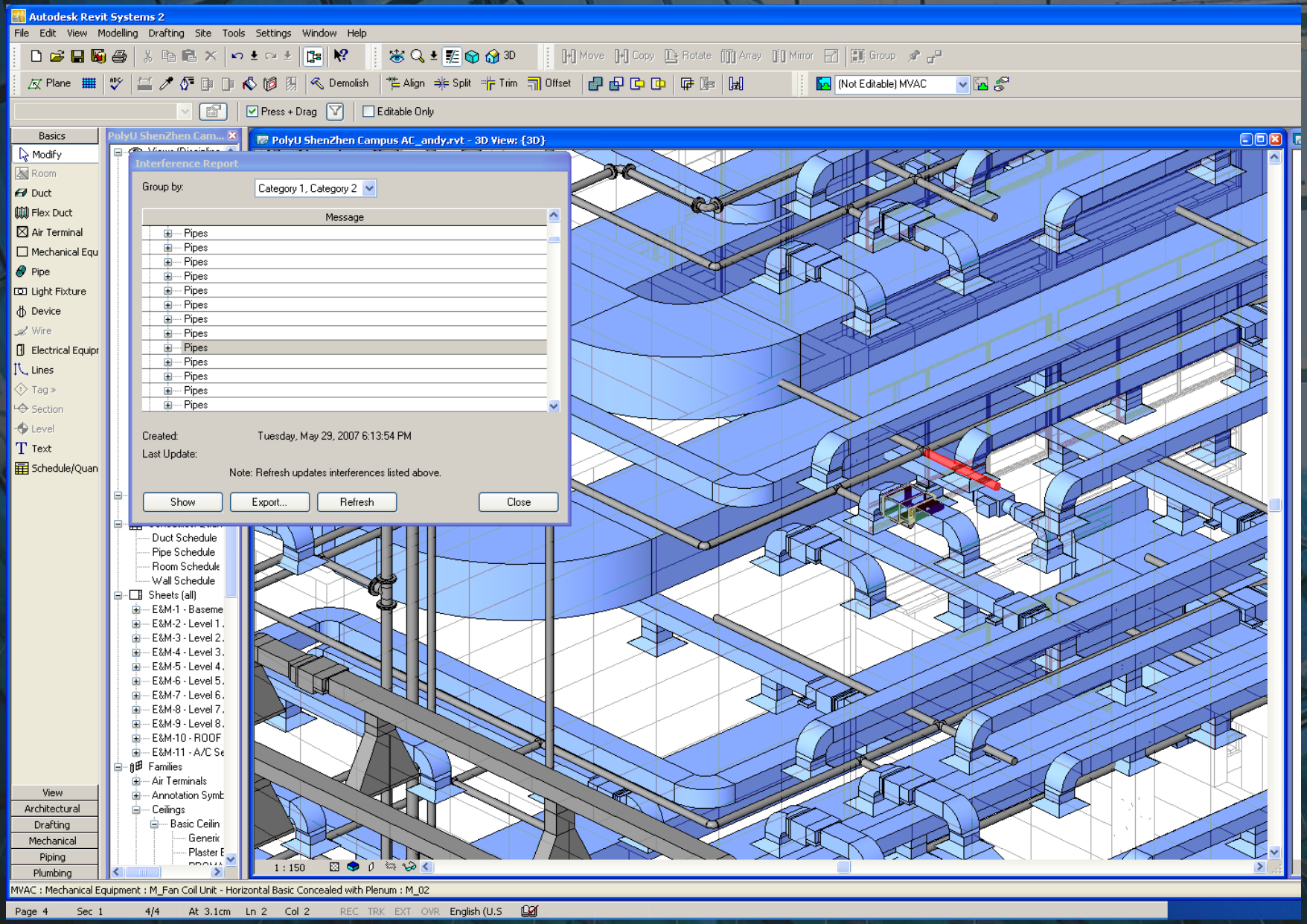


P/D Installation

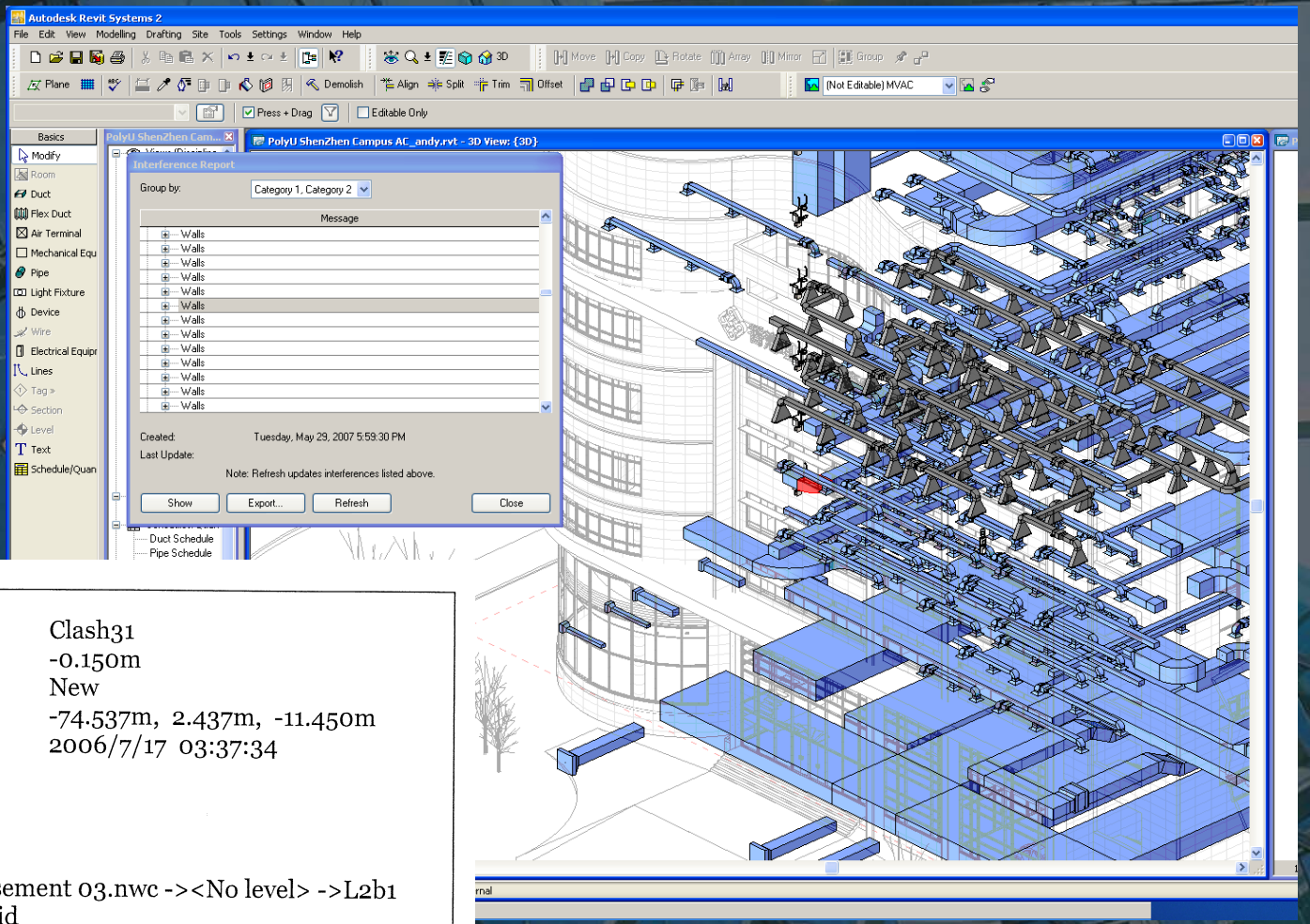


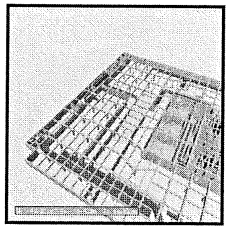
Electricity Installation

Work Flow – Clashes Report



Work Flow – Clashes Report





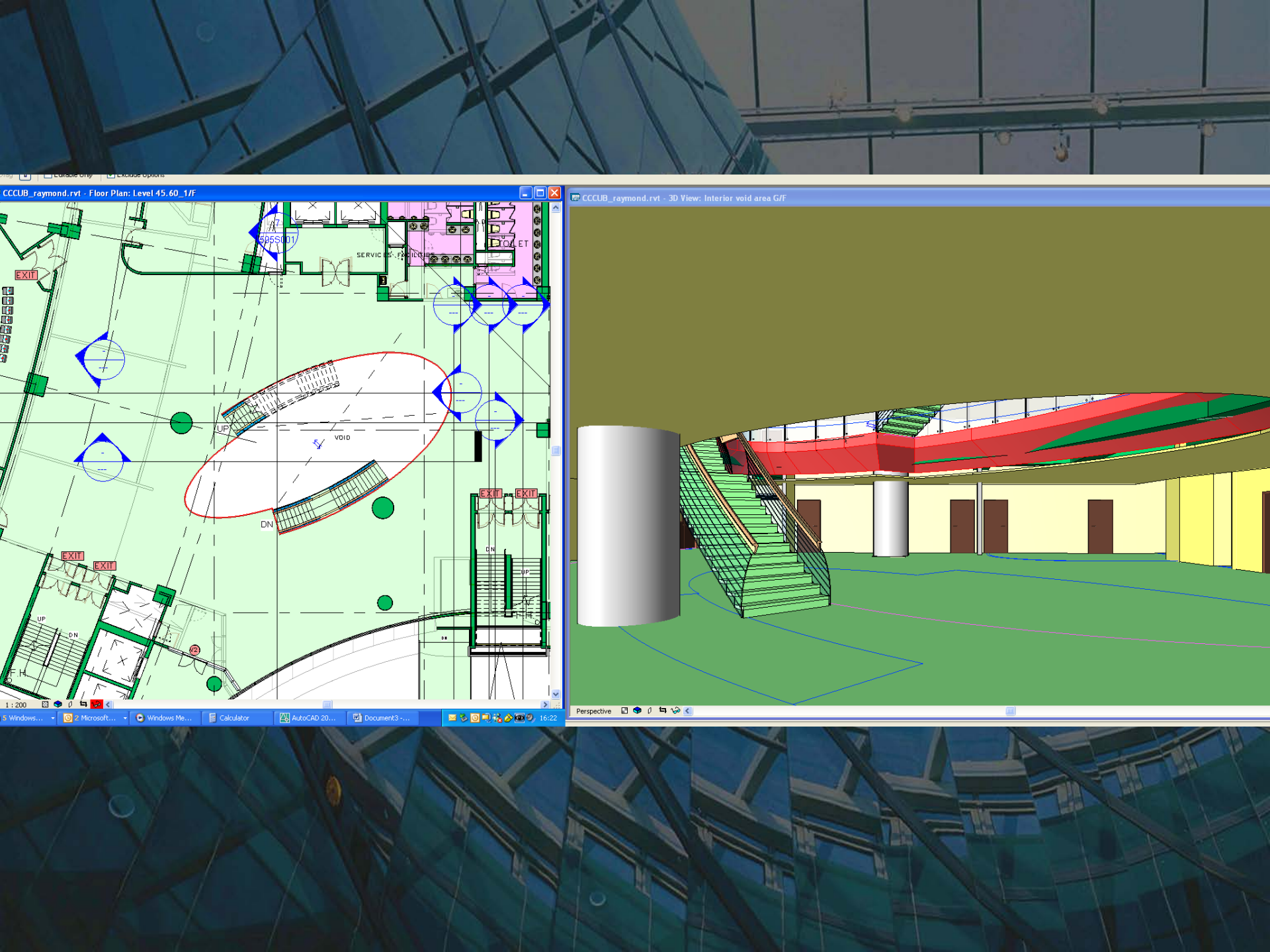
Name	Clash31
Distance	-0.150m
Status	New
Clash Point	-74.537m, 2.437m, -11.450m
Date Created	2006/7/17 03:37:34
Approved By	

Item 1

Path File ->File ->Basement 03.nwc -><No level> ->L2b1 500 x 700 ->L2b1 500 x 700 ->Solid

Item 2

Entity Handle	2AD6
Path	File ->File ->B3HVAC_Duct.nwd ->H-Ductwork-G ->Duct


CCCUB_raymond.rvt - Floor Plan: Level 45.60_1/F
CCCUB_raymond.rvt - 3D View: Interior void area G/F
EXIT
SERVICES FACILITIES
TOILET
UP
DN
VOID
Perspective

Use of Building Information Modeling (BIM)

1. Design visualization
2. Drawing Productions
3. Services Co-ordination and Clash detection with other disciplines
4. **Quantity taking and preparation of Tender Document** 数量拾い及び入札書類の作成
5. Automated Statutory Submission
6. Scientific analysis of different environmental aspects
7. Supply Chain Integration with the manufacturing and production
8. Complex Geometry

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 1. Rock Profile]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group

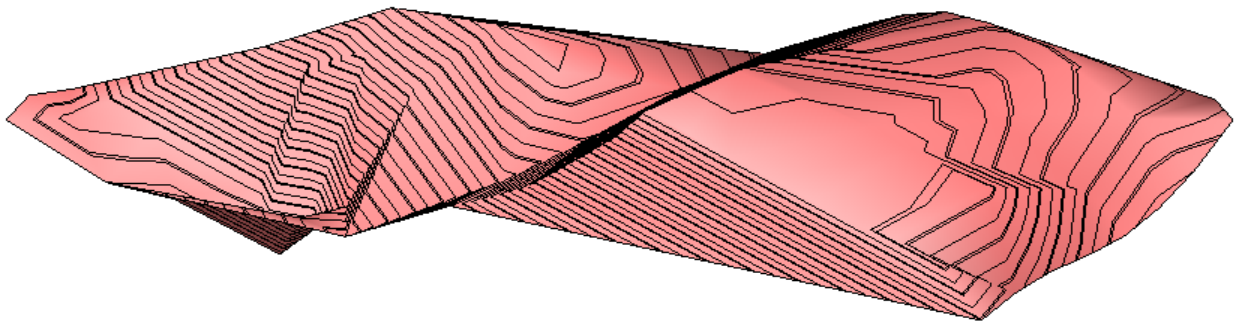
Plane Demolish Align Split Trim Offset

Press + Drag

Basics
Modify
Wall
Door
Window
Component
Room
Roof »
Floor
Grid
Lines
Ref Plane
Dimension
Section
Level
Text

Swimming Pool 11 Oct 0...

- Views (all)
  - Floor Plans
    - Cap Level 63.5
    - G/F
    - New Cover for Flat R
    - New Flat Roof
    - R/F
    - Site
    - Top of Fencing
    - U/G Floor
    - Upper Roof
  - 3D Views
    - **1. Rock Profile**
    - 2. Mini-piles
    - 3. Pile Caps & Footin
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
    - 7. G/F
    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. NW Exterior
    - 11. Pool Interior
    - {3D}
  - Elevations (Building Eleve
  - Sections (Building Section
- Legends
- Schedules/Quantities
  - 2. Mini-Piles
  - 3. Pile Caps & Footings
  - 4. Tie Beams
  - 5a. Columns (Substructure
  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
  - 8a. Beams (Superstructure
  - 8b. Columns (Superstructu
  - 9. Walls (Superstructure)
  - 10. Roof Material Takeof
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



1 : 100

View
Modelling
Drafting
Rendering
Site

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

NUM

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 2. Mini-piles]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Press + Drag

Basics
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Room
Roof »
Floor
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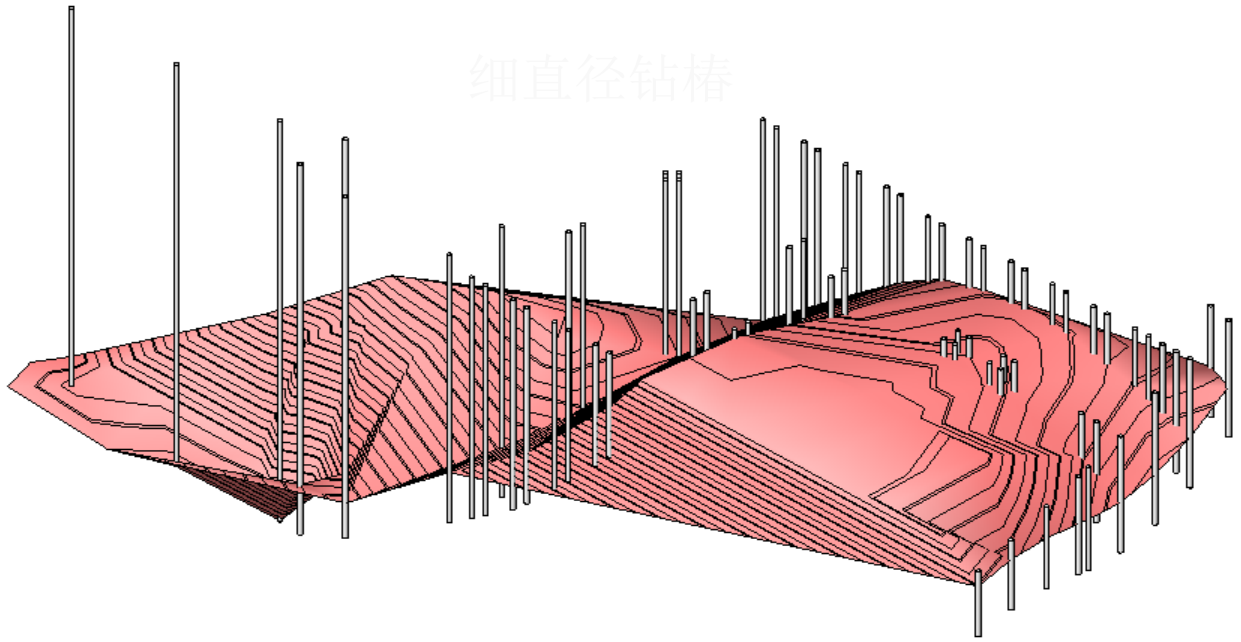
Lines
Ref Plane
Dimension
Section
Level
Text

Swimming Pool 11 Oct 0...

- Views (all)
  - Floor Plans
    - Cap Level 63.5
    - G/F
    - New Cover for Flat R
    - New Flat Roof
    - R/F
    - Site
    - Top of Fencing
    - U/G Floor
    - Upper Roof
  - 3D Views
    - 1. Rock Profile
    - **2. Mini-piles**
    - 3. Pile Caps & Footing
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
    - 7. G/F
    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. NW Exterior
    - 11. Pool Interior
    - {3D}
  - Elevations (Building Eleve
  - Sections (Building Section
- Legends
- Schedules/Quantities
  - 2. Mini-Piles
  - 3. Pile Caps & Footings
  - 4. Tie Beams
  - 5a. Columns (Substructure
  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
  - 8a. Beams (Superstructure
  - 8b. Columns (Superstructu
  - 9. Walls (Superstructure)
  - 10. Roof Material Takeof
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



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View
Modelling
Drafting
Rendering
Site

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

NUM

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 3. Pile Caps & Footings]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group 3D

Plane Demolish Align Split Trim Offset

Press + Drag

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Roof »
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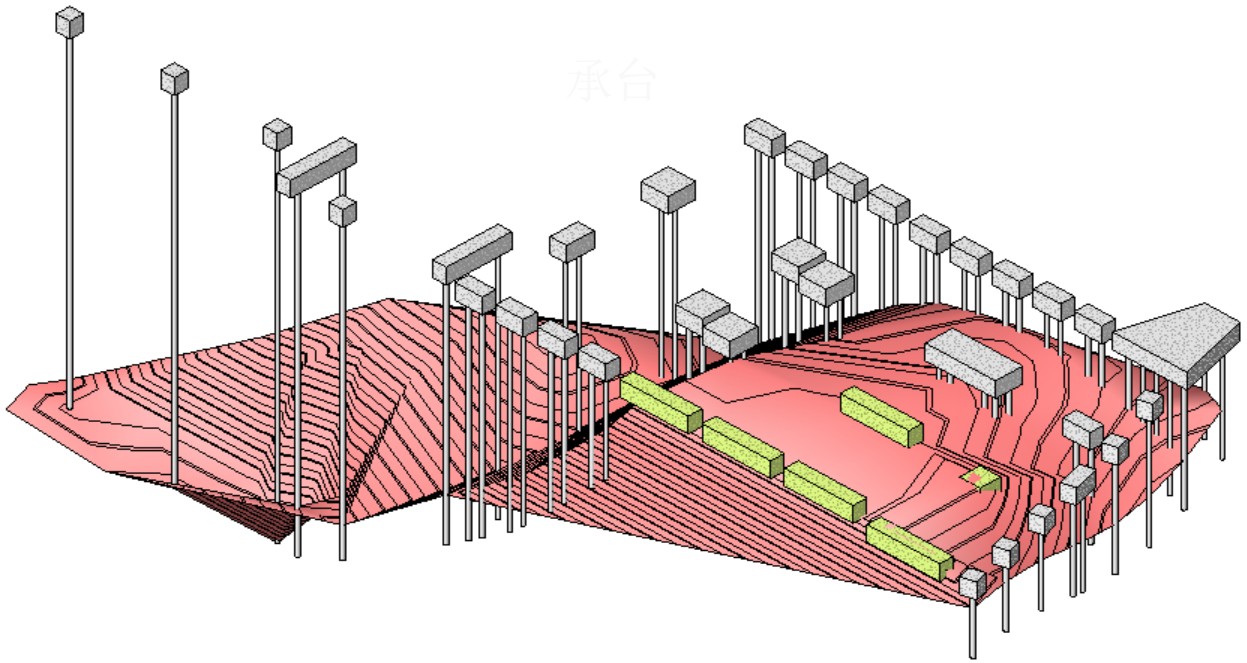
Ref Plane
Dimension
Section
Level
Text

Swimming Pool 11 Oct 0...

- Views (all)
  - Floor Plans
    - Cap Level 63.5
    - G/F
    - New Cover for Flat R
    - New Flat Roof
    - R/F
    - Site
    - Top of Fencing
    - U/G Floor
    - Upper Roof
  - 3D Views
    - 1. Rock Profile
    - 2. Mini-piles
    - **3. Pile Caps & Foo**
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
    - 7. G/F
    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. NW Exterior
    - 11. Pool Interior
    - {3D}
  - Elevations (Building Eleve
  - Sections (Building Section
- Legends
- Schedules/Quantities
  - 2. Mini-Piles
  - 3. Pile Caps & Footings
  - 4. Tie Beams
  - 5a. Columns (Substructure
  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
  - 8a. Beams (Superstructure
  - 8b. Columns (Superstructu
  - 9. Walls (Superstructure)
  - 10. Roof Material Takeof
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



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View
Modelling
Drafting
Rendering
Site

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

NUM

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 4. Tie Beams]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Press + Drag

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Roof »
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Dimension
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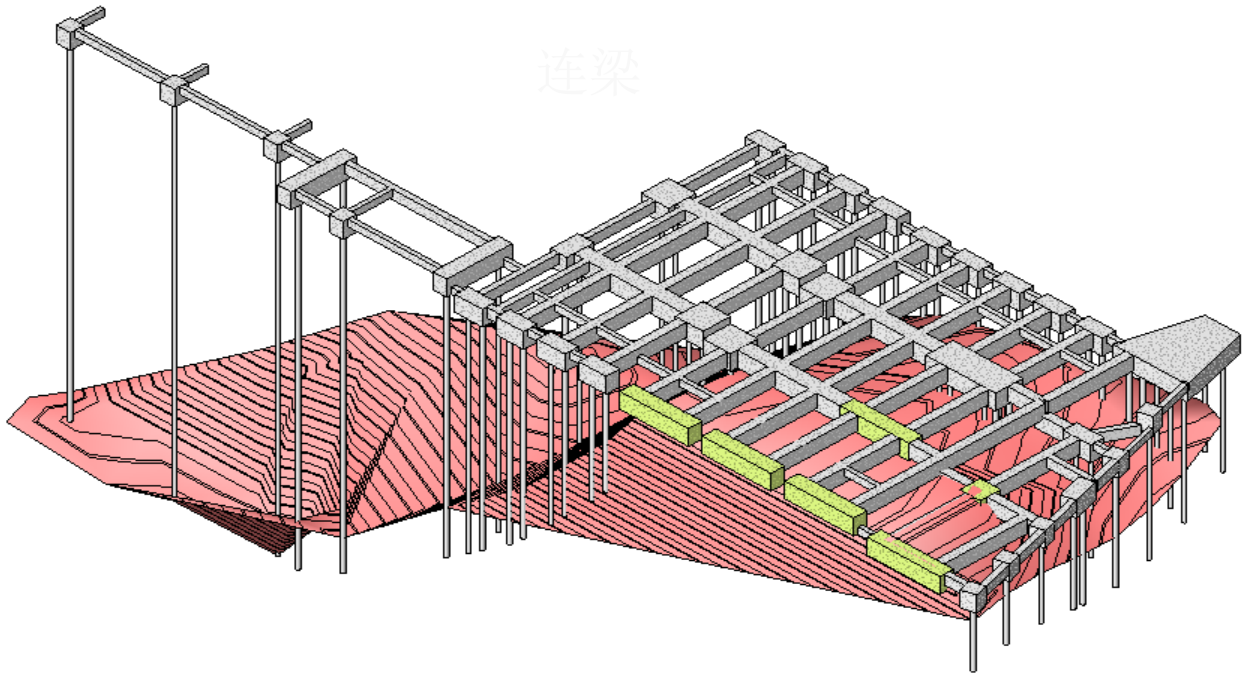
Level
Text

Swimming Pool 11 Oct 0...

- Views (all)
  - Floor Plans
    - Cap Level 63.5
    - G/F
    - New Cover for Flat R
    - New Flat Roof
    - R/F
    - Site
    - Top of Fencing
    - U/G Floor
    - Upper Roof
  - 3D Views
    - 1. Rock Profile
    - 2. Mini-piles
    - 3. Pile Caps & Footing
    - **4. Tie Beams**
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
    - 7. G/F
    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. NW Exterior
    - 11. Pool Interior
    - {3D}
  - Elevations (Building Eleve
  - Sections (Building Section
- Legends
- Schedules/Quantities
  - 2. Mini-Piles
  - 3. Pile Caps & Footings
  - 4. Tie Beams
  - 5a. Columns (Substructure
  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
  - 8a. Beams (Superstructure
  - 8b. Columns (Superstructu
  - 9. Walls (Superstructure)
  - 10. Roof Material Takeof
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



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View
Modelling
Drafting
Rendering
Site

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

NUM

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 5. Columns & Walls (Sub-structure)]

File Edit View Modelling Drafting Site Tools Settings Window Help

3D Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Press + Drag

Basics
Modify
Wall
Door
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Component
Room
Roof »
Floor
Grid
Lines
Ref Plane
Dimension
Section
Level
Text

Swimming Pool 11 Oct 0...
Views (all)
Floor Plans
Cap Level 63.5
G/F
New Cover for Flat R
New Flat Roof
R/F
Site
Top of Fencing
U/G Floor
Upper Roof
3D Views
1. Rock Profile
2. Mini-piles
3. Pile Caps & Footing
4. Tie Beams
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6. Slabs & Gd. Beams
7. G/F
8. UG/F & New Flat R
9. Roof
10. NW Exterior
11. Pool Interior
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Sections (Building Section
Legends
Schedules/Quantities
2. Mini-Piles
3. Pile Caps & Footings
4. Tie Beams
5a. Columns (Substructure
5b. Bearing/Screen Walls
6. Ground Beams
7. Floor Material Takeoff
8a. Beams (Superstructure
8b. Columns (Superstructu
9. Walls (Superstructure)
10. Roof Material Takeof
11. Ramp Schedule
12. Stairs Material Takeof
Sheets (all)
Families
Groups

桩和墙(地下结构)

1 : 100

View
Modelling
Drafting
Rendering
Site

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

NUM

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 6. Slabs & Gd. Beams (Sub-structure)]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group 3D

Plane Demolish Align Split Trim Offset

Press + Drag

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Swimming Pool 11 Oct 0...

- Views (all)
  - Floor Plans
    - Cap Level 63.5
    - G/F
    - New Cover for Flat R
    - New Flat Roof
    - R/F
    - Site
    - Top of Fencing
    - U/G Floor
    - Upper Roof
  - 3D Views
    - 1. Rock Profile
    - 2. Mini-piles
    - 3. Pile Caps & Footing
    - 4. Tie Beams
    - 5. Columns & Walls (
    - **6. Slabs & Gd. Be**
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    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. NW Exterior
    - 11. Pool Interior
    - {3D}
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- Legends
- Schedules/Quantities
  - 2. Mini-Piles
  - 3. Pile Caps & Footings
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  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
  - 8a. Beams (Superstructure
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  - 9. Walls (Superstructure)
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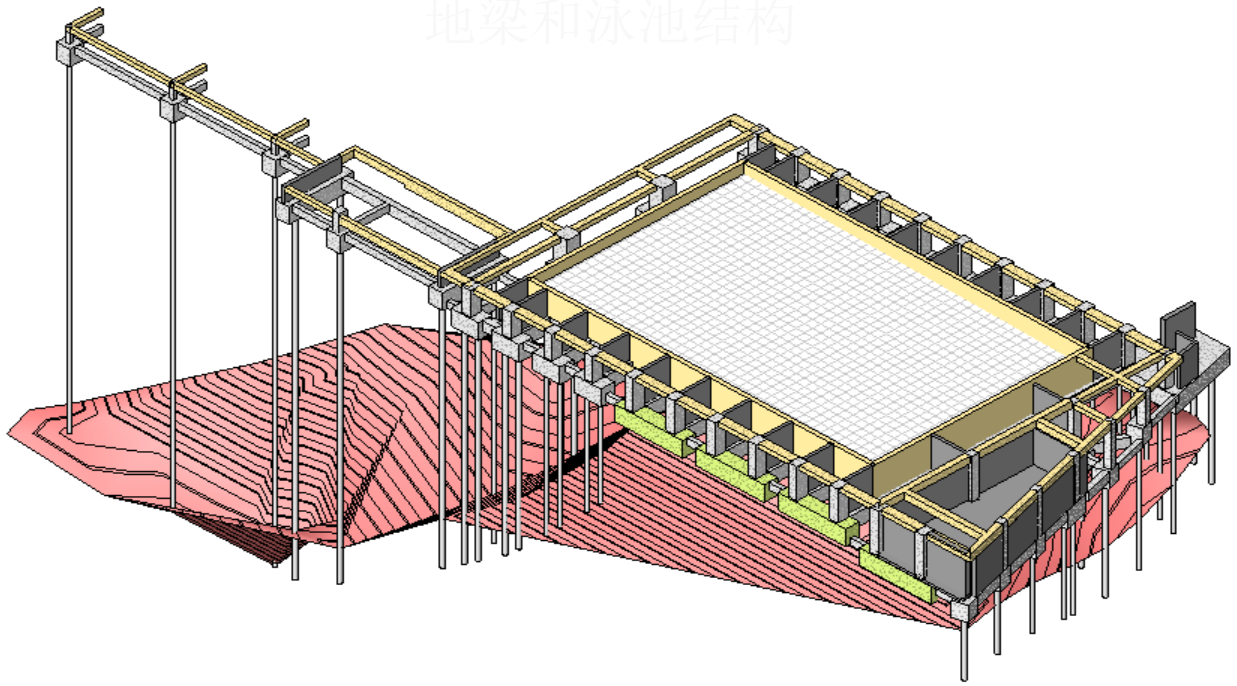
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



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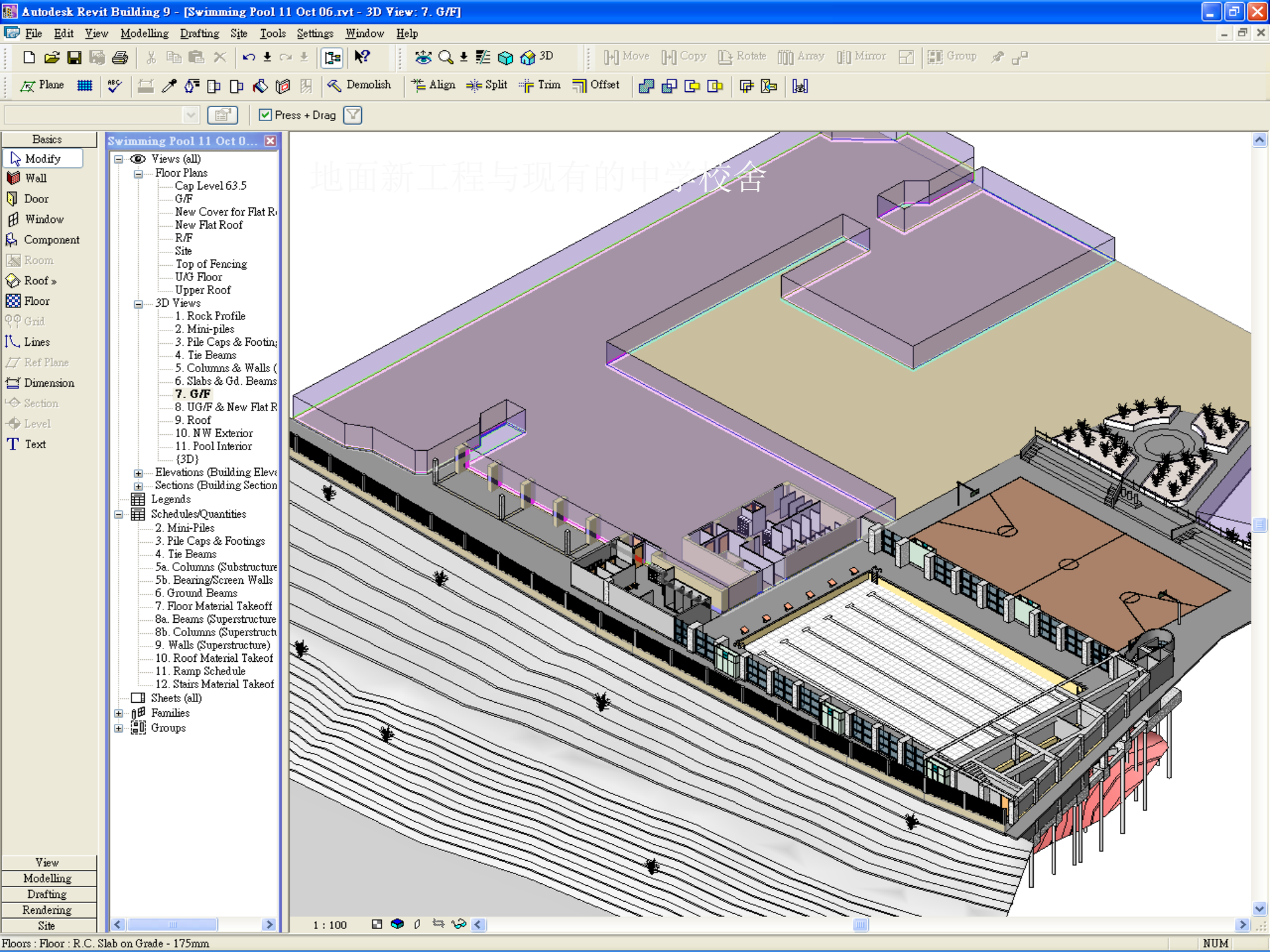
View
Modelling
Drafting
Rendering
Site

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

NUM


Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 7. G/F]
File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
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Component
Room
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Floor
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Dimension
Section
Level
Text
Swimming Pool 11 Oct 0...
Views (all)
Floor Plans
Cap Level 63.5
G/F
New Cover for Flat R
New Flat Roof
R/F
Site
Top of Fencing
U/G Floor
Upper Roof
3D Views
1. Rock Profile
2. Mini-piles
3. Pile Caps & Footing
4. Tie Beams
5. Columns & Walls (
6. Slabs & Gd. Beams
7. G/F
8. UG/F & New Flat R
9. Roof
10. NW Exterior
11. Pool Interior
{3D}
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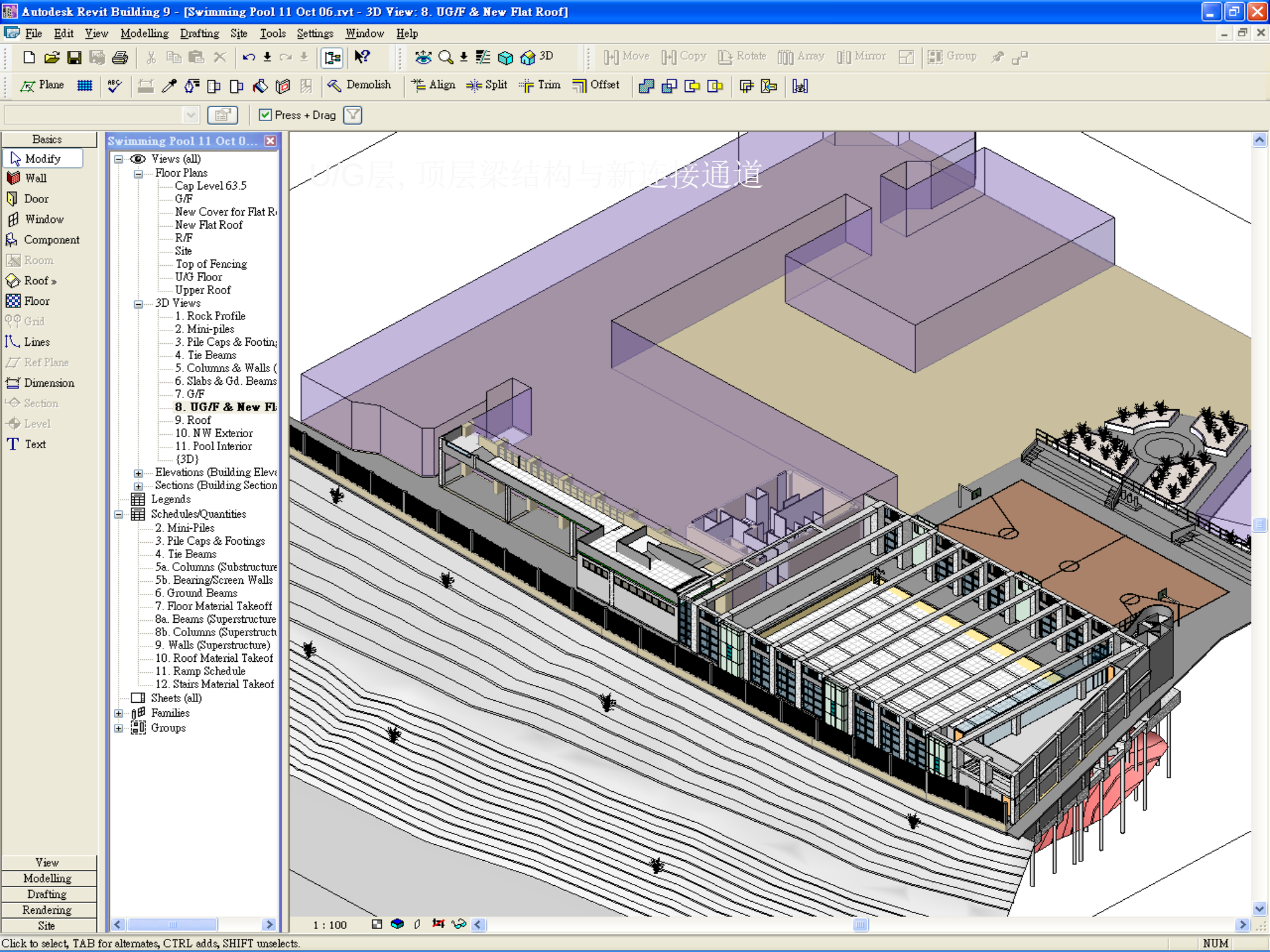
Sections (Building Section
Legends
Schedules/Quantities
2. Mini-Piles
3. Pile Caps & Footings
4. Tie Beams
5a. Columns (Substructure
5b. Bearing/Screen Walls
6. Ground Beams
7. Floor Material Takeoff
8a. Beams (Superstructure
8b. Columns (Superstructu
9. Walls (Superstructure)
10. Roof Material Takeof
11. Ramp Schedule
12. Stairs Material Takeof
Sheets (all)
Families
Groups
地面新工程与现有的中学校舍
1 : 100
View
Modelling
Drafting
Rendering
Site
Floors : Floor : R.C. Slab on Grade - 175mm
NUM


Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 8. UG/F & New Flat Roof]
File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
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Views (all)
Floor Plans
Cap Level 63.5
G/F
New Cover for Flat R
New Flat Roof
R/F
Site
Top of Fencing
U/G Floor
Upper Roof
3D Views
1. Rock Profile
2. Mini-piles
3. Pile Caps & Footin
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6. Slabs & Gd. Beams
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8. UG/F & New Fl
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10. NW Exterior
11. Pool Interior
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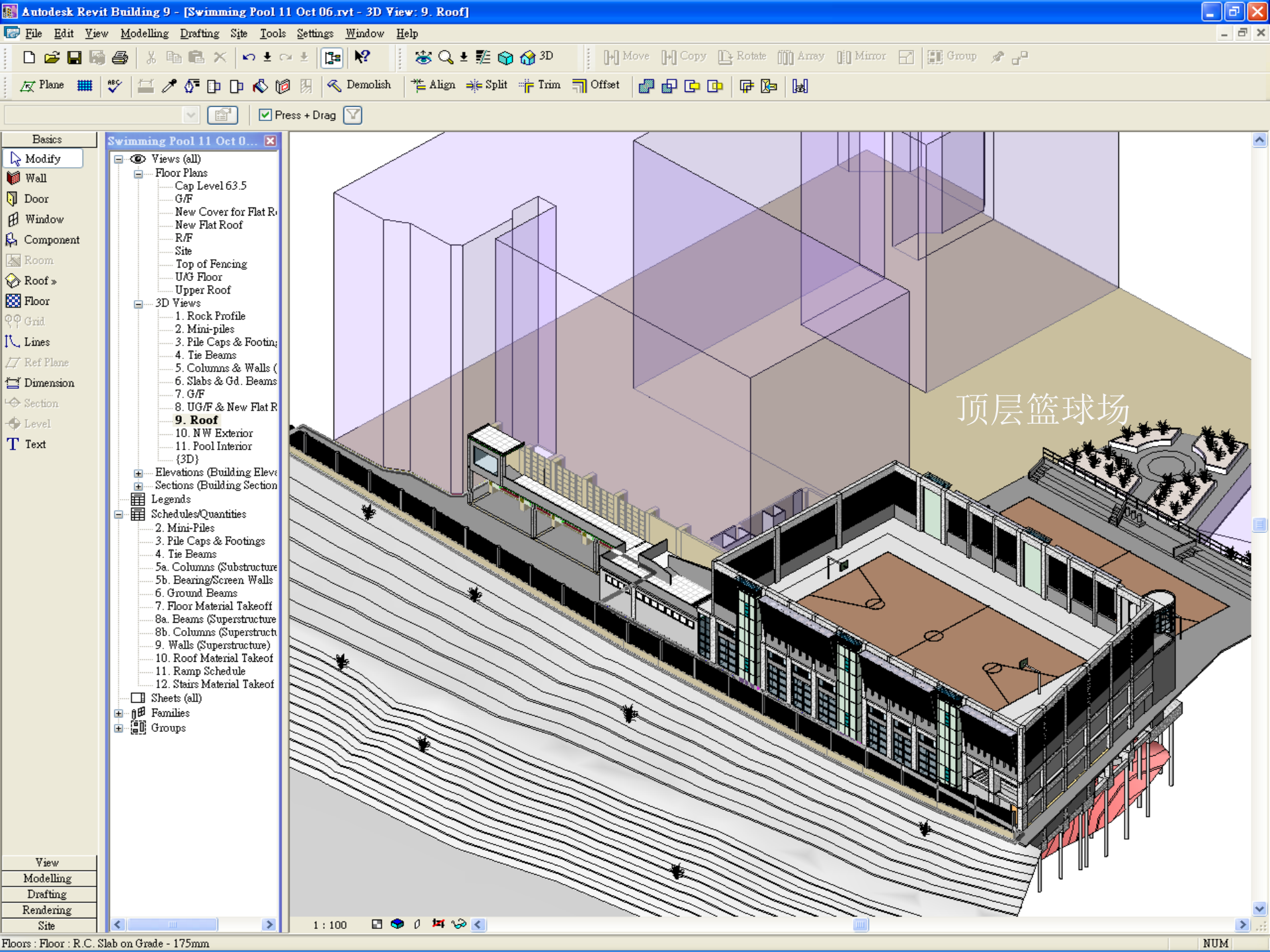
Legends
Schedules/Quantities
2. Mini-Piles
3. Pile Caps & Footings
4. Tie Beams
5a. Columns (Substructure
5b. Bearing/Screen Walls
6. Ground Beams
7. Floor Material Takeoff
8a. Beams (Superstructure
8b. Columns (Superstructu
9. Walls (Superstructure)
10. Roof Material Takeof
11. Ramp Schedule
12. Stairs Material Takeof
Sheets (all)
Families
Groups
U/G层，顶层梁结构与新连接通道
1 : 100
View
Modelling
Drafting
Rendering
Site
Click to select, TAB for alternates, CTRL adds, SHIFT unselects.
NUM


Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 9. Roof]
File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
Press + Drag
Basics
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Views (all)
Floor Plans
Cap Level 63.5
G/F
New Cover for Flat R
New Flat Roof
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Site
Top of Fencing
U/G Floor
Upper Roof
3D Views
1. Rock Profile
2. Mini-piles
3. Pile Caps & Footing
4. Tie Beams
5. Columns & Walls (
6. Slabs & Gd. Beams
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8. UG/F & New Flat R
9. Roof
10. NW Exterior
11. Pool Interior
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Legends
Schedules/Quantities
2. Mini-Piles
3. Pile Caps & Footings
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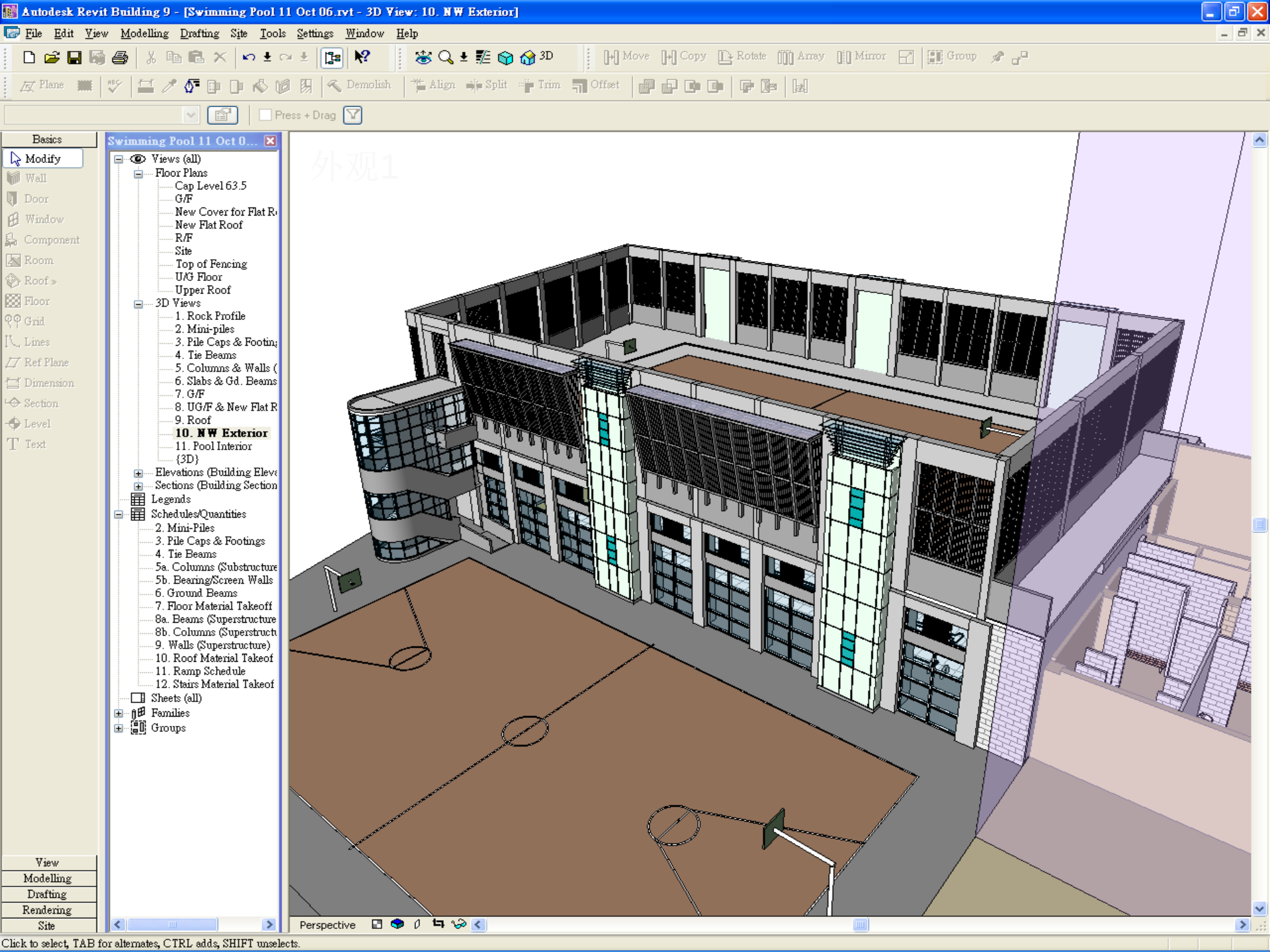
5b. Bearing/Screen Walls
6. Ground Beams
7. Floor Material Takeoff
8a. Beams (Superstructure
8b. Columns (Superstructu
9. Walls (Superstructure)
10. Roof Material Takeof
11. Ramp Schedule
12. Stairs Material Takeof
Sheets (all)
Families
Groups
顶层篮球场
1 : 100
View
Modelling
Drafting
Rendering
Site
Floors : Floor : R.C. Slab on Grade - 175mm
NUM


Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 10. NW Exterior]
File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
Press + Drag
Basics
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Swimming Pool 11 Oct 0...
Views (all)
Floor Plans
Cap Level 63.5
G/F
New Cover for Flat R
New Flat Roof
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Site
Top of Fencing
U/G Floor
Upper Roof
3D Views
1. Rock Profile
2. Mini-piles
3. Pile Caps & Footing
4. Tie Beams
5. Columns & Walls (
6. Slabs & Gd. Beams
7. G/F
8. UG/F & New Flat R
9. Roof
10. NW Exterior
11. Pool Interior
{3D}
Elevations (Building Eleve
Sections (Building Section
Legends
Schedules/Quantities
2. Mini-Piles
3. Pile Caps & Footings
4. Tie Beams
5a. Columns (Substructure
5b. Bearing/Screen Walls
6. Ground Beams
7. Floor Material Takeoff
8a. Beams (Superstructure
8b. Columns (Superstructu
9. Walls (Superstructure)
10. Roof Material Takeof
11. Ramp Schedule
12. Stairs Material Takeof
Sheets (all)
Families
Groups
外观1
Perspective
View
Modelling
Drafting
Rendering
Site
Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 11. Pool Interior]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

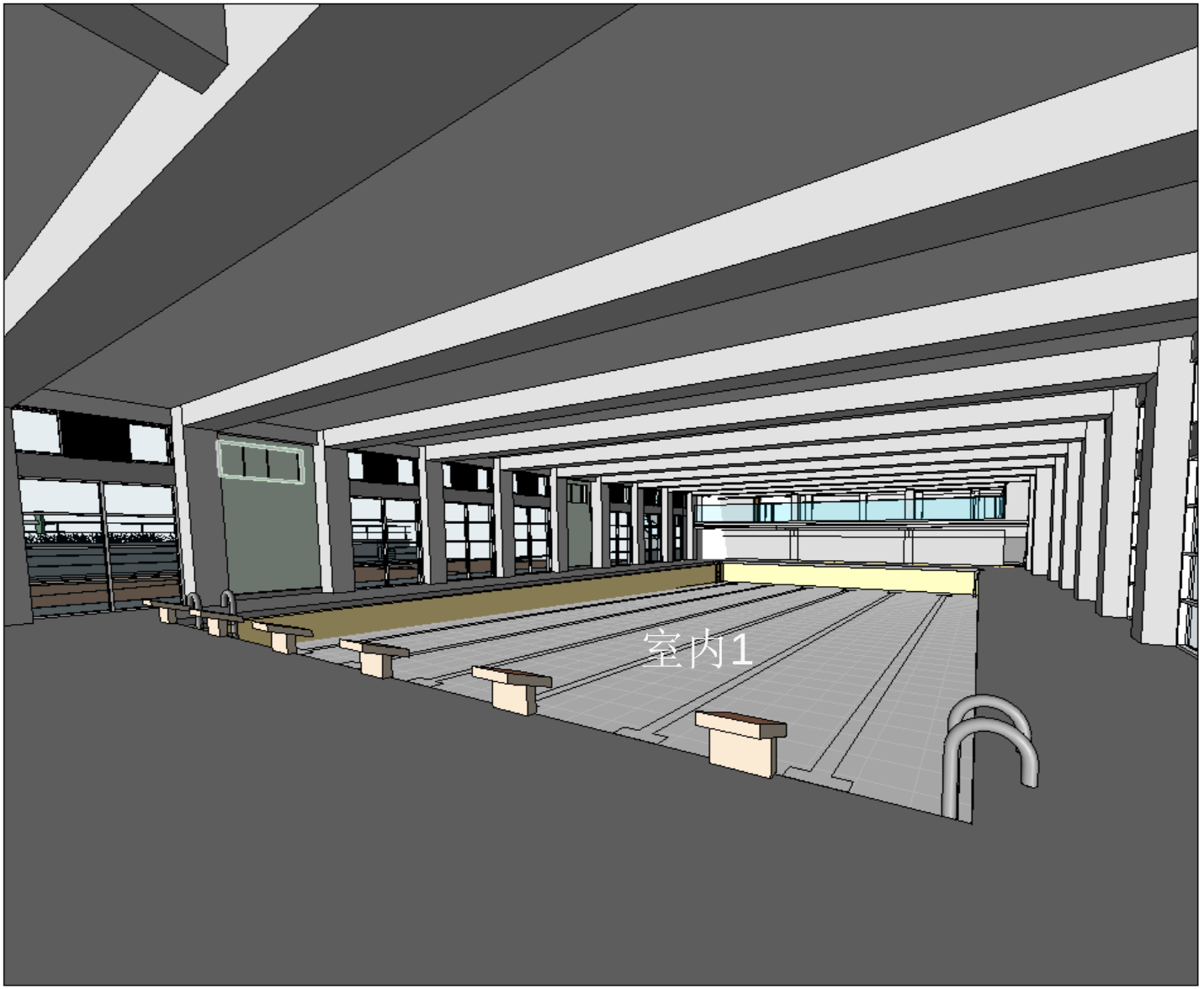
Press + Drag

Basics

Modify
Wall
Door
Window
Component
Room
Roof »
Floor
Grid
Lines
Ref Plane
Dimension
Section
Level
Text

Swimming Pool 11 Oct 0...

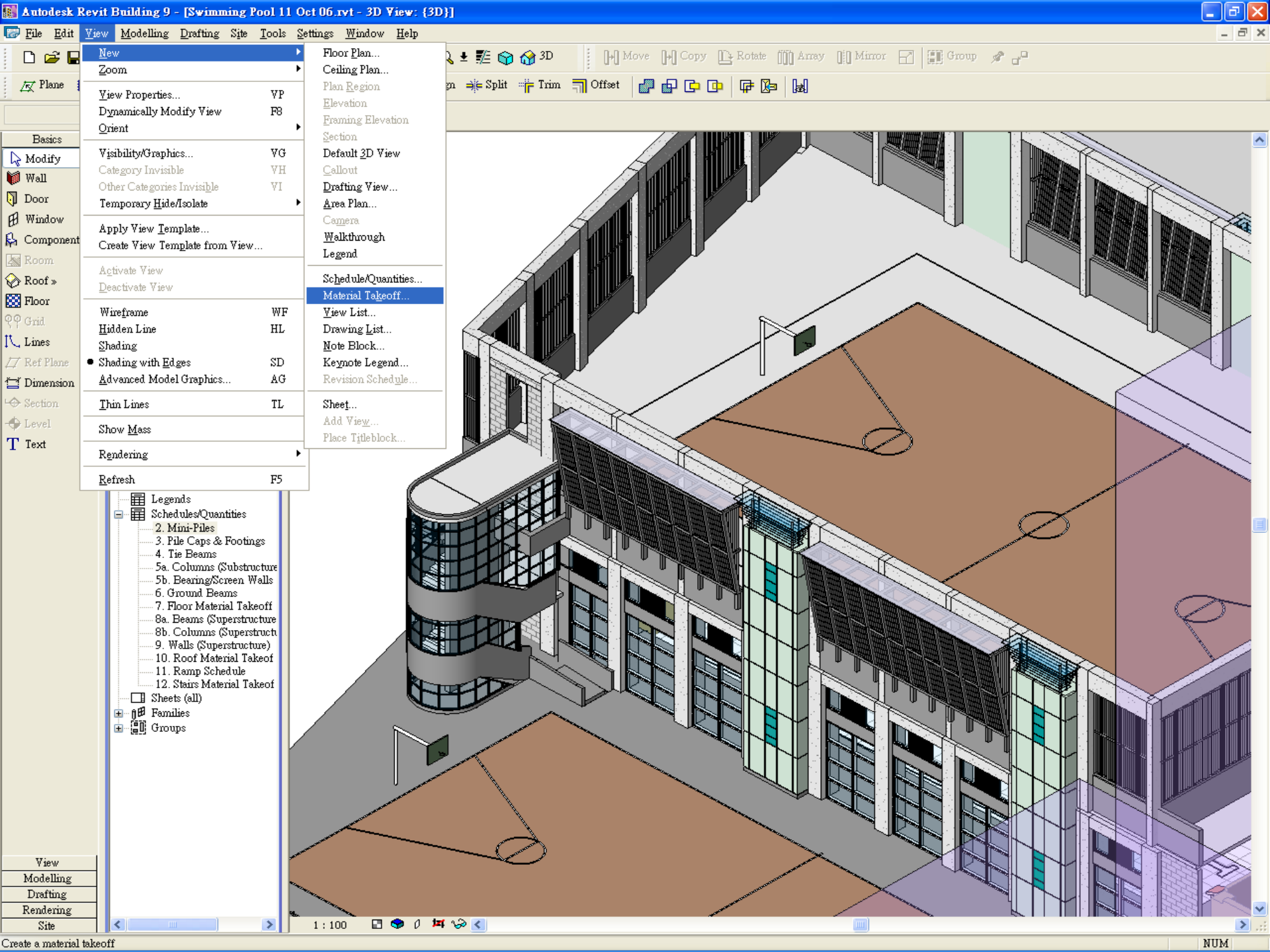
- Views (all)
  - Floor Plans
    - Cap Level 63.5
    - G/F
    - New Cover for Flat R
    - New Flat Roof
    - R/F
    - Site
    - Top of Fencing
    - U/G Floor
    - Upper Roof
  - 3D Views
    - 1. Rock Profile
    - 2. Mini-piles
    - 3. Pile Caps & Footin
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
    - 7. G/F
    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. NW Exterior
    - **11. Pool Interior**
    - {3D}
  - Elevations (Building Eleve
  - Sections (Building Section
- Legends
- Schedules/Quantities
  - 2. Mini-Piles
  - 3. Pile Caps & Footings
  - 4. Tie Beams
  - 5a. Columns (Substructure
  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
  - 8a. Beams (Superstructure
  - 8b. Columns (Superstructu
  - 9. Walls (Superstructure)
  - 10. Roof Material Takeof
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



Perspective

View
Modelling
Drafting
Rendering
Site

Rectangular Straight Wall Opening : Rectangular Straight Wall Opening


Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: {3D}]
File Edit View Modelling Drafting Site Tools Settings Window Help
New
Zoom
View Properties... VP
Dynamically Modify View F8
Orient
Visibility/Graphics... VG
Category Invisible VH
Other Categories Invisible VI
Temporary Hide/Isolate
Apply View Template...
Create View Template from View...
Activate View
Deactivate View
Wireframe WF
Hidden Line HL
Shading
Shading with Edges SD
Advanced Model Graphics... AG
Thin Lines TL
Show Mass
Rendering
Refresh F5
Floor Plan...
Ceiling Plan...
Plan Region
Elevation
Framing Elevation
Section
Default 3D View
Callout
Drafting View...
Area Plan...
Camera
Walkthrough
Legend
Schedule/Quantities...
Material Takeoff...
View List...
Drawing List...
Note Block...
Keynote Legend...
Revision Schedule...
Sheet...
Add View...
Place Titleblock...
Basics
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Schedules/Quantities
2. Mini-Piles
3. Pile Caps & Footings
4. Tie Beams
5a. Columns (Substructure
5b. Bearing/Screen Walls
6. Ground Beams
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8a. Beams (Superstructure
8b. Columns (Superstructu
9. Walls (Superstructure)
10. Roof Material Takeof
11. Ramp Schedule
12. Stairs Material Takeof
Sheets (all)
Families
Groups
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Rendering
Site
1 : 100
Create a material takeoff
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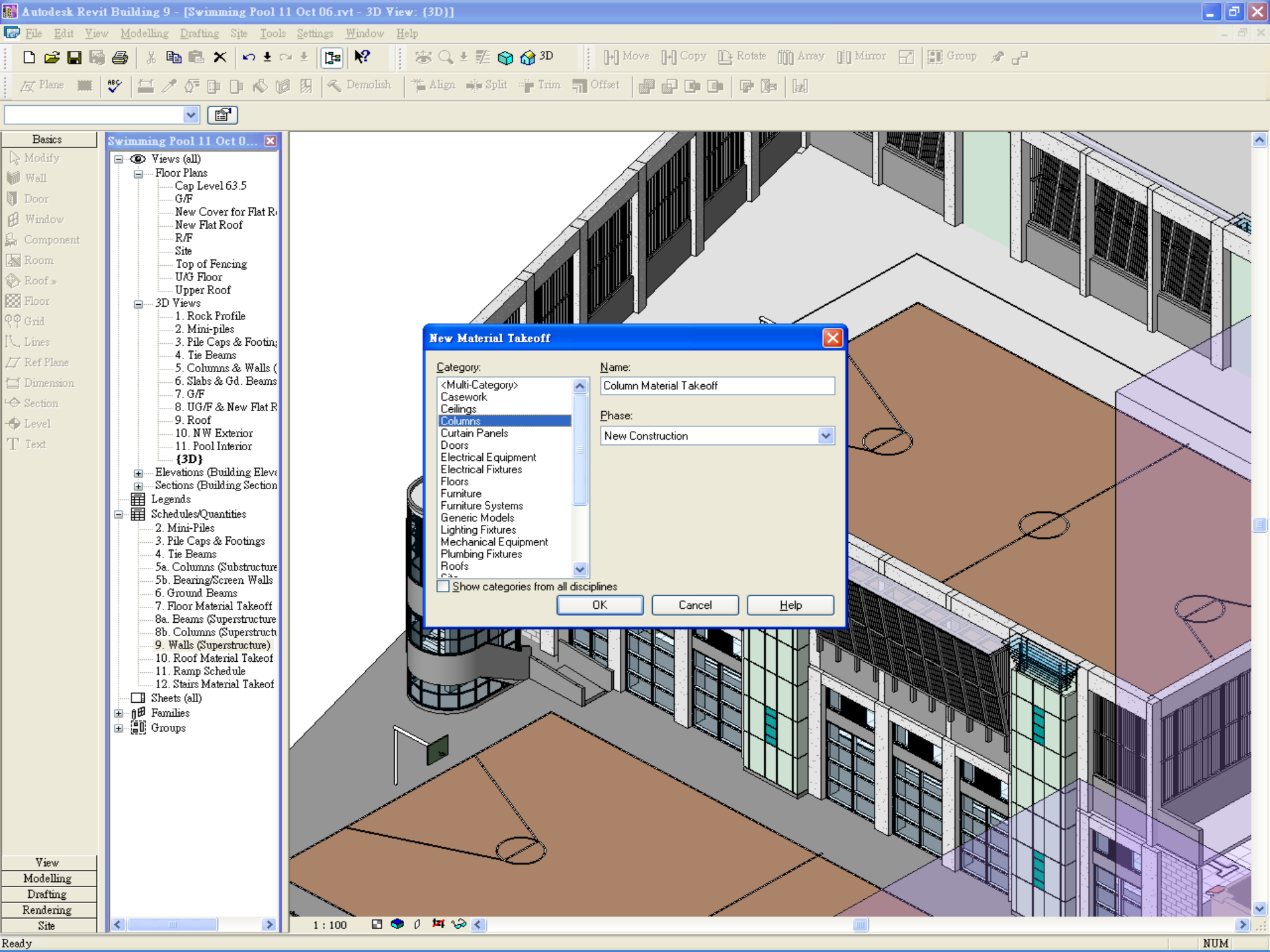
Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: {3D}]
File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
Basics
Modify
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Roof
Floor
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Ref Plane
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Level
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Swimming Pool 11 Oct 0...
Views (all)
Floor Plans
Cap Level 63.5
G/F
New Cover for Flat R
New Flat Roof
R/F
Site
Top of Fencing
U/G Floor
Upper Roof
3D Views
1. Rock Profile
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{3D}
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9. Walls (Superstructure)
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11. Ramp Schedule
12. Stairs Material Takeof
Sheets (all)
Families
Groups
New Material Takeoff
Category:
<Multi-Category>
Casework
Ceilings
Columns
Curtain Panels
Doors
Electrical Equipment
Electrical Fixtures
Floors
Furniture
Furniture Systems
Generic Models
Lighting Fixtures
Mechanical Equipment
Plumbing Fixtures
Roofs
Show categories from all disciplines
Name:
Column Material Takeoff
Phase:
New Construction
OK
Cancel
Help
1 : 100
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Drafting
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Ready
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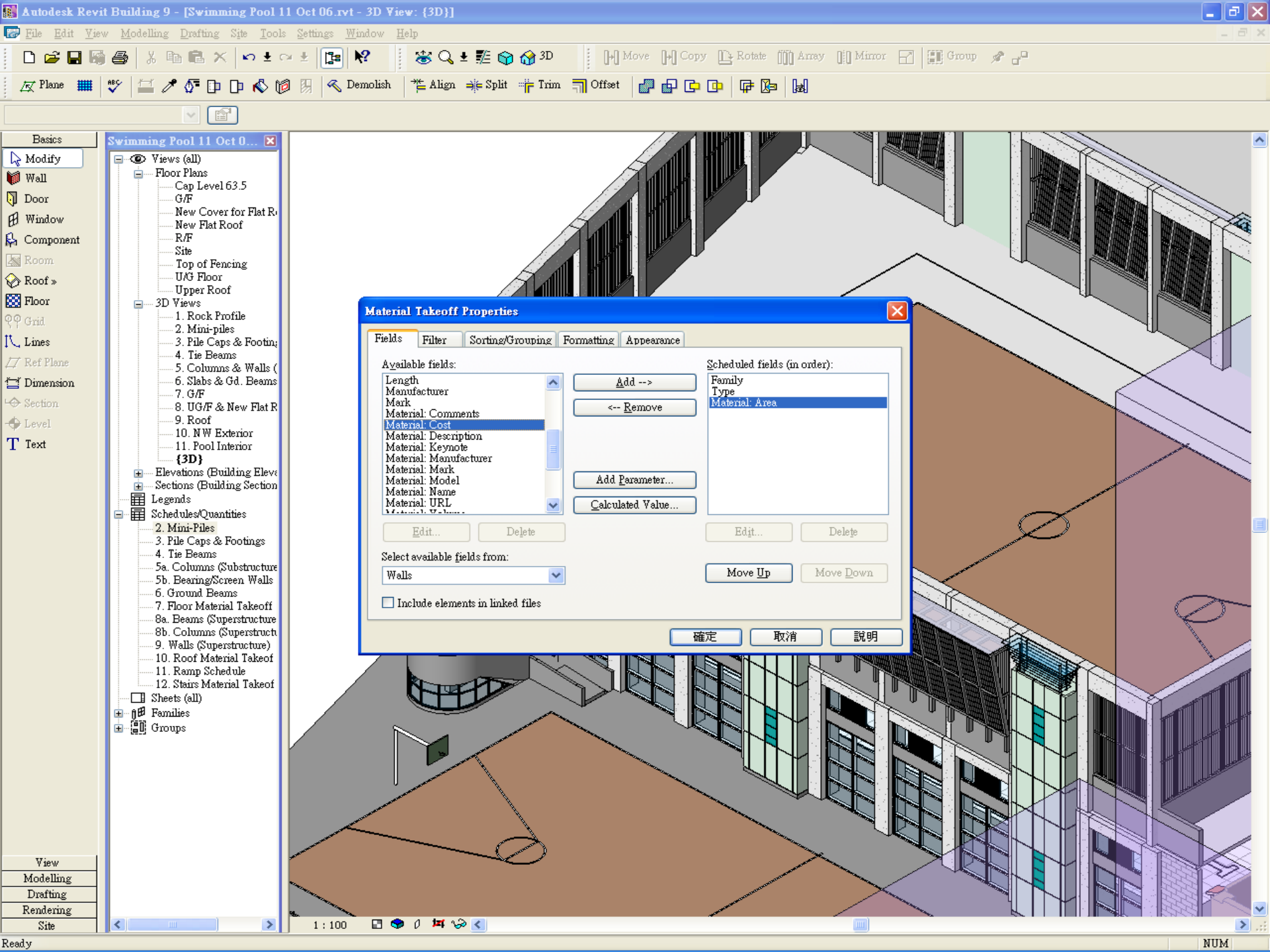
Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: {3D}]
File Edit View Modelling Drafting Site Tools Settings Window Help
Plane Demolish Align Split Trim Offset
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12. Stairs Material Takeof
Sheets (all)
Families
Groups
Material Takeoff Properties
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Filter
Sorting/Grouping
Formatting
Appearance
Available fields:
Length
Manufacturer
Mark
Material: Comments
Material: Cost
Material: Description
Material: Keynote
Material: Manufacturer
Material: Mark
Material: Model
Material: Name
Material: URL
Add -->
<-- Remove
Add Parameter...
Calculated Value...
Edit...
Delete
Scheduled fields (in order):
Family
Type
Material: Area
Edit...
Delete
Select available fields from:
Walls
Move Up
Move Down
Include elements in linked files
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Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - Schedule: 8b. Columns (Superstructure)]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Headers Group Ungroup Rows: New Delete Show

Basics

Modify
Wall
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Swimming Pool 11 Oct 0...

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  - 10. Roof Material Takeof
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups

8b. Columns (Superstructure)

Family	Type	Material: Name	Mark	Length	Base Level	Base Offset	Top Level	Top Offset	Material: Area	Concrete: Volume	Location
R.C. Column (Superstructure)	400 x 850m	R.C. Grade 40/20 (Superstructure)	C24G	2550	G/F	0	U/G Floor	-150	7.055 m²	0.87 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C35G	2700	G/F	0	U/G Floor	0	5.260 m²	0.54 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C37G	2700	G/F	0	U/G Floor	0	5.260 m²	0.54 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C25G	2700	G/F	0	U/G Floor	0	5.260 m²	0.54 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C36G	2700	G/F	0	U/G Floor	0	5.260 m²	0.54 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C26G	2700	G/F	0	U/G Floor	0	5.260 m²	0.54 m³	
R.C. Column (Superstructure)	600 x 600m	R.C. Grade 40/20 (Superstructure)	C22G	5350	G/F	0	R/F	-150	13.560 m²	1.93 m³	
R.C. Column (Superstructure)	500 x 500m	R.C. Grade 40/20 (Superstructure)	C34G	2550	G/F	0	U/G Floor	-150	5.600 m²	0.64 m³	
R.C. Column (Superstructure)	500 x 500m	R.C. Grade 40/20 (Superstructure)	C33G	2550	G/F	0	U/G Floor	-150	5.600 m²	0.64 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C21G	2550	G/F	0	U/G Floor	-150	8.100 m²	1.22 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C23G	2550	G/F	0	U/G Floor	-150	8.100 m²	1.22 m³	
R.C. Column (Superstructure)	1150 x 600	R.C. Grade 40/20 (Superstructure)	C17G	5350	G/F	0	R/F	-150	20.105 m²	3.69 m³	
R.C. Column (Superstructure)	1150 x 600	R.C. Grade 40/20 (Superstructure)	C19G	5350	G/F	0	R/F	-150	20.105 m²	3.69 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C6G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C5G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C7G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C9G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C11G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C13G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C15G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C8G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C10G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C12G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C14G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C16G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C18G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	1150 x 700	R.C. Grade 40/20 (Superstructure)	C2G	5350	G/F	0	R/F	-150	21.405 m²	4.31 m³	
R.C. Column (Superstructure)	1150 x 700	R.C. Grade 40/20 (Superstructure)	C1G	5350	G/F	0	R/F	-150	21.405 m²	4.31 m³	
R.C. Column (Superstructure)	1150 x 600	R.C. Grade 40/20 (Superstructure)	C3G	5350	G/F	0	R/F	-150	20.105 m²	3.69 m³	
R.C. Column (Superstructure)	1150 x 600	R.C. Grade 40/20 (Superstructure)	C4G	5350	G/F	0	R/F	-150	20.105 m²	3.69 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C20G	5350	G/F	0	R/F	-150	15.940 m²	2.57 m³	
R.C. Column (Superstructure)	500 x 600m	R.C. Grade 40/20 (Superstructure)	C38G	3600	G/F	0	New Flat R	-150	8.520 m²	1.08 m³	
: 32									429.225 m²	69.63 m³	
R.C. Column (Superstructure)	300 x 300m	R.C. Grade 40/20 (Superstructure)	C39G	3750	G/F	0	New Flat R	0	4.680 m²	0.34 m³	New flat roof
R.C. Column (Superstructure)	300 x 300m	R.C. Grade 40/20 (Superstructure)	C40G	3750	G/F	0	New Flat R	0	4.680 m²	0.34 m³	New flat roof
R.C. Column (Superstructure)	300 x 300m	R.C. Grade 40/20 (Superstructure)	C41G	3900	G/F	0	New Flat R	150	4.860 m²	0.35 m³	New flat roof
New flat roof: 3									14.220 m²	1.08 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C35U	2650	U/G Floo	0	R/F	-150	5.170 m²	0.53 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C37U	2650	U/G Floo	0	R/F	-150	5.170 m²	0.53 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C25U	2650	U/G Floo	0	R/F	-150	5.170 m²	0.53 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C36U	2650	U/G Floo	0	R/F	-150	5.170 m²	0.53 m³	
R.C. Column (Superstructure)	400 x 500m	R.C. Grade 40/20 (Superstructure)	C26U	2650	U/G Floo	0	R/F	-150	5.170 m²	0.53 m³	
R.C. Column (Superstructure)	500 x 500m	R.C. Grade 40/20 (Superstructure)	C34U	2200	U/G Floo	0	R/F	-600	4.900 m²	0.55 m³	
R.C. Column (Superstructure)	500 x 500m	R.C. Grade 40/20 (Superstructure)	C33U	2200	U/G Floo	0	R/F	-600	4.900 m²	0.55 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C21U	2650	U/G Floo	0	R/F	-150	8.380 m²	1.27 m³	
R.C. Column (Superstructure)	800 x 600m	R.C. Grade 40/20 (Superstructure)	C23U	2650	U/G Floo	0	R/F	-150	8.380 m²	1.27 m³	
R.C. Column (Superstructure)	400 x 850m	R.C. Grade 40/20 (Superstructure)	C24U	2800	U/G Floo	0	R/F	0	7.680 m²	0.95 m³	
: 10									60.090 m²	7.25 m³	
R.C. Column (Substructure)	300 x 300m	R.C. Grade 40/20 (Superstructure)	F3F	3400	New Flat	0	New Cover f	0	4.260 m²	0.31 m³	New flat roof
R.C. Column (Substructure)	300 x 300m	R.C. Grade 40/20 (Superstructure)	C41F	3100	New Flat	300	New Cover f	0	3.900 m²	0.28 m³	New flat roof
New flat roof: 2									8.160 m²	0.59 m³	

View
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Drafting
Rendering
Site

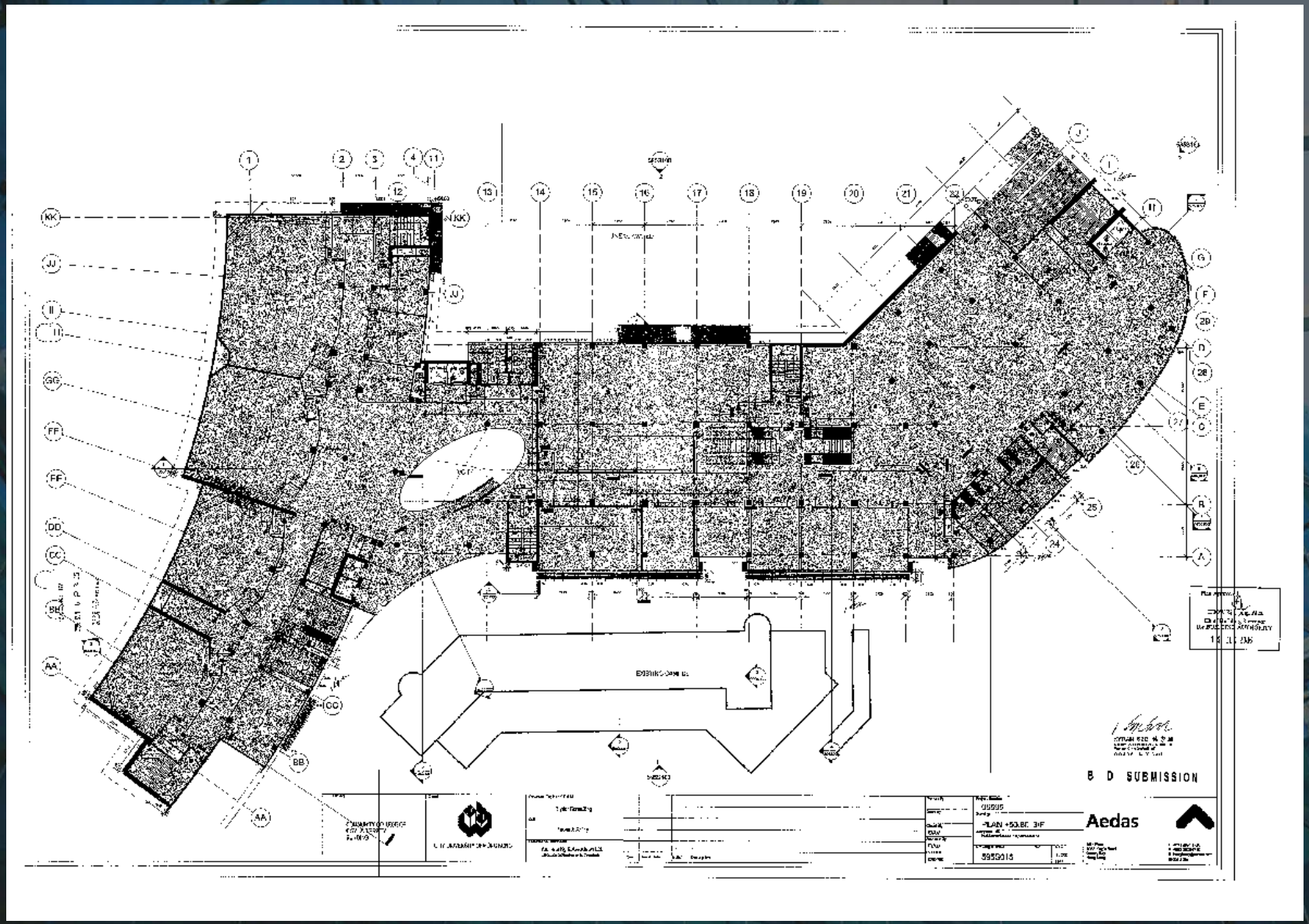
Ready

NUM

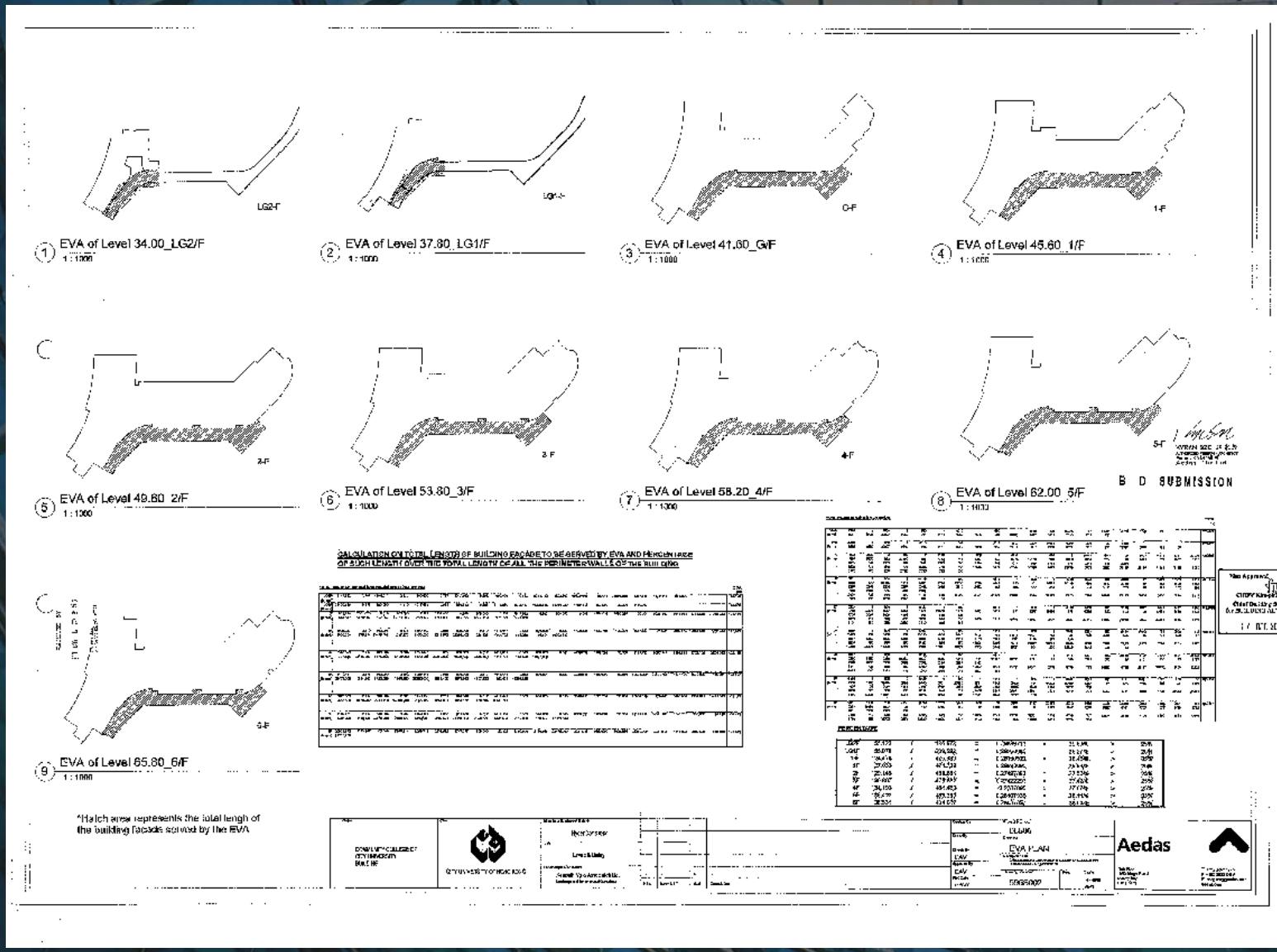
Use of Building Information Modeling (BIM)

1. Design visualization
2. Drawing Productions
3. Services Co-ordination and Clash detection with other disciplines
4. Quantity taking and preparation of Tender Document
5. **Automated Statutory Submission**　確認申請図書作成の自動化
6. Scientific analysis of different environmental aspects
7. Supply Chain Integration with the manufacturing and production
8. Complex Geometry

STATUTORY SUBMISSION



STATUTORY SUBMISSION



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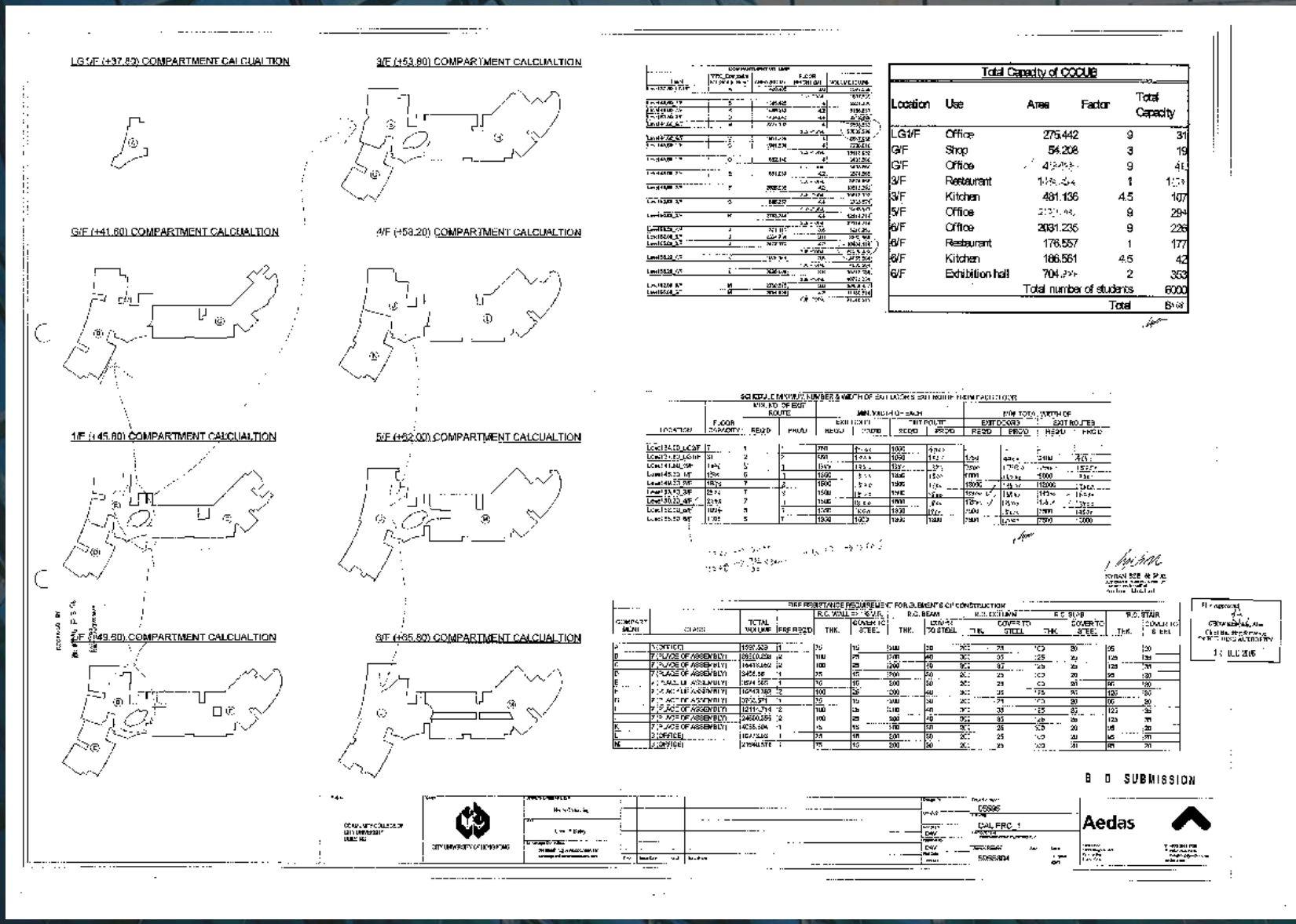
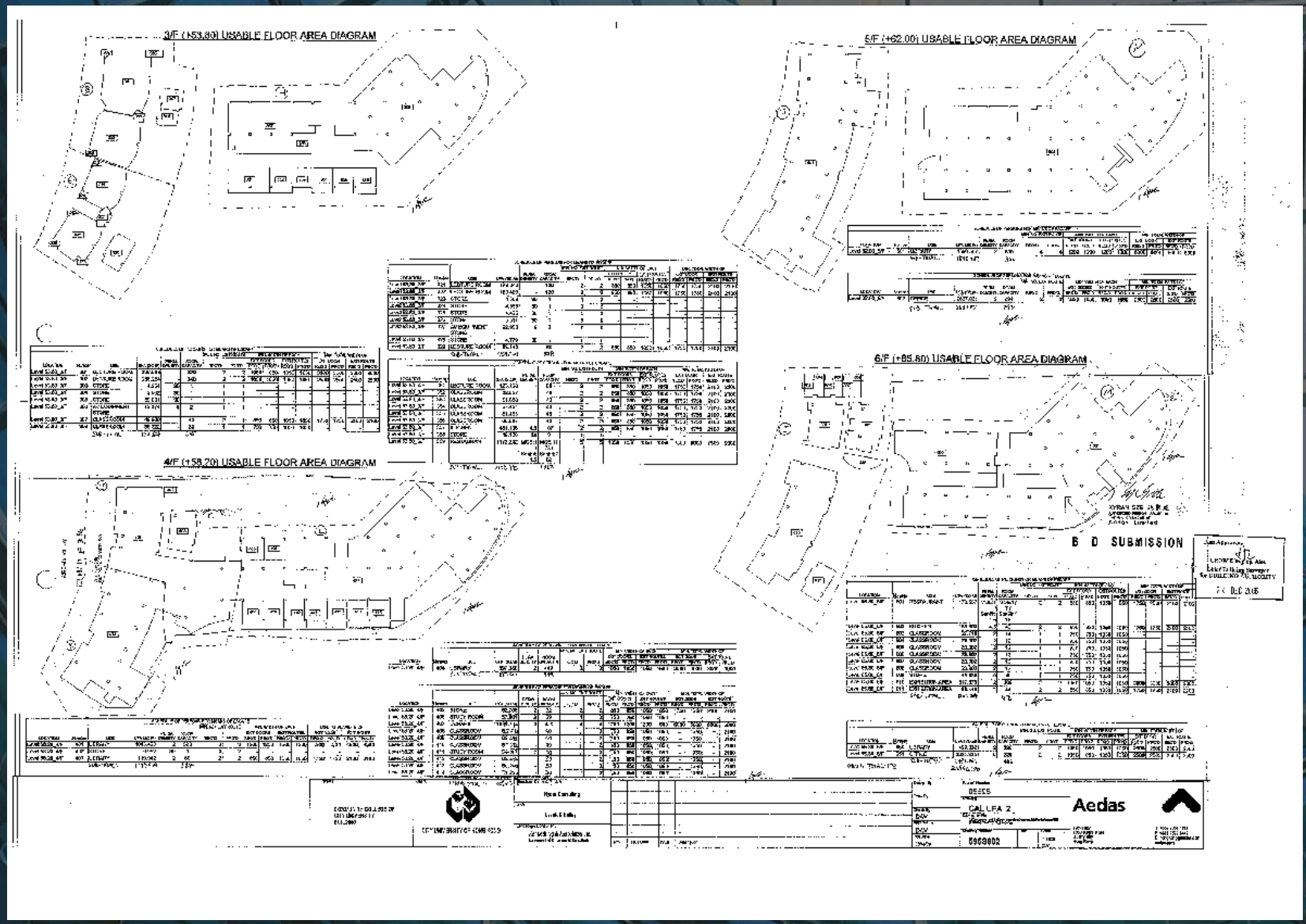
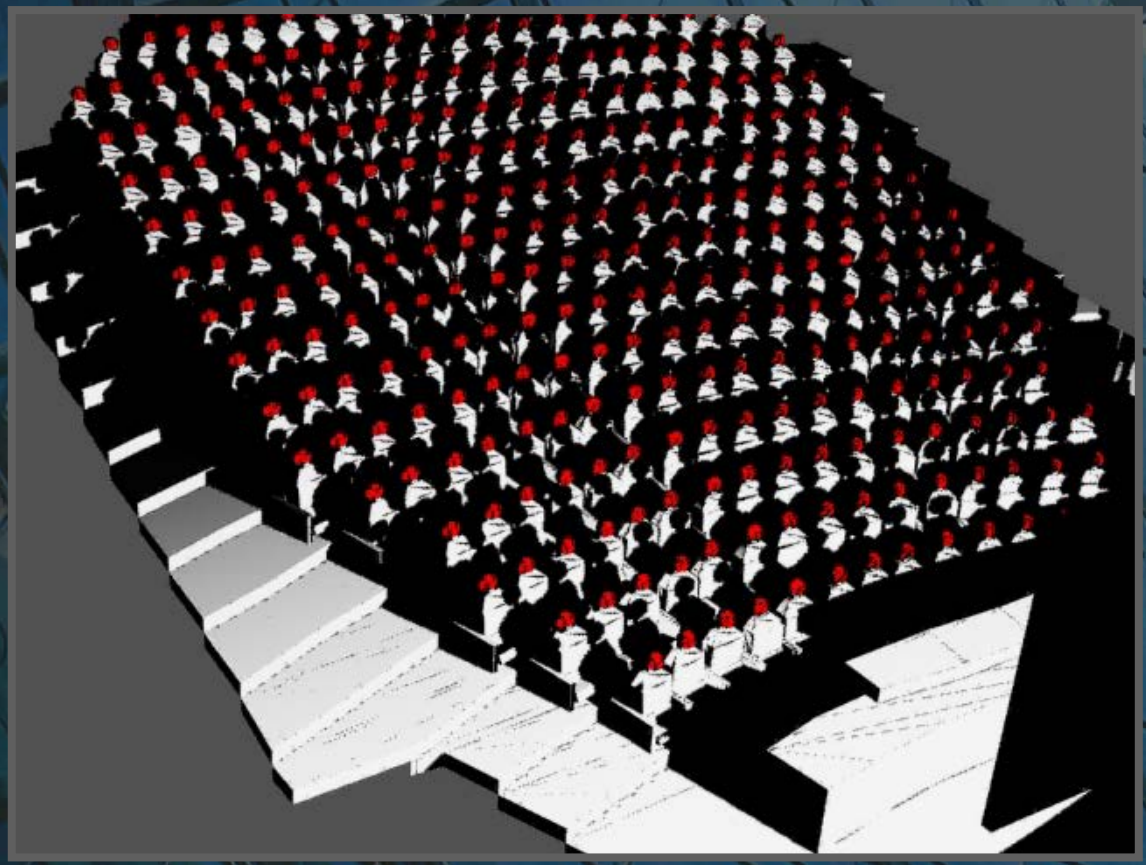


STATUTORY SUBMISSION

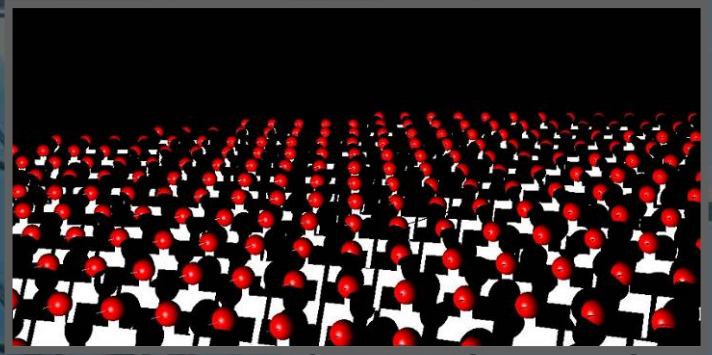


Use of Building Information Modeling (BIM)

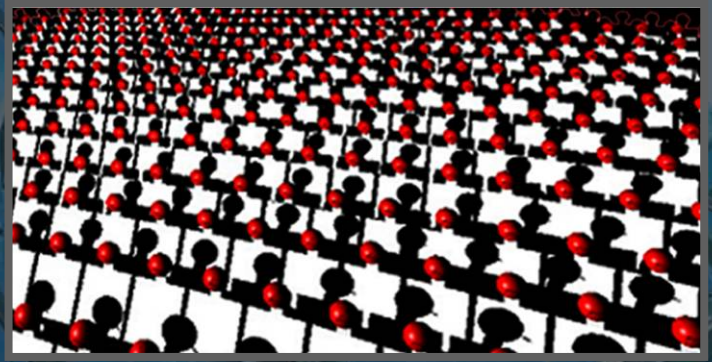
1. Design visualization
2. Drawing Productions
3. Services Co-ordination and Clash detection with other disciplines
4. Quantity taking and preparation of Tender Document
5. Automated Statutory Submission
6. **Scientific analysis of different environmental aspects** 様々な環境解析
7. Supply Chain Integration with the manufacturing and production
8. Complex Geometry



Radiating Light Method



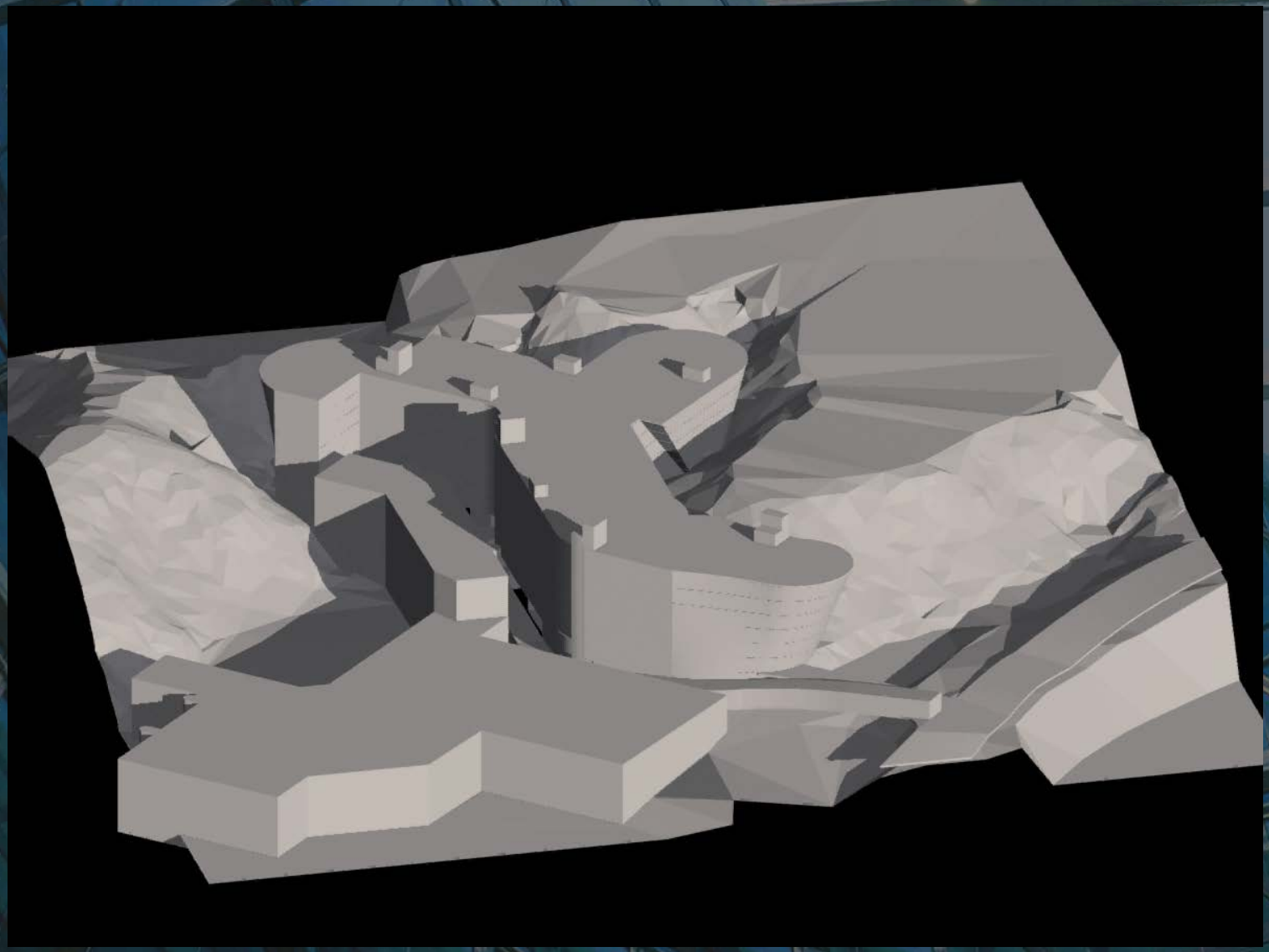
Unsatisfactory sightlines



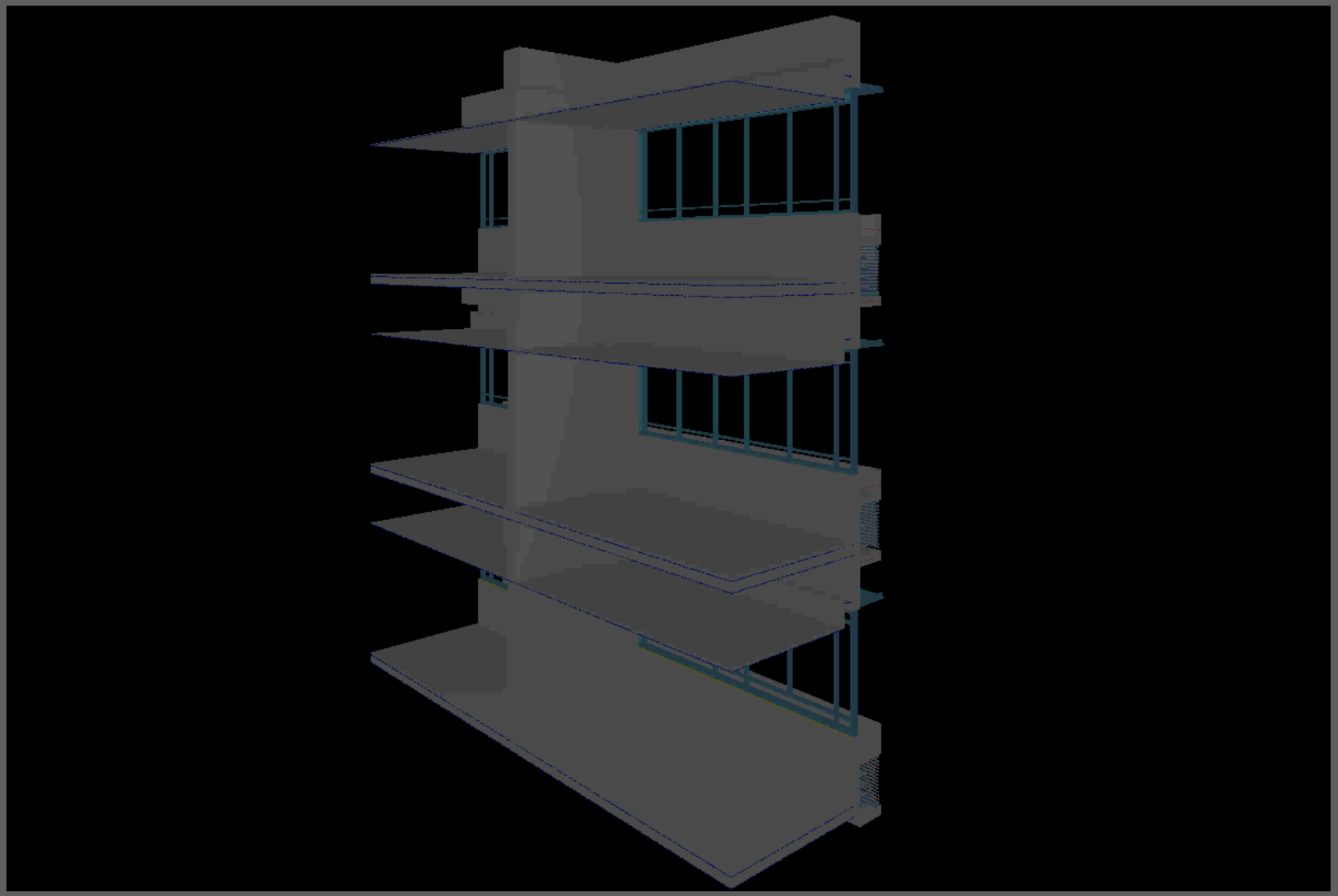
Satisfactory sightlines

SIGHTLINE STUDIES

ANALYSIS



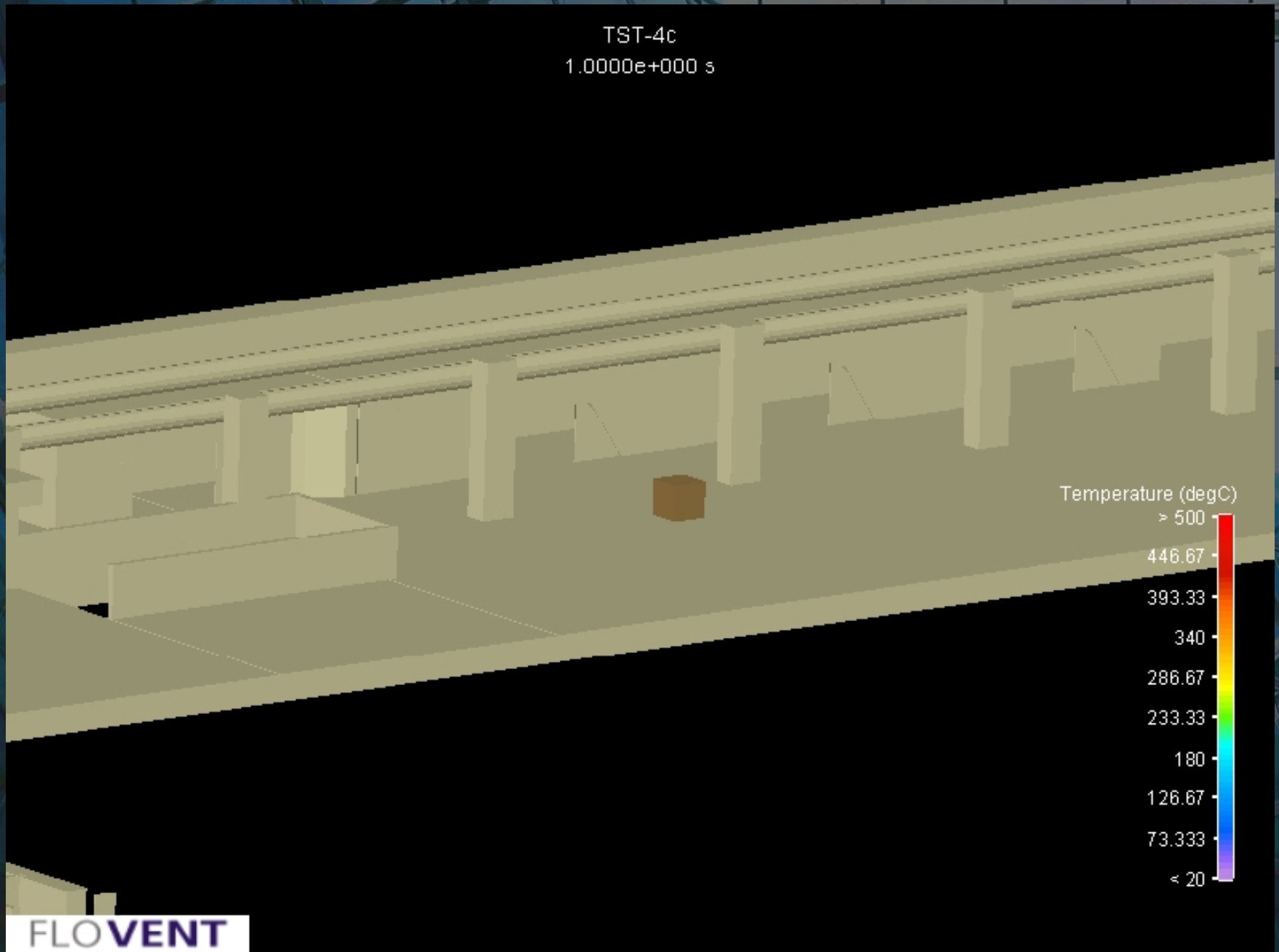
SUN STUDY



FAÇADE SOLAR STUDY

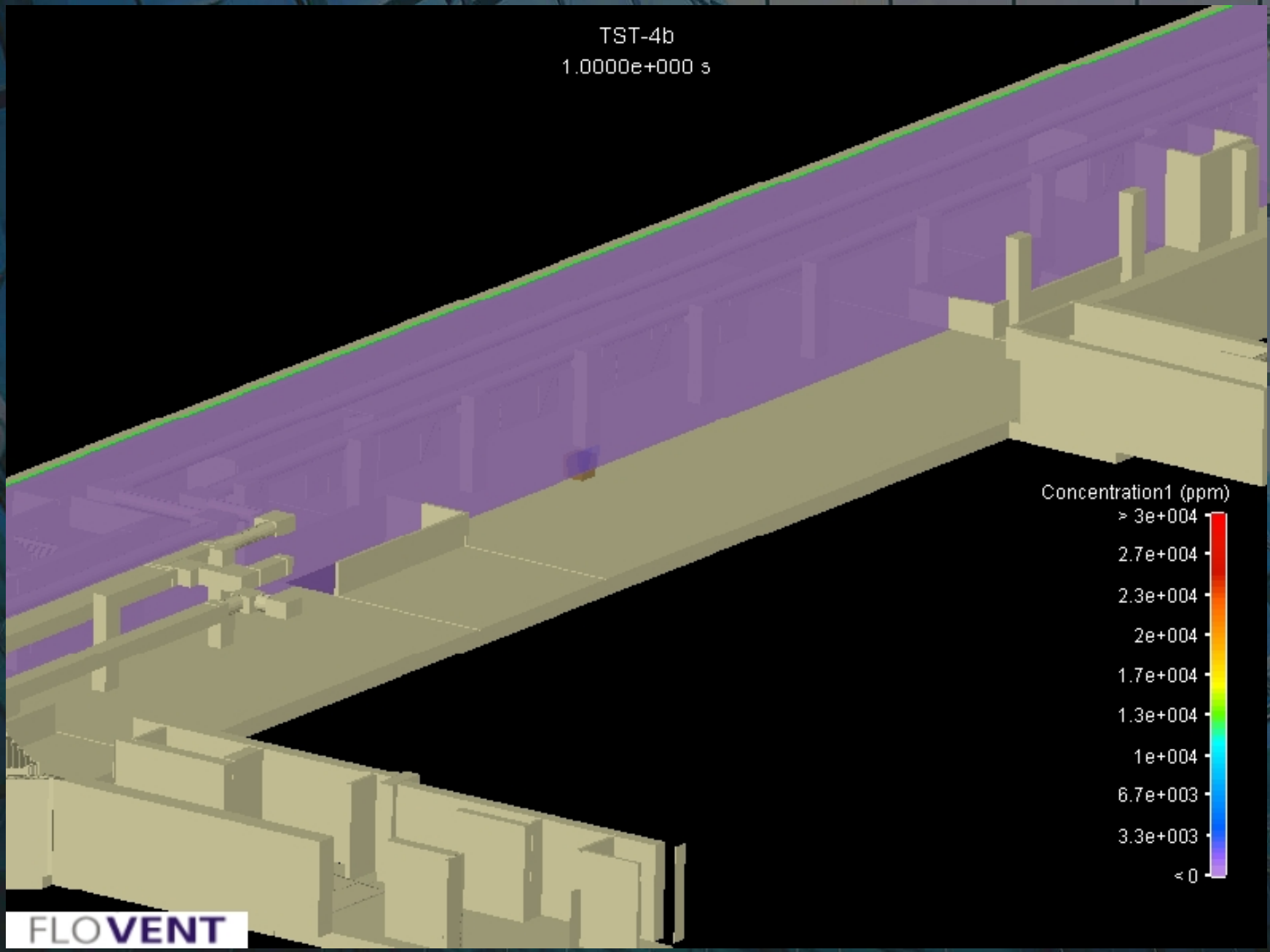
21/12/2006 7:00am – 6:00pm

ANALYSIS



FLOVENT

ANALYSIS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Concentration1 (ppm)
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2.7e+004
2.3e+004
2e+004
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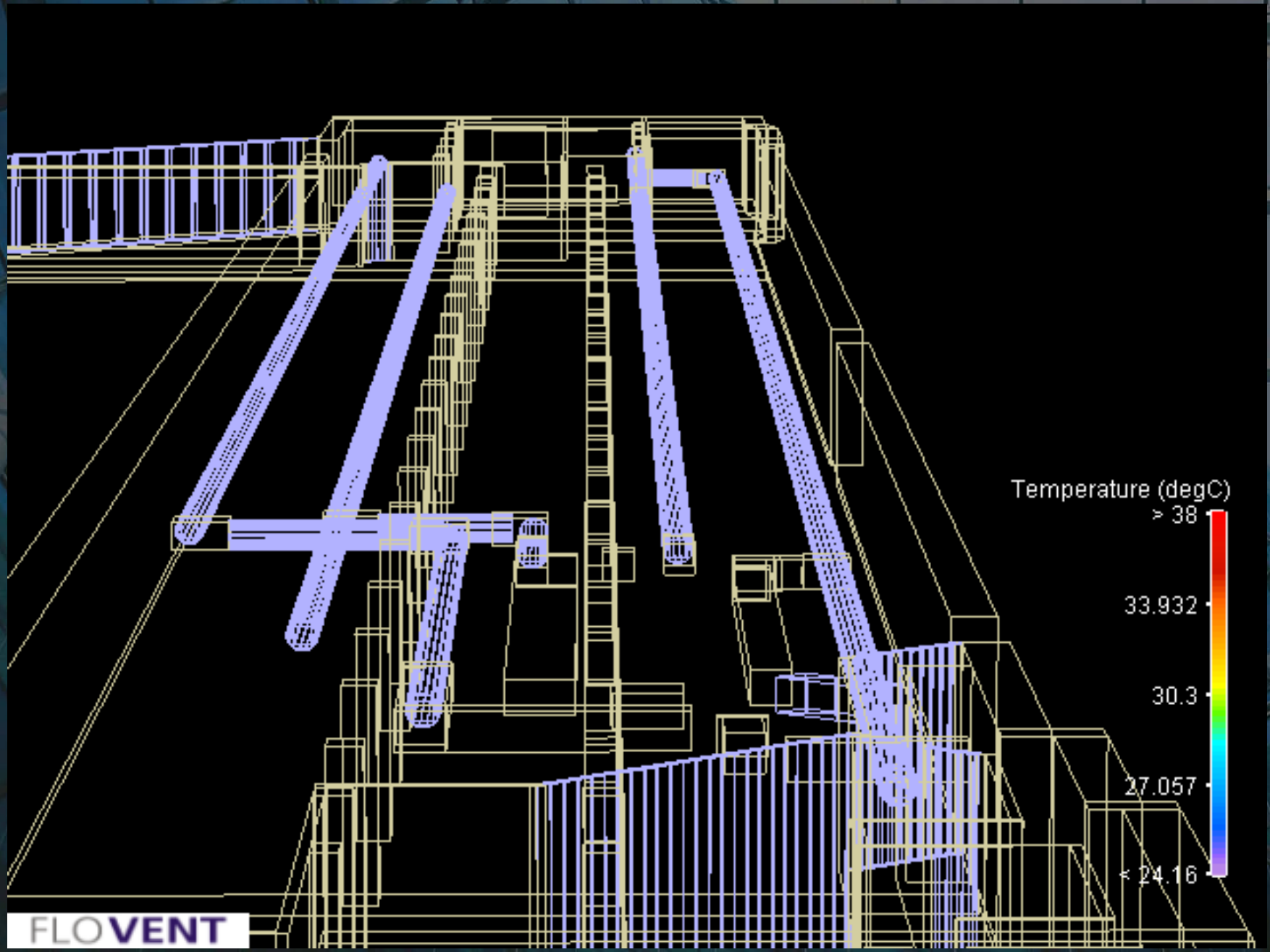
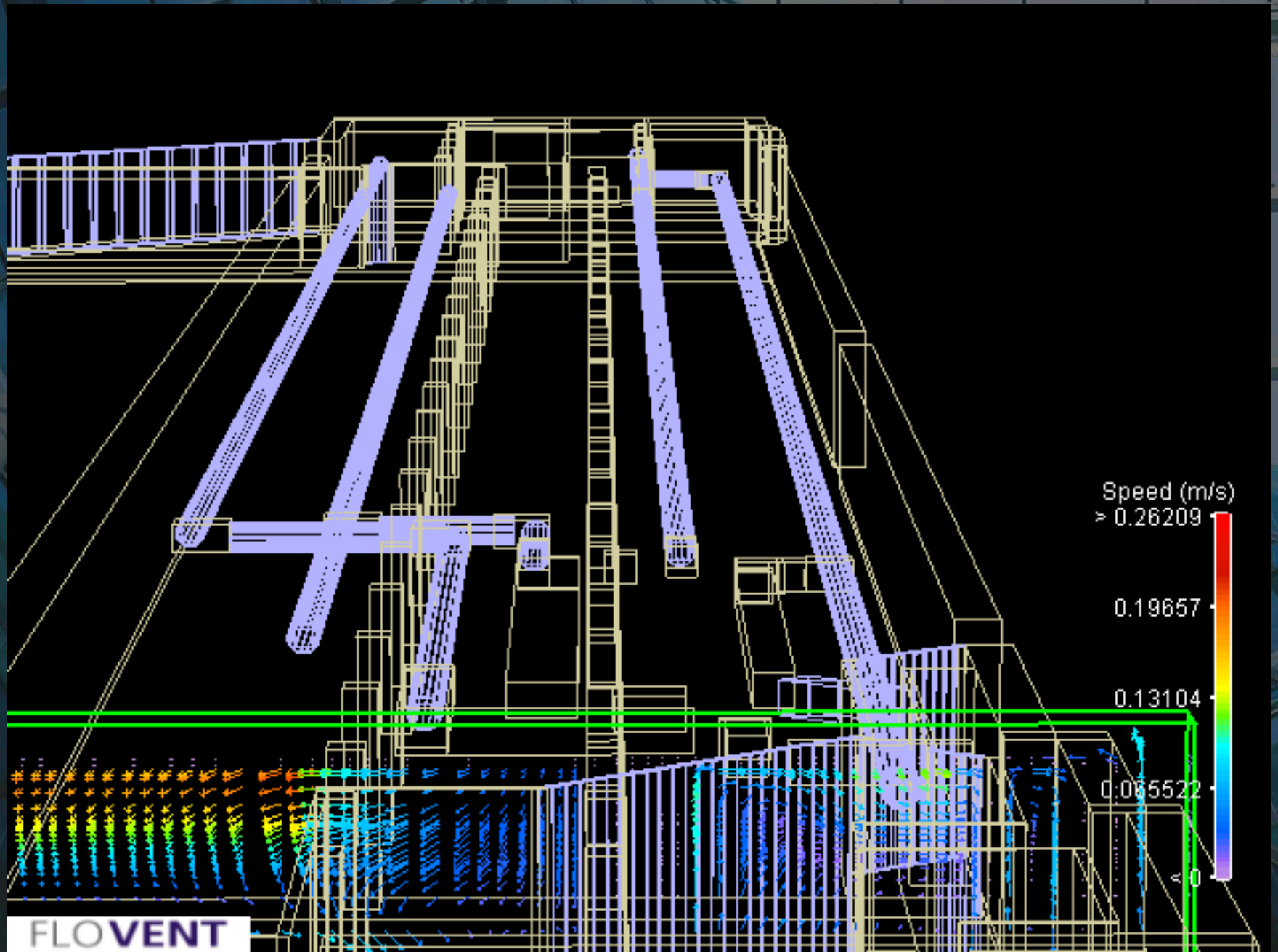
1.3e+004
1e+004
6.7e+003
3.3e+003
< 0
FLOVENT

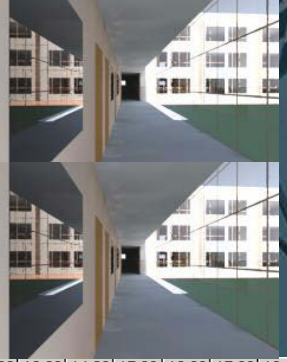
ANALYSIS

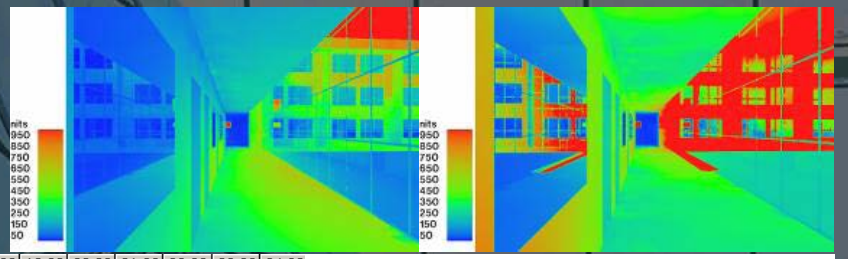


ANALYSIS

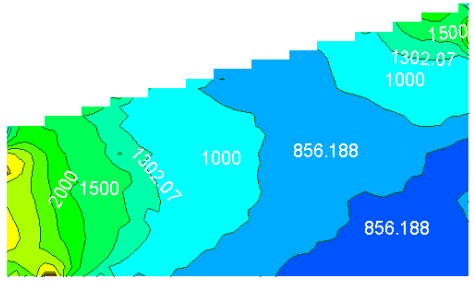


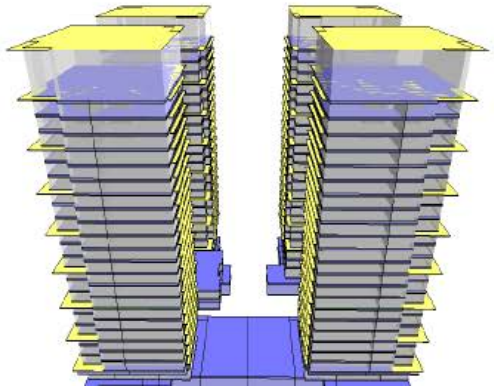
Sustainable Design

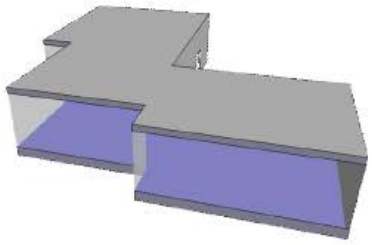


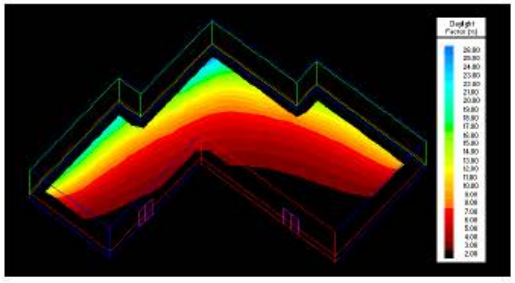


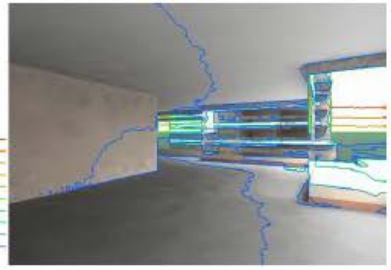
Month	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
Jan									100.0	99.7	100.0	100.0	100.0	84.6	38.8	5.2								
Feb								100.0	100.0	100.0	100.0	100.0	100.0	98.7	73.9	32.7	3.0							
Mar							100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	91.5	60.4	25.7							
Apr						0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.0	84.0	51.3	0.0						
May					0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	92.9	0.0	0.0	0.0					
Jun				0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.5	0.0	0.0	0.0	0.0				
Jul					0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.3	0.0	0.0	0.0	0.0				
Aug					0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	90.2	64.8	0.0	0.0					
Sep						0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	92.2	64.0	30.8	0.0						
Oct							100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.0	63.7	26.7								
Nov								100.0	100.0	100.0	100.0	100.0	100.0	77.0	31.7	1.8								
Dec									100.0	95.1	93.6	100.0	93.0	67.6	22.2									71.82

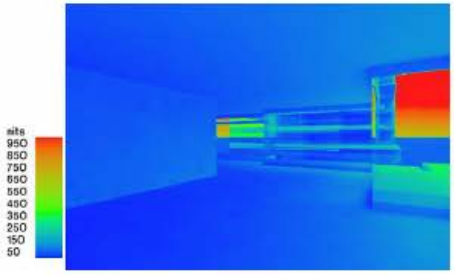


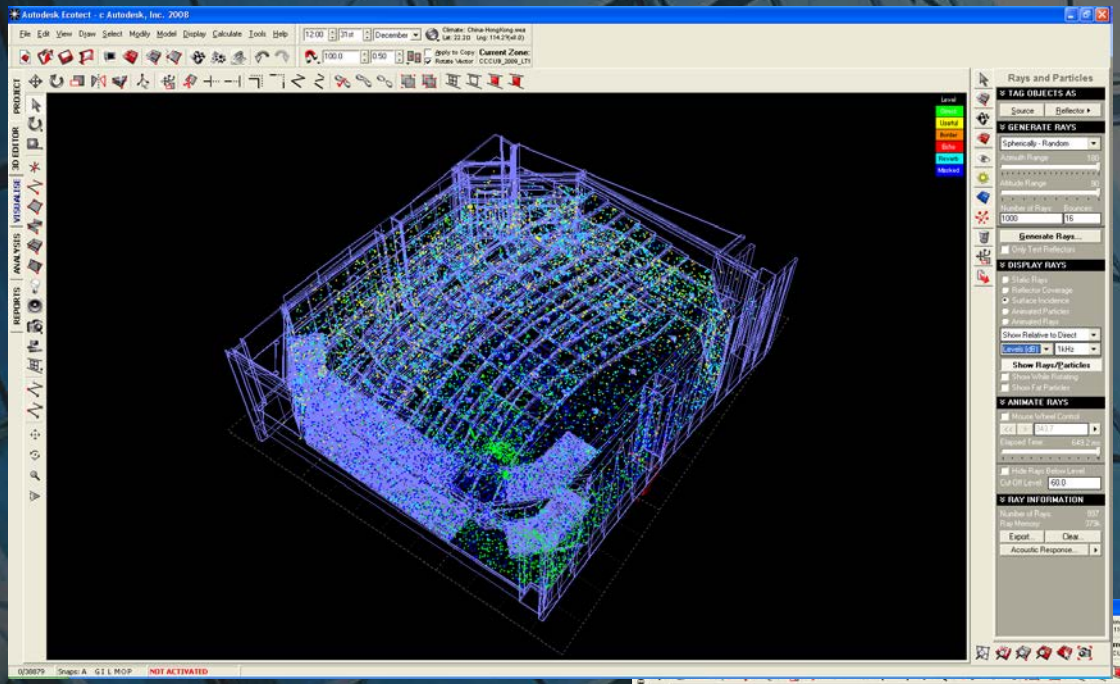


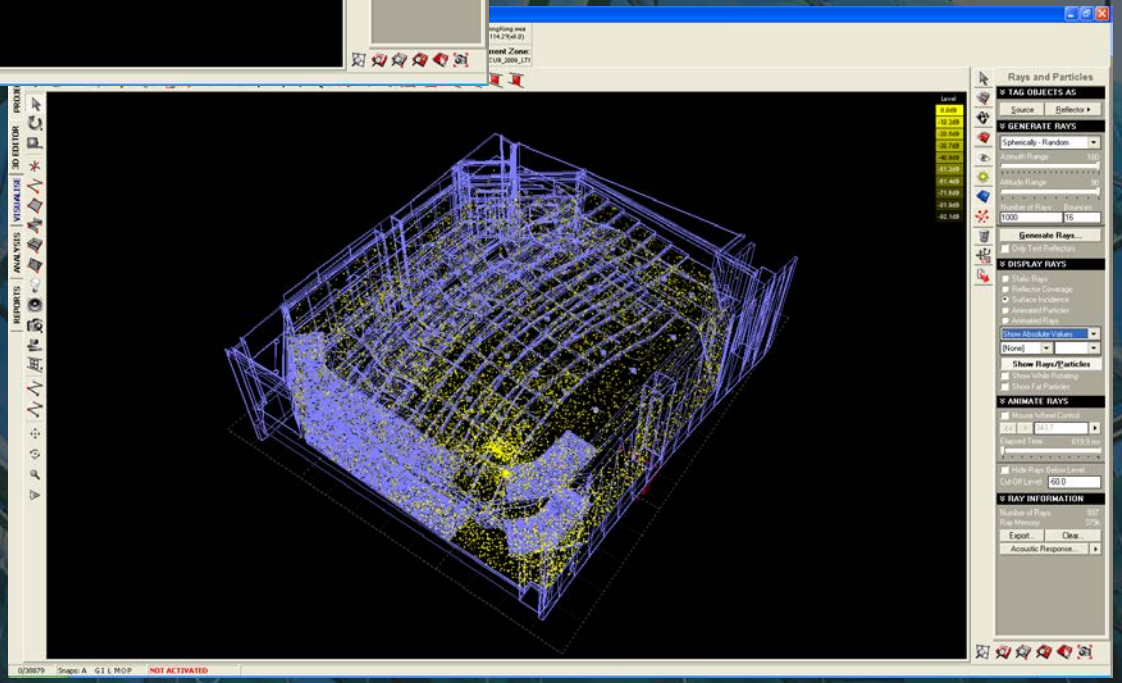









Autodesk Ecotect - c Autodesk, Inc. 2008
Rays and Particles
TAG OBJECTS AS
Source
Reflector
GENERATE RAYS
Spherically - Random
Generate Rays...
DISPLAY RAYS
Show Rays/Particles
ANIMATE RAYS
RAY INFORMATION
Export...
Clear...
Acoustic Response...
PROJECT
3D EDITOR
VISUALISE
ANALYSIS
REPORTS
NOT ACTIVATED


Rays and Particles
TAG OBJECTS AS
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Reflector
GENERATE RAYS
Spherically - Random
Generate Rays...
DISPLAY RAYS
Show Rays/Particles
ANIMATE RAYS
RAY INFORMATION
Export...
Clear...
Acoustic Response...
PROJECT
3D EDITOR
VISUALISE
ANALYSIS
REPORTS
NOT ACTIVATED

Use of Building Information Modeling (BIM)

1. Design visualization
2. Drawing Productions
3. Services Co-ordination and Clash detection with other disciplines
4. Quantity taking and preparation of Tender Document
5. Automated Statutory Submission
6. Scientific analysis of different environmental aspects
7. **Supply Chain Integration with the manufacturing and production**
   サプライヤとの連携
8. Complex Geometry

Use of Building Information Modeling (BIM)

1. Design visualization
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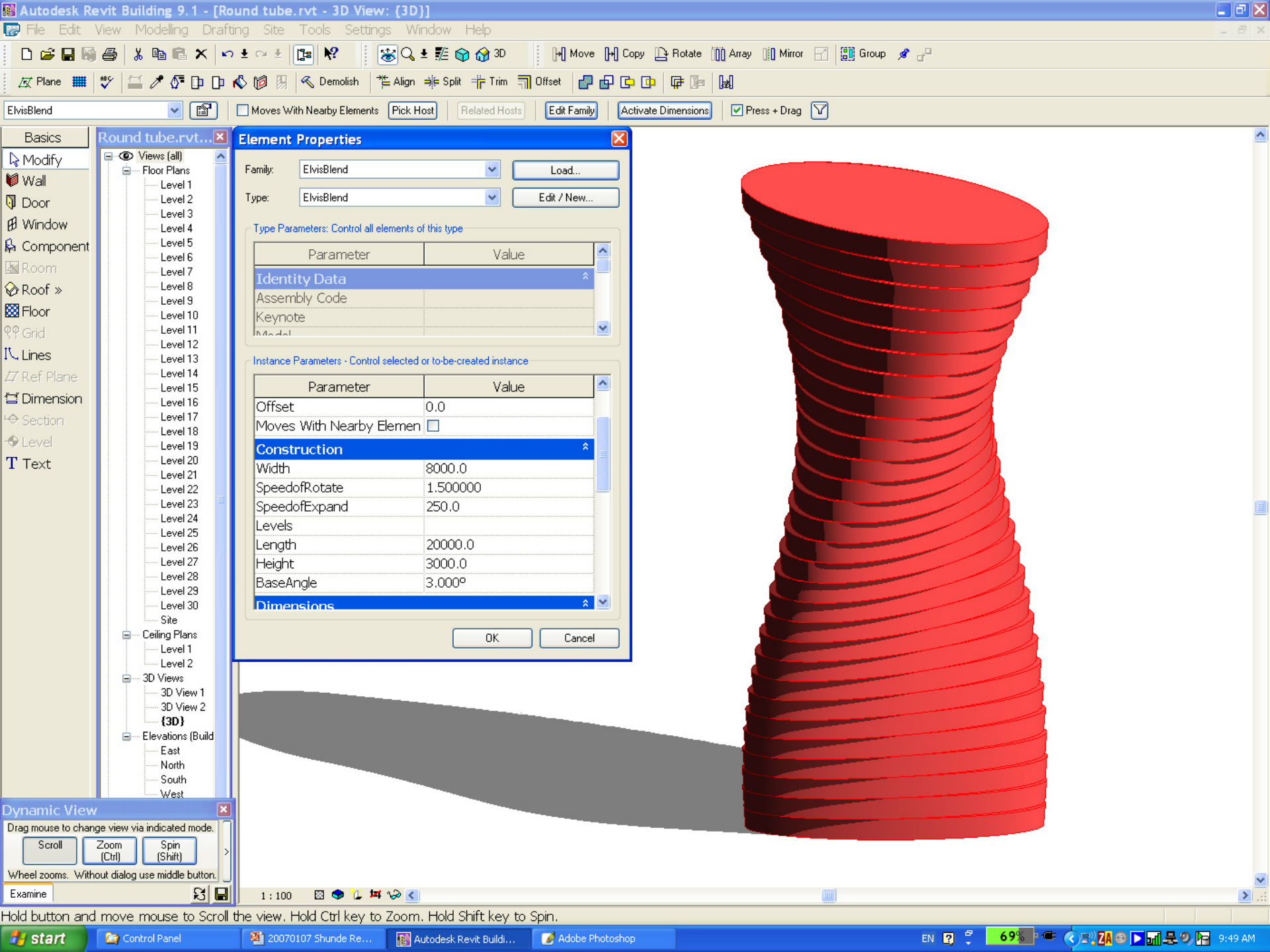
4. Quantity taking and preparation of Tender Document
5. Automated Statutory Submission
6. Scientific analysis of different environmental aspects
7. Supply Chain Integration with the manufacturing and production
8. **Complex Geometry**　複雑な形状を実現可能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File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
ElvisBlend
Moves With Nearby Elements
Pick Host
Related Hosts
Edit Family
Activate Dimensions
Press + Drag
Basics
Modify
Wall
Door
Window
Component
Room
Roof
Floor
Grid
Lines
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Dimension
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Round tube.rvt...
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Floor Plans
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Level 2
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Level 30
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Level 2
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North
South
West
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Type: ElvisBlend
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Instance Parameters - Control selected or to-be-created instance
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Spin (Shift)
Wheel zooms. Without dialog use middle button.
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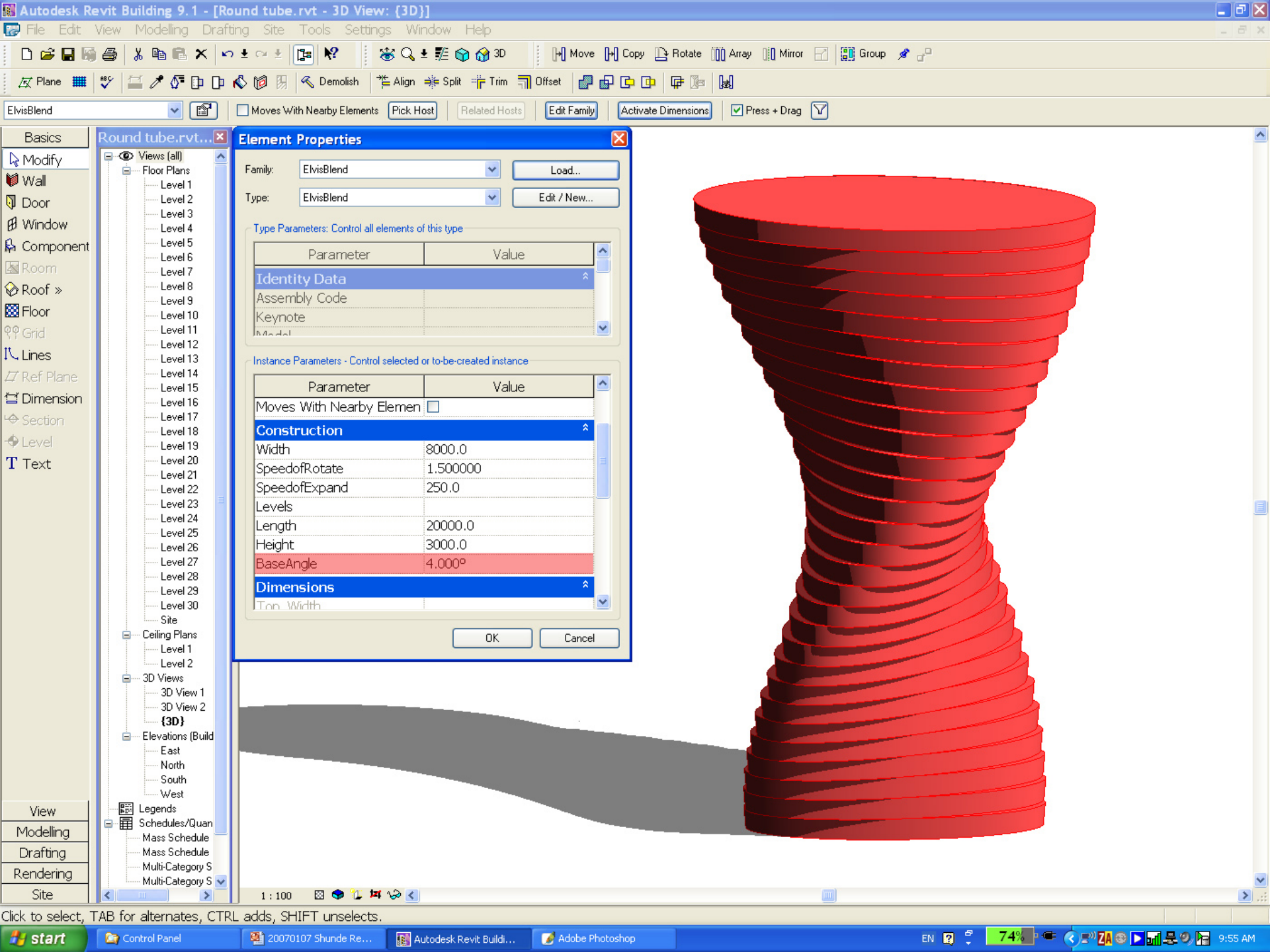
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File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
ElvisBlend
Moves With Nearby Elements
Pick Host
Related Hosts
Edit Family
Activate Dimensions
Press + Drag
Basics
Modify
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Door
Window
Component
Room
Roof
Floor
Grid
Lines
Ref Plane
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Text
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Views (all)
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Level 2
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Level 26
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Level 29
Level 30
Site
Ceiling Plans
Level 1
Level 2
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North
South
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Legends
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Value
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Keynote
Instance Parameters - Control selected or to-be-created instance
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SpeedofExpand 250.0
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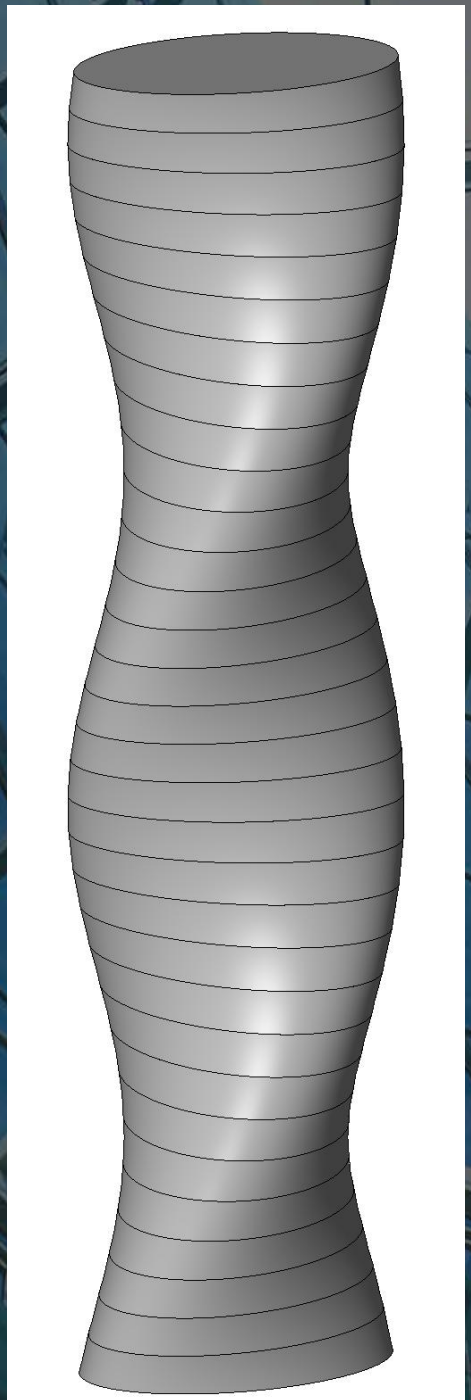


absoluteworld
BUILDING 2

AbsoluteWorld's two buildings, as envisioned by their creator, Yansong Ma. The buildings were designed to complement and enhance each other, each with its own unique personality, but created from the same architectural language.

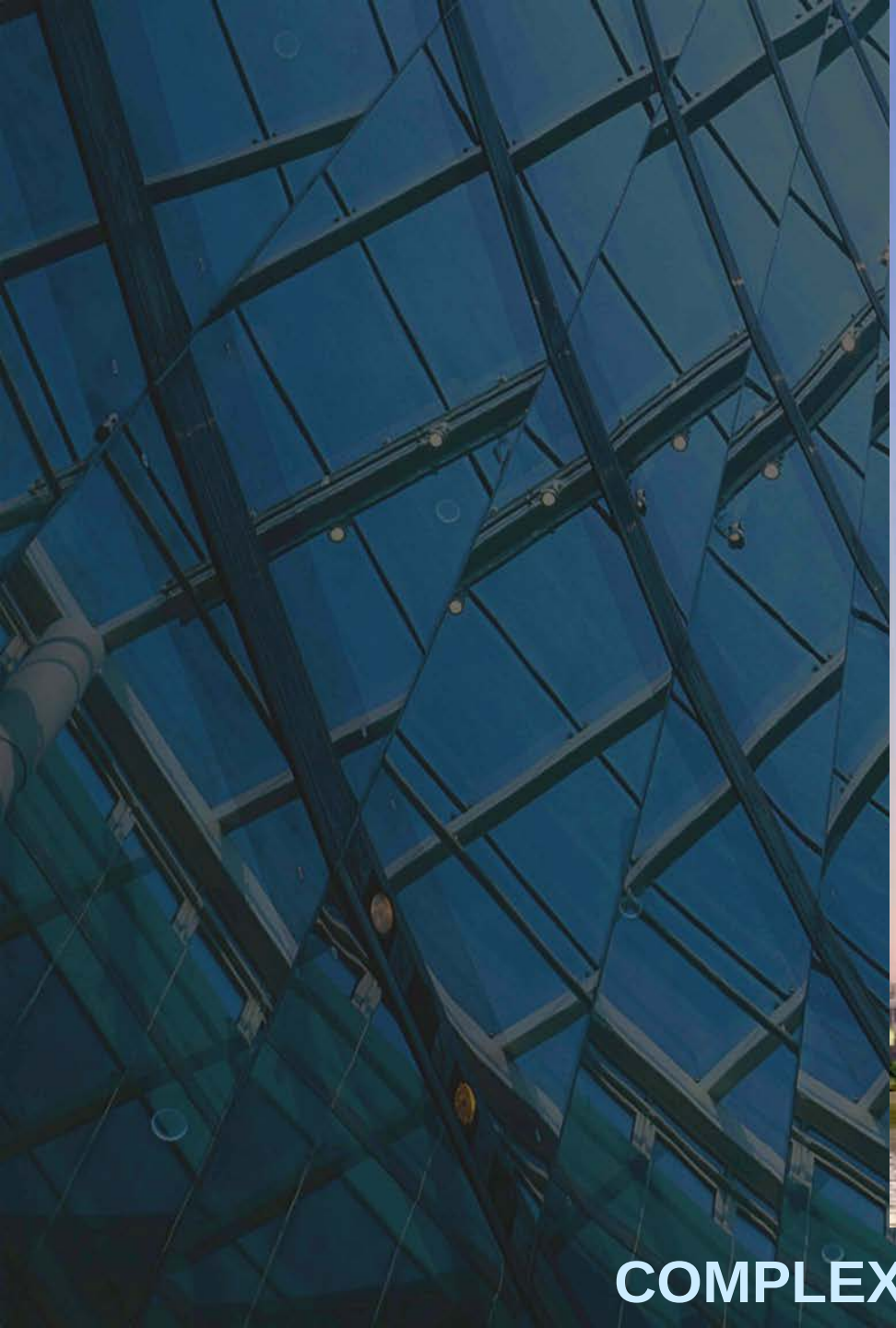
Commenting on the design, Ma says: "they talk to each other and harmonize with each other. There is a synergy between them, an aura which transcends each of the individual buildings to create a totally unique and original urban space."

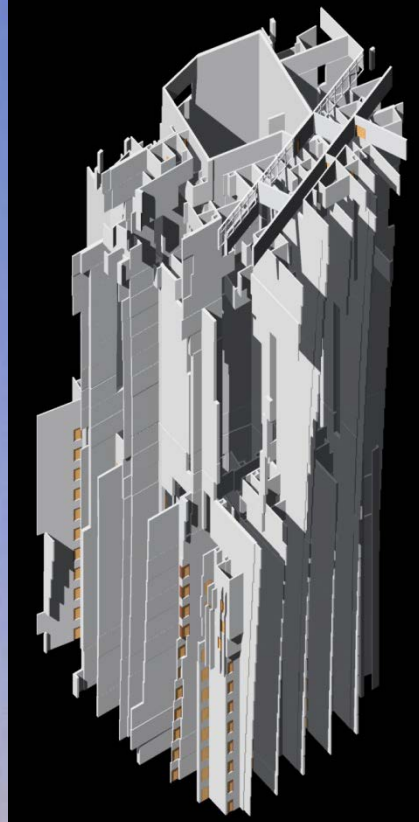
absoluteworld
BUILDING 1

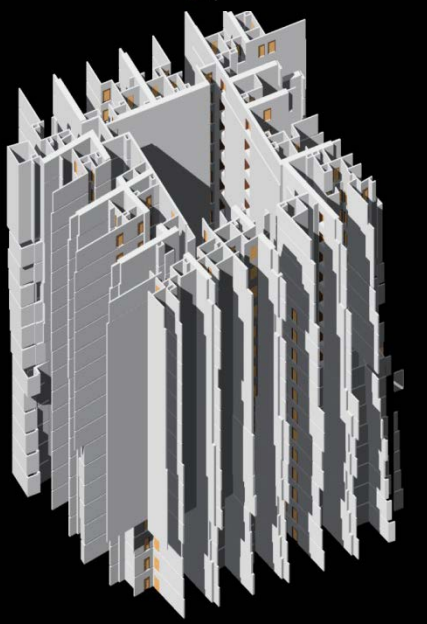
MON. - THURS.: 12 P.M. - 7 P.M.
SAT. & SUN.: 11 A.M. - 6 P.M.
FRI.: CLOSED

Program **Residential** Site Area **3,746 sqm**
Floor Area 858,855 sqm Building Height **304 m**

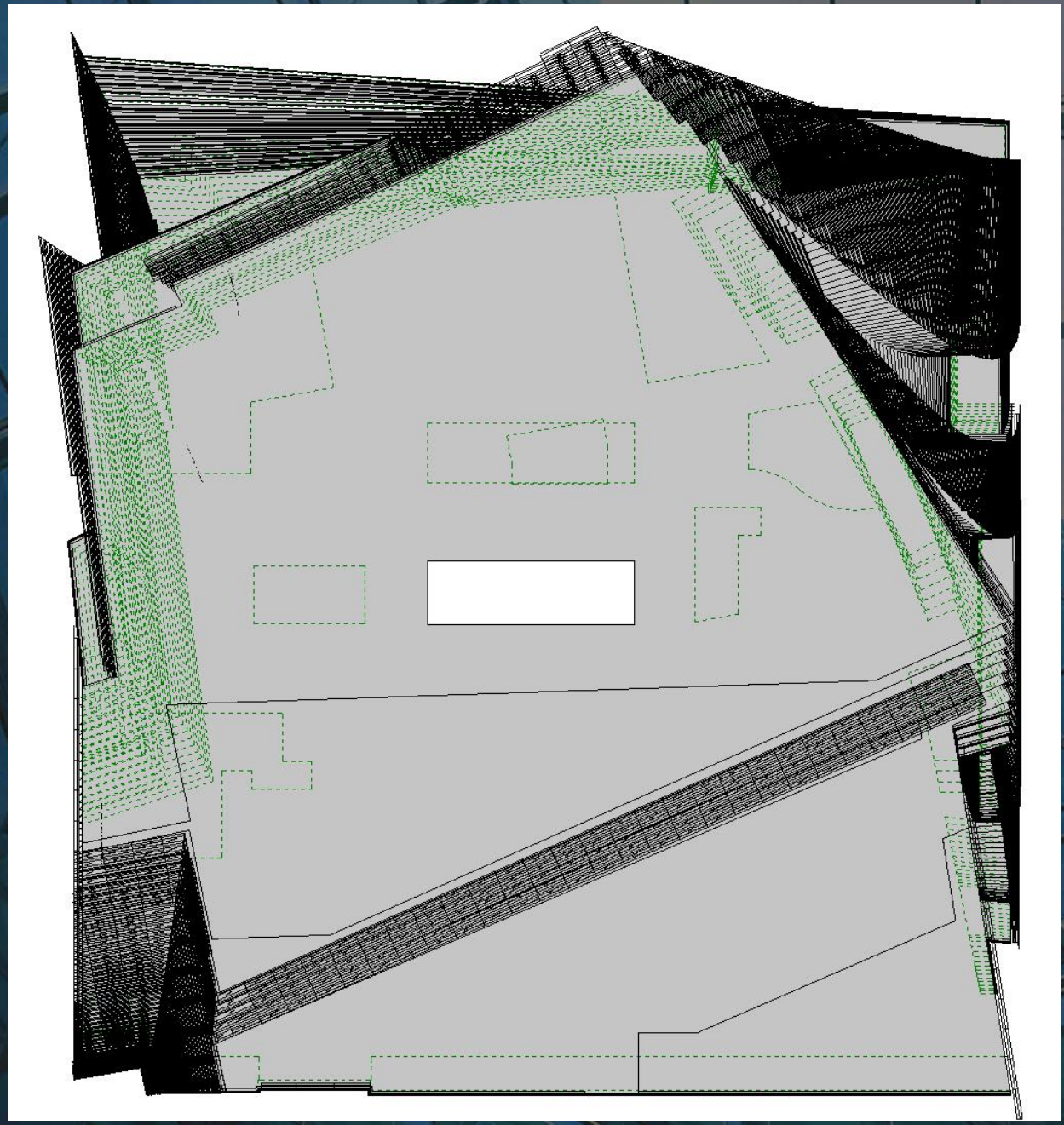
Dubai **Ocean Heights One**

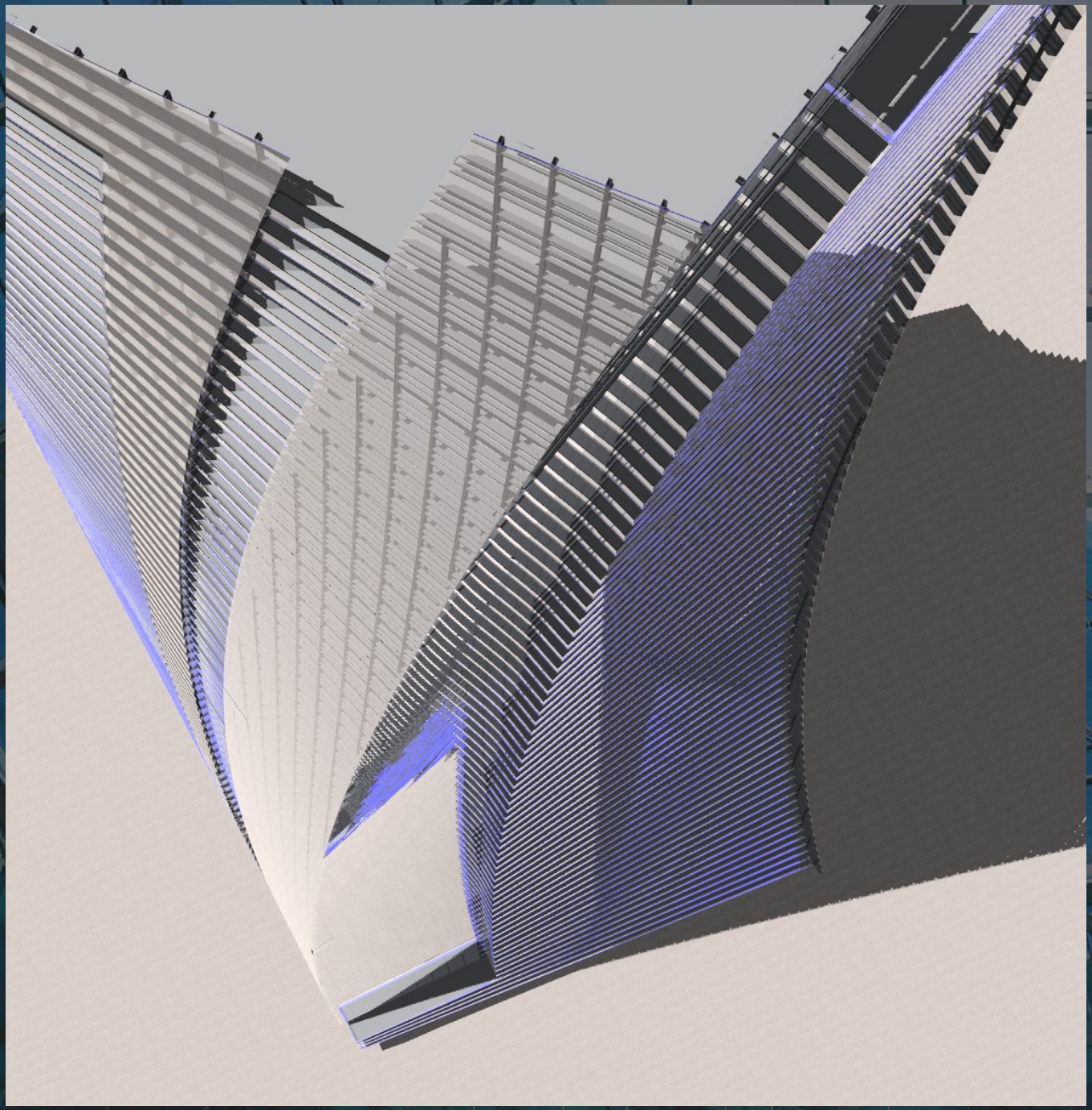


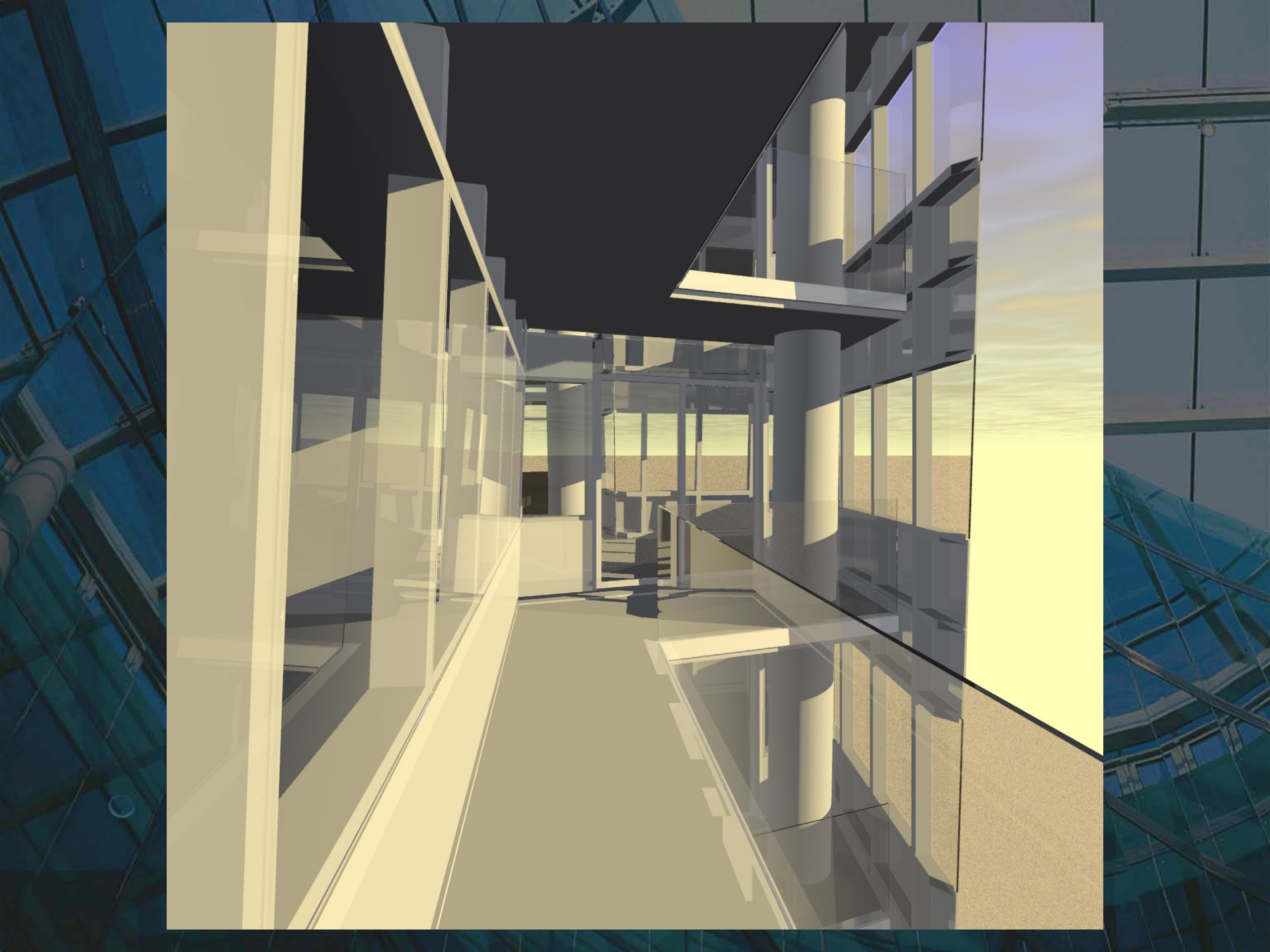


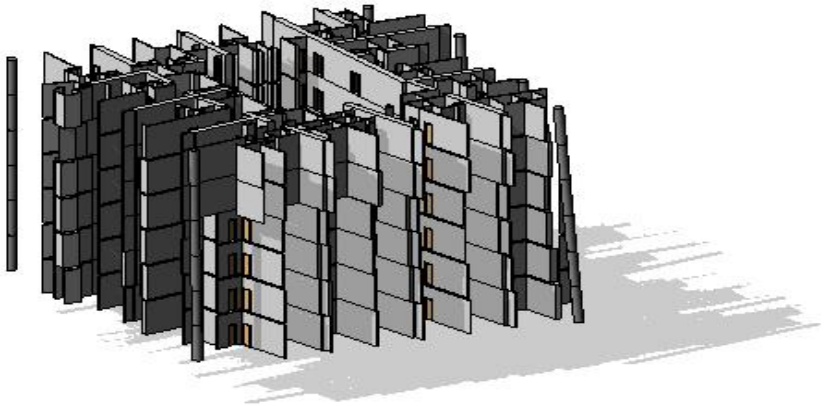


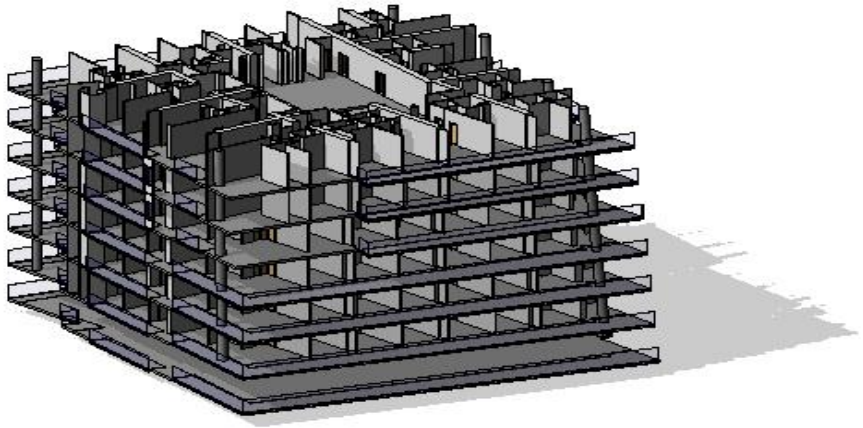
COMPLEX GEOMETRY

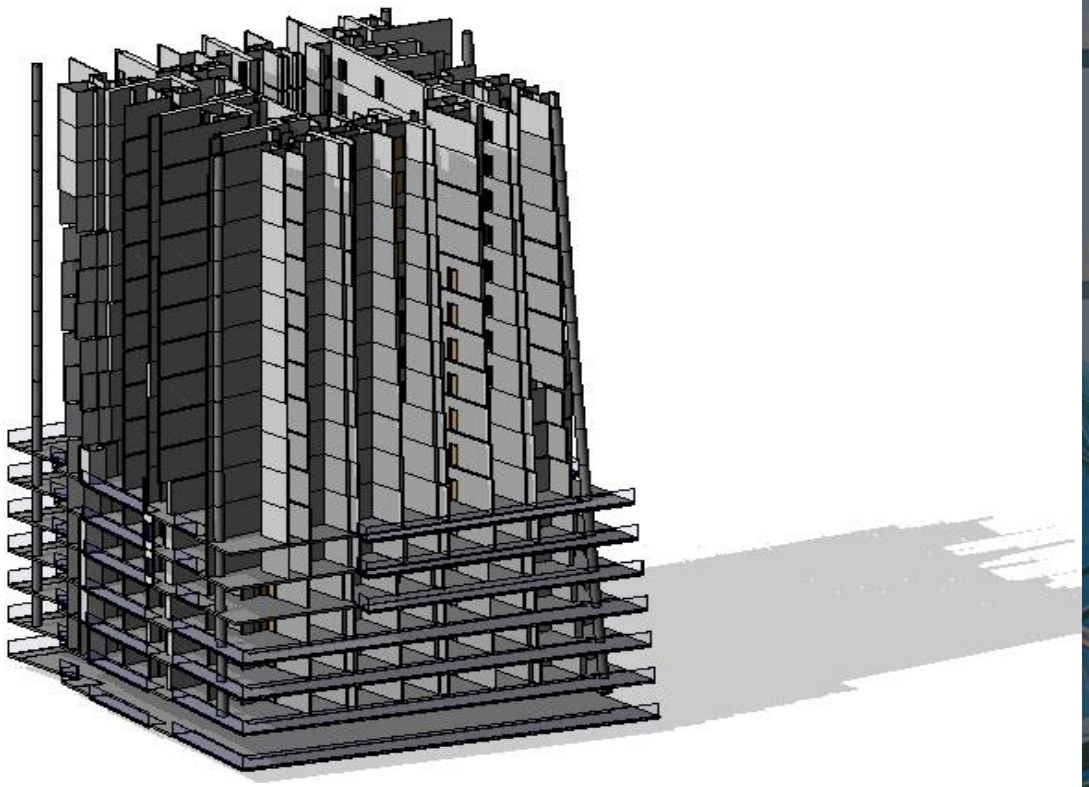


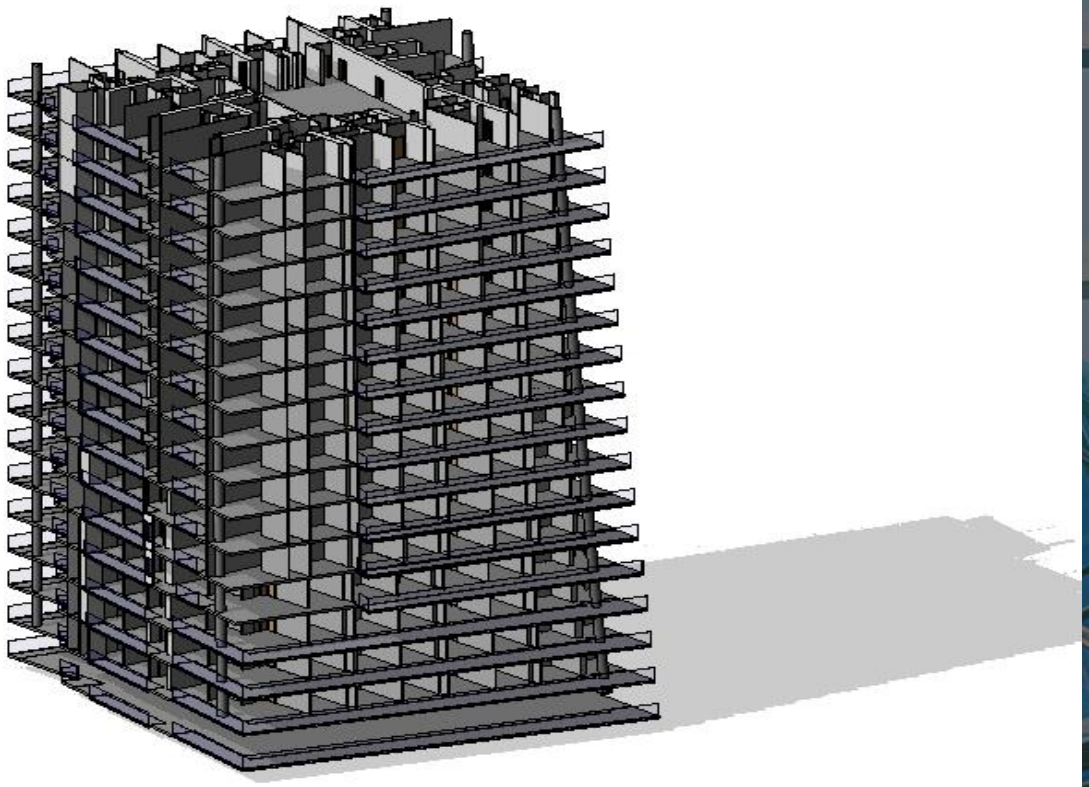


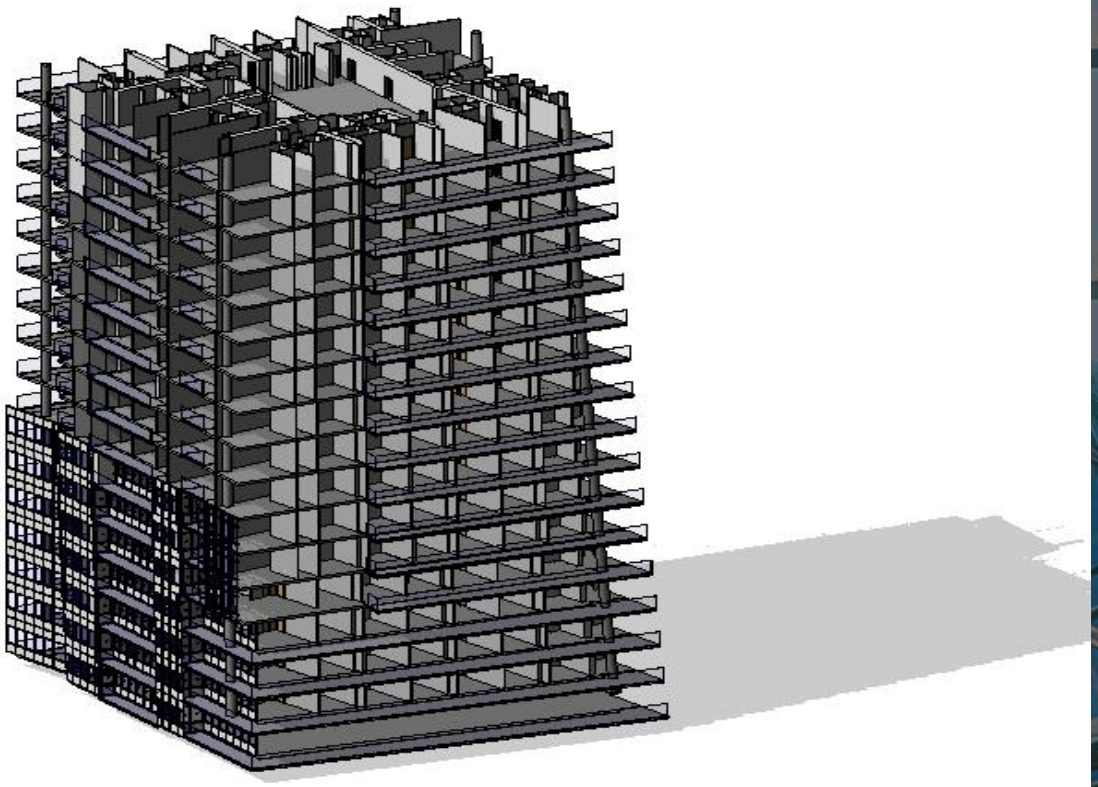


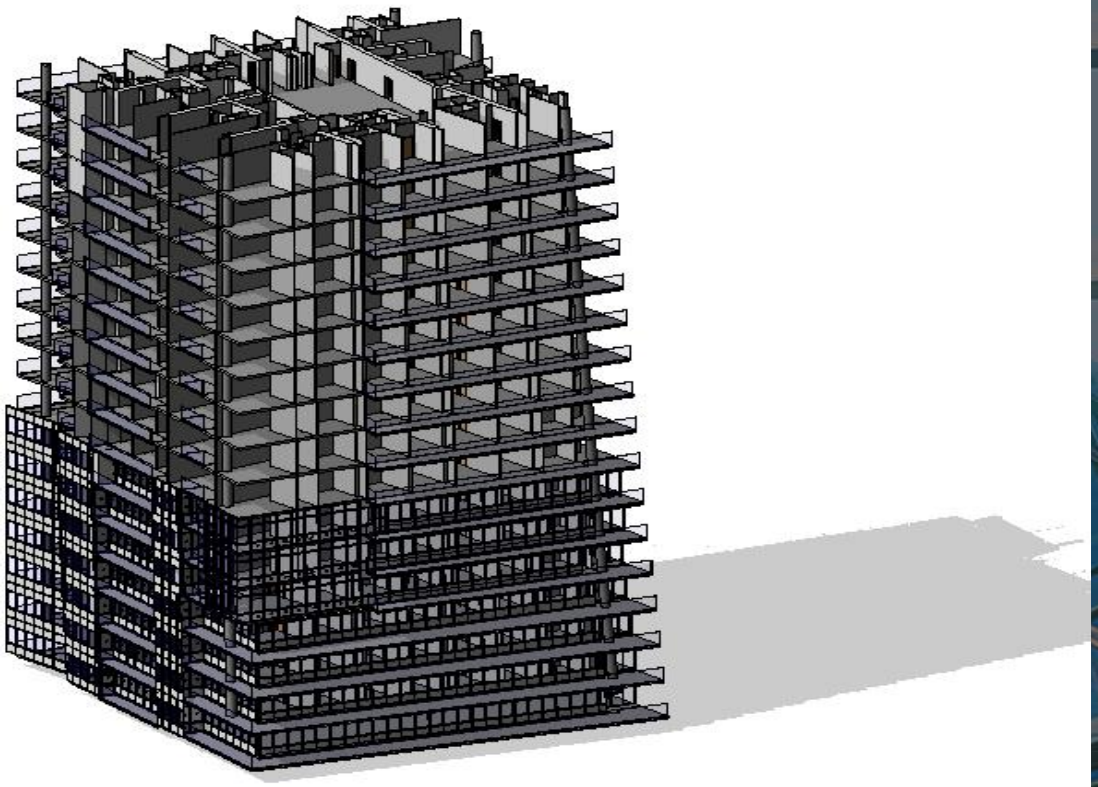


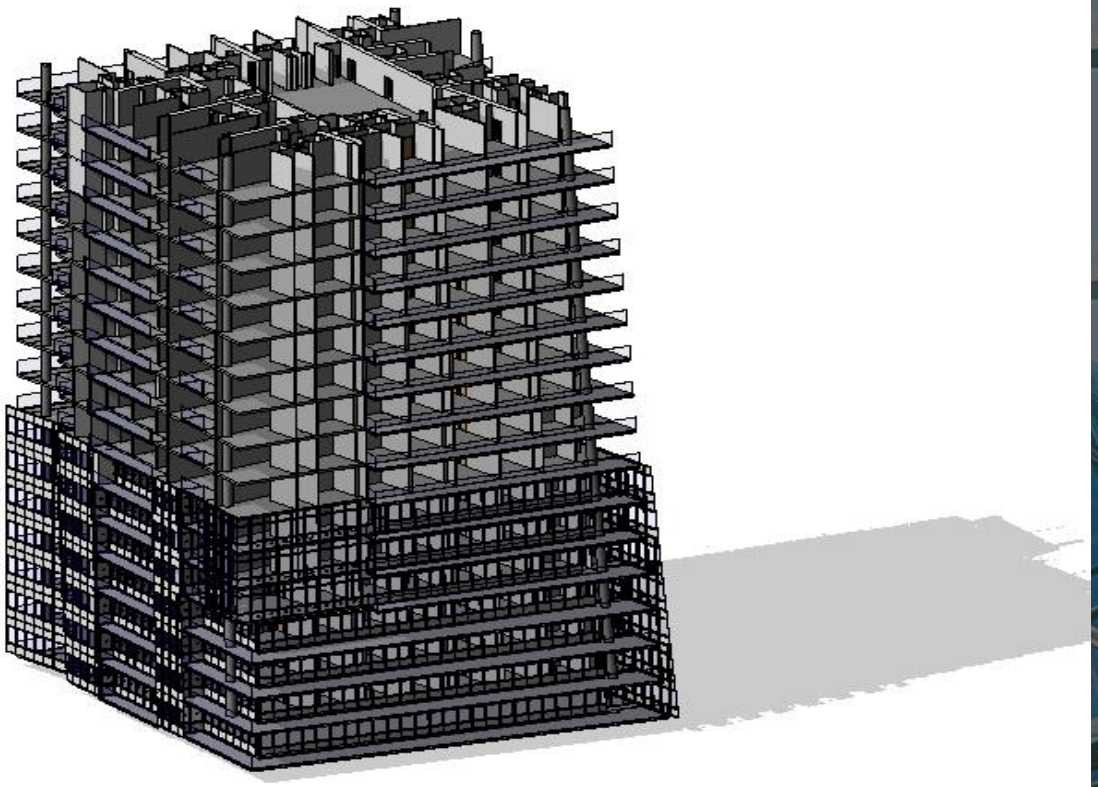


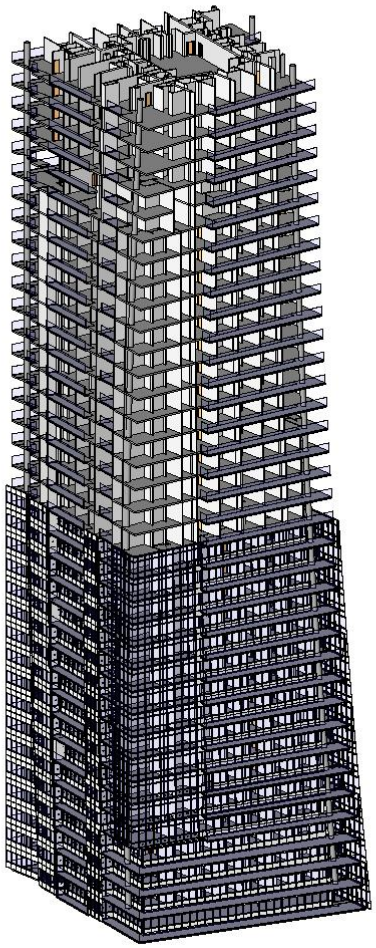


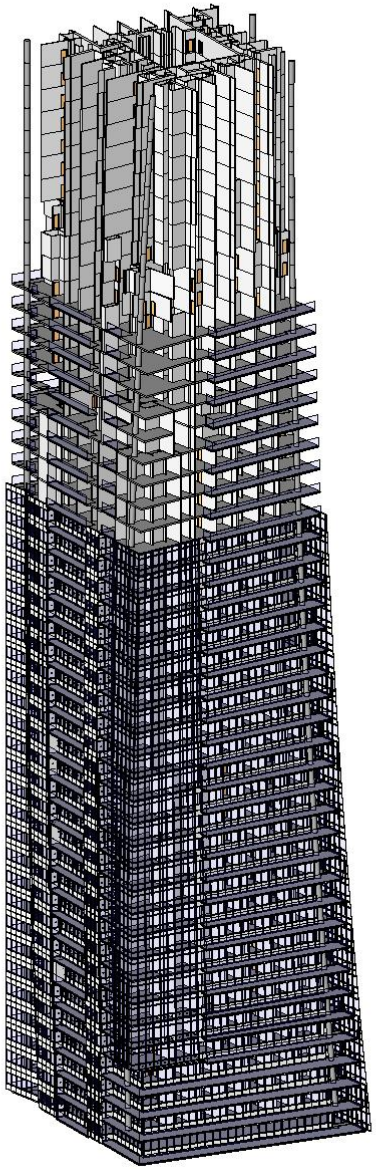


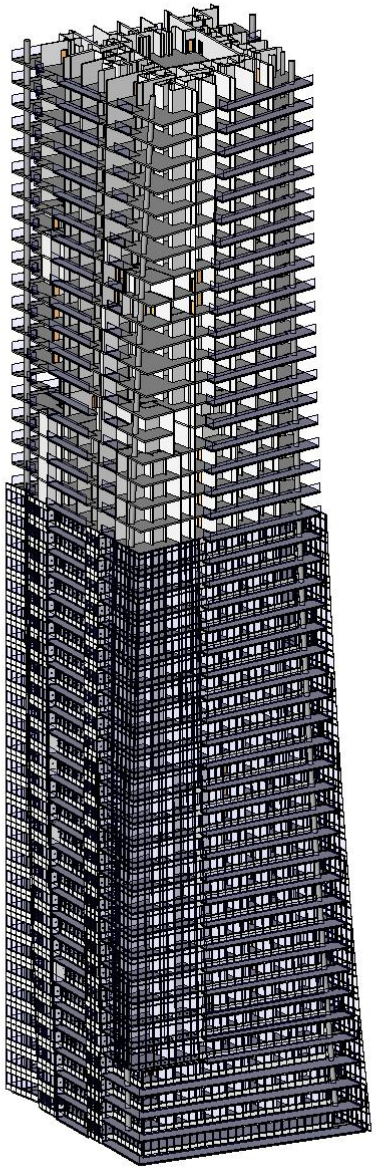


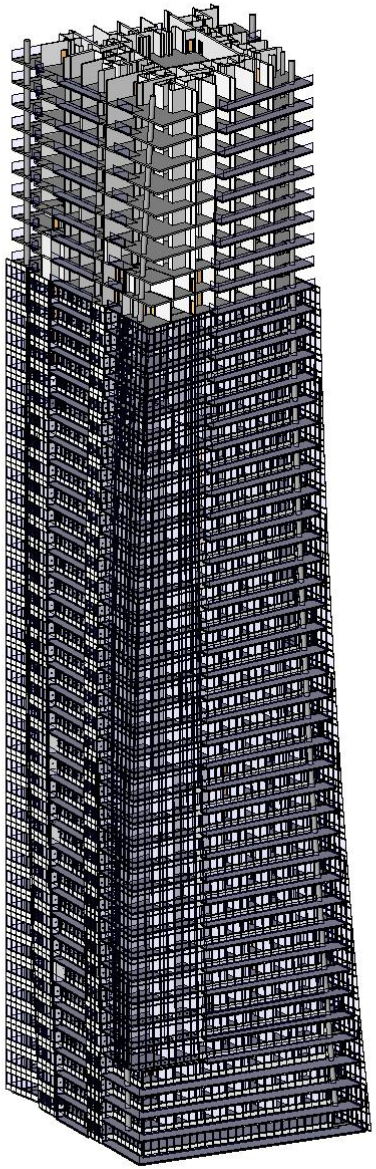


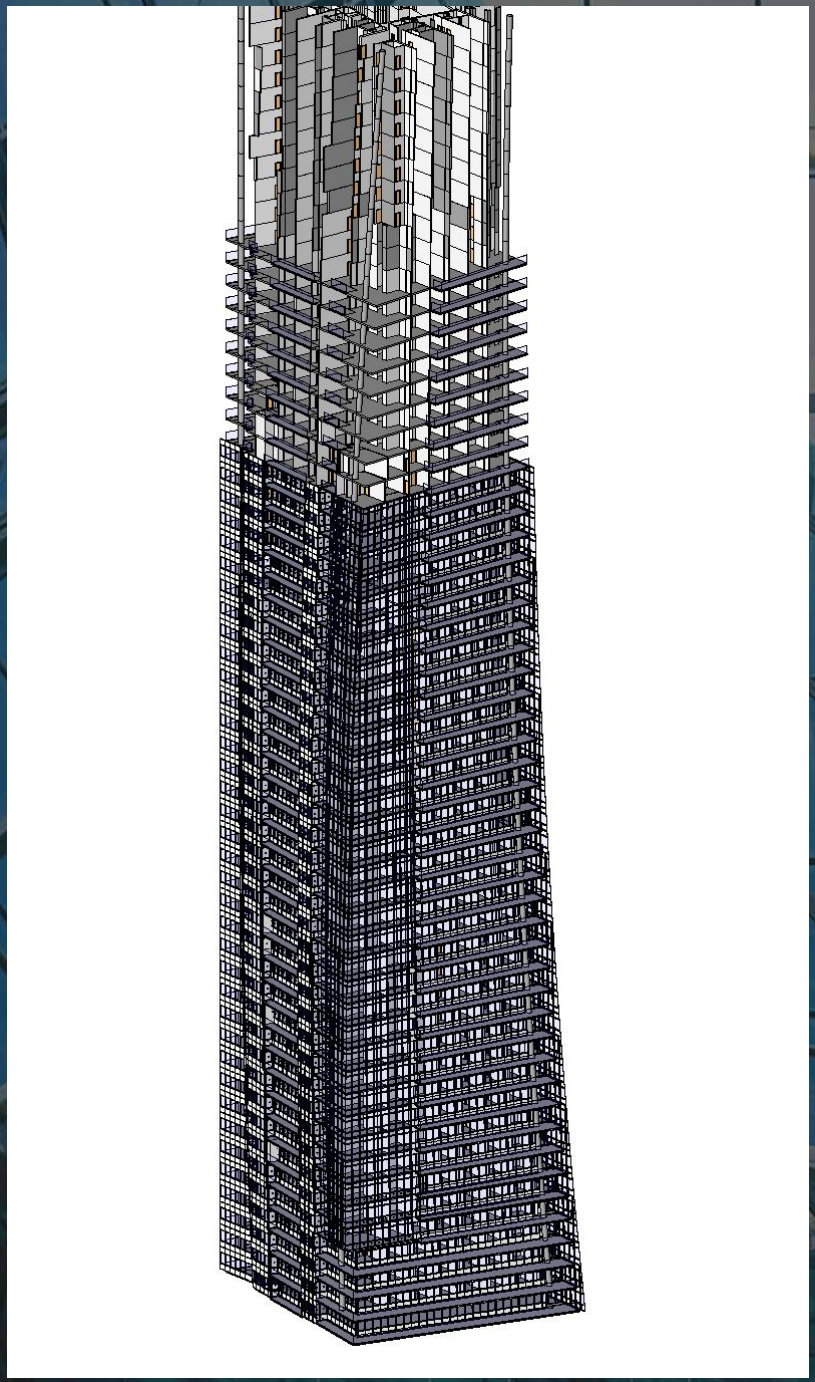


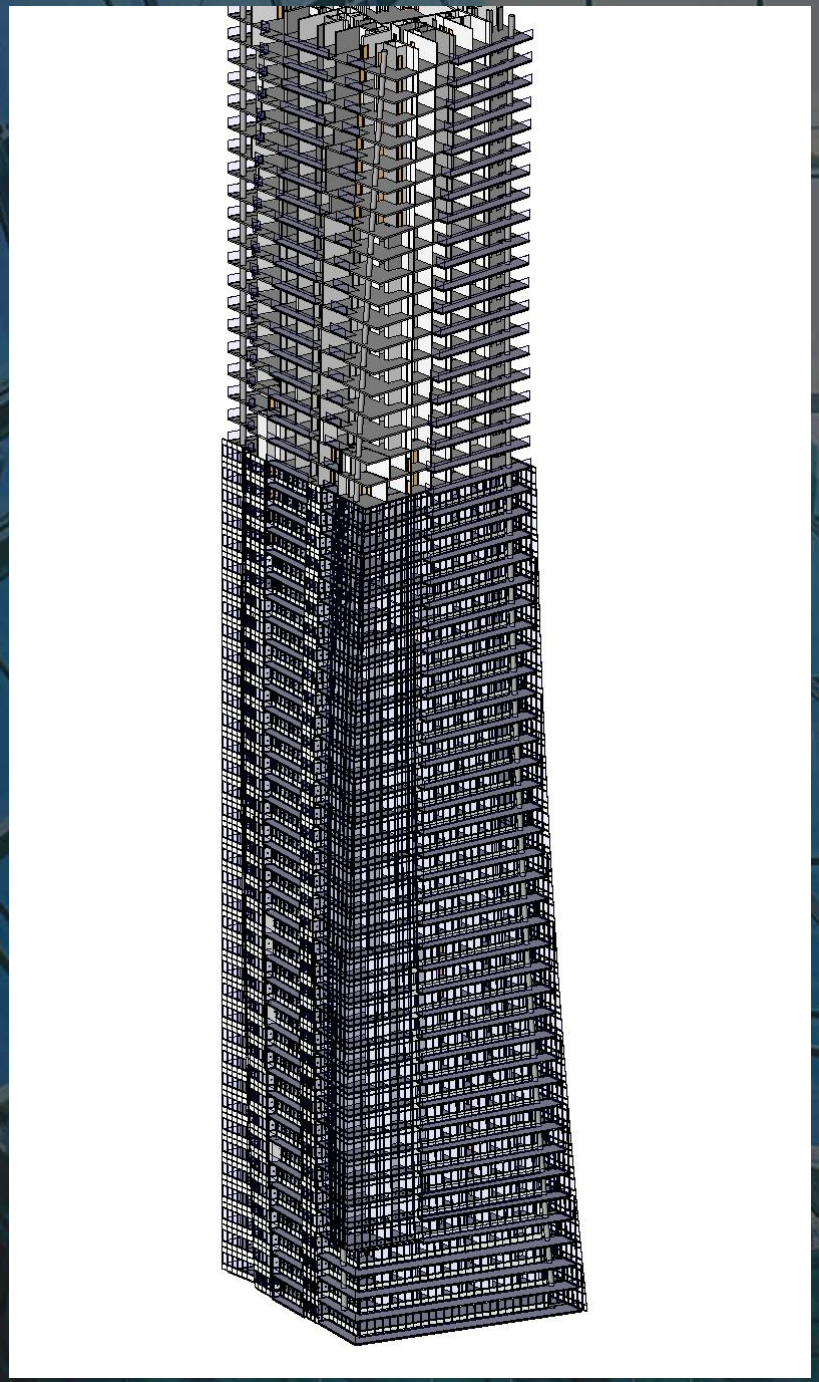


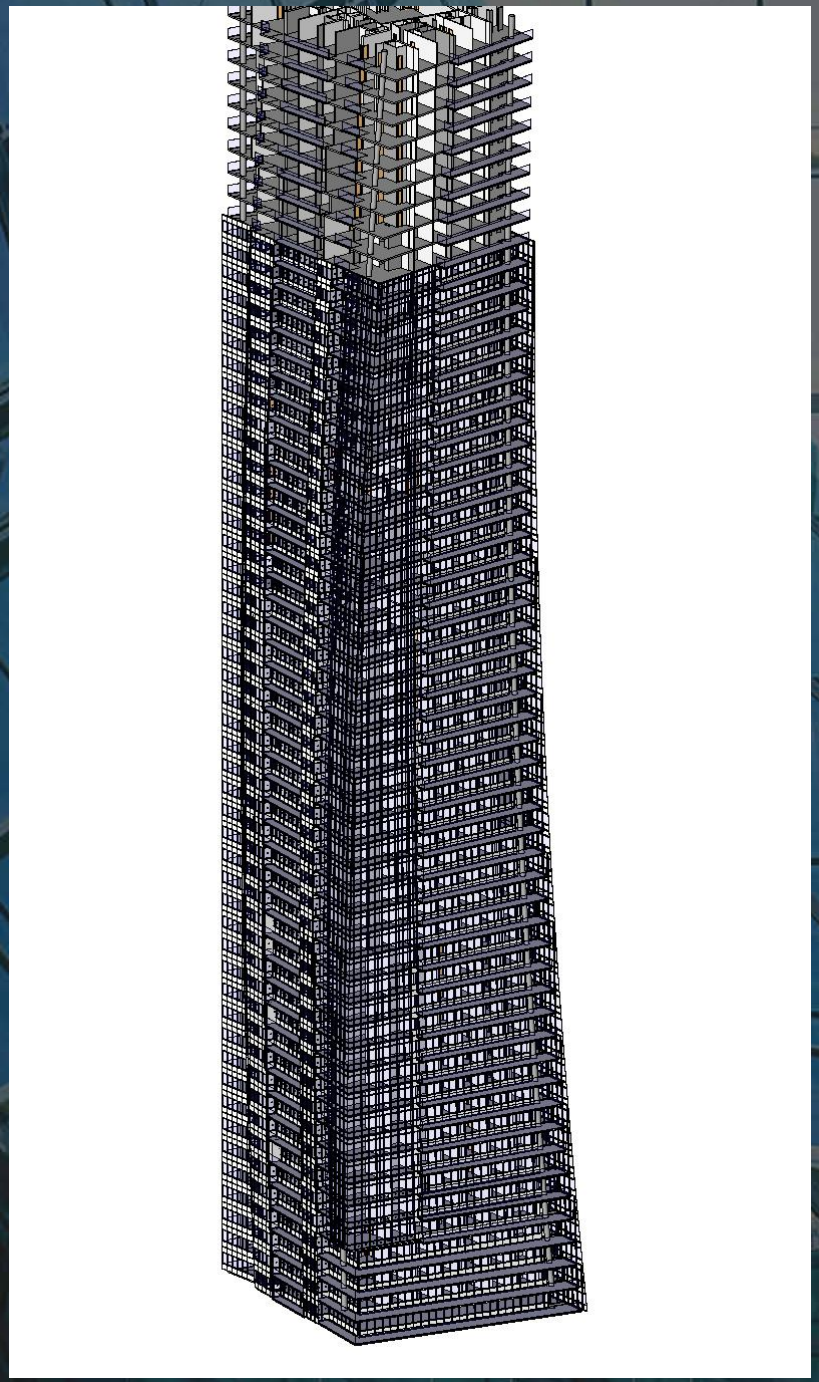


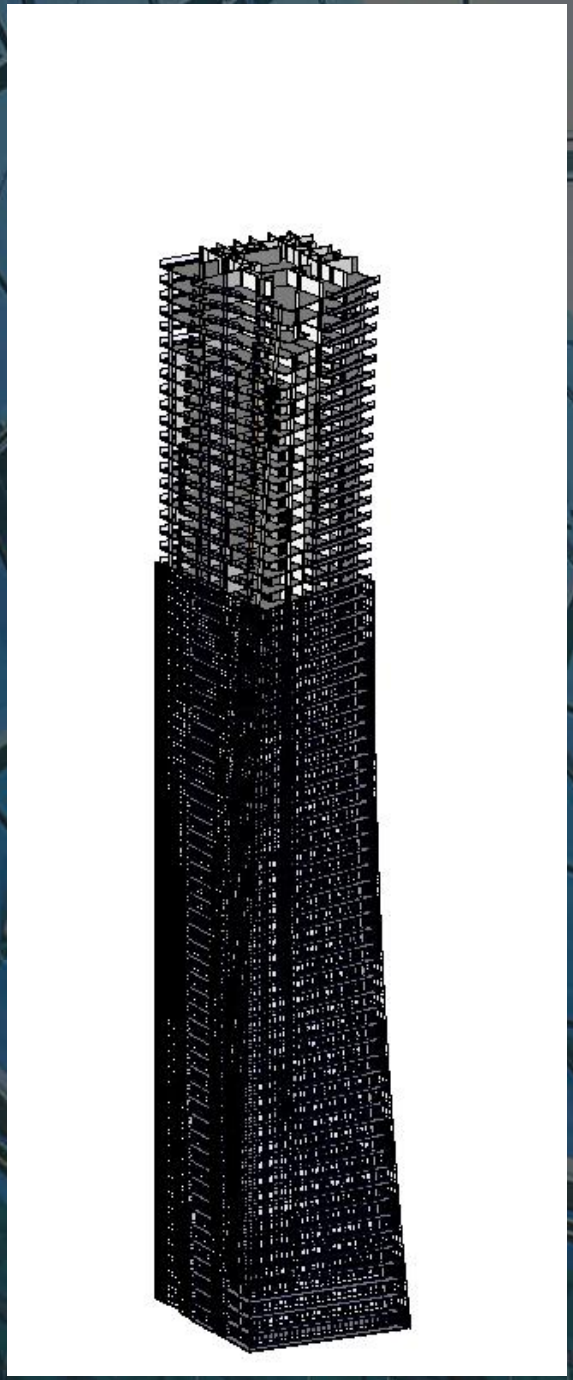


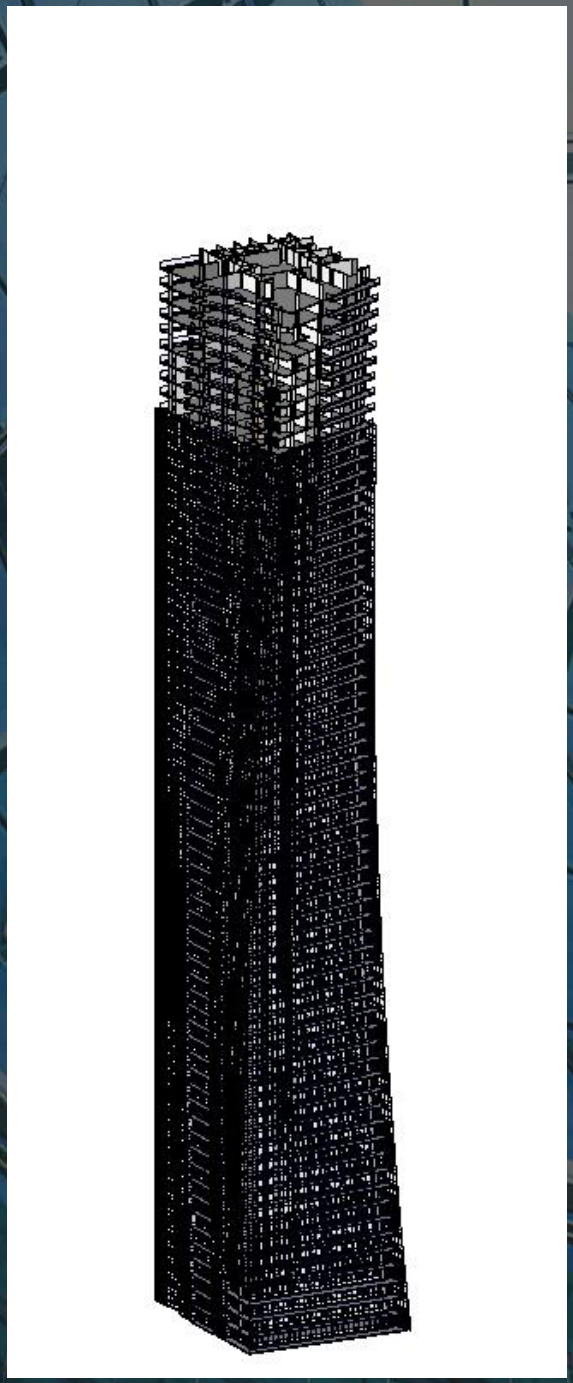


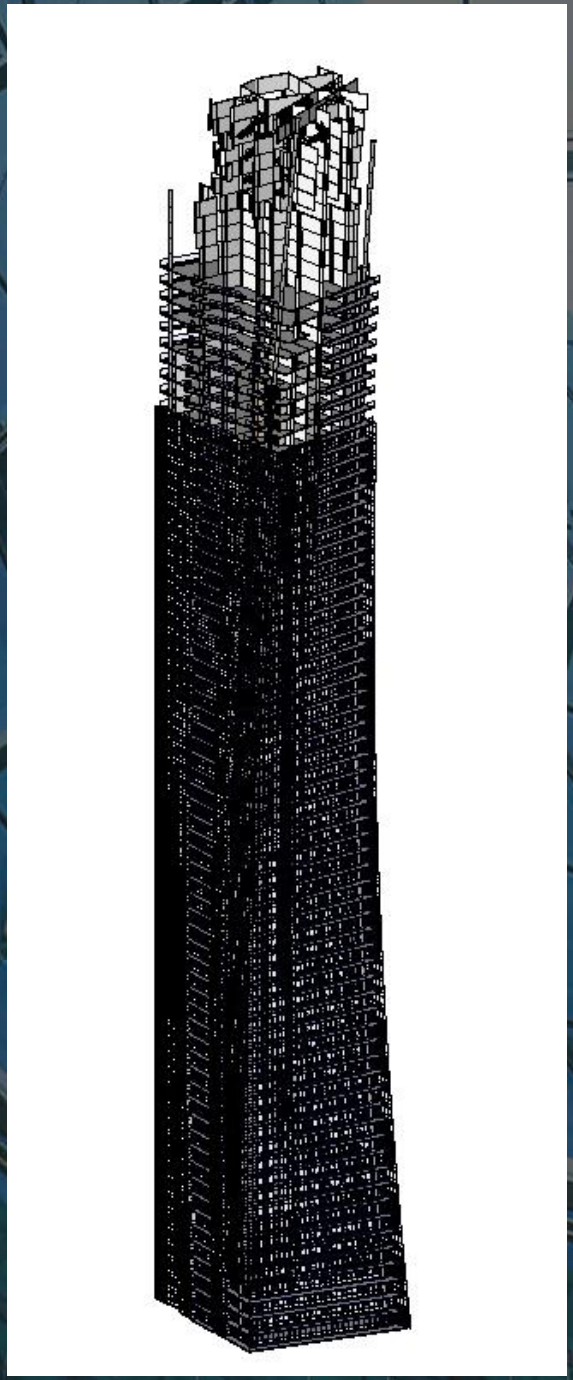


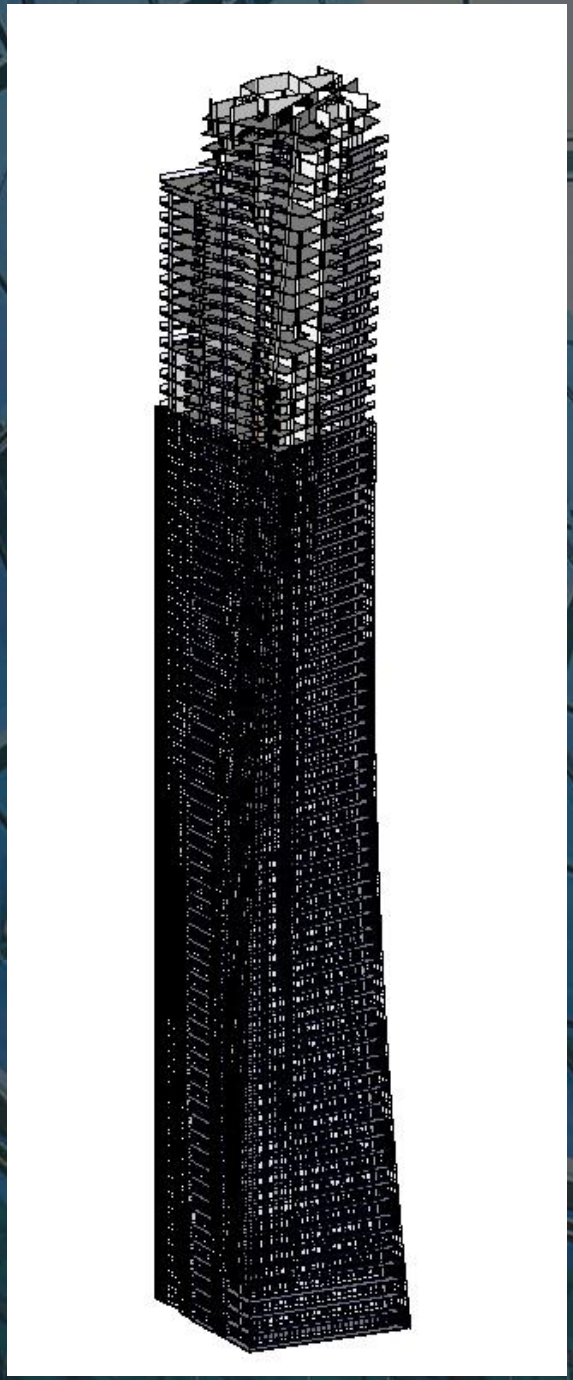


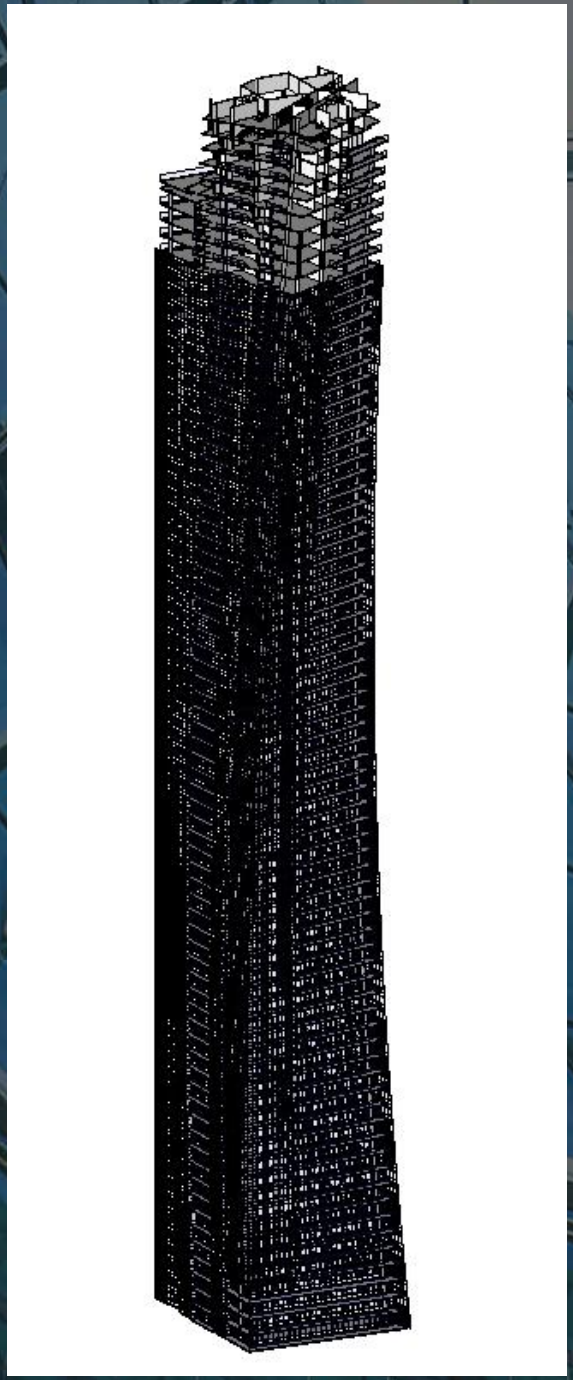


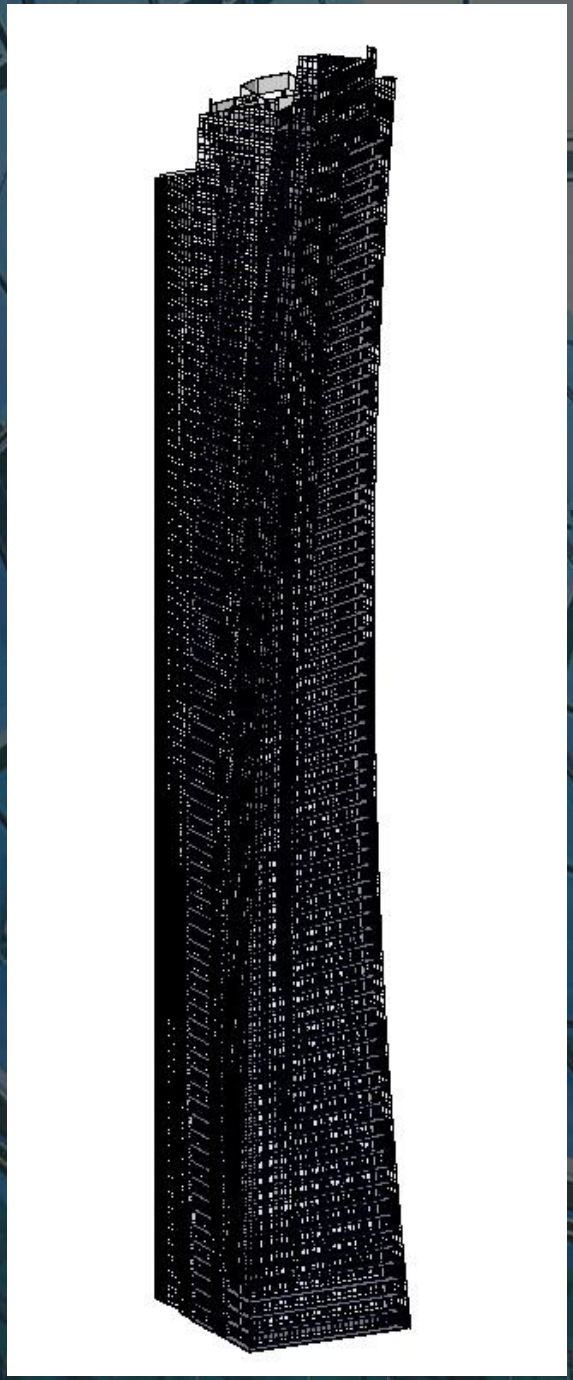


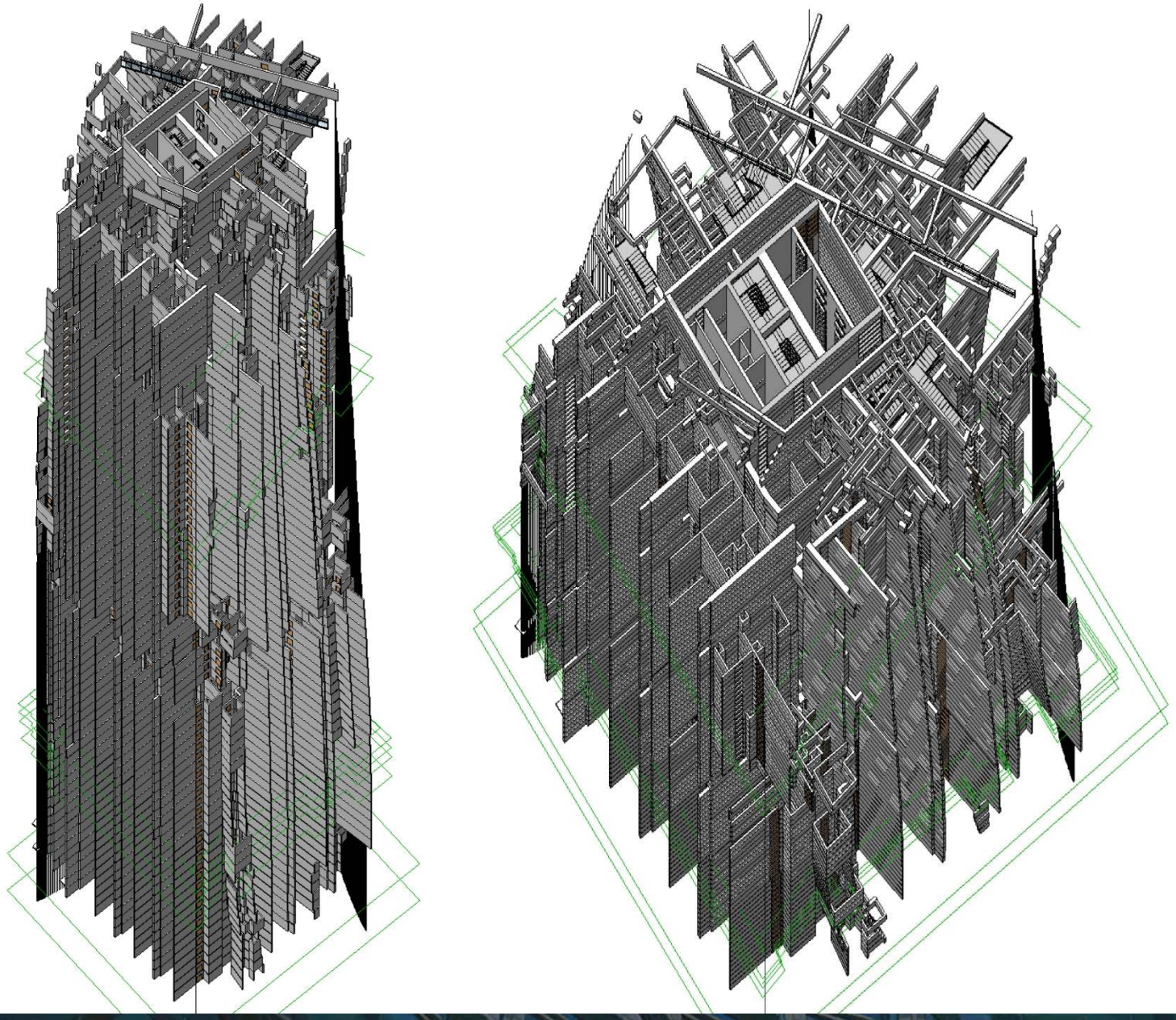




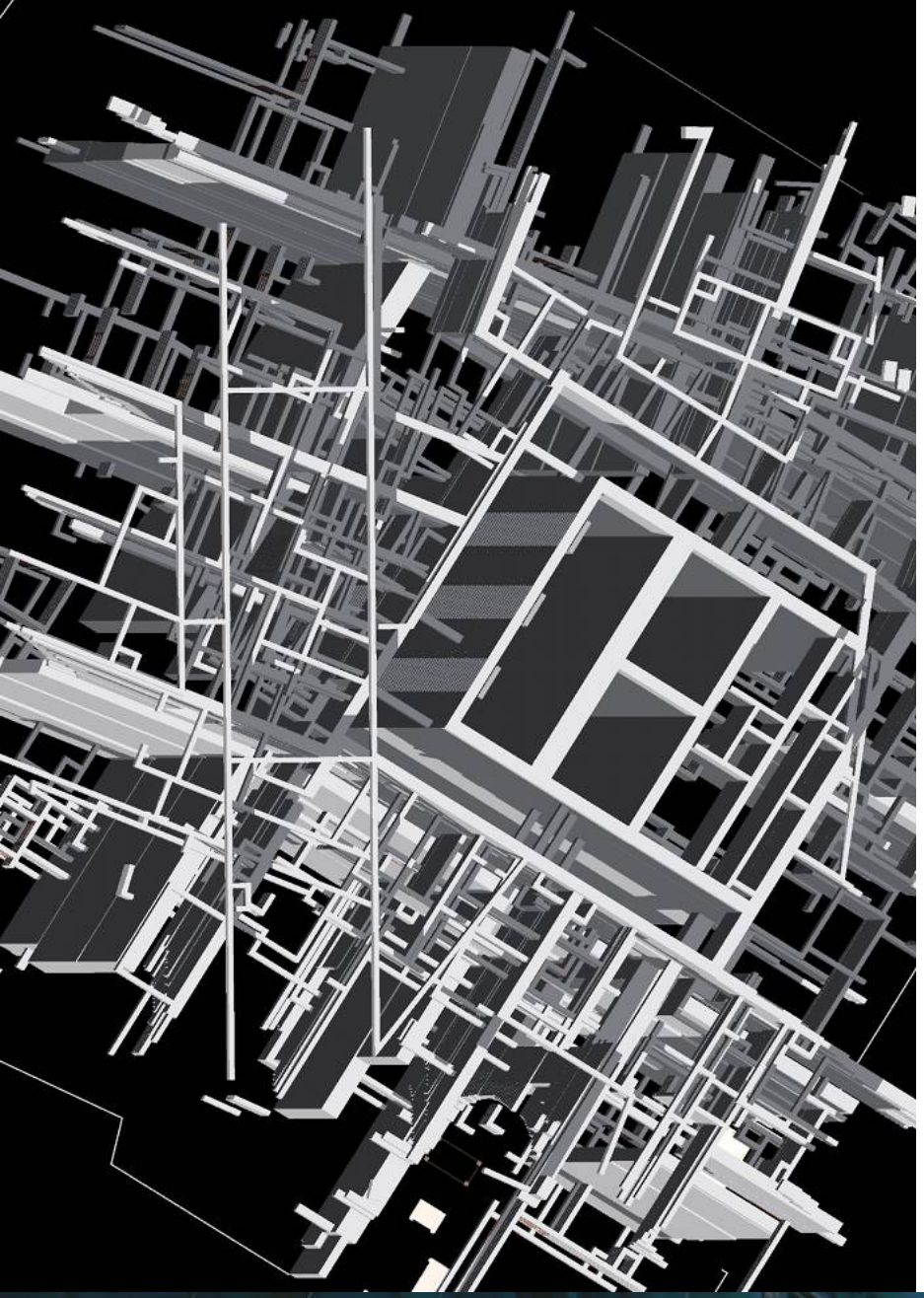


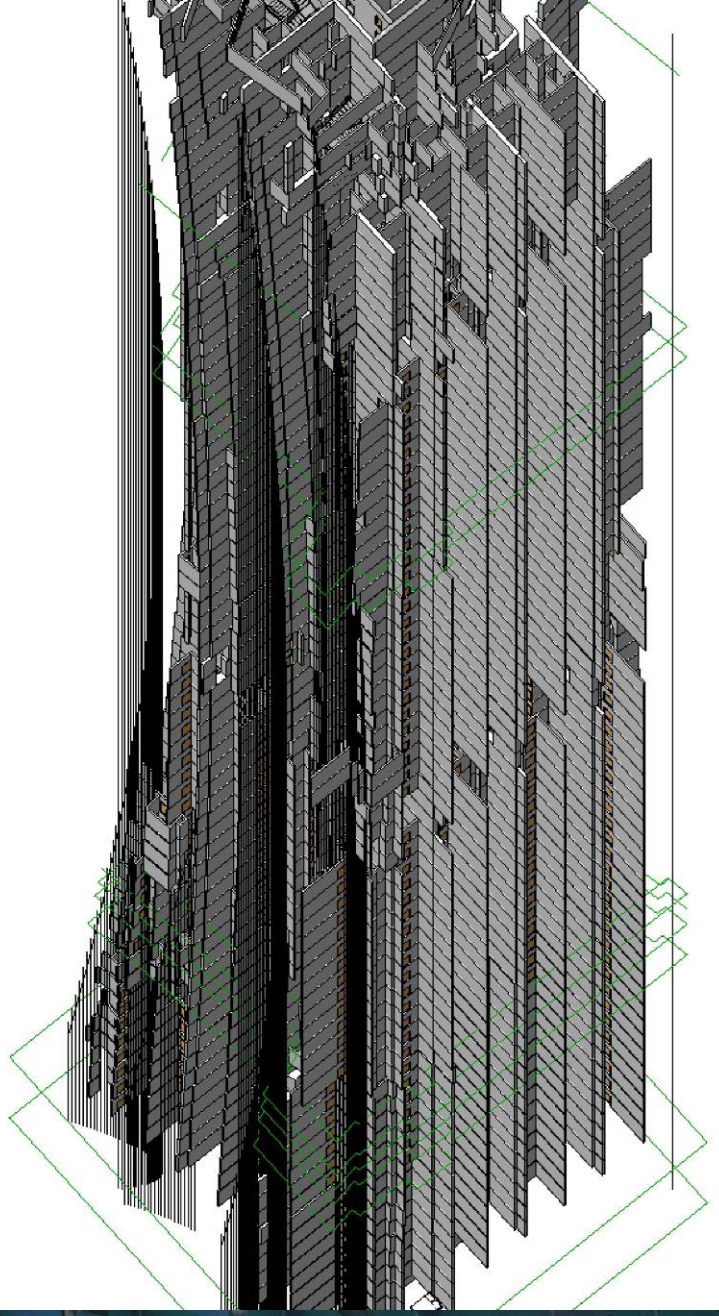




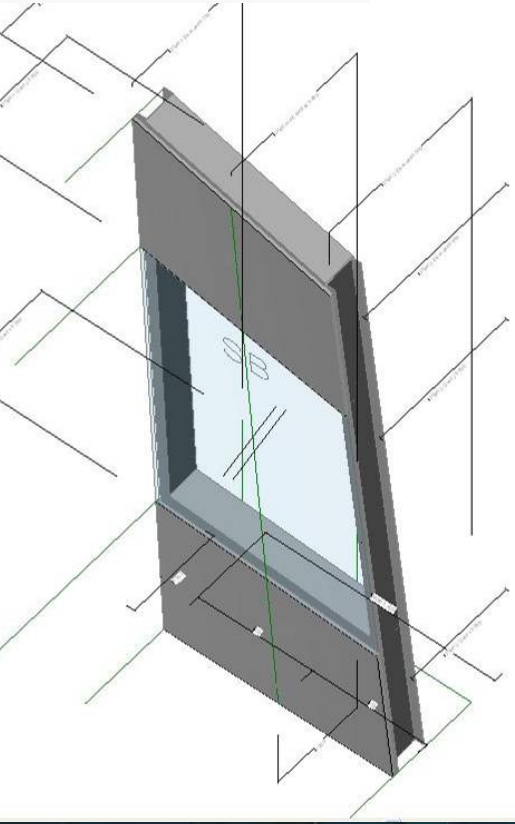


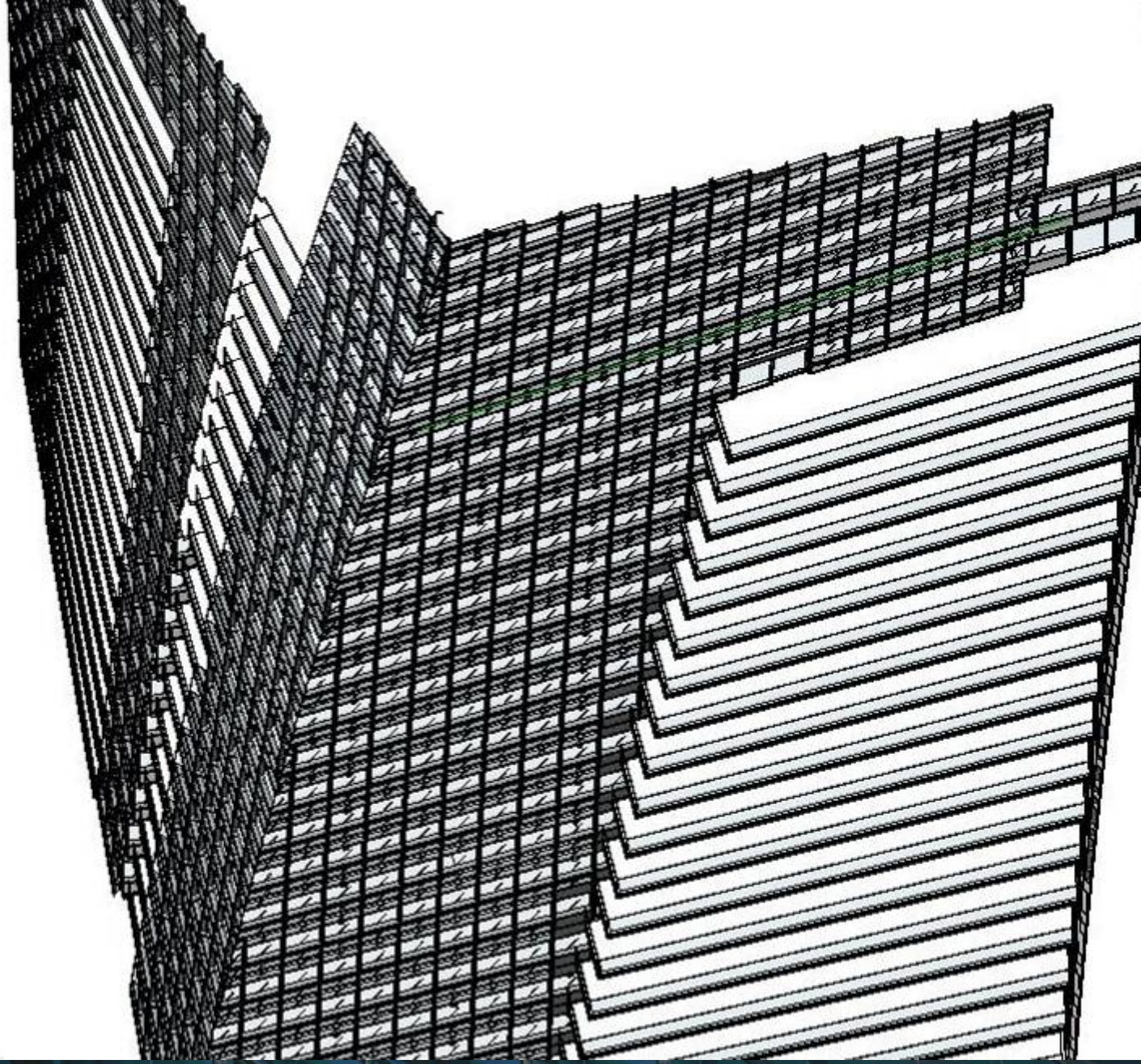
VERTICAL CO-ORDINATION



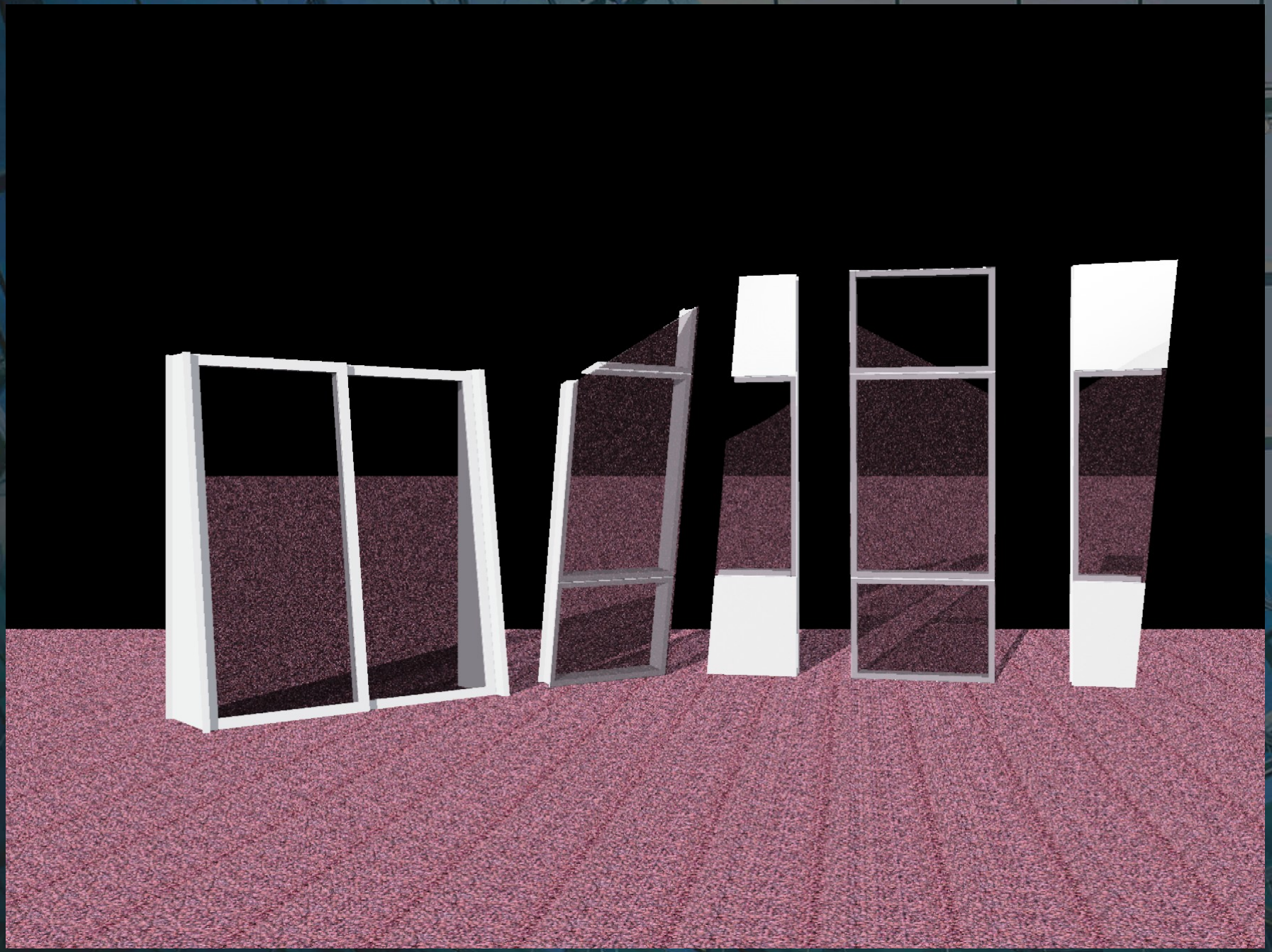


INTERNAL vs EXTERNAL





COMPLICATED CURTAIN WALL



Autodesk Revit Structure 4 - [Ocean Heights 1 R4 Local 2.rvt - Schedule: Multi-Category Schedule]

File Edit View Modelling Drafting Site Tools Settings Window Help

Move Copy Rotate Array Mirror Group 3D

Plane Demolish Align Split Trim Offset (Not Editable) Level 31 to

Headers: Group Ungroup Rows: New Delete Show

Basics

Modify
Structural Colur
Structural Wall
Beam
Component
Slab
Grid
Ref Plane
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Ocean Heights 1 R4 L...

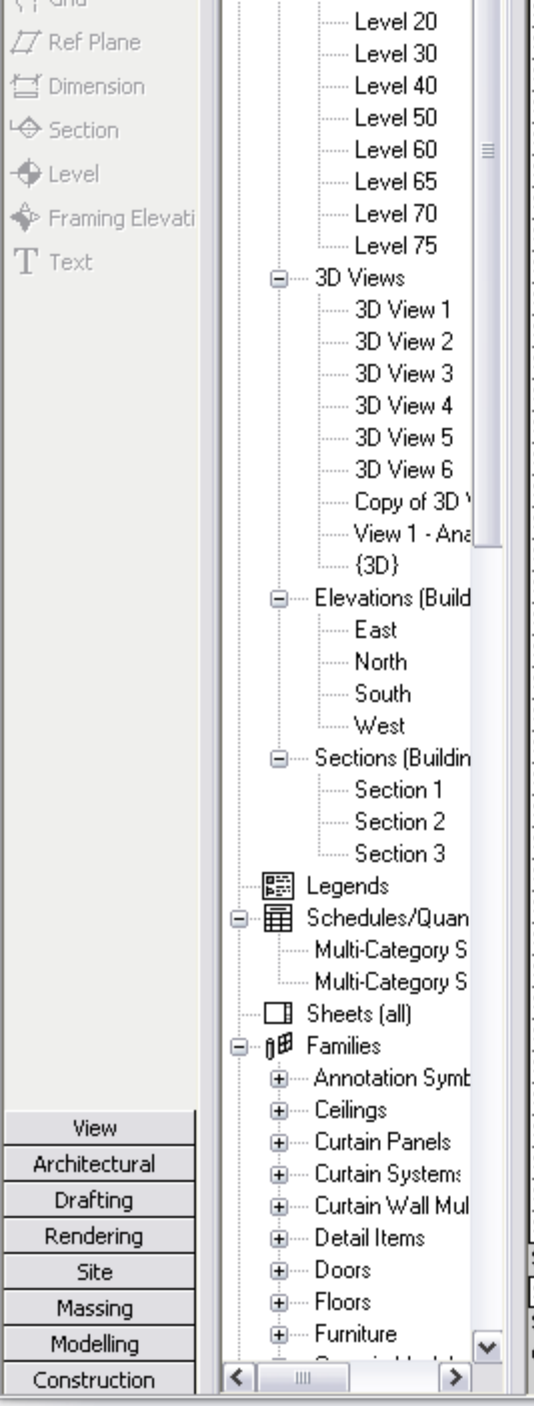
- Views (all)
  - Structural Plans
    - CAD REFEF
    - Level 1
    - Level 1 - An
    - Level 2
    - Level 2 - An
    - Level 4
    - Level 10
    - Level 20
    - Level 30
    - Level 40
    - Level 50
    - Level 60
    - Level 65
    - Level 70
    - Level 75
  - 3D Views
    - 3D View 1
    - 3D View 2
    - 3D View 3
    - 3D View 4
    - 3D View 5
    - 3D View 6
    - Copy of 3D
    - View 1 - Ana
    - {3D}
  - Elevations (Build
    - East
    - North
    - South
    - West
  - Sections (Buildin
    - Section 1
    - Section 2
    - Section 3
- Legends
- Schedules/Quan
  - Multi-Category S
  - Multi-Category S
- Sheets (all)
- Families
  - Annotation Symb
  - Ceilings
  - Curtain Panels
  - Curtain Systems
  - Curtain Wall Mul
  - Detail Items
  - Doors
  - Floors
  - Furniture

View
Architectural
Drafting
Rendering
Site
Massing
Modelling
Construction

Multi-Category Schedule

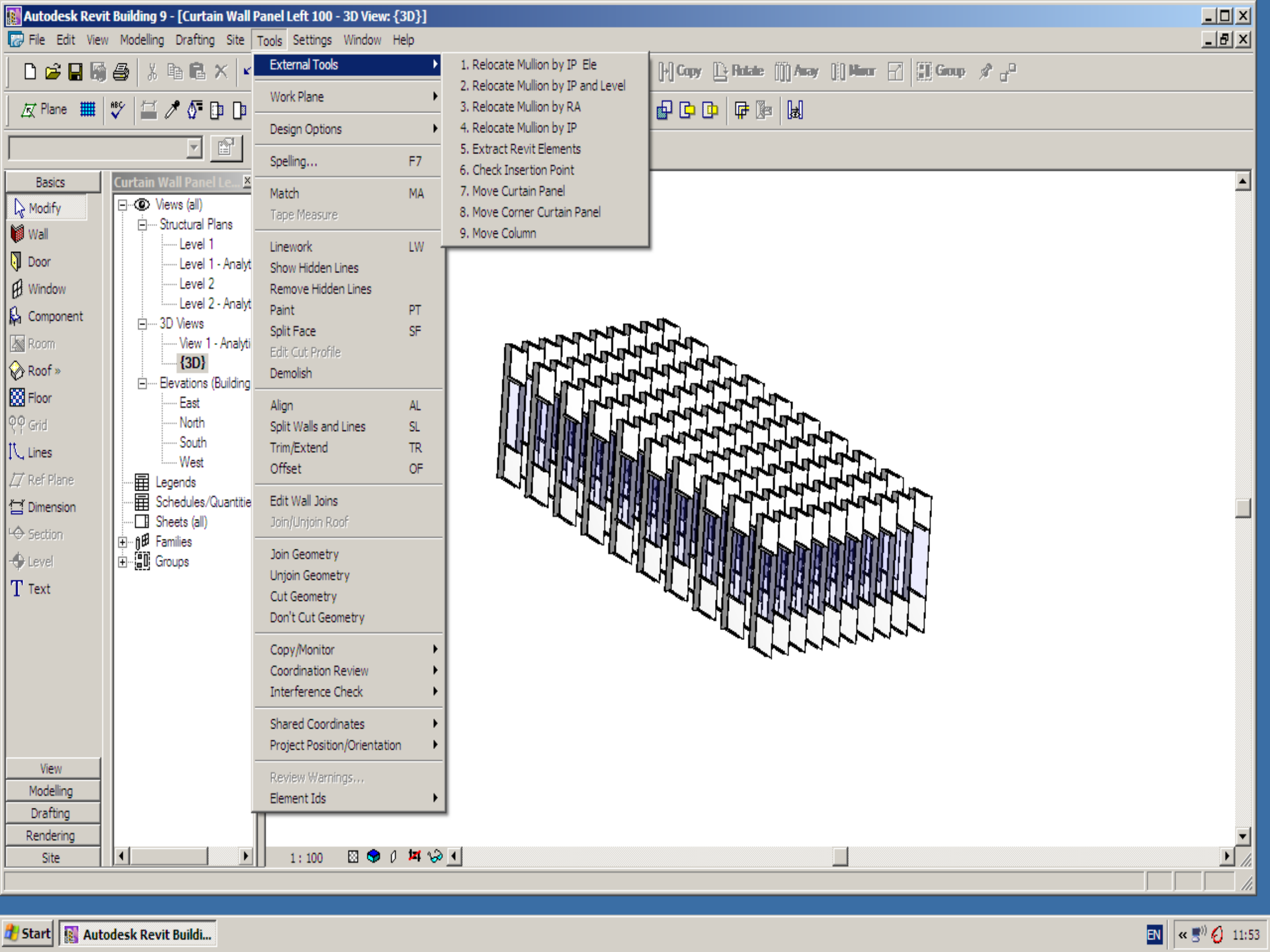
Family	Mark	Level	Width	Width Left	Width Right	Offset 1	Offset 2
Curtain Wall Panel 2	L08F01N01	Level 8	1255.67			-31.08	-41.89
Curtain Wall Panel 2	L08F01N02	Level 8	1255.67			-41.89	-52.71
Curtain Wall Panel 2	L08F01N03	Level 8	1255.67			-52.71	-63.53
Curtain Wall Panel 2	L08F01N04	Level 8	1255.67			-63.53	-74.34
Curtain Wall Panel 2	L08F01N05	Level 8	1255.67			-74.34	-85.16
Curtain Wall Panel 2	L08F01N06	Level 8	1255.67			-85.16	-95.97
Curtain Wall Panel 2	L08F01N07	Level 8	1255.67			-95.97	-106.79
Curtain Wall Panel 2	L08F01N08	Level 8	1255.67			-106.79	-117.60
Curtain Wall Panel 2	L08F01N09	Level 8	1255.67			-117.60	-117.60
Curtain Wall Panel 2	L08F03N09	Level 8	1224.13			5.31	5.66
Curtain Wall Panel 2	L08F03N10	Level 8	1224.13			5.66	6.01
Curtain Wall Panel 2	L08F03N11	Level 8	1224.13			6.01	6.36
Curtain Wall Panel 2	L09F01N01	Level 9	1255.72			-29.00	-39.77
Curtain Wall Panel 2	L09F01N02	Level 9	1255.72			-39.77	-50.54
Curtain Wall Panel 2	L09F01N03	Level 9	1255.72			-50.54	-61.31
Curtain Wall Panel 2	L09F01N04	Level 9	1255.72			-61.31	-72.07
Curtain Wall Panel 2	L09F01N05	Level 9	1255.72			-72.07	-82.84
Curtain Wall Panel 2	L09F01N06	Level 9	1255.72			-82.84	-93.61
Curtain Wall Panel 2	L09F01N07	Level 9	1255.72			-93.61	-104.38
Curtain Wall Panel 2	L09F01N08	Level 9	1255.72			-104.38	-115.15
Curtain Wall Panel 2	L09F03N09	Level 9	1224.13			0.64	0.74
Curtain Wall Panel 2	L09F03N10	Level 9	1224.13			0.74	0.84
Curtain Wall Panel 2	L09F03N11	Level 9	1224.13			0.84	0.94
Curtain Wall Panel 2	L10F01N01	Level 10	1255.77			-26.77	-37.49
Curtain Wall Panel 2	L10F01N02	Level 10	1255.77			-37.49	-48.21
Curtain Wall Panel 2	L10F01N03	Level 10	1255.77			-48.21	-58.93
Curtain Wall Panel 2	L10F01N04	Level 10	1255.77			-58.93	-69.64
Curtain Wall Panel 2	L10F01N05	Level 10	1255.77			-69.64	-80.36
Curtain Wall Panel 2	L10F01N06	Level 10	1255.77			-80.36	-91.08
Curtain Wall Panel 2	L10F01N07	Level 10	1255.77			-91.08	-101.80
Curtain Wall Panel 2	L10F01N08	Level 10	1255.77			-101.80	-112.52
Curtain Wall Panel 2	L10F03N09	Level 10	1224.13			-4.06	-4.21
Curtain Wall Panel 2	L10F03N10	Level 10	1224.13			-4.21	-4.35
Curtain Wall Panel 2	L10F03N11	Level 10	1224.13			-4.35	-4.50
Curtain Wall Panel 2	L81B1RN01	Level 81	1224.10			0.00	0.00
Curtain Wall Panel 2	L82B1RN01	Level 82	1224.10			0.00	0.00
Curtain Wall Panel 2	L83B1RN01	Level 83	1224.10			0.00	0.00
Curtain Wall Panel 2	L84B1RN01	Level 84	1224.10			0.00	0.00
Curtain Wall Panel 2: 38							
Curtain Wall Panel 3	L04F03N01	Level 4	1224.13			-1.53	-0.38
Curtain Wall Panel 3	L04F03N02	Level 4	1224.13			-0.38	0.76
Curtain Wall Panel 3	L04F03N03	Level 4	1224.13			0.76	1.91
Curtain Wall Panel 3	L04F03N05	Level 4	1224.13			12.20	13.34
Curtain Wall Panel 3	L04F03N06	Level 4	1224.13			12.20	13.34
Curtain Wall Panel 3	L04F04N01	Level 4	1200.00			-137.36	-137.36
Curtain Wall Panel 3	L04F04N02	Level 4	1200.00			-137.36	-137.38
Curtain Wall Panel 3	L04F04N03	Level 4	1200.00			-137.38	-137.40
Curtain Wall Panel 3	L04F04N04	Level 4	1200.00			-137.40	-137.42
Curtain Wall Panel 3	L04F04N05	Level 4	1200.00			-137.42	-137.45
Curtain Wall Panel 3	L04F04N06	Level 4	1200.00			-137.45	-137.47
Curtain Wall Panel 3	L04F04N07	Level 4	1200.00			-137.47	-137.49

Ready



Sliding Door	L71B05D12	Level 71	2550.00			0.00	
Sliding Door	L71B05D15	Level 71	2550.00			0.00	
Sliding Door	L72B01D02	Level 72	2400.00			0.00	
Sliding Door	L72B02D02	Level 72	2500.00			0.00	
Sliding Door	L72B04D01	Level 72	1800.00			0.00	
Sliding Door	L72B05D03	Level 72	2550.00			0.00	
Sliding Door	L72B05D05	Level 72	2550.00			0.00	
Sliding Door	L72B05D08	Level 72	2550.00			0.00	
Sliding Door	L72B05D10	Level 72	2550.00			0.00	
Sliding Door	L72B05D12	Level 72	2550.00			0.00	
Sliding Door	L72B05D15	Level 72	2550.00			0.00	
Sliding Door	L73B01D02	Level 73	2400.00			0.00	
Sliding Door	L73B02D02	Level 73	2500.00			0.00	
Sliding Door	L73B04D01	Level 73	1700.00			0.00	
Sliding Door	L73B05D03	Level 73	2550.00			0.00	
Sliding Door	L73B05D05	Level 73	2550.00			0.00	
Sliding Door	L73B05D08	Level 73	2550.00			0.00	
Sliding Door	L73B05D10	Level 73	2550.00			0.00	
Sliding Door	L73B05D12	Level 73	2550.00			0.00	
Sliding Door	L73B05D15	Level 73	2550.00			0.00	
Sliding Door	L74B01D02	Level 74	2400.00			0.00	
Sliding Door	L74B02D02	Level 74	2500.00			0.00	
Sliding Door	L74B04D01	Level 74	1600.00			0.00	
Sliding Door	L74B05D03	Level 74	2550.00			0.00	
Sliding Door	L74B05D05	Level 74	2550.00			0.00	
Sliding Door	L74B05D08	Level 74	2550.00			0.00	
Sliding Door	L74B05D10	Level 74	2550.00			0.00	
Sliding Door	L74B05D12	Level 74	2550.00			0.00	
Sliding Door	L74B05D15	Level 74	2550.00			0.00	
Sliding Door	L75B01D02	Level 75	2400.00			0.00	
Sliding Door	L75B02D02	Level 75	2500.00			0.00	
Sliding Door	L76B01D02	Level 76	2400.00			0.00	
Sliding Door	L76B02D02	Level 76	2500.00			0.00	
Sliding Door	L77B01D02	Level 77	2400.00			0.00	
Sliding Door	L77B02D01	Level 77	2426.17			0.00	
Sliding Door	L78B01D02	Level 78	2400.00			0.00	
Sliding Door	L78B02D01	Level 78	2203.01			0.00	
Sliding Door	L79B01D02	Level 79	2400.00			0.00	
Sliding Door	L79B02D01	Level 79	1974.15			0.00	
Sliding Door: 649							
Sliding Door to Replace CW Pan	L10F01N10	Level 10	1255.77			-123.24	
Sliding Door to Replace CW Panel: 1							
Grand total: 9740							

Ready


Autodesk Revit Building 9 - [Curtain Wall Panel Left 100 - 3D View: {3D}]
File Edit View Modelling Drafting Site Tools Settings Window Help
External Tools
1. Relocate Mullion by IP Ele
2. Relocate Mullion by IP and Level
3. Relocate Mullion by RA
4. Relocate Mullion by IP
5. Extract Revit Elements
6. Check Insertion Point
7. Move Curtain Panel
8. Move Corner Curtain Panel
9. Move Column
Work Plane
Design Options
Spelling... F7
Match MA
Tape Measure
Linework LW
Show Hidden Lines
Remove Hidden Lines
Paint PT
Split Face SF
Edit Cut Profile
Demolish
Align AL
Split Walls and Lines SL
Trim/Extend TR
Offset OF
Edit Wall Joins
Join/Unjoin Roof
Join Geometry
Unjoin Geometry
Cut Geometry
Don't Cut Geometry
Copy/Monitor
Coordination Review
Interference Check
Shared Coordinates
Project Position/Orientation
Review Warnings...
Element Ids
Basics
Modify
Wall
Door
Window
Component
Room
Roof
Floor
Grid
Lines
Ref Plane
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Curtain Wall Panel Le...
Views (all)
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Level 1
Level 1 - Analyt
Level 2
Level 2 - Analyt
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North
South
West
Legends
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Groups
View
Modelling
Drafting
Rendering
Site
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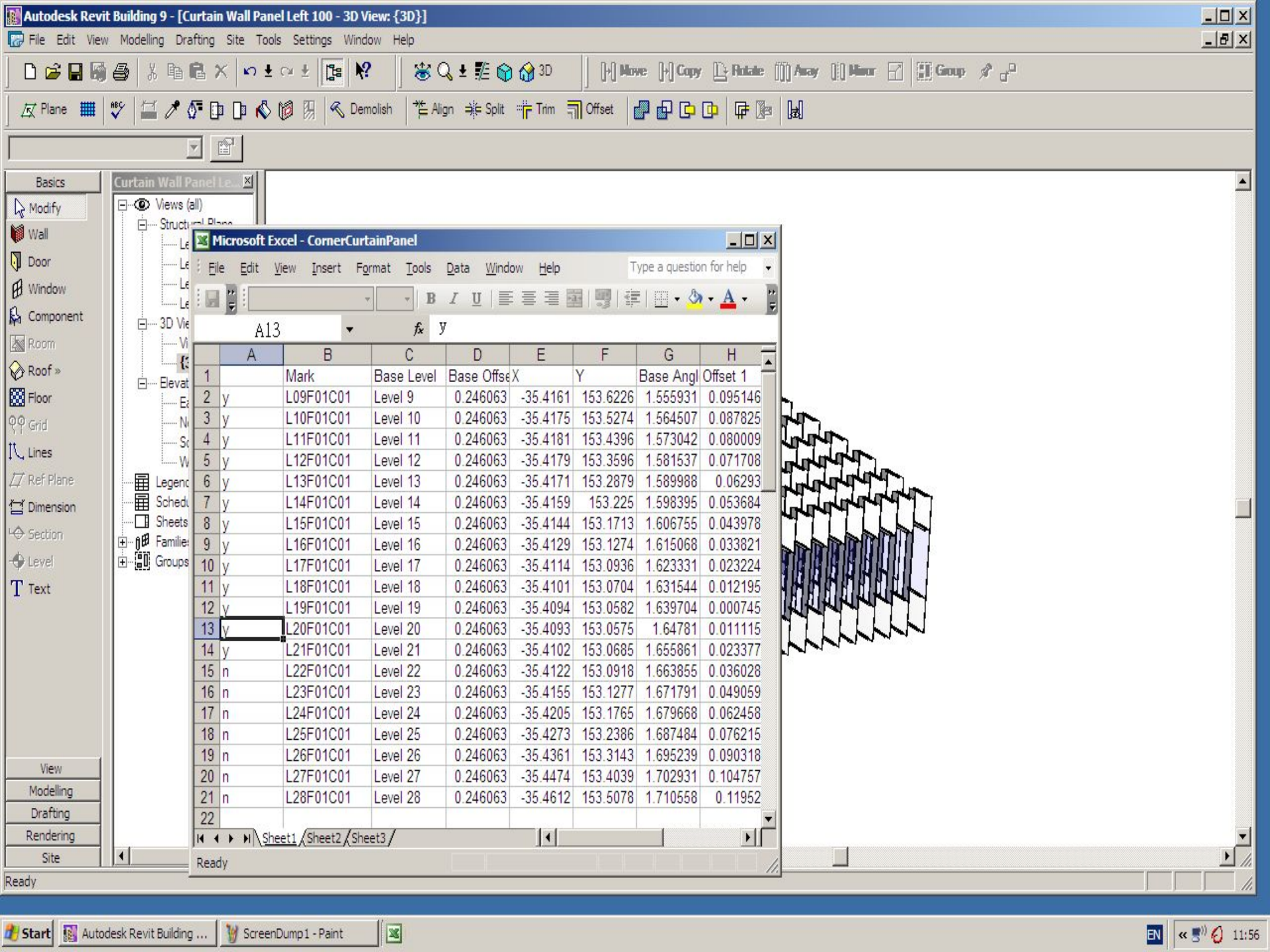
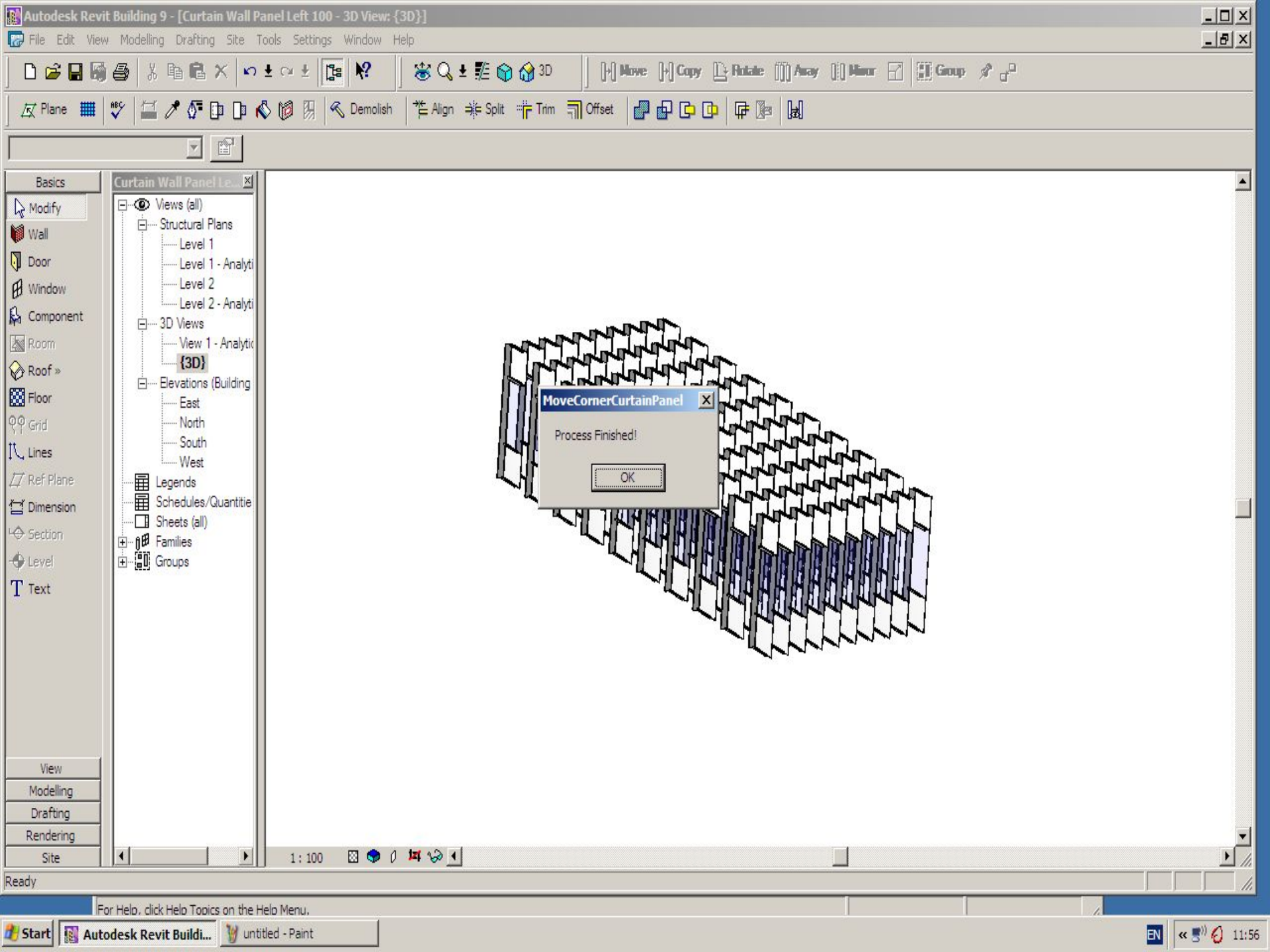
11:53



	A	B	C	D	E	F	G	H
1		Mark	Base Level	Base Offse	X	Y	Base Angl	Offset 1
2	y	L09F01C01	Level 9	0.246063	-35.4161	153.6226	1.555931	0.095146
3	y	L10F01C01	Level 10	0.246063	-35.4175	153.5274	1.564507	0.087825
4	y	L11F01C01	Level 11	0.246063	-35.4181	153.4396	1.573042	0.080009
5	y	L12F01C01	Level 12	0.246063	-35.4179	153.3596	1.581537	0.071708
6	y	L13F01C01	Level 13	0.246063	-35.4171	153.2879	1.589988	0.06293
7	y	L14F01C01	Level 14	0.246063	-35.4159	153.225	1.598395	0.053684
8	y	L15F01C01	Level 15	0.246063	-35.4144	153.1713	1.606755	0.043978
9	y	L16F01C01	Level 16	0.246063	-35.4129	153.1274	1.615068	0.033821
10	y	L17F01C01	Level 17	0.246063	-35.4114	153.0936	1.623331	0.023224
11	y	L18F01C01	Level 18	0.246063	-35.4101	153.0704	1.631544	0.012195
12	y	L19F01C01	Level 19	0.246063	-35.4094	153.0582	1.639704	0.000745
13	y	L20F01C01	Level 20	0.246063	-35.4093	153.0575	1.64781	0.011115
14	y	L21F01C01	Level 21	0.246063	-35.4102	153.0685	1.655861	0.023377
15	n	L22F01C01	Level 22	0.246063	-35.4122	153.0918	1.663855	0.036028
16	n	L23F01C01	Level 23	0.246063	-35.4155	153.1277	1.671791	0.049059
17	n	L24F01C01	Level 24	0.246063	-35.4205	153.1765	1.679668	0.062458
18	n	L25F01C01	Level 25	0.246063	-35.4273	153.2386	1.687484	0.076215
19	n	L26F01C01	Level 26	0.246063	-35.4361	153.3143	1.695239	0.090318
20	n	L27F01C01	Level 27	0.246063	-35.4474	153.4039	1.702931	0.104757
21	n	L28F01C01	Level 28	0.246063	-35.4612	153.5078	1.710558	0.11952
22								


Autodesk Revit Building 9 - [Curtain Wall Panel Left 100 - 3D View: {3D}]
File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
Basics
Modify
Wall
Door
Window
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Room
Roof
Floor
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Ref Plane
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Structural Plans
Level 1
Level 1 - Analyti
Level 2
Level 2 - Analyti
3D Views
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Elevations (Building
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North
South
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Schedules/Quantitie
Sheets (all)
Families
Groups
MoveCornerCurtainPanel
Process Finished!
OK
1 : 100
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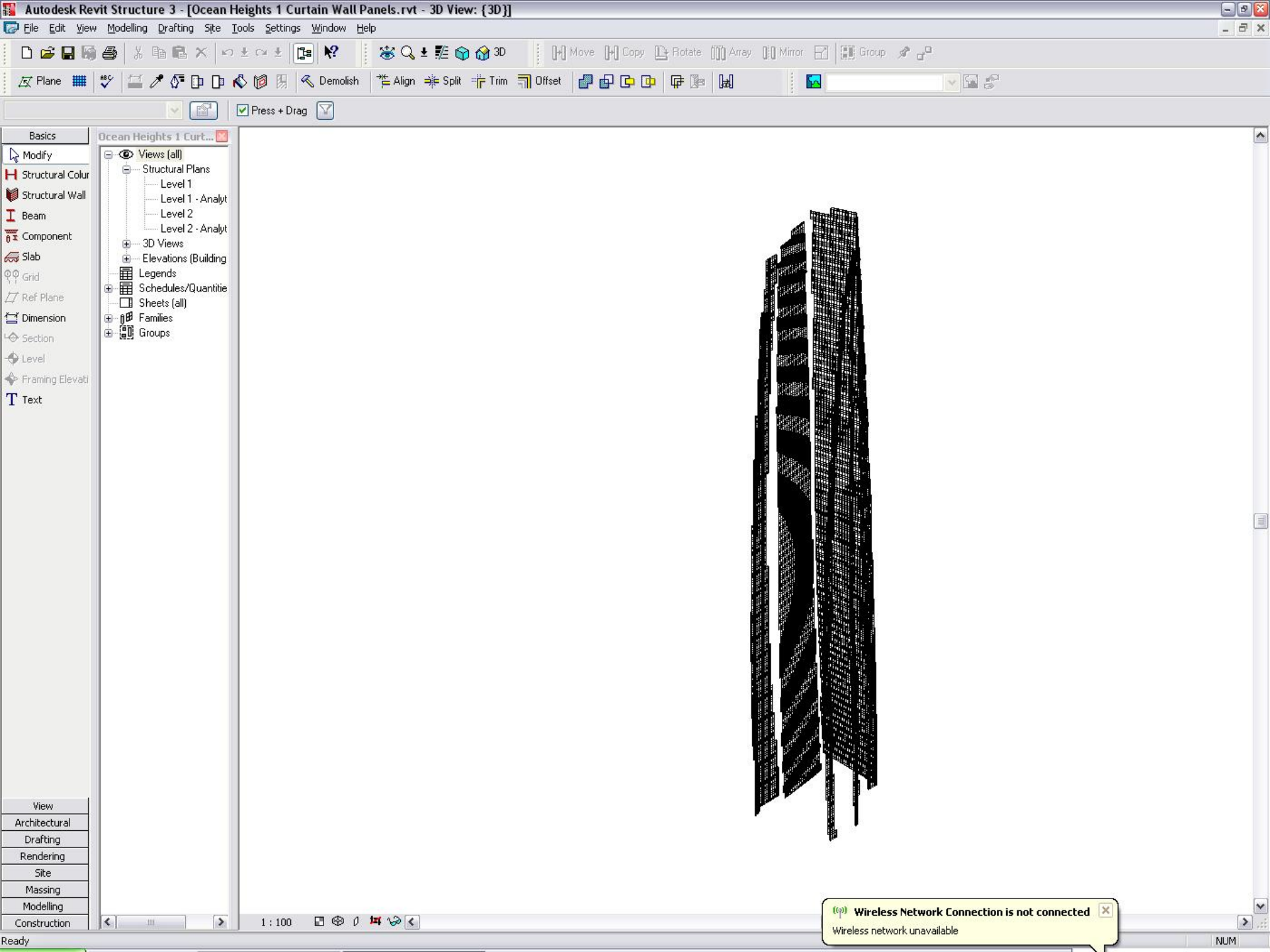
Modelling
Drafting
Rendering
Site
Ready
For Help, click Help Topics on the Help Menu.
Start
Autodesk Revit Buildi...
untitled - Paint
EN
11:56


Autodesk Revit Structure 3 - [Ocean Heights 1 Curtain Wall Panels.rvt - 3D View: {3D}]
File Edit View Modelling Drafting Site Tools Settings Window Help
Move Copy Rotate Array Mirror Group
Plane Demolish Align Split Trim Offset
Press + Drag
Basics
Modify
Structural Colur
Structural Wall
Beam
Component
Slab
Grid
Ref Plane
Dimension
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Ocean Heights 1 Curt...
Views (all)
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Level 1
Level 1 - Analyt
Level 2
Level 2 - Analyt
3D Views
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Families
Groups
View
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Drafting
Rendering
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Modelling
Construction
1 : 100
Wireless Network Connection is not connected
Wireless network unavailable
Ready
NUM

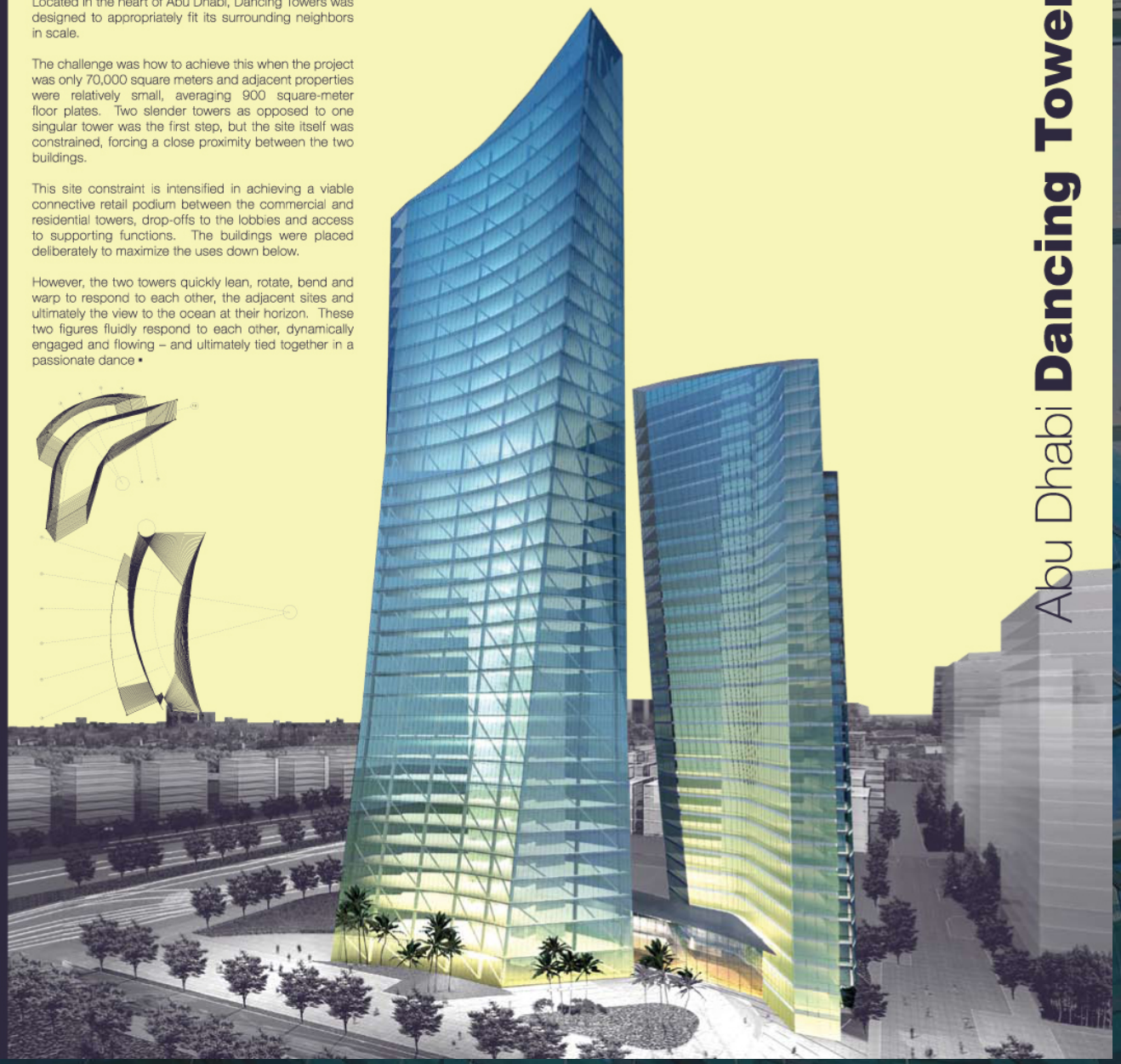
Abu Dhabi **Dancing Towers**

Located in the heart of Abu Dhabi, Dancing Towers was designed to appropriately fit its surrounding neighbors in scale.

The challenge was how to achieve this when the project was only 70,000 square meters and adjacent properties were relatively small, averaging 900 square-meter floor plates. Two slender towers as opposed to one singular tower was the first step, but the site itself was constrained, forcing a close proximity between the two buildings.

This site constraint is intensified in achieving a viable connective retail podium between the commercial and residential towers, drop-offs to the lobbies and access to supporting functions. The buildings were placed deliberately to maximize the uses down below.

However, the two towers quickly lean, rotate, bend and warp to respond to each other, the adjacent sites and ultimately the view to the ocean at their horizon. These two figures fluidly respond to each other, dynamically engaged and flowing – and ultimately tied together in a passionate dance •



Program **Mixed Use** Site Area **4,180 sqm**
Floor Area **44,235 sqm** Building Height **160 m**

Abu Dhabi **Dancing Towers**

Autodesk Revit Structure 4 - [Dancing Tower Master R4.rvt - 3D View: {3D}]

File Edit View Modelling Drafting Site Tools Settings Window Help

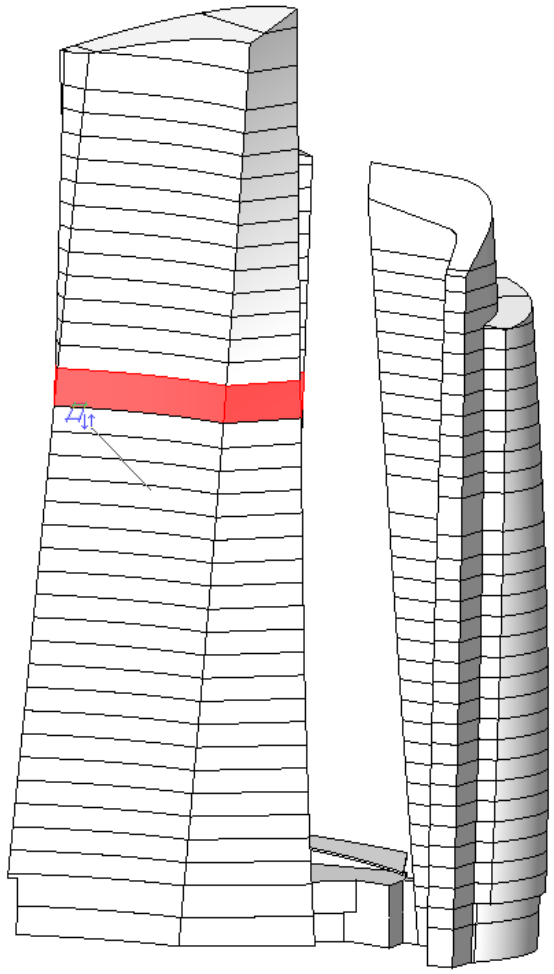
Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Tower 1 Mass : T1L20 | Floor Area Faces | Related Hosts | Edit Work Plane... | Rehost | Edit Family | Press + Drag

Basics
- Modify
- Structural Colur
- Structural Wall
- Beam
- Component
- Slab
- Grid
- Ref Plane
- Dimension
- Section
- Level
- Framing Elevati
- Text

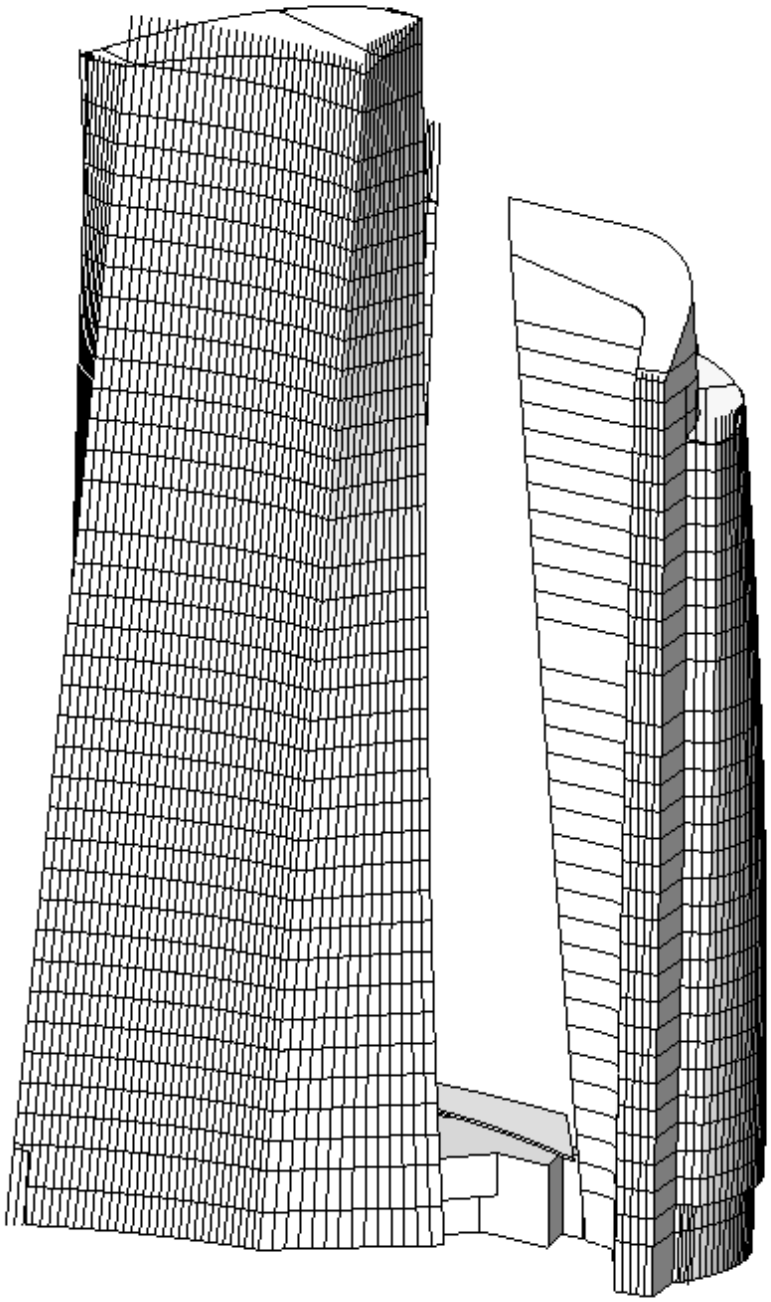
Dancing Tower Mast...
- Views (all)
  - Structural Plans
    - Ground Onl
    - Level 1
    - Level 1 - An
    - Level 1(1)
    - Level 2 - An
    - ROOF ONL
    - T1-01
    - T1-02
    - T1-03
    - T1-04
    - T1-05
    - T1-06
    - T1-07
    - T1-08
    - T1-09
    - T1-10
    - T1-11
    - T1-12
    - T1-13
    - T1-14
    - T1-15
    - T1-16
    - T1-17
    - T1-18
    - T1-19
    - T1-20
    - T1-21
    - T1-22
    - T1-23
    - T1-24
    - T1-25
    - T1-26
    - T1-27
    - T1-28
    - T1-29
    - T1-30
    - T1-31
    - T1-32
    - T1-33
    - T1-34
    - T1-35
    - T1- Roof
    - T1-G
    - T1-G2
    - T1-G3
    - T2-1
    - T2-2
    - T2-3
    - T2-4



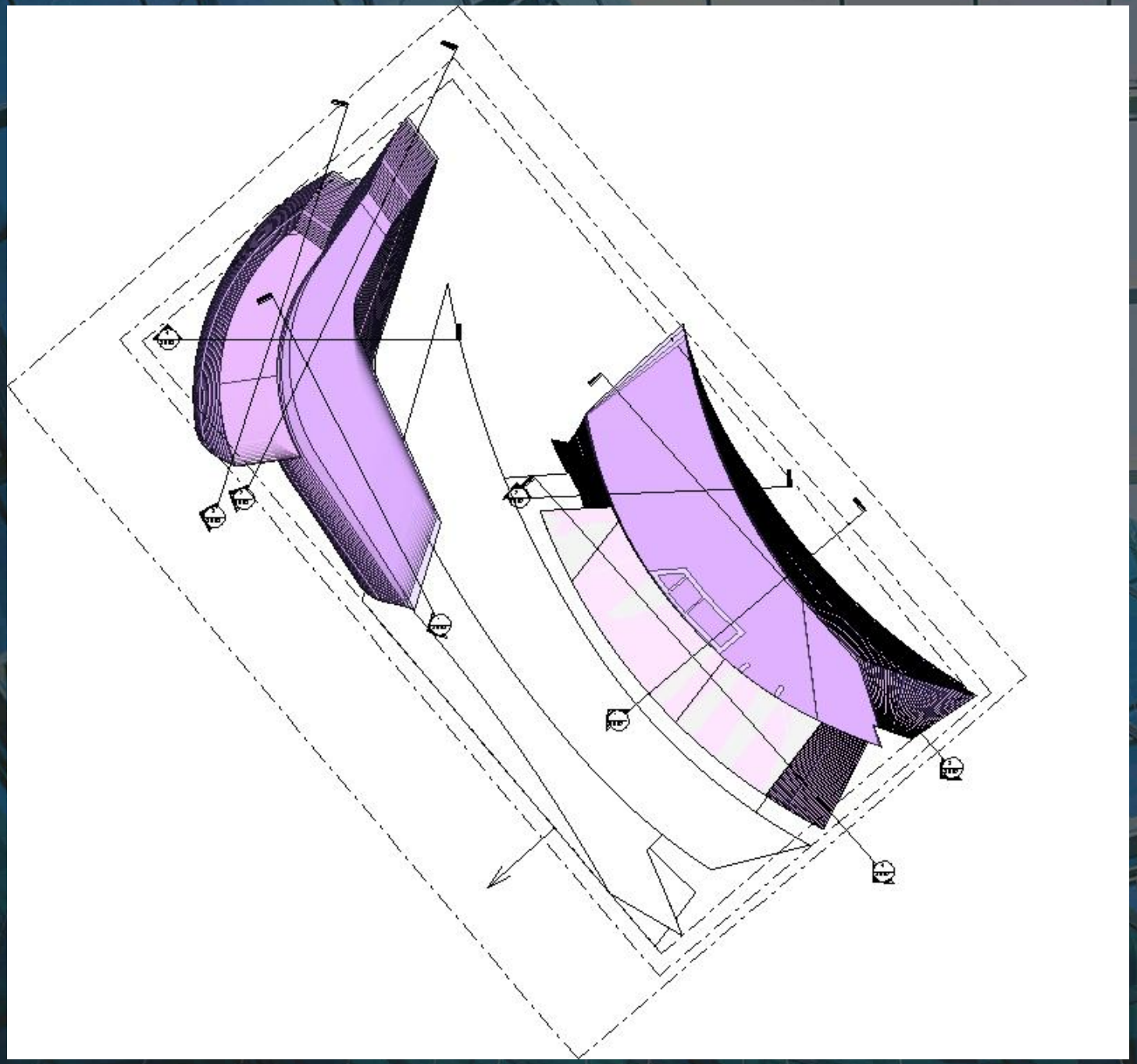
1 : 100

View
Architectural
Drafting
Rendering
Site
Massing
Modelling
Construction

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.




2006/08/25 18:19



Abu Dhabi **Empire Tower**

Empire Tower was challenged through a client request of not "pushing the limits" too far. The concern is that the residential project was located in the middle of a master plan filled with potential icons. The design standardizes the units to accommodate the client request but manipulates the section to develop a very dynamic solution, which holds its own amidst the visual clutter of its neighbors. This was deemed crucial to the financial viability of this project, which is dependent on pre-sales within a highly competitive market.

The design maximizes the tower's presence on the street, with vertical layers spreading out to the property lines. The building then bends back away from the street across from a large commercial tower, allowing for an enlarged view corridor between the central park of the community and the sea, one block away. The splayed vertical layers converge and rise up before bending forward together, as the 230-meter tower extends into the sky – maximizing its views between the park and the sea ▪

Initial Massing

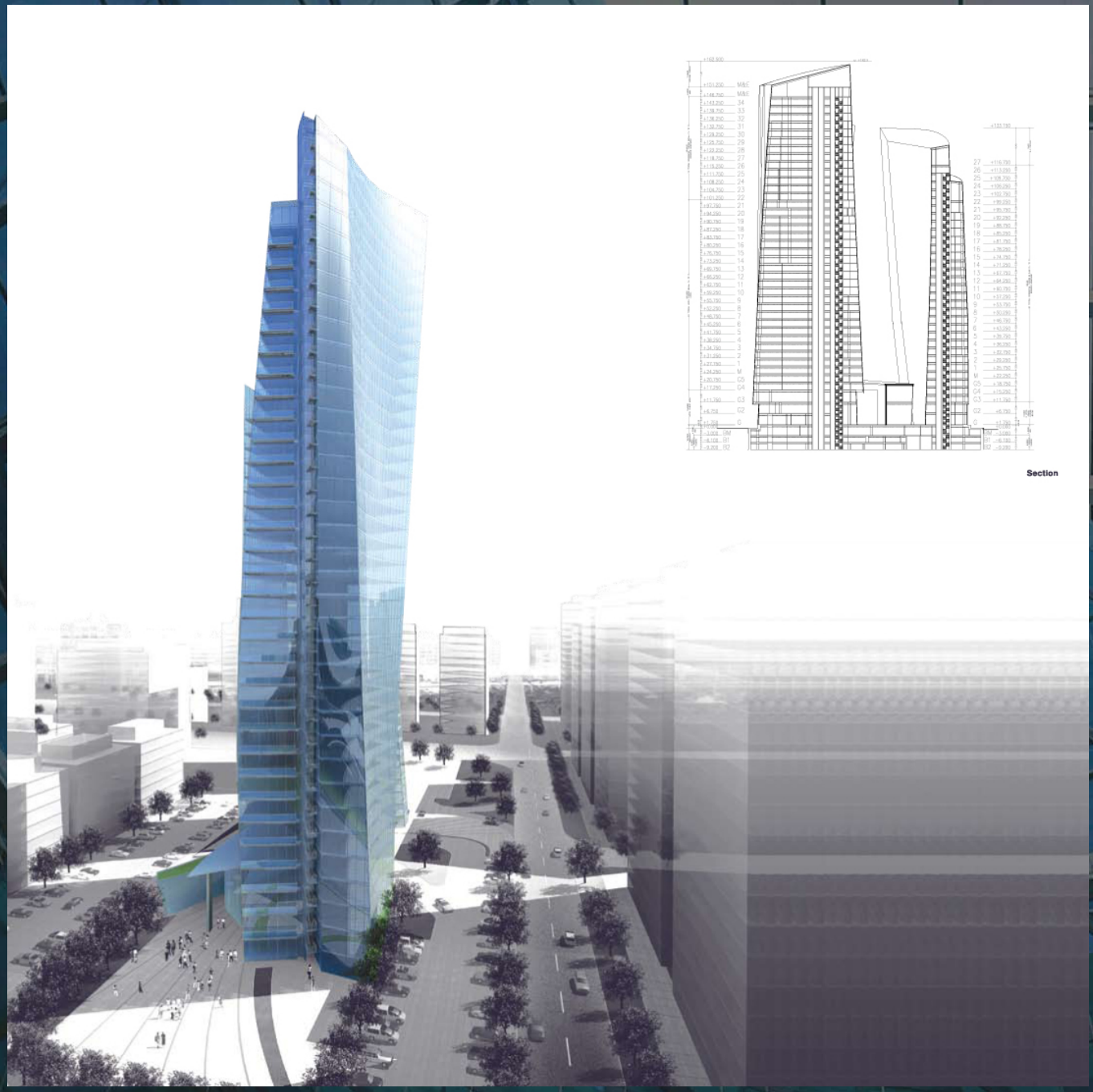
Mass Divisions

Strip Shifting

Strip Bending

Program **Residential** Site Area **7,007 sqm**
Floor Area **90,206 sqm** Building Height **225 m**

Abu Dhabi **Empire Tower**

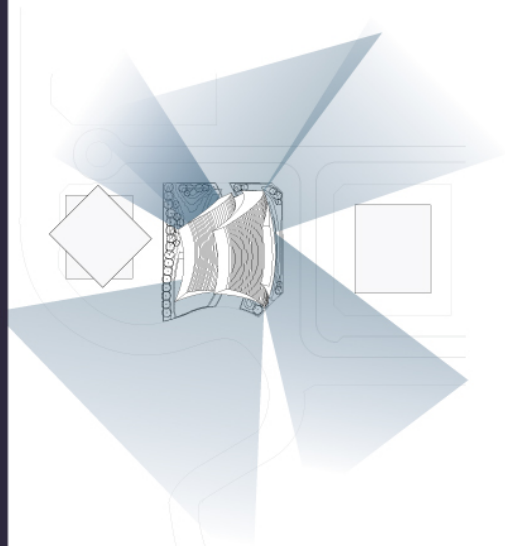


Section

Dubai **Ocean Heights Two**

Ocean Heights Two is also located in Dubai Marina, UAE, along with its sister project, Ocean Heights One. At 460 meters in height and 105 floors, it will be the tallest tower in its vicinity. However, unlike its predecessor, the requirements for more modulated units up to the 60th floor, forced a different approach while intending to maintain the spirit of its sister.

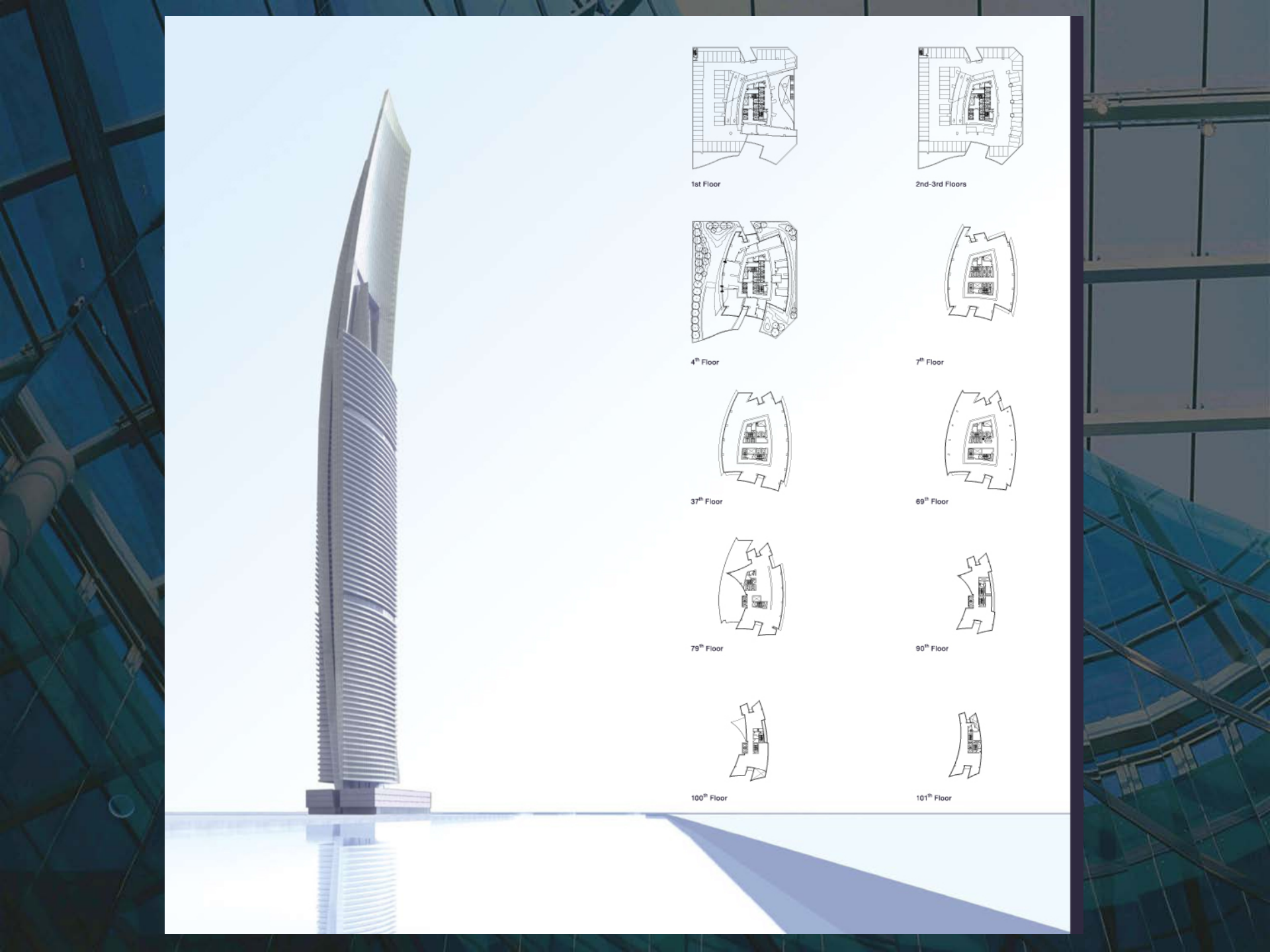
The first 60th floors of the tower are intended to be service apartments, which in order to be marketable, needed to have the majority of units standardized. The curved shape of the tower improves views past its densely located neighbors. The playfulness of this tower was concentrated into the two most visible faces, allowing units to bend up the tower in two blades. These blades were still modulized up to the 60th floor before the tight restrictions of unit area fluctuations become more relaxed. At this point, the modules drop off and the blades continue, tapering and bending into the sky ▪



View Diagram

Program **Residential** Site Area **9,433sqm**
Floor Area **197,975 sqm** Building Height **460 m**

Dubai **Ocean Heights Two**



1st Floor

2nd-3rd Floors

4th Floor

7th Floor

37th Floor

69th Floor

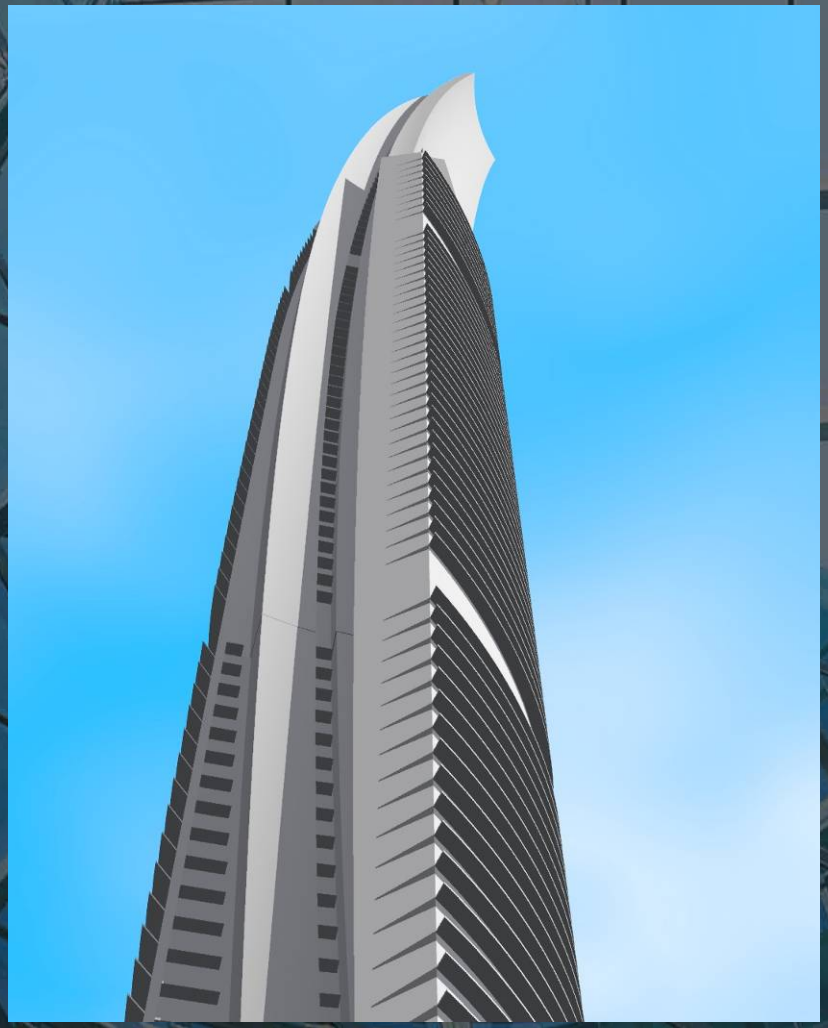
79th Floor

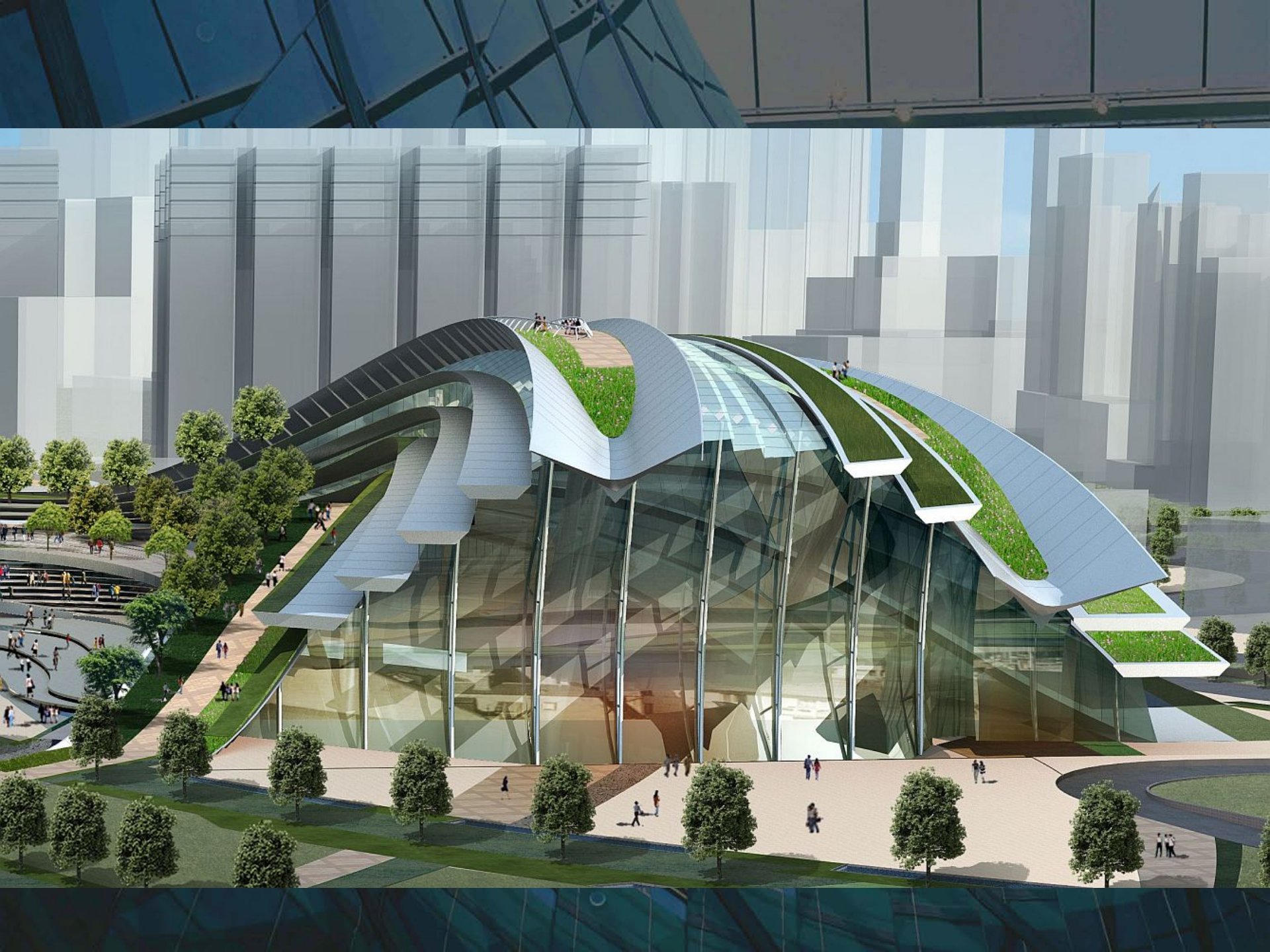
90th Floor

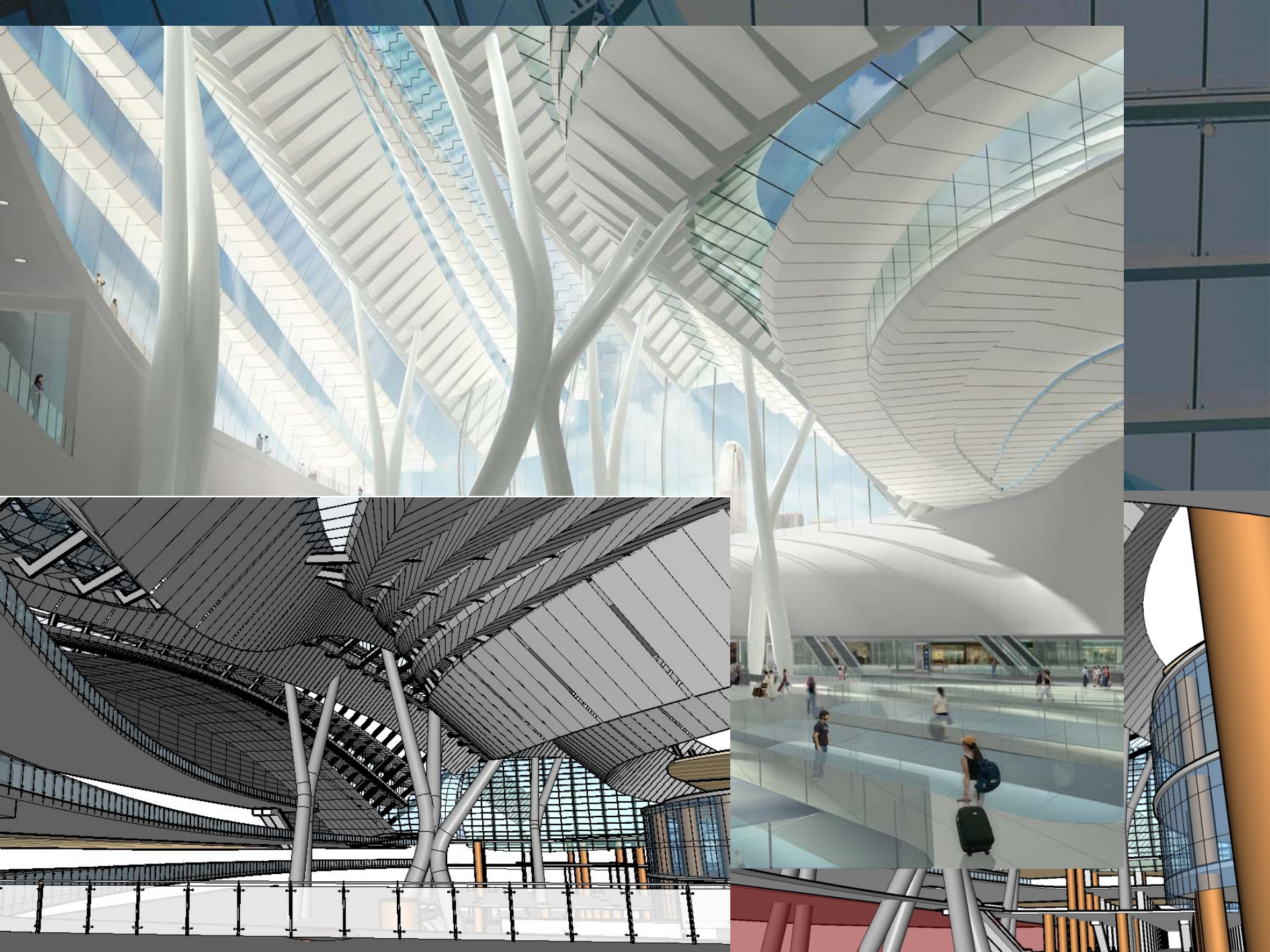
100th Floor

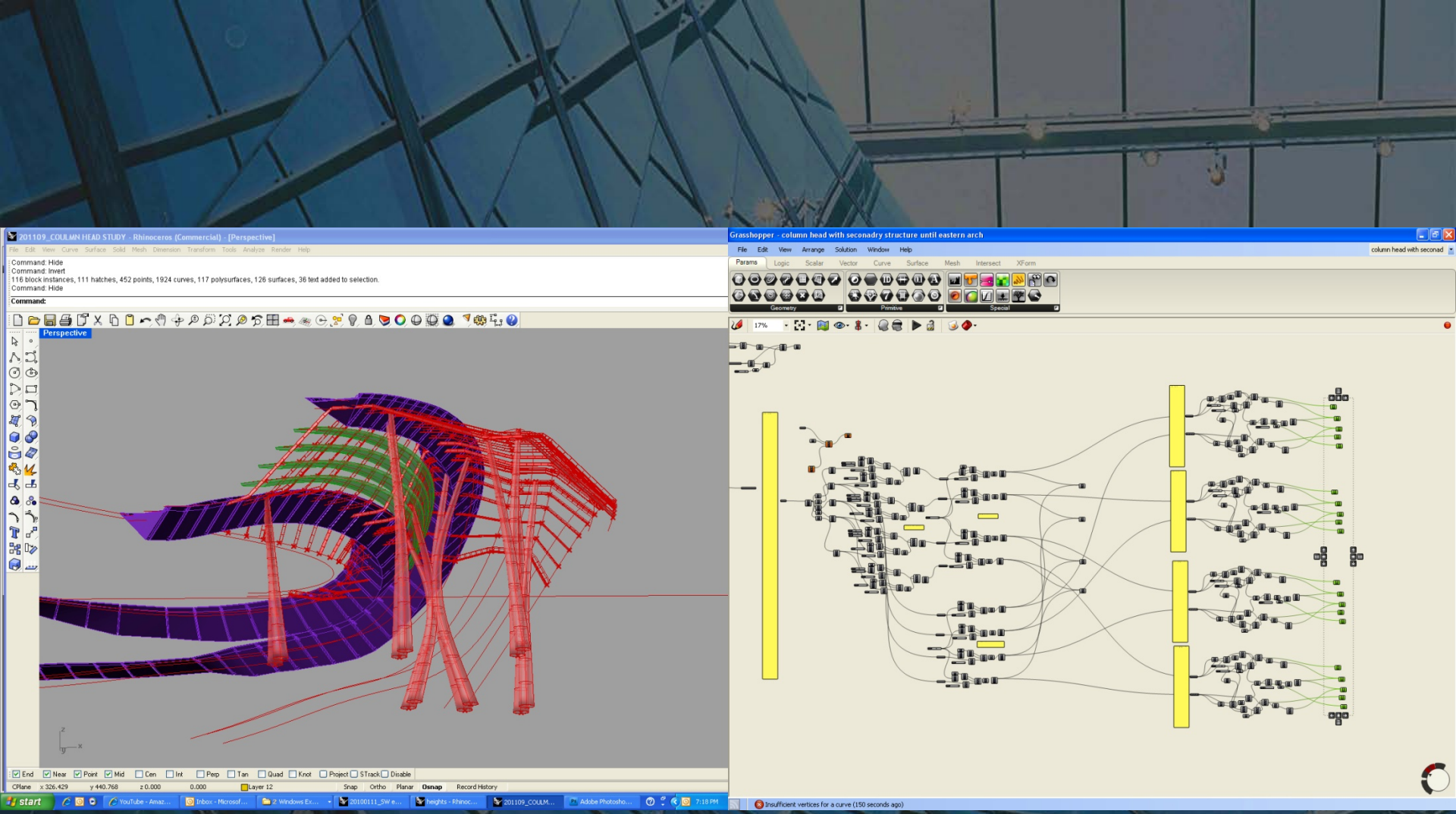
101th Floor

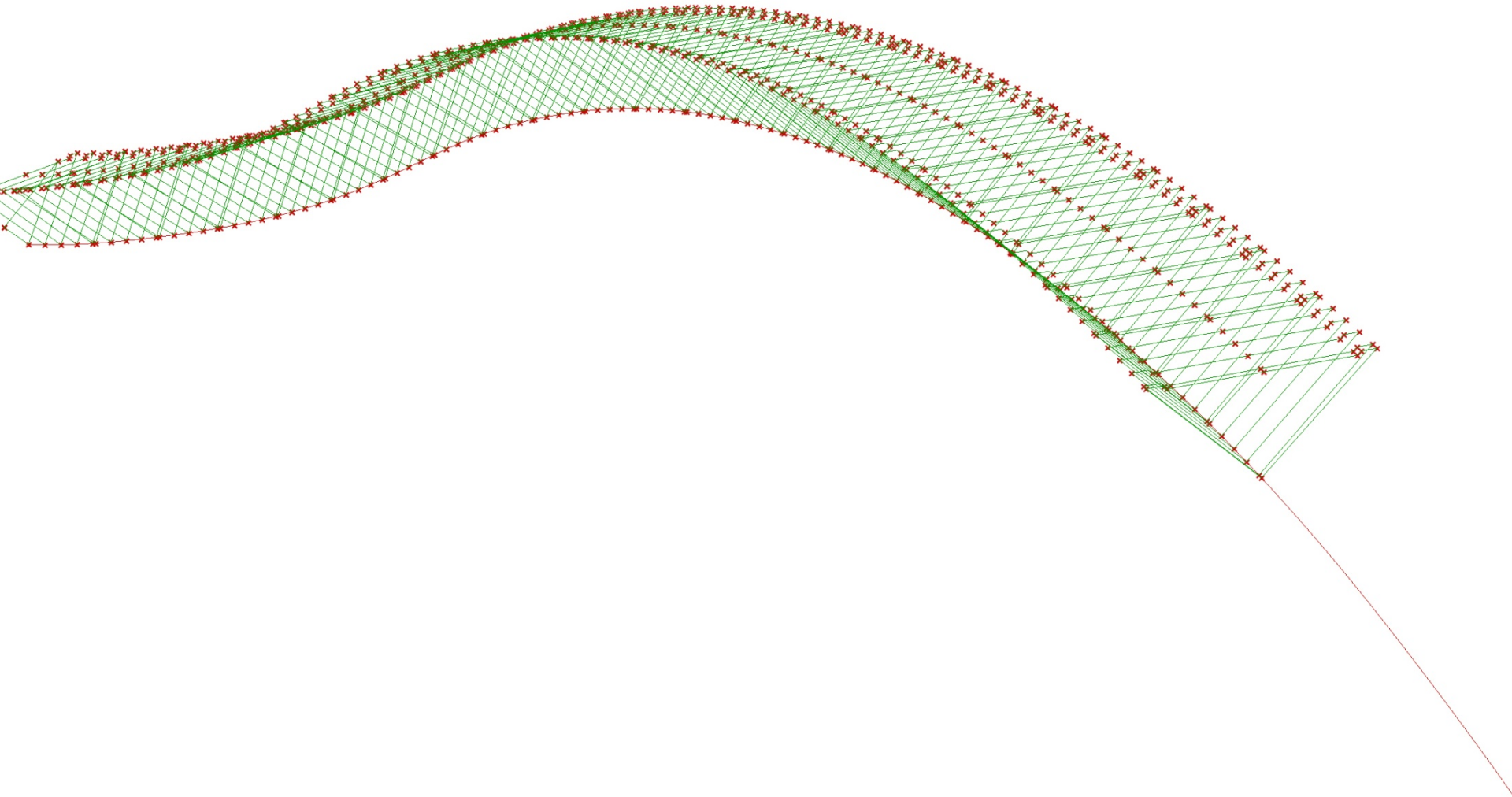
Ocean Heights II

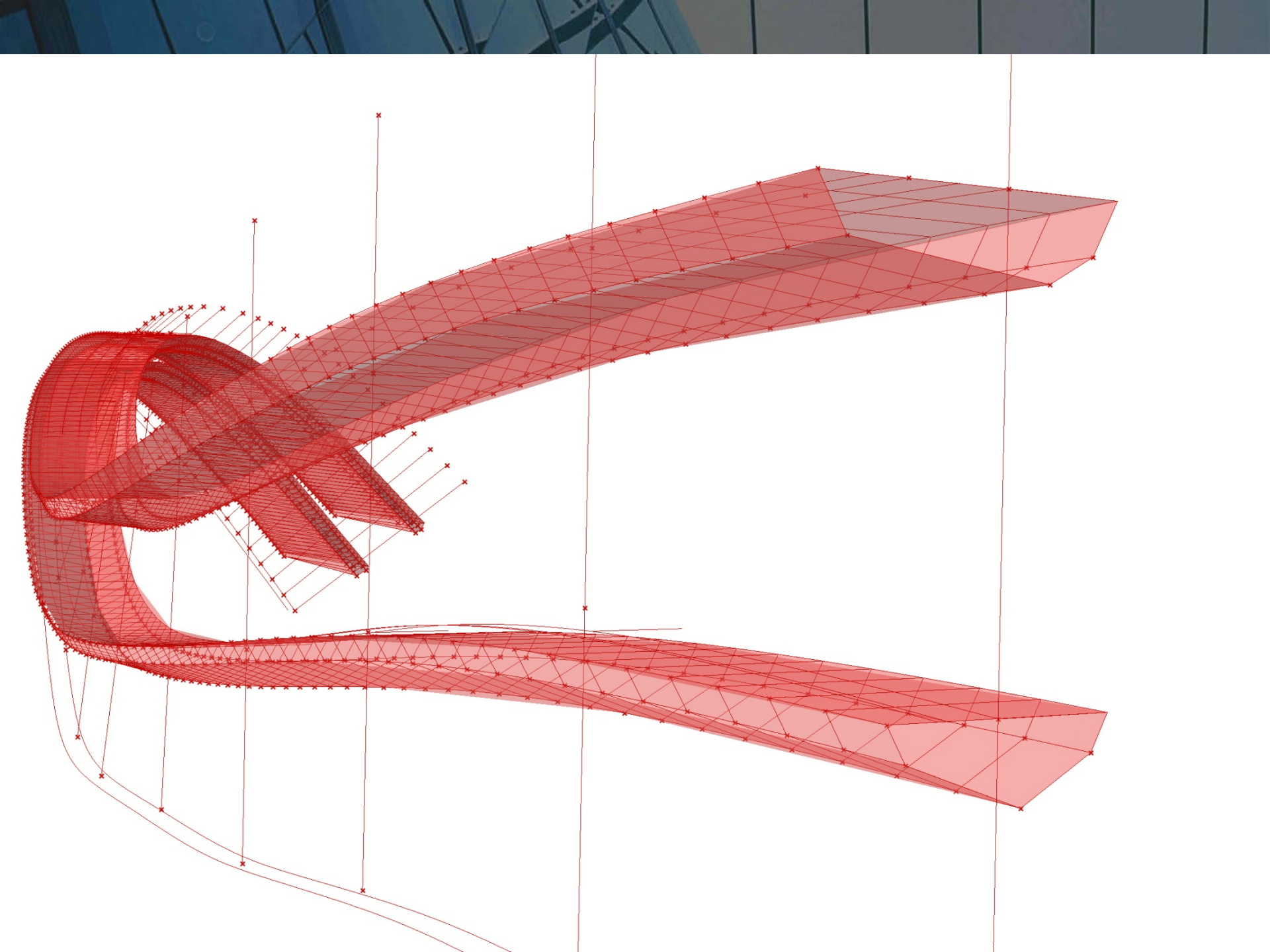







201109_COULMN HEAD STUDY - Rhinoceros (Commercial) - [Perspective]
Command: Hide
Command: Invert
116 block instances, 111 hatches, 452 points, 1924 curves, 117 polysurfaces, 126 surfaces, 36 text added to selection.
Command: Hide
Command:
Perspective
Grasshopper - column head with seconadry structure until eastern arch
Params
Geometry
Primitive
Special
Insufficient vertices for a curve (150 seconds ago)





```
                {
                    case 'x':
                        p[index].x = System.Convert.ToDouble(para.AsValueString());
                        break;
                    case 'y':
                        p[index].y = System.Convert.ToDouble(para.AsValueString());
                        break;
                    case 'z':
                        p[index].z = System.Convert.ToDouble(para.AsValueString());
                        break;
                    default:
                        MessageBox.Show("Wrong format of parameter name");
                        break;
                }
            }
        }
    }
    CladdingPanel cl = new CladdingPanel(p, PanelCounter); // new panel created from list of points.
    double Area_m2 = cl.PanelArea / 1000000; // division by 1000000 to get area in m2 from mm2

    //current family type parameter is updated with value of Area_m2 ;
    document.BeginTransaction();
    if( symbol.ParametersMap["Area"].Set(Area_m2) == false )
    {
        MessageBox.Show("Wrong parameter type");
    }
    document.EndTransaction();

    ArrayOfPanels.Add(cl); // new panel inserted into the array of panels

    output += cl.UniqueNumber + "                " + Area_m2 + "  " + cl.T_edge[0] + "  " + cl.T_edge[1] + "  " + cl.T_edge[2] + "  " + cl.T_edge[3

    // creating panel objects in space
    document.BeginTransaction();
    FamilyInstance instance = document.Create.NewFamilyInstance(location, symbol, StructuralType.NonStructural);
    document.EndTransaction();
}
//MessageBox.Show(output);
```

3_S6.xls

EN English (United States)

at Tools Data Window Help

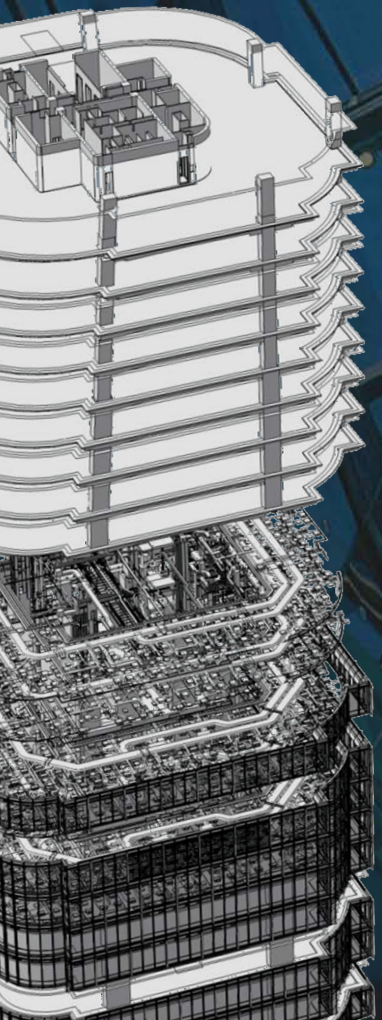
100% Arial 10

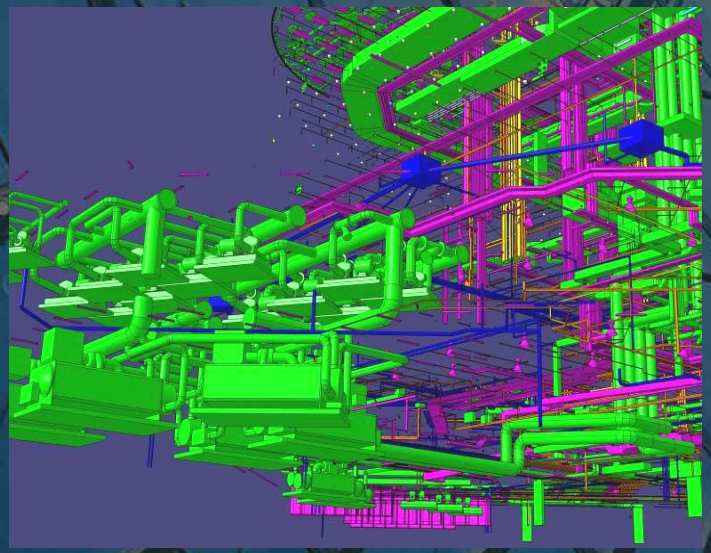
C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
y## lengt	P01z## lengt	P02x## lengt	P02y## lengt	P02z## lengt	P03x## lengt	P03y## lengt	P03z## lengt	P04x## lengt	P04y## lengt	P04z## lengt	Panel Type##	other##		
24.1138	30997.4089	150034.096	44497.0923	31201.1007	151479.165	44220.6936	29756.4955	151017.994	42846.0425	29553.4116	P3S06P001			
97.0923	31201.1007	150490.205	45872.5015	31400.2904	151935	45597.7674	29955.086	151479.165	44220.6936	29756.4955	P3S06P002			
72.5015	31400.2904	150940.93	47250.3052	31594.9821	152385.473	46977.2334	30149.1841	151935	45597.7674	29955.086	P3S06P003			
50.3052	31594.9821	151386.267	48630.4698	31785.1616	152830.57	48359.0618	30338.7828	152385.473	46977.2334	30149.1841	P3S06P004			
30.4698	31785.1616	151474.689	48906.7825	31822.6539	152918.944	48635.7079	30376.1616	152830.57	48359.0618	30338.7828	P3S06P005			
06.7825	31822.6539	151913.575	50289.7323	32007.3872	153357.585	50020.3276	30560.3477	152918.944	48635.7079	30376.1616	P3S06P006			
89.7323	32007.3872	152347.08	51674.9657	32187.576	153790.836	51407.2369	30740.0246	153357.585	50020.3276	30560.3477	P3S06P007			
74.9657	32187.576	152775.147	53062.4739	32363.2813	154218.667	52796.4316	30915.2314	153790.836	51407.2369	30740.0246	P3S06P008			
62.4739	32363.2813	153197.744	54452.3272	32534.6167	154641.09	54188.0429	31086.0665	154218.667	52796.4316	30915.2314	P3S06P009			
52.3272	32534.6167	153281.603	54730.5766	32568.3694	154724.924	54466.654	31119.7184	154641.09	54188.0429	31086.0665	P3S06P010			
30.5766	32568.3694	153697.624	56123.188	32734.5715	155140.841	55861.1282	31285.4274	154724.924	54466.654	31119.7184	P3S06P011			
123.188	32734.5715	154108.128	57517.7498	32896.4211	155551.199	57257.4509	31446.8027	155140.841	55861.1282	31285.4274	P3S06P012			
17.7498	32896.4211	154513.02	58914.0007	33053.6684	155955.863	58655.1793	31603.5689	155551.199	57257.4509	31446.8027	P3S06P013			
14.0007	33053.6684	154912.275	60311.9726	33206.0604	156354.833	60054.3601	31755.4605	155955.863	58655.1793	31603.5689	P3S06P014			
11.9726	33206.0604	154991.455	60591.8003	33235.9403	156433.956	60334.4167	31785.2395	156354.833	60054.3601	31755.4605	P3S06P015			
91.8003	33235.9403	155384.039	61992.164	33382.3144	156826.258	61735.9125	31931.1206	156433.956	60334.4167	31785.2395	P3S06P016			
992.164	33382.3144	155771.104	63394.5402	33523.6095	157213.036	63139.4019	32071.9532	156826.258	61735.9125	31931.1206	P3S06P017			
94.5402	33523.6095	156152.641	64799.0536	33659.8994	157594.329	64545.1147	32207.8035	157213.036	63139.4019	32071.9532	P3S06P018			
99.0536	33659.8994	156528.665	66205.8406	33791.3989	157970.193	65953.318	32338.8909	157594.329	64545.1147	32207.8035	P3S06P019			
05.8406	33791.3989	156603.207	66487.4657	33817.1437	158044.711	66235.2527	32364.5566	157970.193	65953.318	32338.8909	P3S06P020			
87.4657	33817.1437	156972.591	67896.8372	33943.1573	158414.002	67646.2548	32490.1972	158044.711	66235.2527	32364.5566	P3S06P021			
96.8372	33943.1573	157336.329	69307.9002	34064.607	158777.619	69058.83	32611.2857	158414.002	67646.2548	32490.1972	P3S06P022			
07.9002	34064.607	157694.338	70720.5482	34181.3772	159135.5	70472.822	32727.6793	158777.619	69058.83	32611.2857	P3S06P023			
20.5482	34181.3772	158046.558	72134.4265	34293.1711	159487.514	71887.6646	32839.0806	159135.5	70472.822	32727.6793	P3S06P024			
34.4265	34293.1711	158116.297	72417.2914	34314.8748	159557.191	72170.6364	32860.703	159487.514	71887.6646	32839.0806	P3S06P025			
17.2914	34314.8748	158461.474	73832.0687	34419.7934	159901.955	73585.5129	32965.2043	159557.191	72170.6364	32860.703	P3S06P026			
32.0687	34419.7934	158800.798	75247.6674	34518.1928	160240.723	75000.5299	33063.172	159901.955	73585.5129	32965.2043	P3S06P027			
47.6674	34518.1928	159134.34	76664.522	34609.6099	160573.676	76416.4942	33154.1589	160240.723	75000.5299	33063.172	P3S06P028			
664.522	34609.6099	159462.105	78082.6818	34693.7628	160900.837	77833.534	33237.8995	160573.676	76416.4942	33154.1589	P3S06P029			
82.6818	34693.7628	159526.964	78366.4655	34709.6976	160965.574	78117.0662	33253.7554	160900.837	77833.534	33237.8995	P3S06P030			
66.4655	34709.6976	159847.917	79786.6698	34784.8936	161285.941	79536.0393	33328.5833	160965.574	78117.0662	33253.7554	P3S06P031			
86.6698	34784.8936	160163.369	81209.1412	34852.7734	161600.864	80957.3769	33396.1369	161285.941	79536.0393	33328.5833	P3S06P032			
09.1412	34852.7734	160473.329	82633.6703	34913.5237	161910.348	82380.8678	33456.5958	161600.864	80957.3769	33396.1369	P3S06P033			

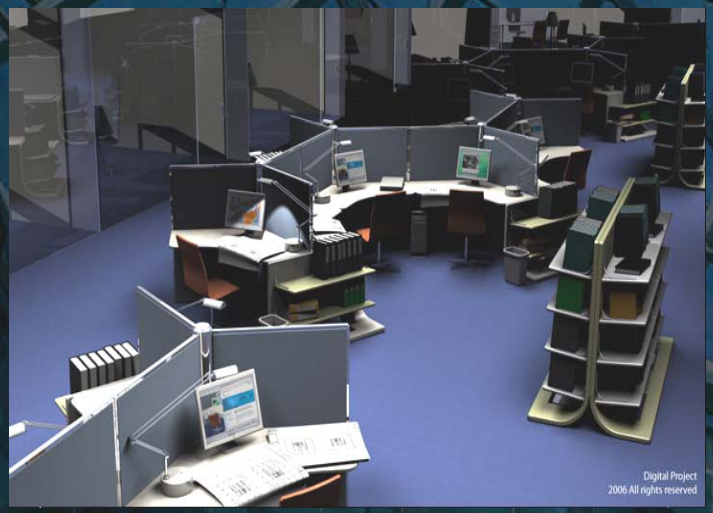
```
    public bool CanBeGroupedWith(GroddingPanel nextPanel, double tolerance)
    {
        if
        (
            Math.Abs(nextPanel.G_edge[0] - G_edge[0]) <= tolerance
            &&
            Math.Abs(nextPanel.G_edge[1] - G_edge[1]) <= tolerance
            &&
            Math.Abs(nextPanel.G_edge[2] - G_edge[2]) <= tolerance
            &&
            Math.Abs(nextPanel.G_edge[3] - G_edge[3]) <= tolerance
            &&
            Math.Abs(nextPanel.G_diagonal_1 - G_diagonal_1) <= tolerance * Math.Sqrt(2)
        )
        { return true; }
        else
        { return false; }

    }

}
#endregion

public class Group
{
    public int GroupNumber;
    public double[] Edge; //array of lengths of groups's edges.
    public double Diagonal; //length of group's diagonal.
    public double Area; //area of a groupped panel;
}

double toFeet(double value) //convertion of linear sizes for family instances
{
    return value * FACTOR_MMtoFT;
}

double toSqFeet(double value) //convertion of areal sizes for family instances
{
```

Construction

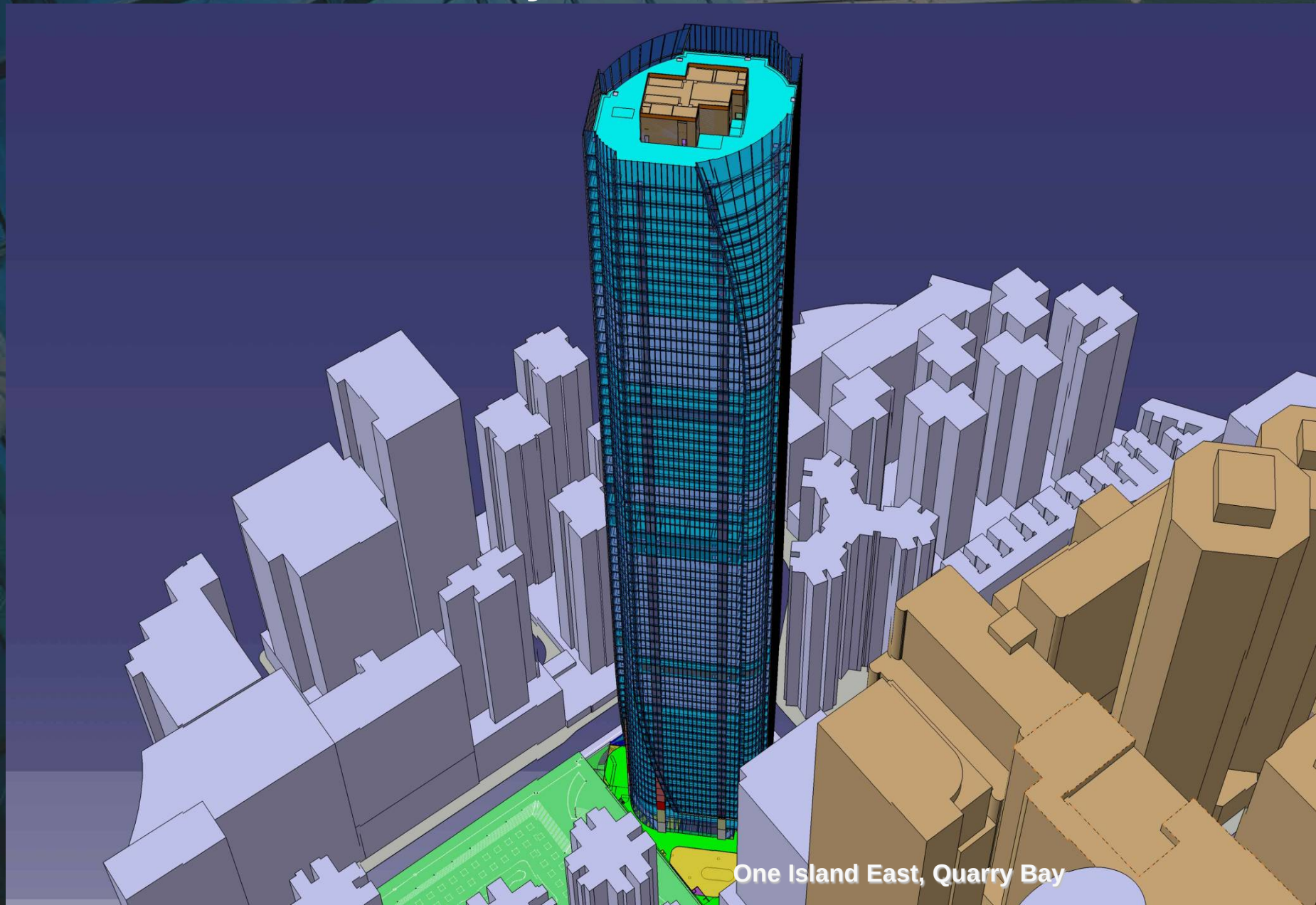
- One Island East







Tender Model by Consultants



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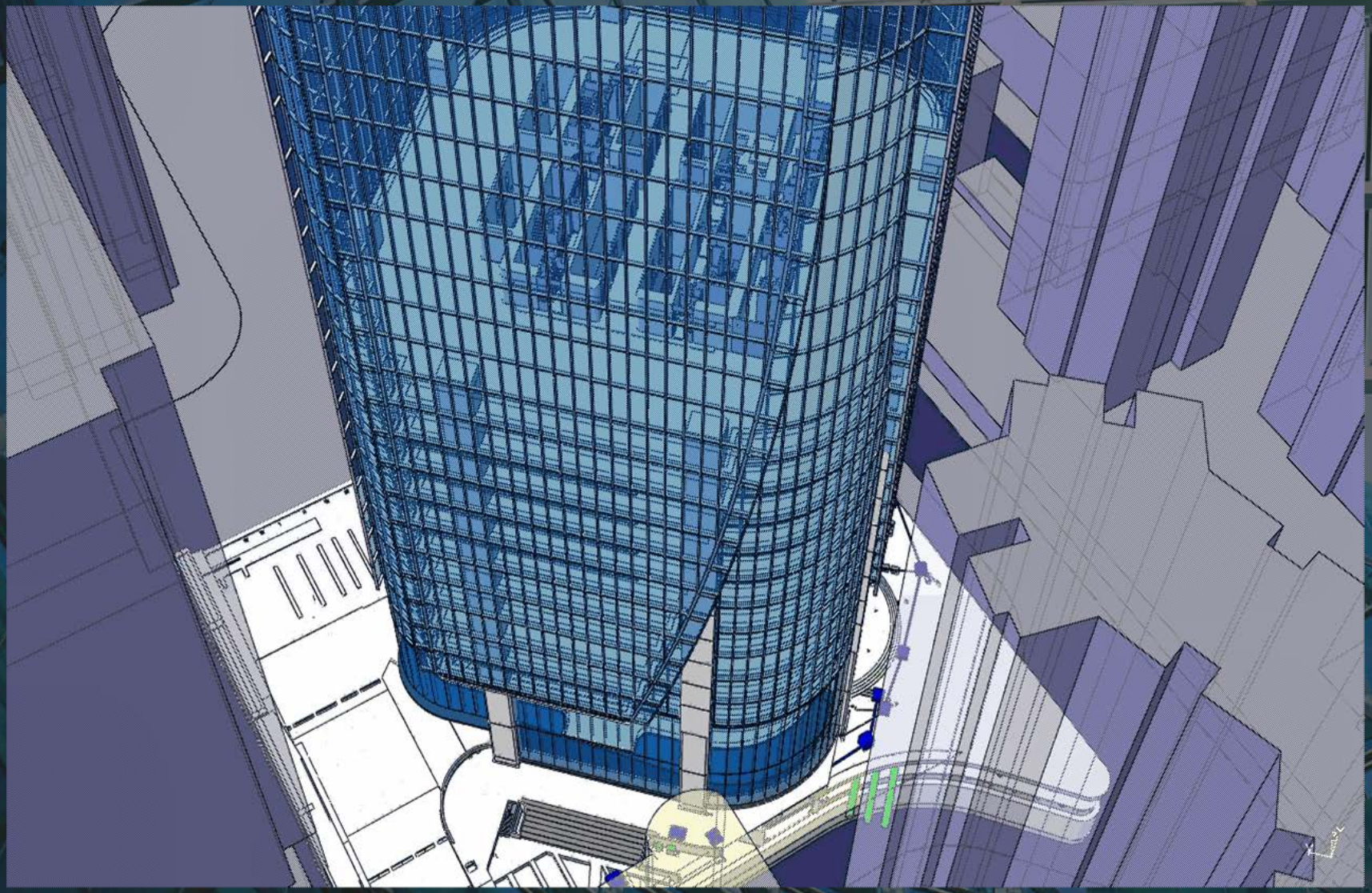
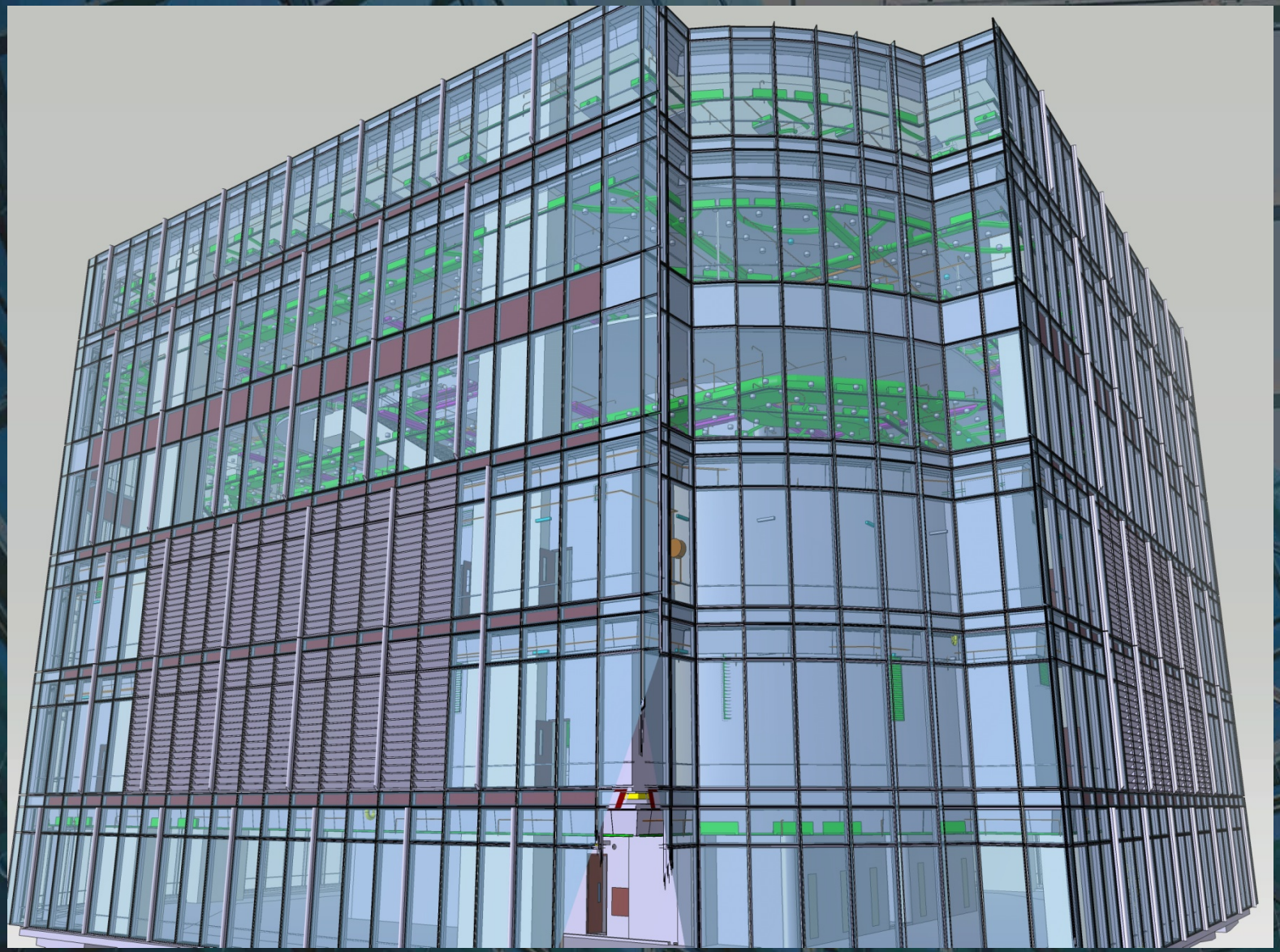


BIM Architectural Configuration

One Island East



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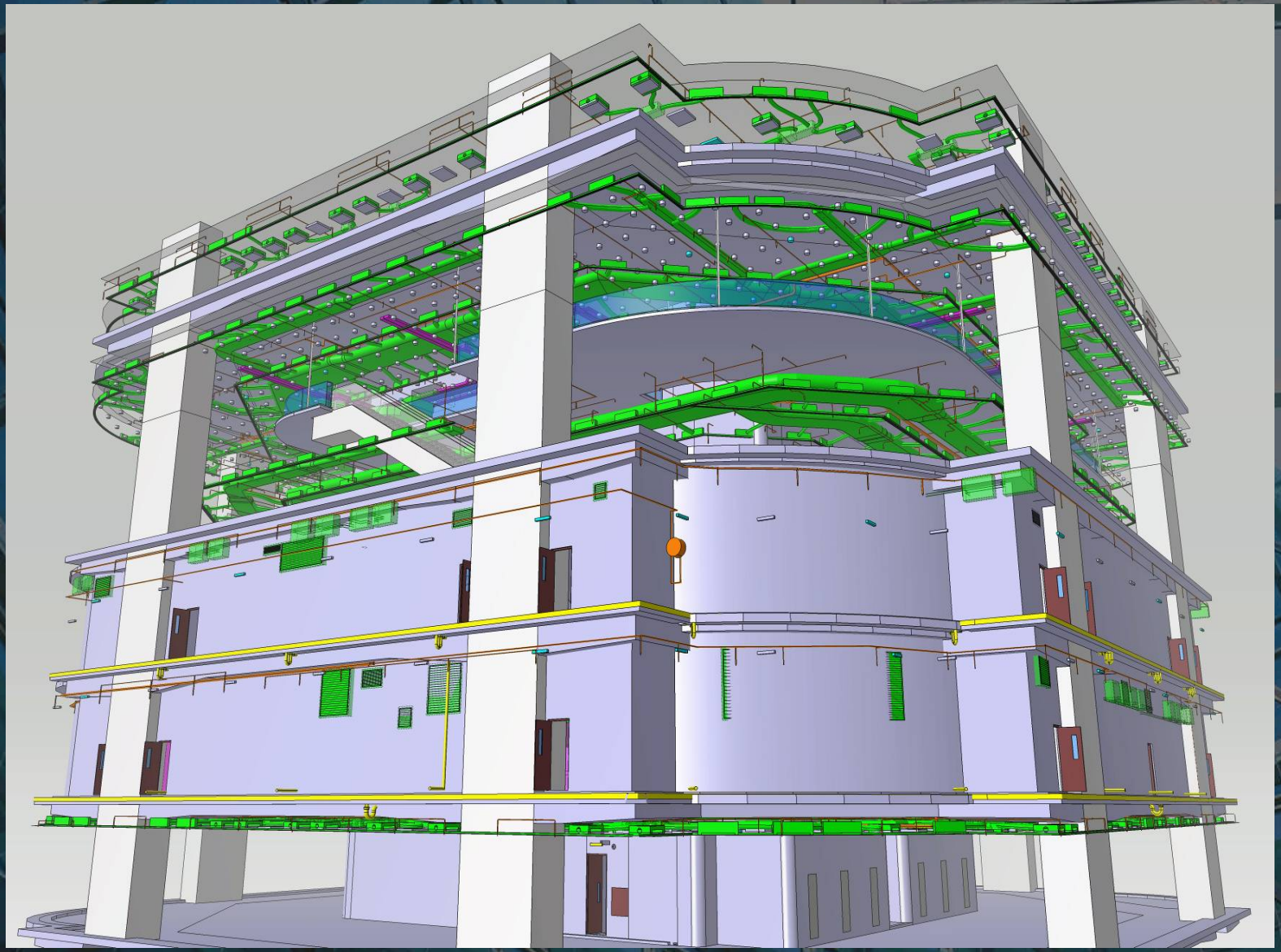

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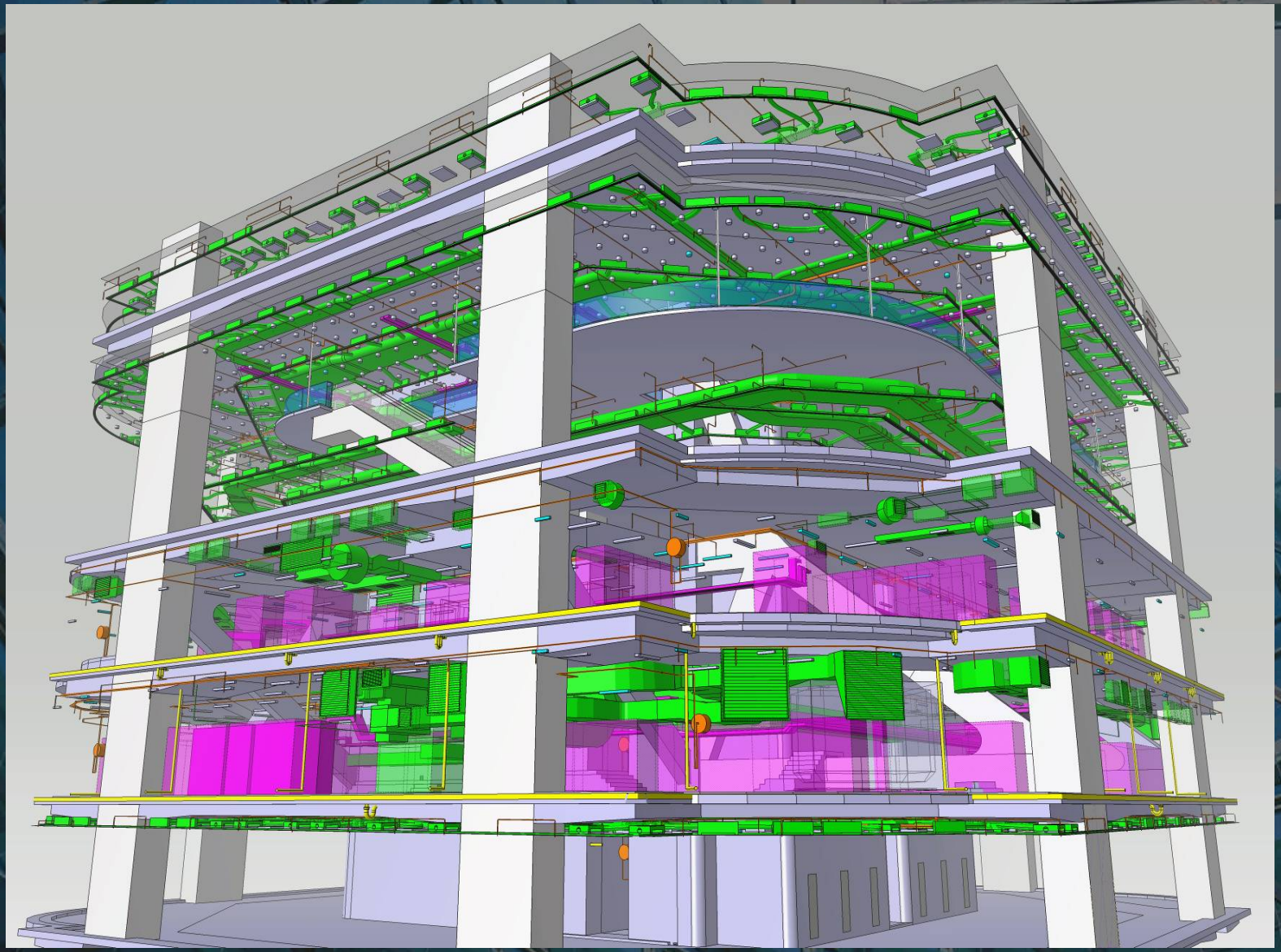

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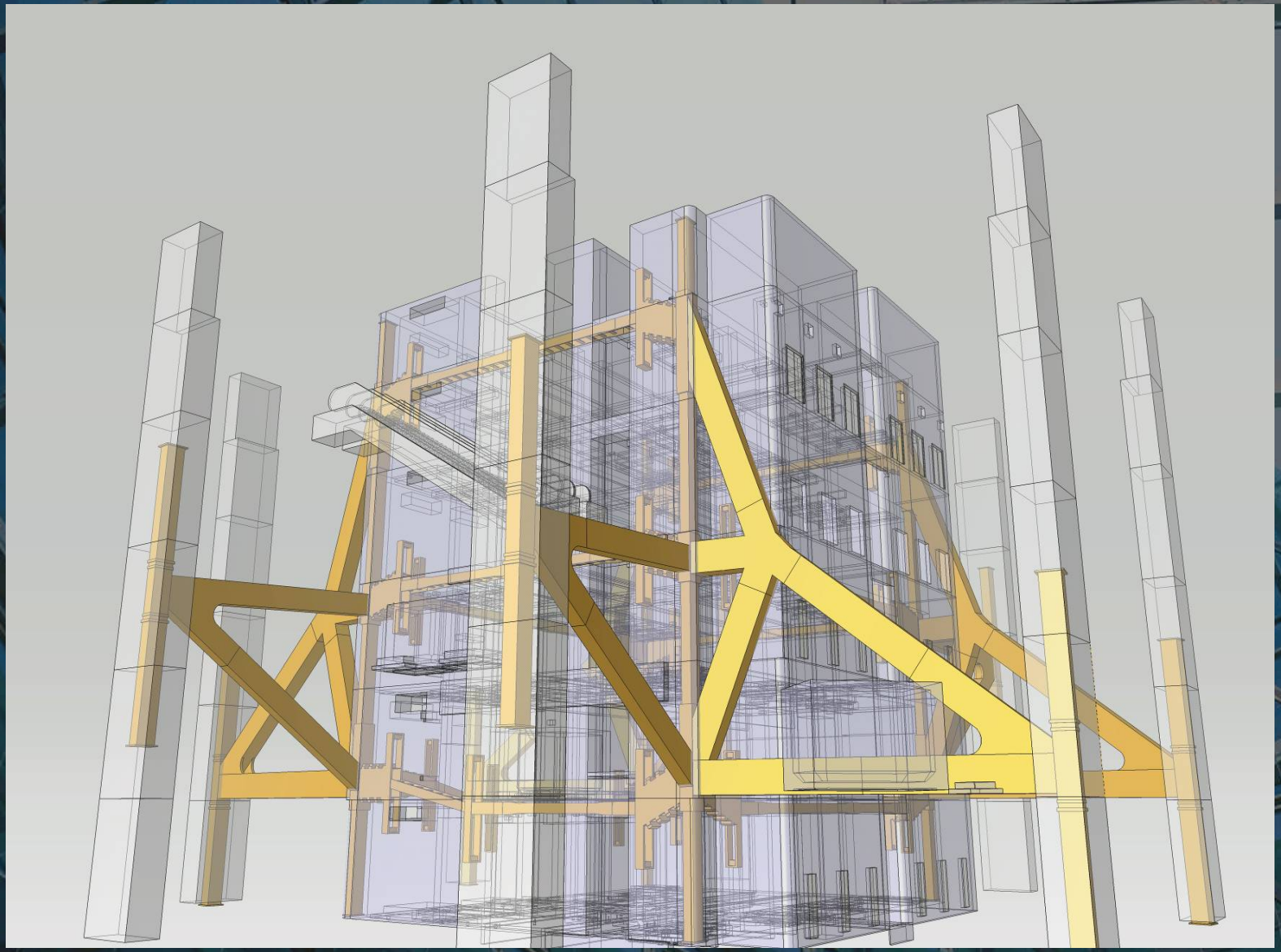
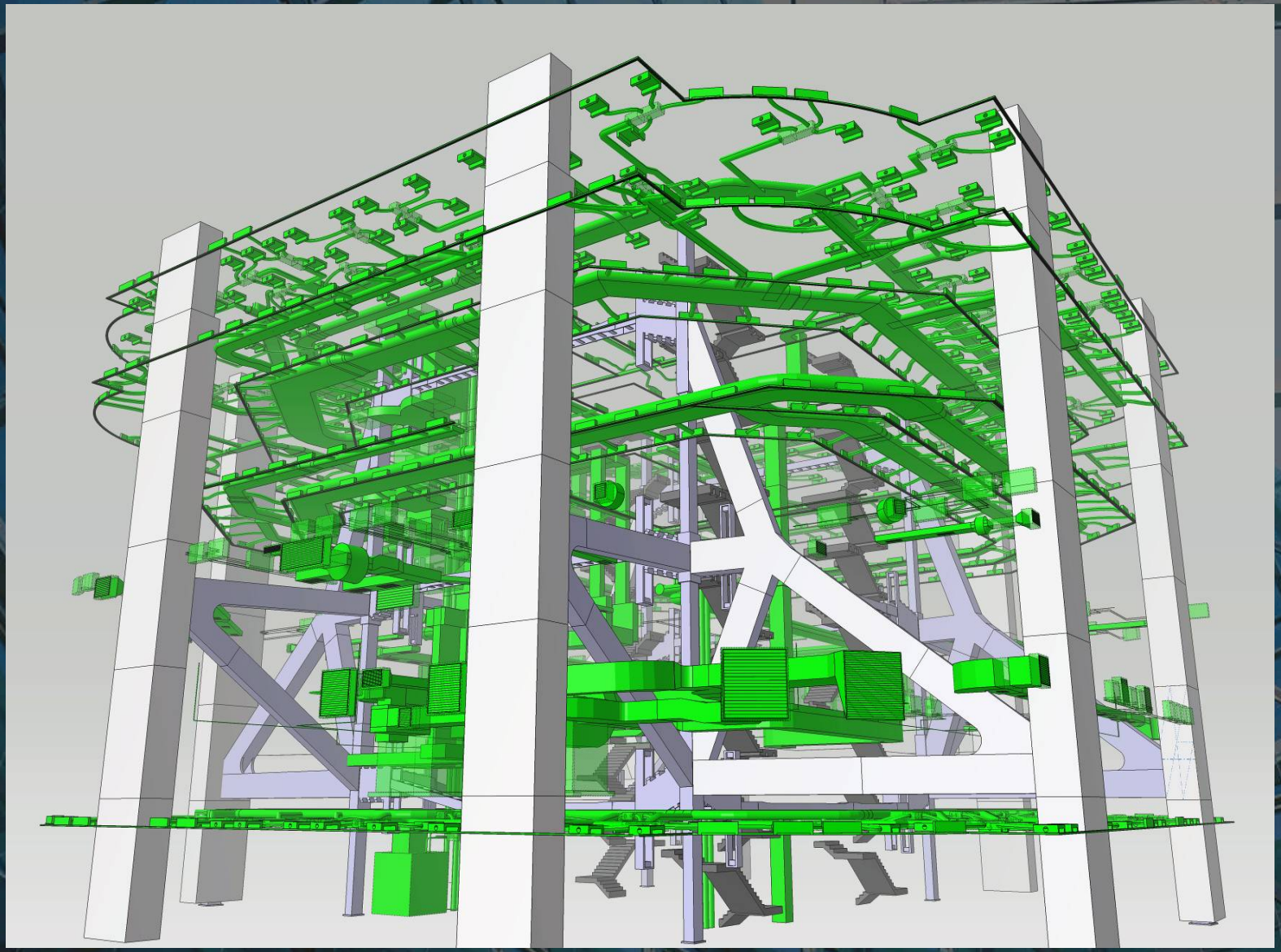
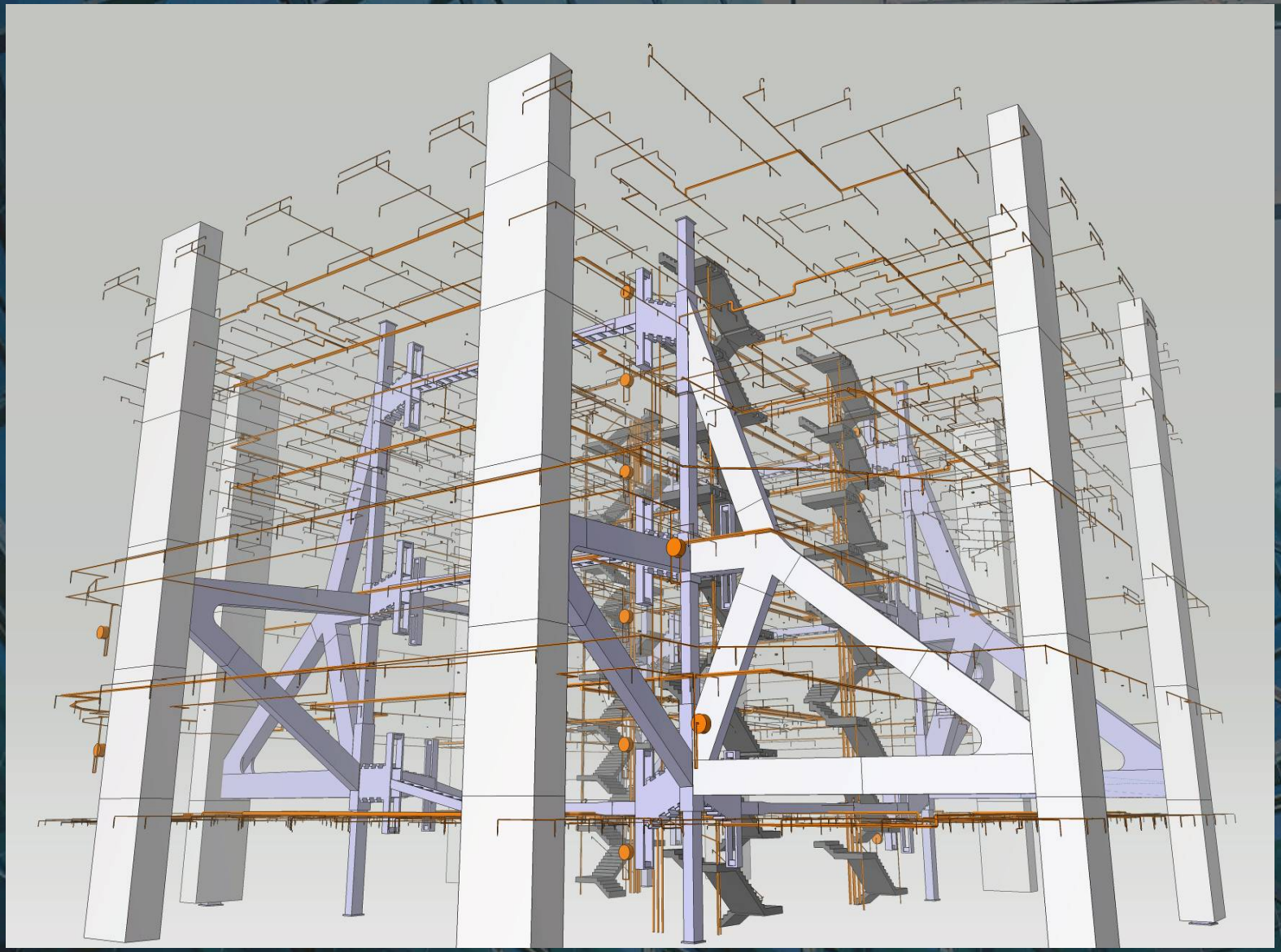


One Island East



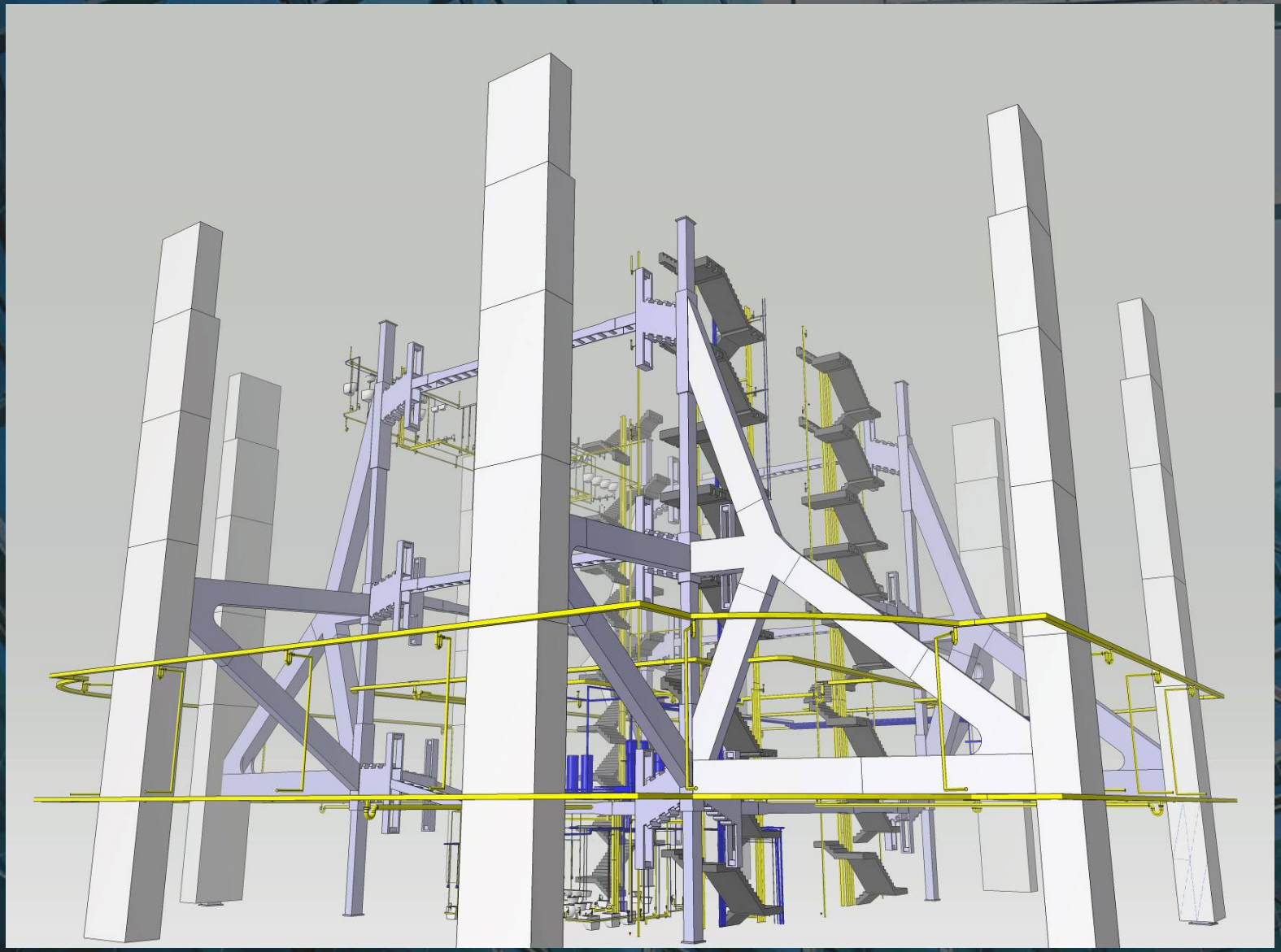
BIM HVAC Configuration

One Island East



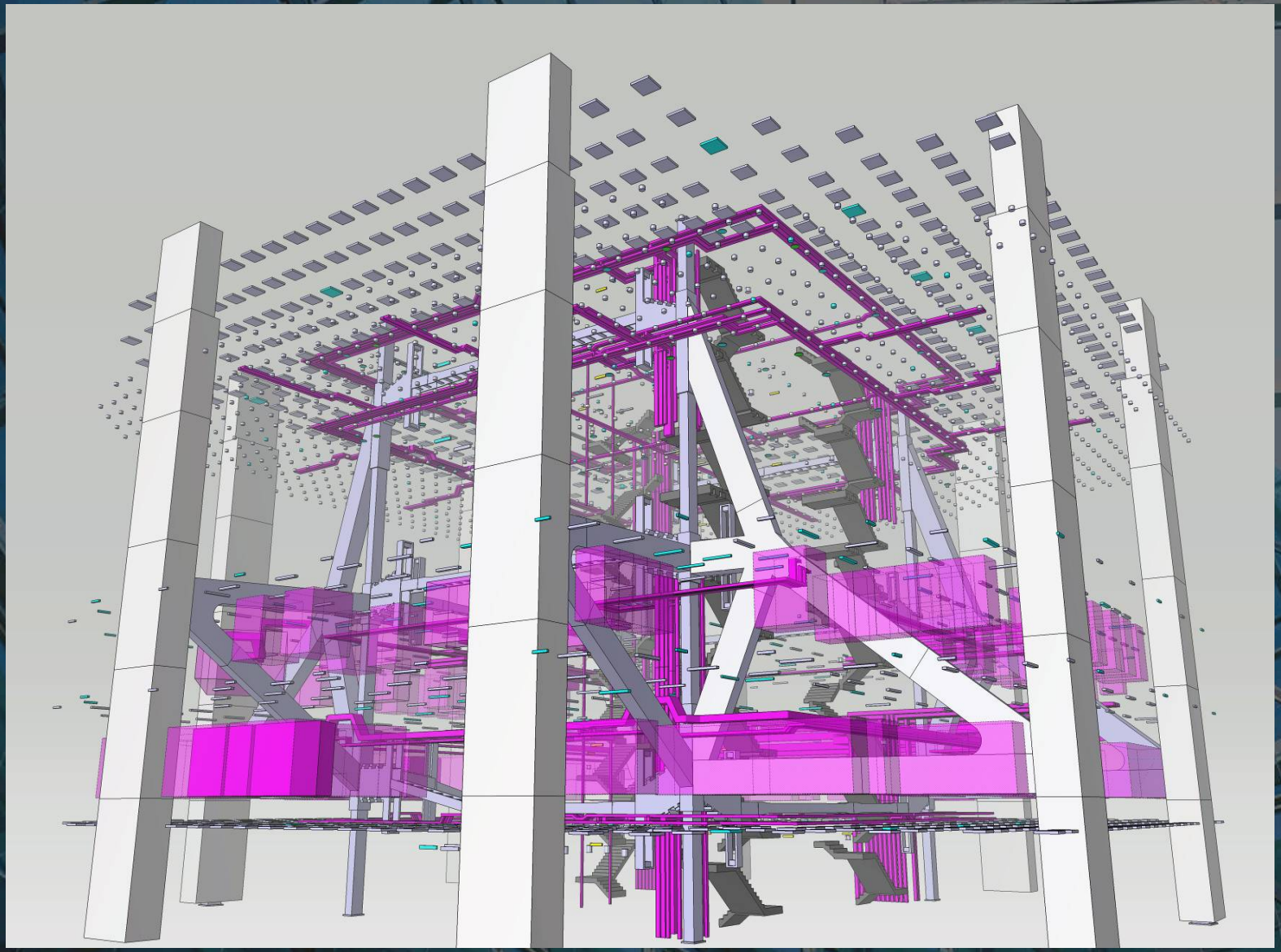
BIM FS Configuration

One Island East



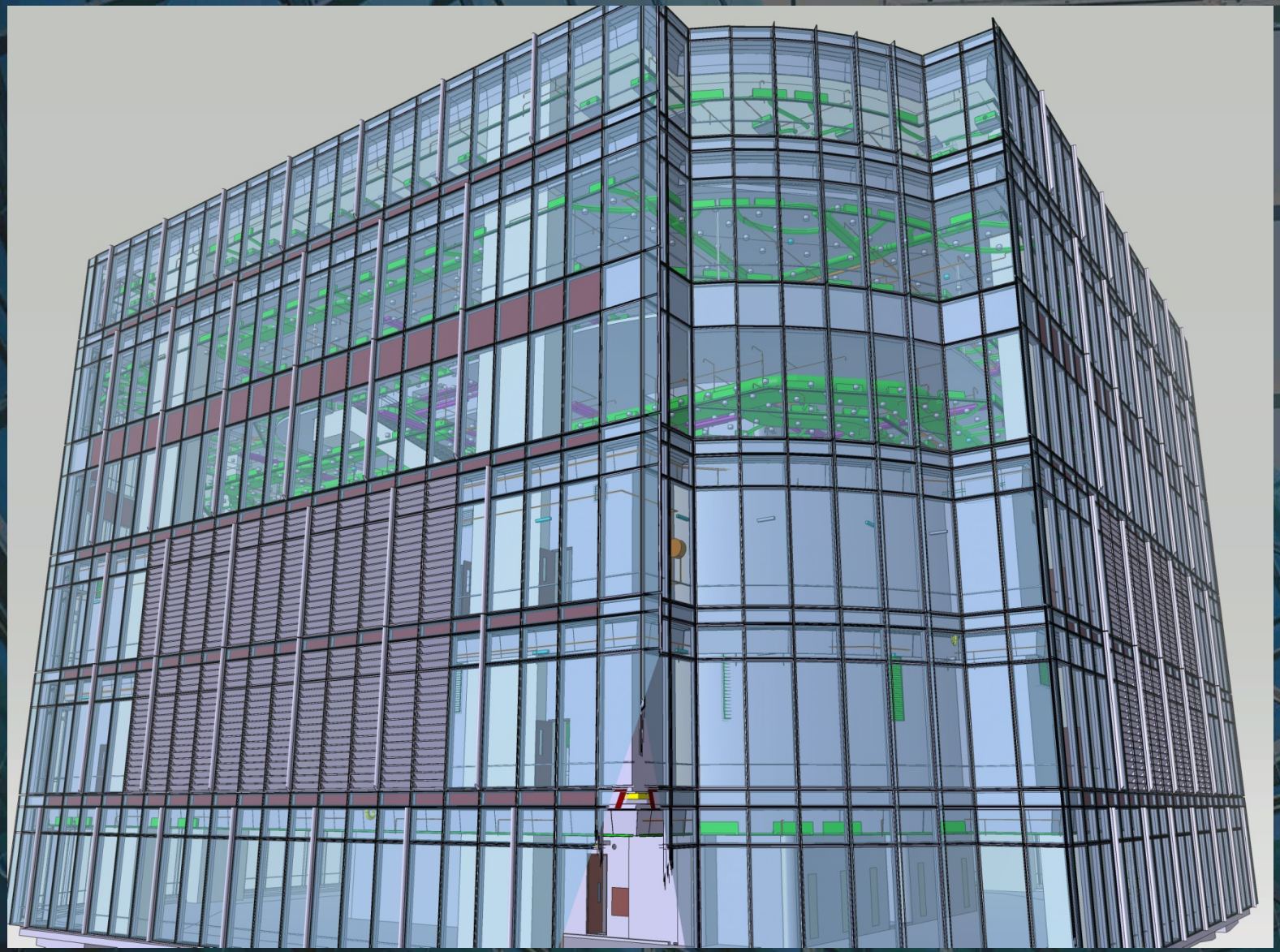
BIM Plumb & Drainage Configuration

One Island East

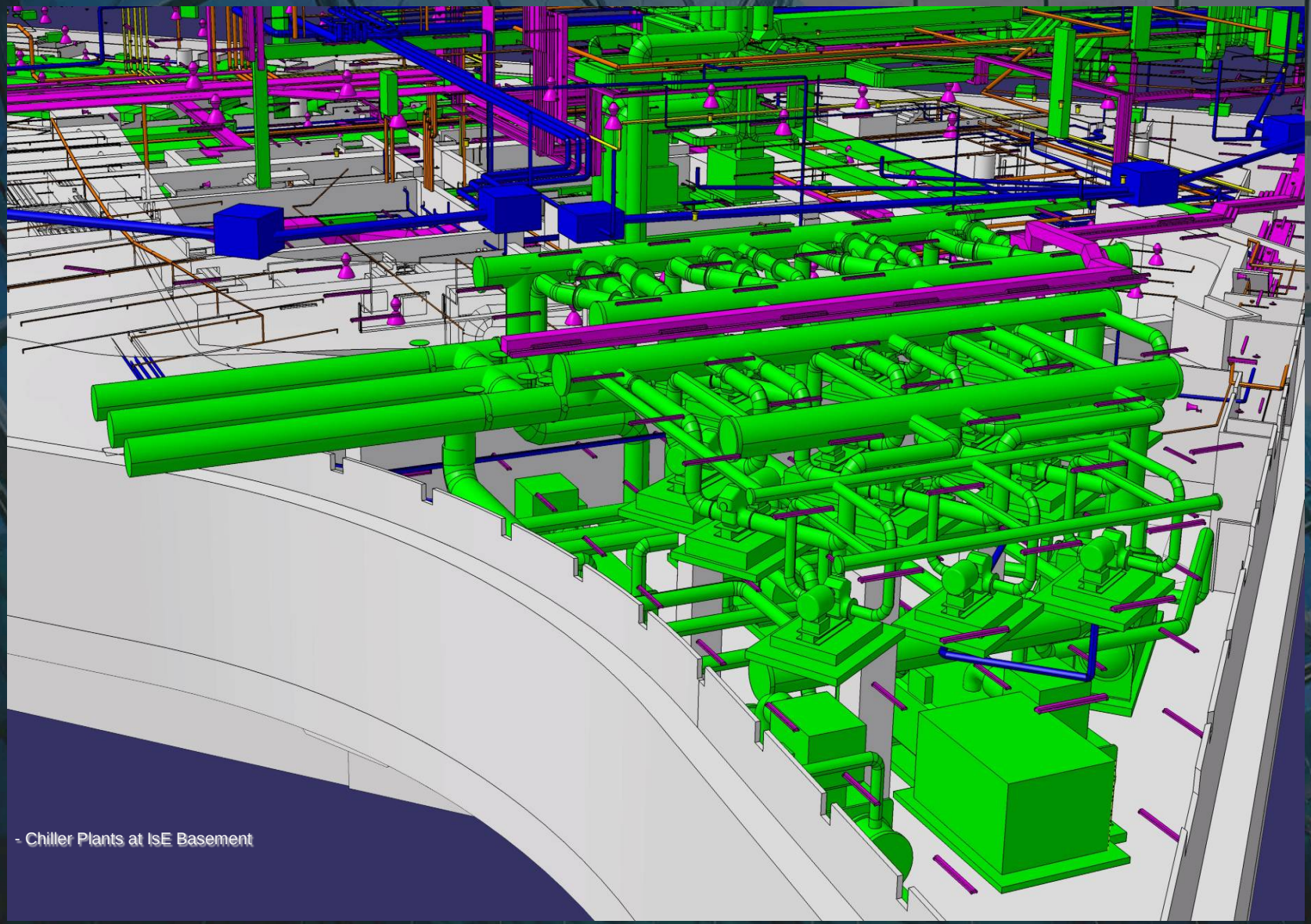


BIM ELEC Configuration

One Island East

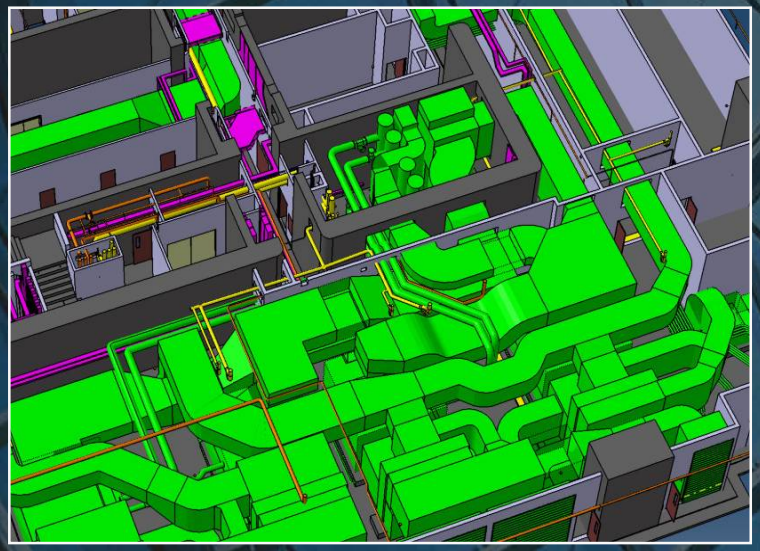


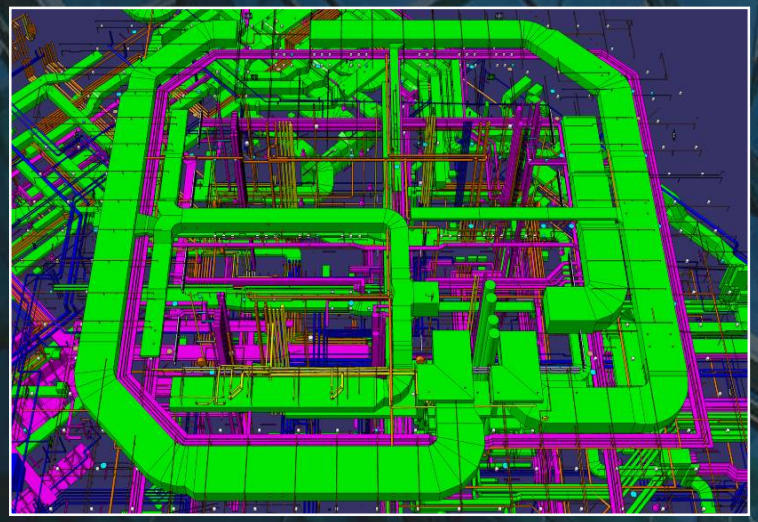
Detail Design and Coordination

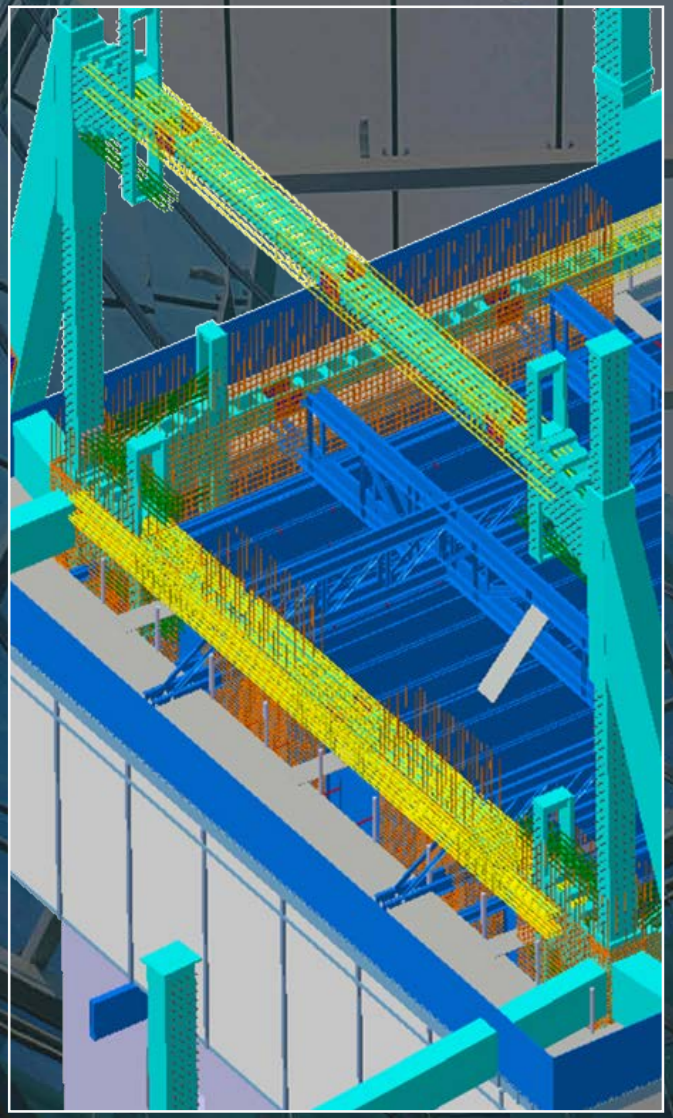


- Chiller Plants at IsE Basement

Detail Design and Coordination

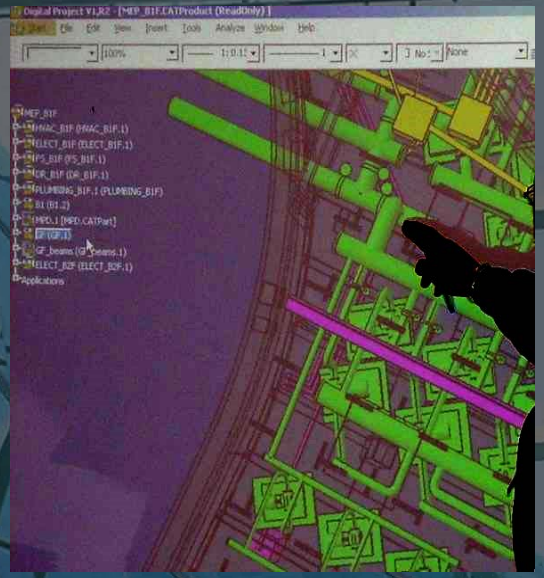






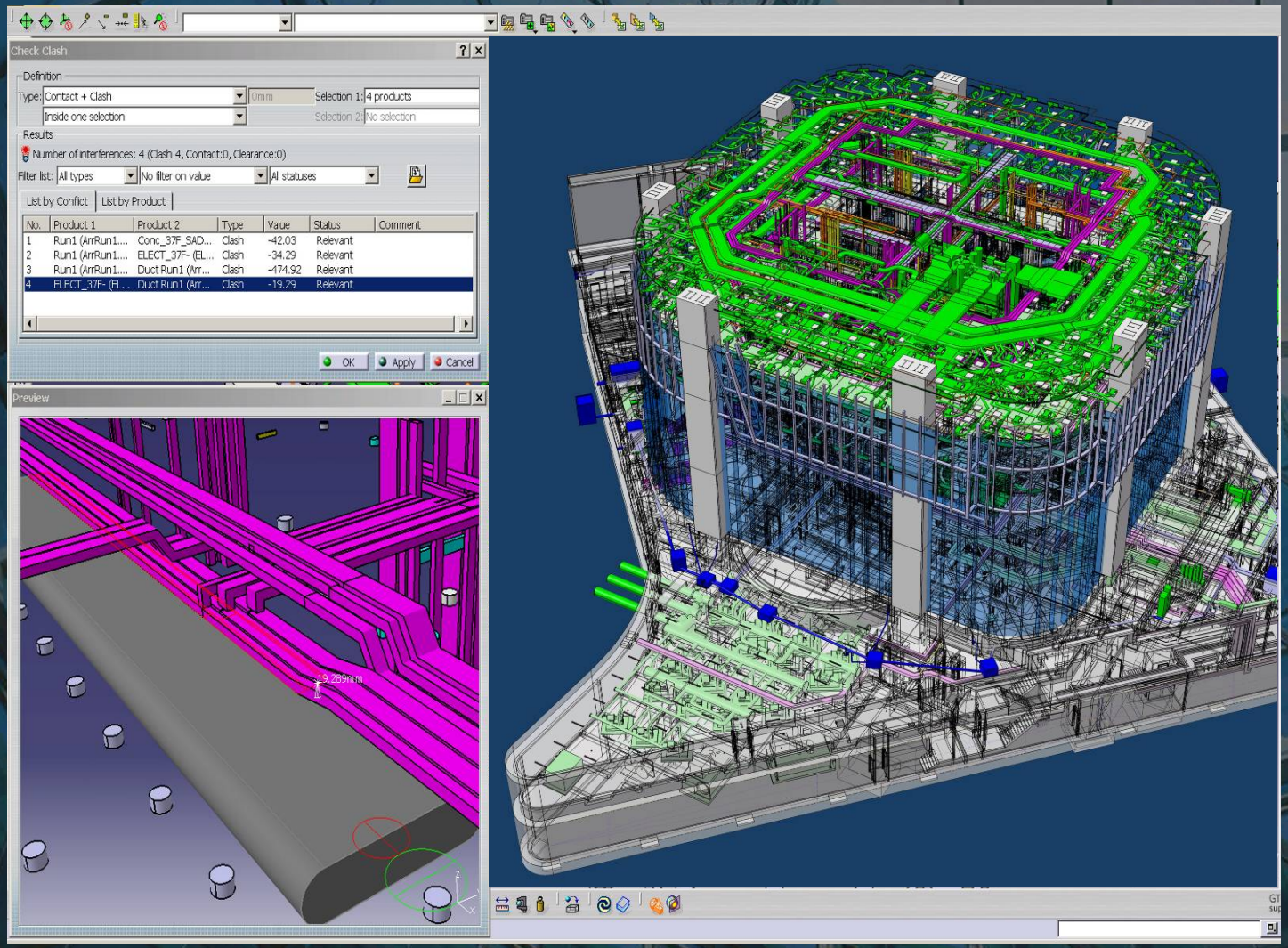
Project-wide multi-discipline design coordination

Detail Design and Coordination



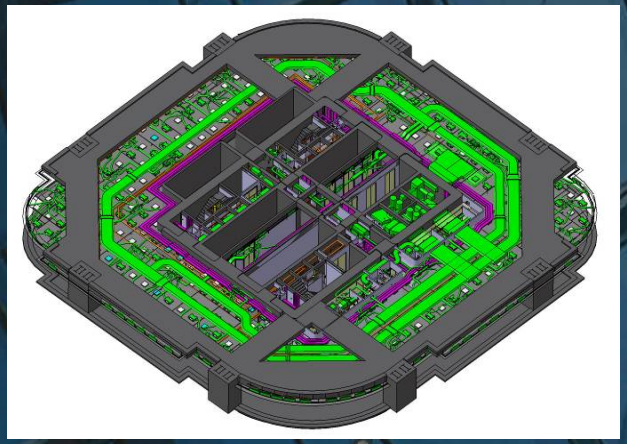
Owner, Architect, Structural, MEP, QS working in the same room on the same Contract 3D Building Information Model

Detail Design and Coordination

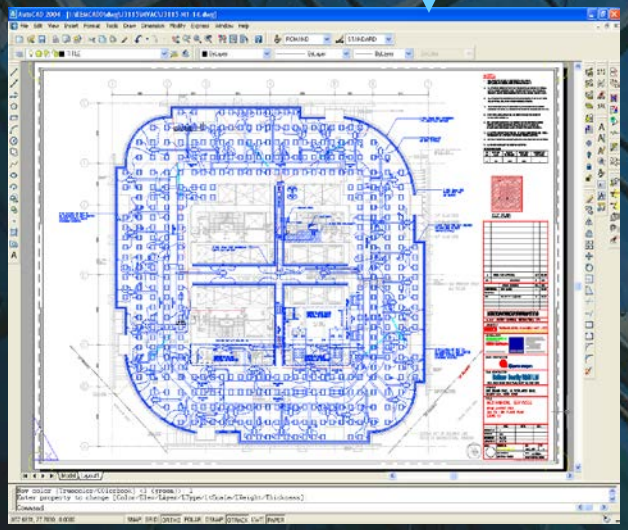


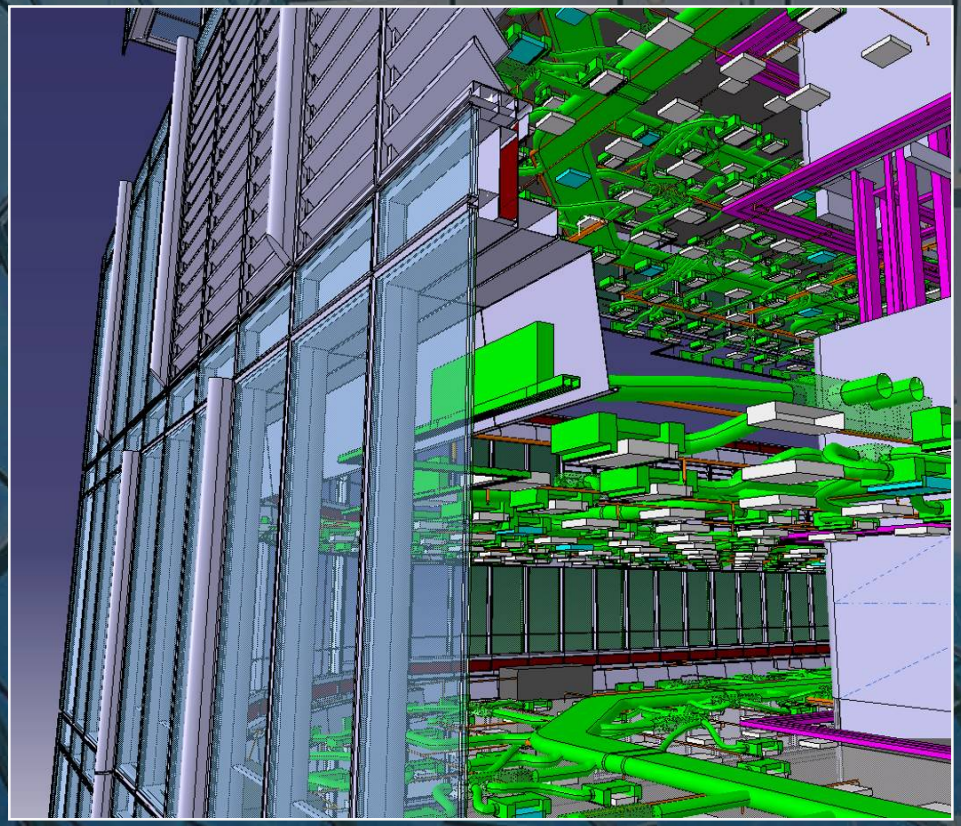
Automatic Clash Identification and Management

Work Document Coordination



Coordinated 3D geometries

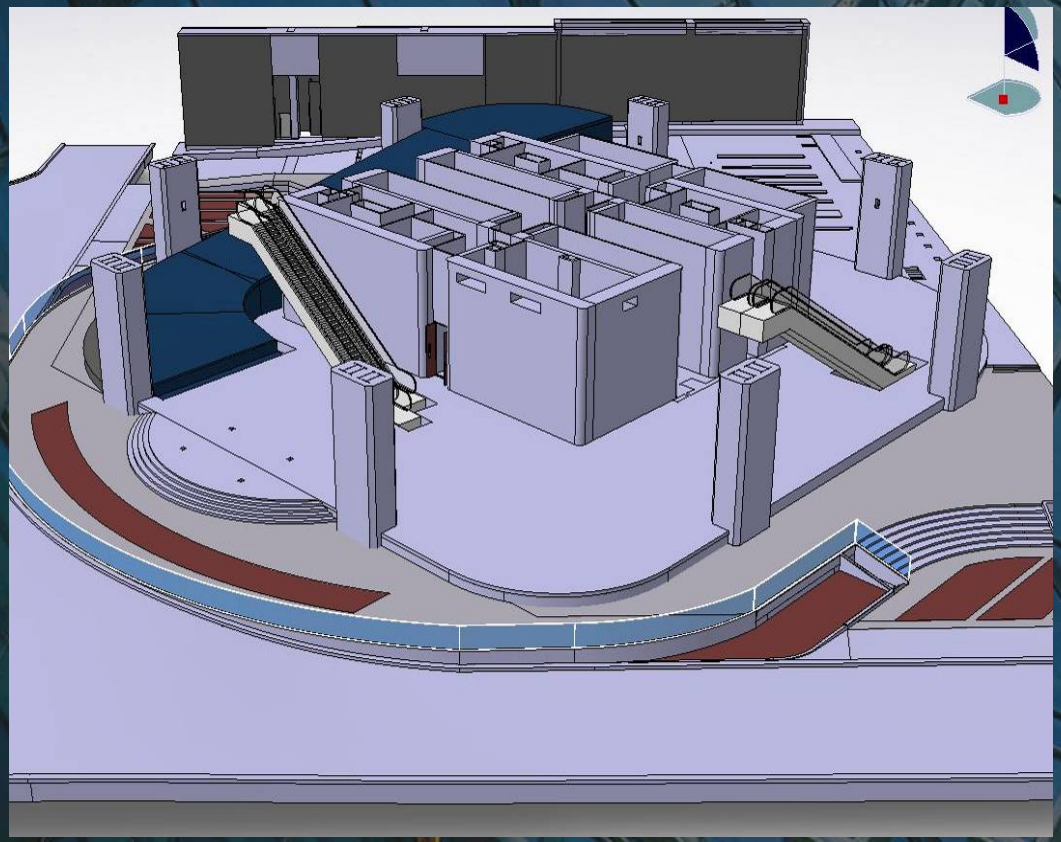




Live Sectioning

2D geometries output to ACAD for further coordination

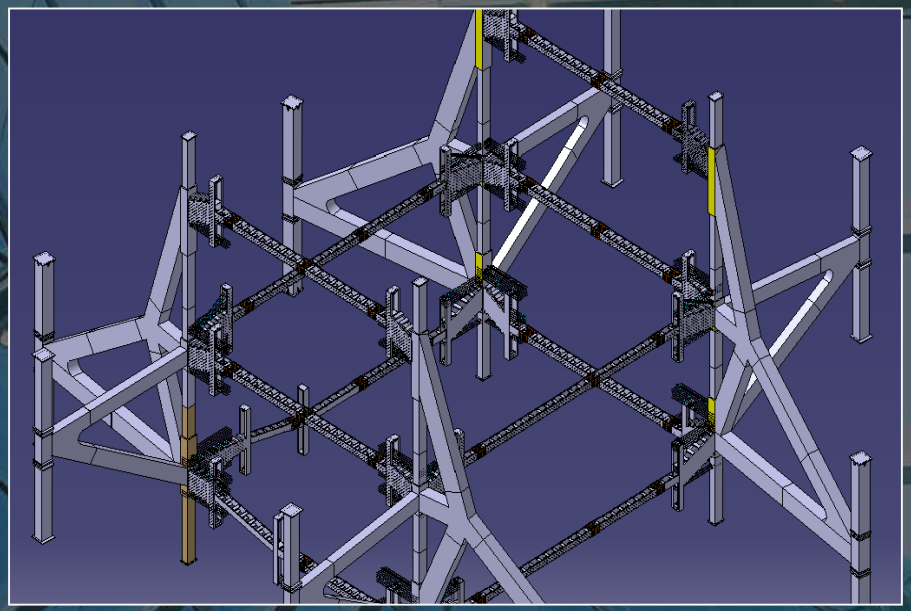
Facilitate Design Development

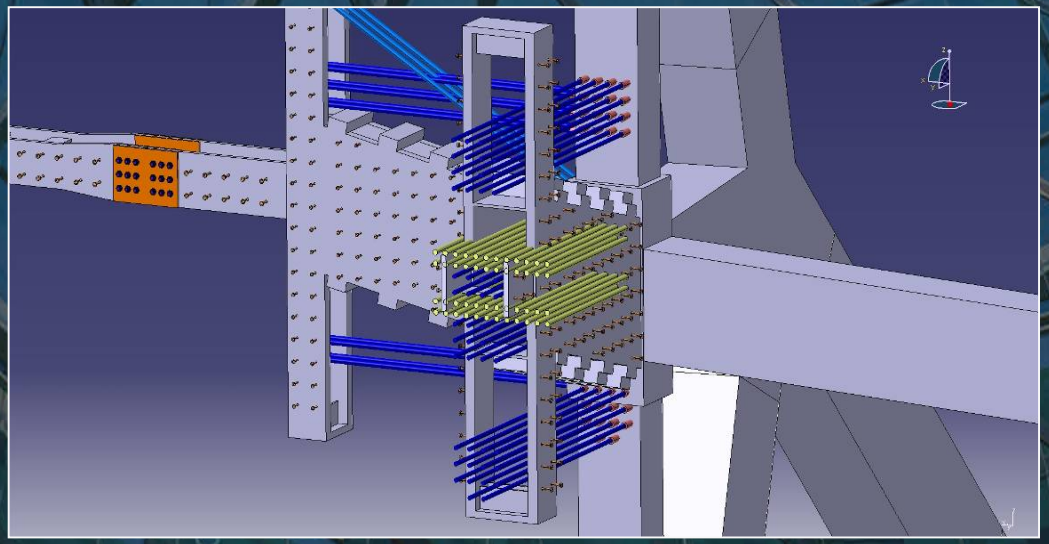


Road Curb Design Review

Car-ramp Design Review

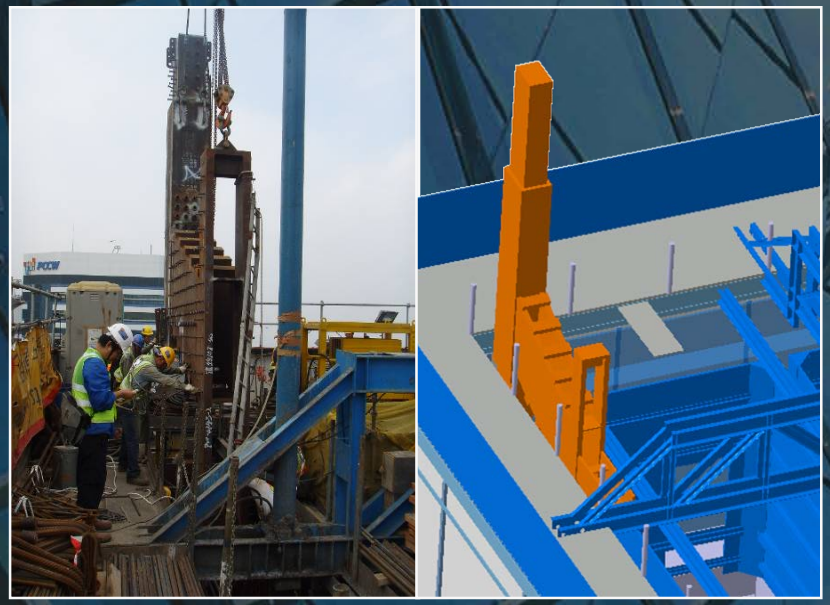
Critical Structural Detail Checking

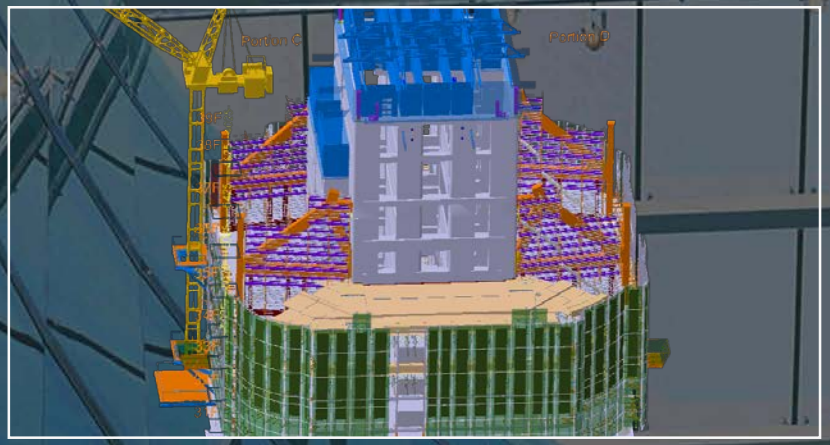


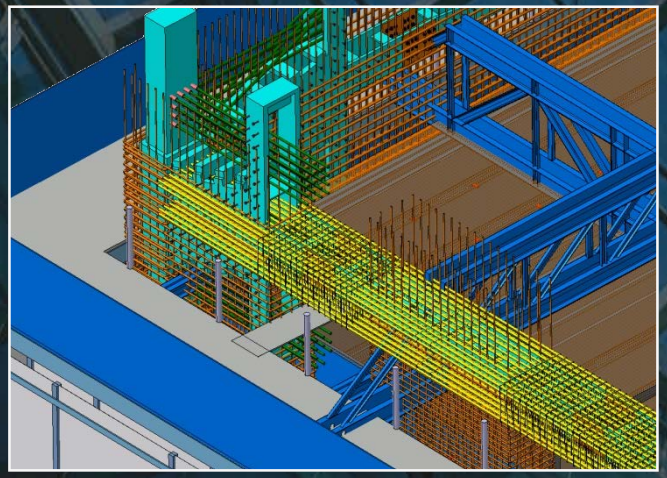


Steel Outrigger and Rebars

Critical Structural Detail Checking



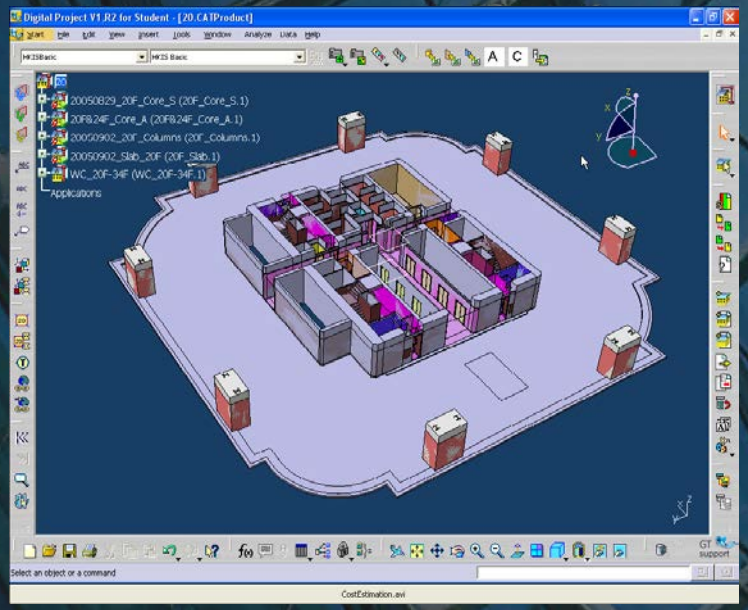




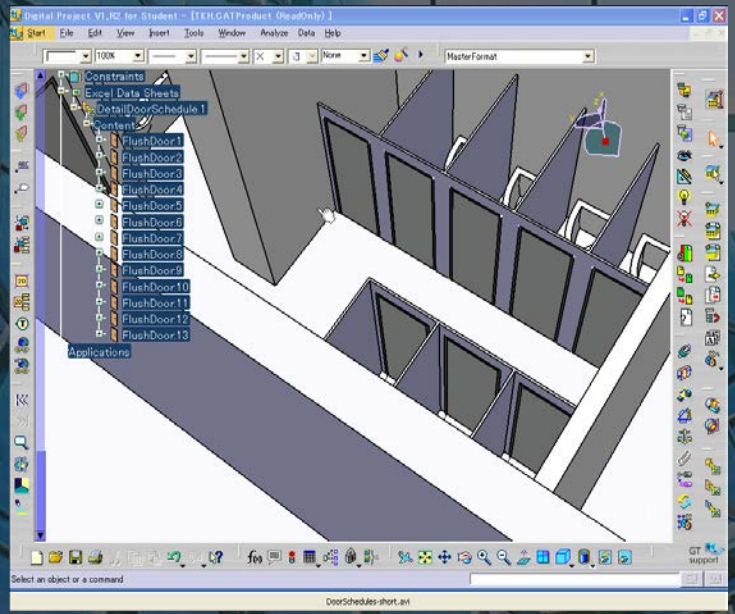
Steel Outrigger

Scheduling and Data Extraction

- Quantity Extraction from BIM

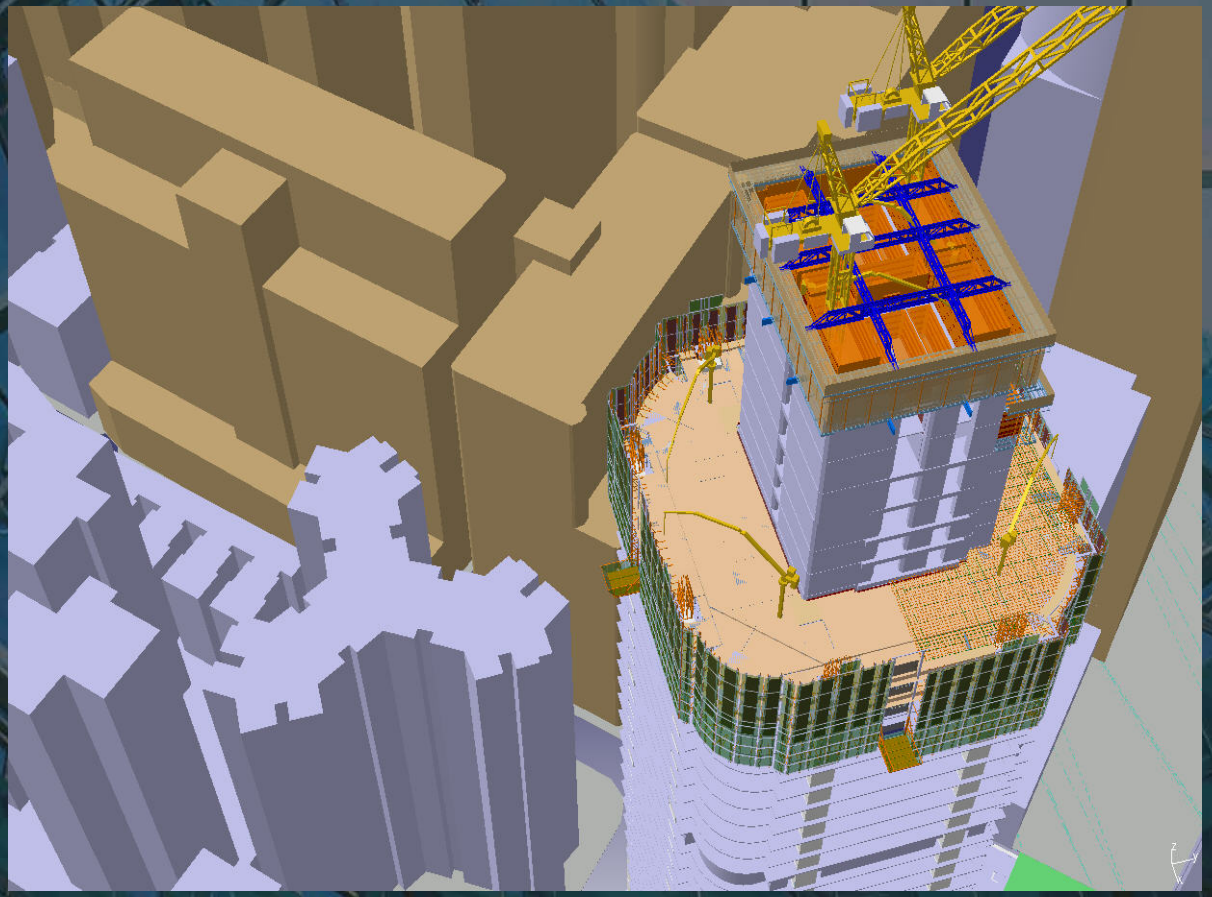


- Work Scheduling utilizing BIM



Virtual Prototyping (4D Model)

- Detail study on the critical process
  - 4-day floor cycle



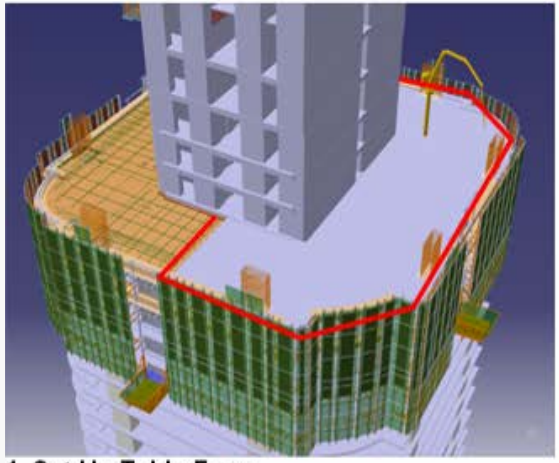
Virtual Prototyping

4 Day Cycle Simulation (Day 1)

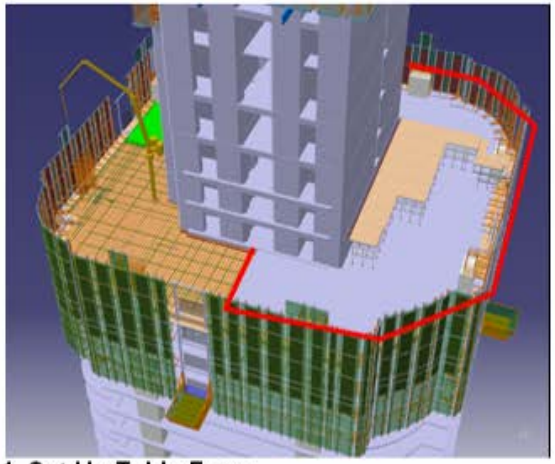
Morning

Afternoon

Evening



1. Set Up Table Form
2. Lift Safety Screen
3. Fixing Column Form



1. Set Up Table Form
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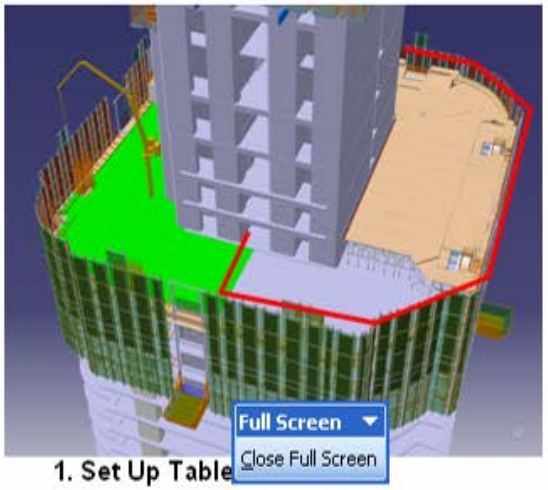
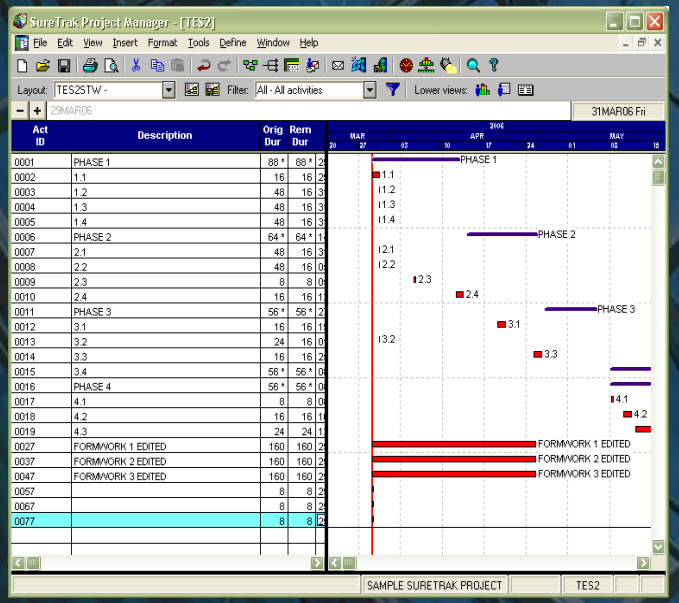
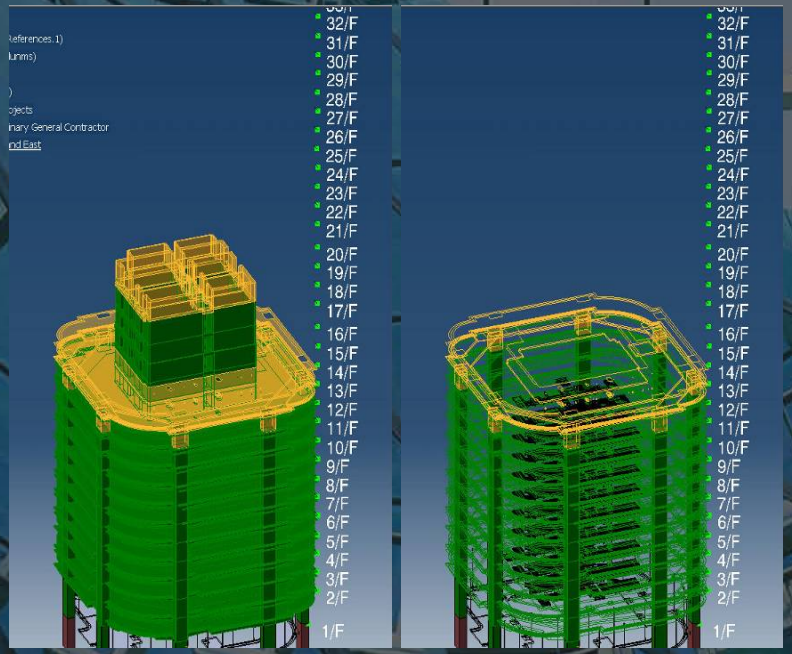


1. Set Up Table

Visualize Master Progress with 4D Model

Data exchanging between Primavera and Digital Project





Primavera

Digital Project

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The Hong Kong Institute of Building Information Modelling
香港建築信息模擬學會

HKIBIM Launch on 8th Jan 2010

Hong Kong Institute of Building Information Modelling (HKIBIM) was established in Jan 2009. After one year's preparation, it is proud to announce the launch of HKIBIM. On 8 Jan, 2010, the Launch was successfully held at the Hong Kong Club Building.

After opening speech by Ir Francis Leung, the Chairman of HKIBIM, the first fellow member of HKIBIM, Ms Ada Fung, made her speech followed by Architect Mr David Fung, Vice Chairman, sharing the membership application method and further direction of HKIBIM.

The launch ended with cocktail and networking until late night.

Click here to view the event photos.

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HKIBIM Launch on 8th Jan 2010

Official Launch of The Hong Kong Institute of Building Information Modelling (HKIBIM)

Useful Links

Membership Application Form:

PDF format

Link: www.hkibim.org

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and Executive Development
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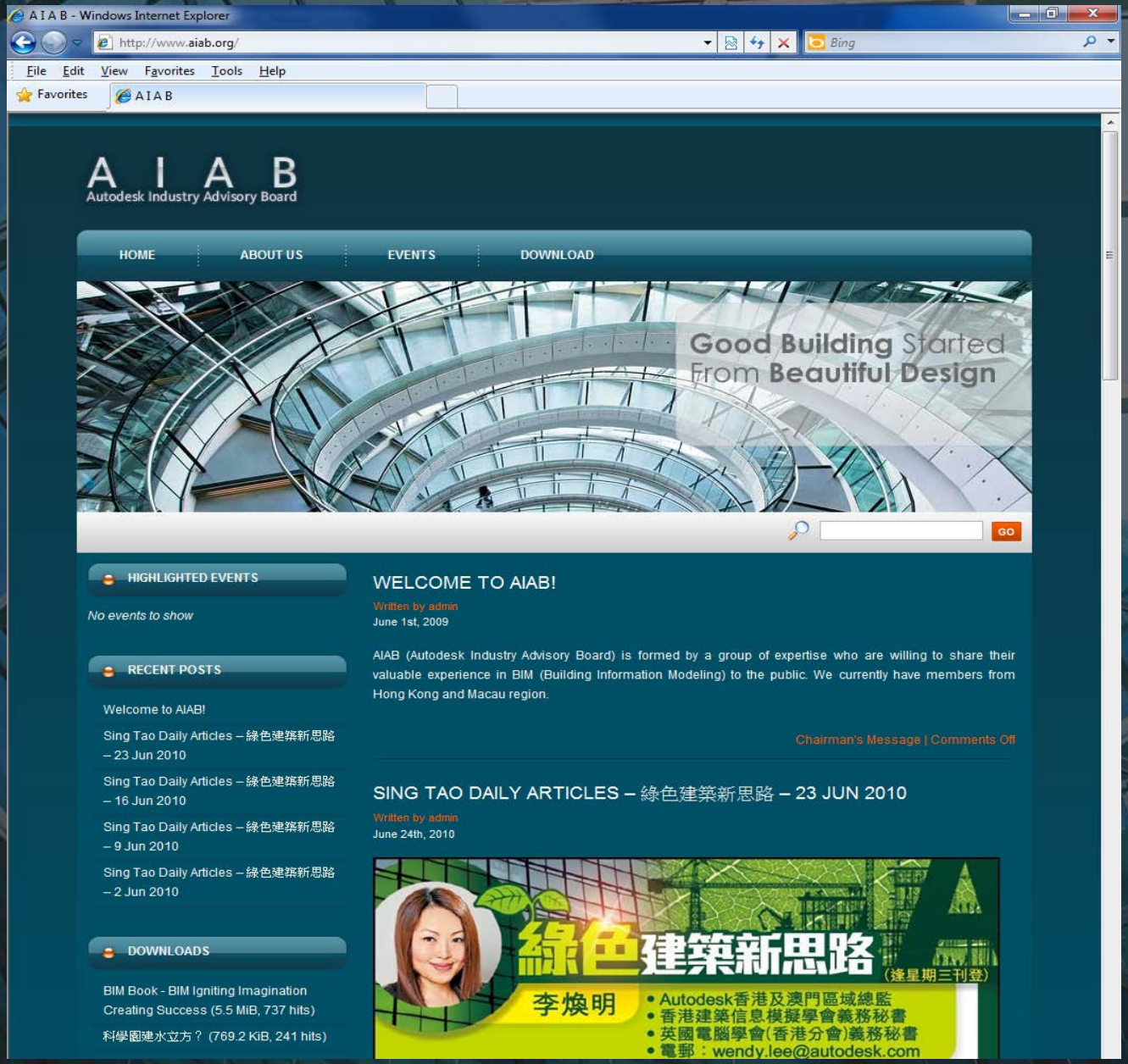
SPEED

BIM USER GROUPS



Link: www.aiab.org

BIM RESOURCES

Link: www.revit.com.hk

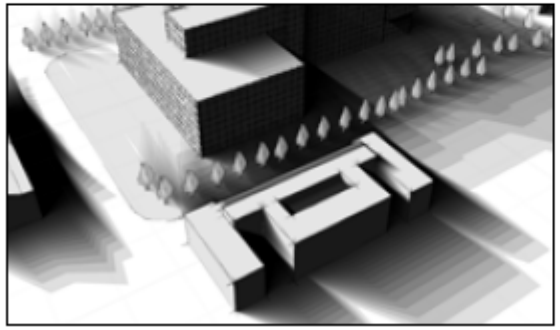
BIM RESOURCES

Link: www.revitcity.com

BIM DEVELOPMENTS – STANABILITY DESIGN

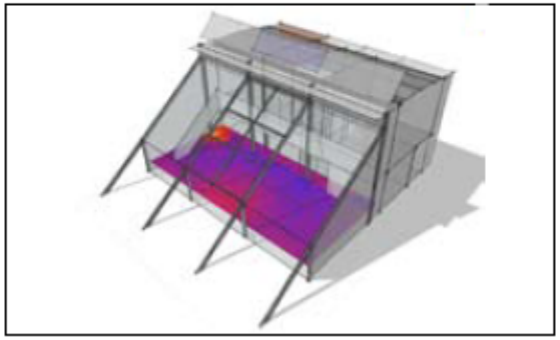
Shadows and Reflections

Display the sun's position and path relative to the model at any date, time, and location using this simulation tool. View how sunlight enters through windows and moves around within a space.



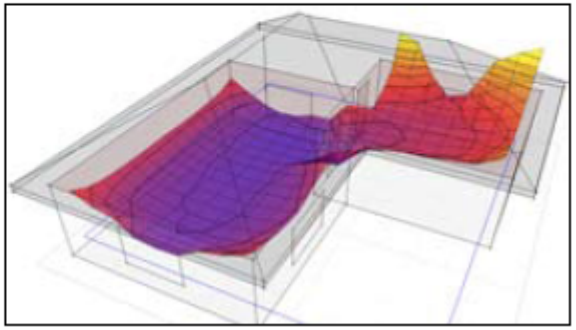
Daylighting

Calculate daylight factors and illuminance levels at any point in the model or over the analysis grid. This tool helps determine potential savings due to daylight-linked lighting design.



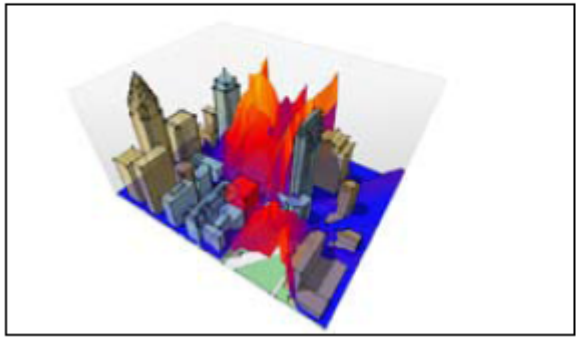
Thermal Performance

Calculate heating and sensible cooling loads for models with any number of zones or types of geometry. Analyze effects of occupancy, internal gains, infiltration, and equipment items.



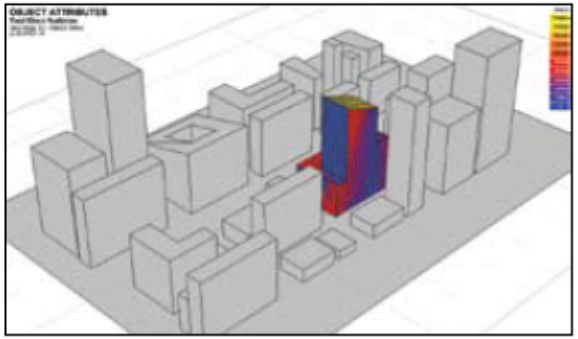
V Visual Impact

A Analyze site projection angles, assess obstructions,
c calculate vertical sky components for any point or
s surface, and visualize the no-sky line in any space.

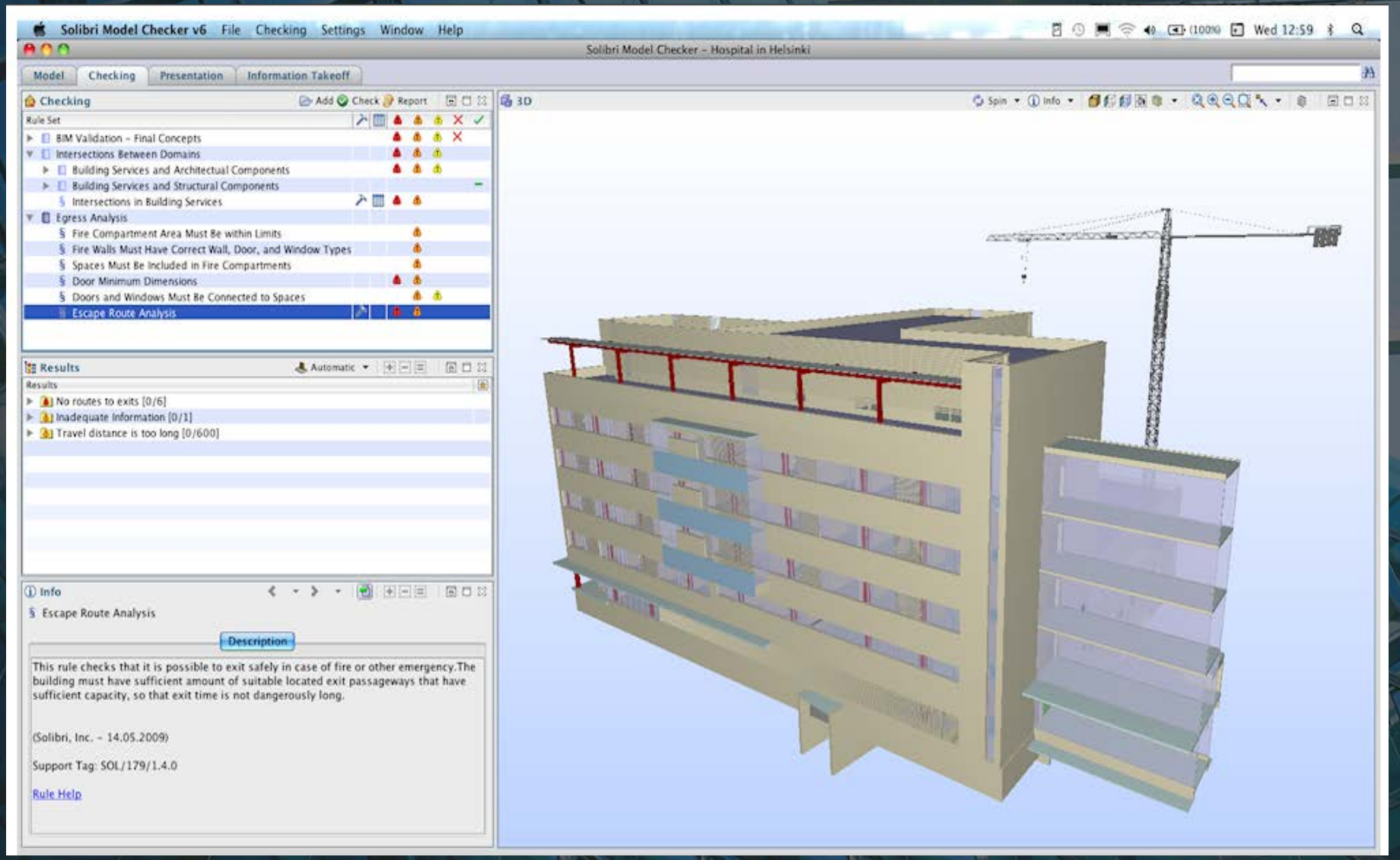


Solar Radiation

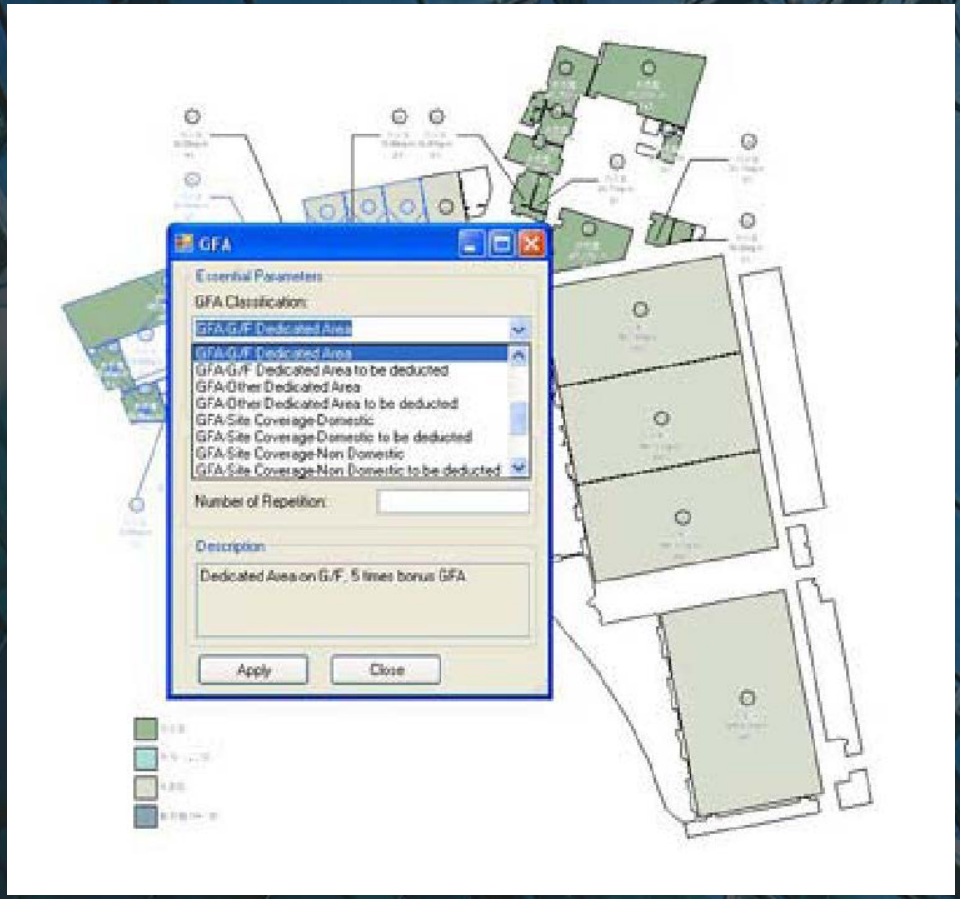
Visualize incident solar radiation on windows and surfaces, showing differential incident solar radiation calculated over any period.



BIM DEVELOPMENTS – STATUTORY CHECKING



BIM DEVELOPMENTS
STATUTORY SUBMISSIONS

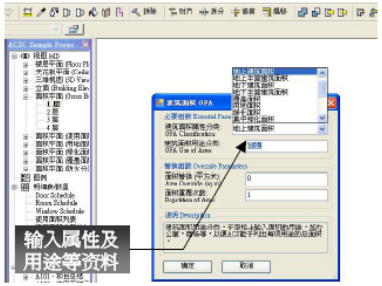


Link: www. bit-world.com

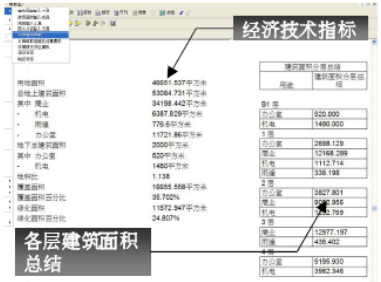
BIT
建筑资讯科技有限公司

ACS · C@REVIT 产品说明

ACS·C@REVIT 是为中国建筑设计而开发的一套自动规范检算系统，系统专门为 Autodesk Revit 而设。只要简单勾出各类面积，输入属性及用途等资料，程式便能自动完成规范检算。相比传统做法能大幅提升其效率达数倍以上。



支援各类建筑面积运算、经济技术指标、使用面积人数换算、疏散走道要求、洁具要求、及防火分区面积结算。

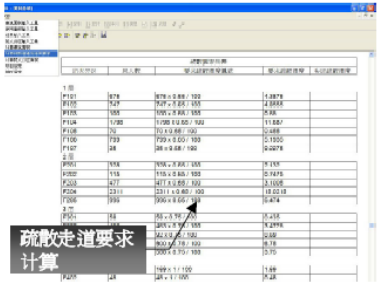


1. 经济技术指标运算包括:

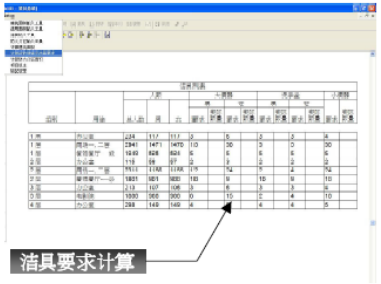
- 用地面积
- 地上，地下及不同功能性质的建筑面积结算及容积率
- 绿地总面积及绿地率
- 建筑密度

2. 使用面积运算包括:

- 跟据使用面积用途计算人数

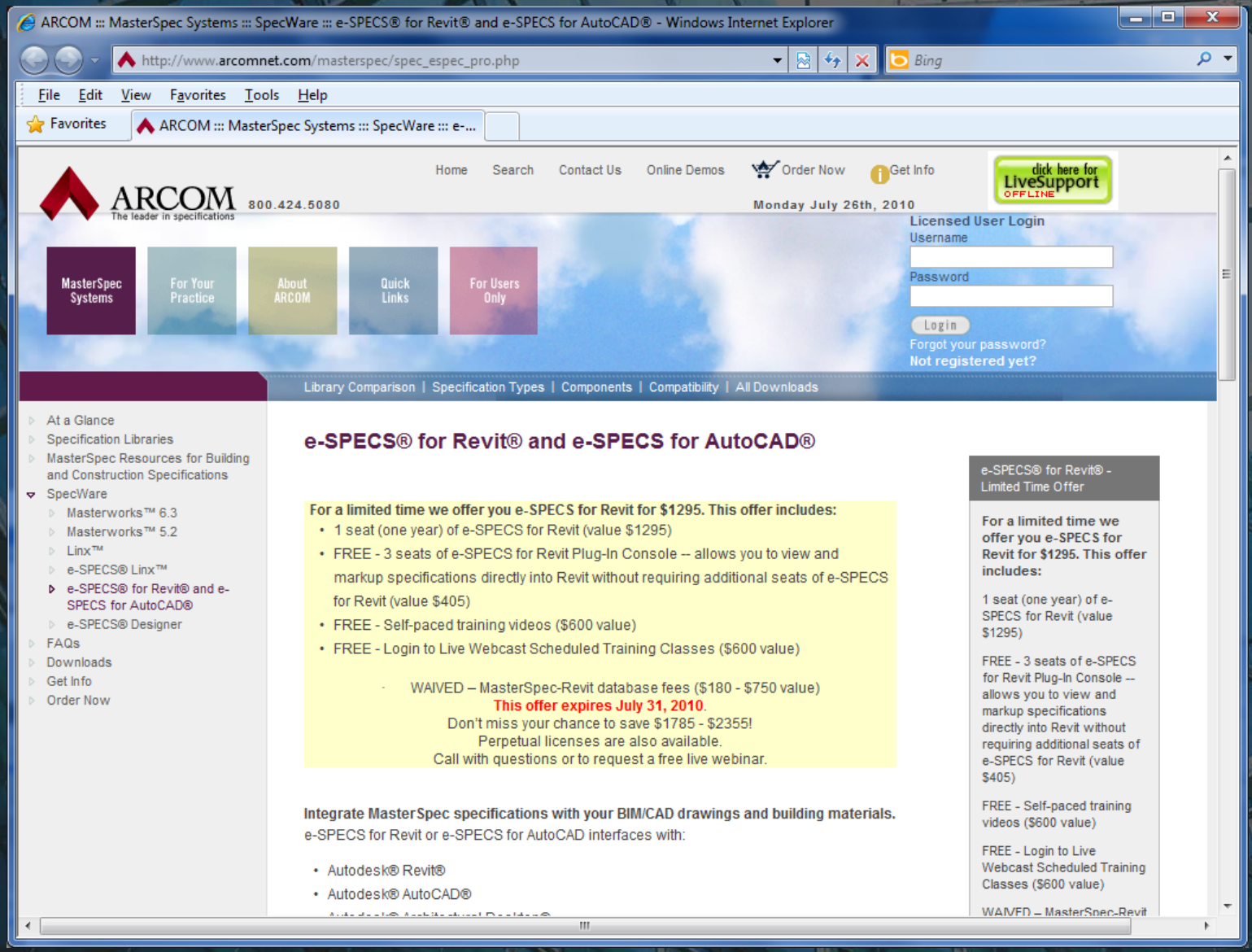


- 跟据不同楼层或防火分区的总人数及其建筑物功能性质计算疏散走道要求



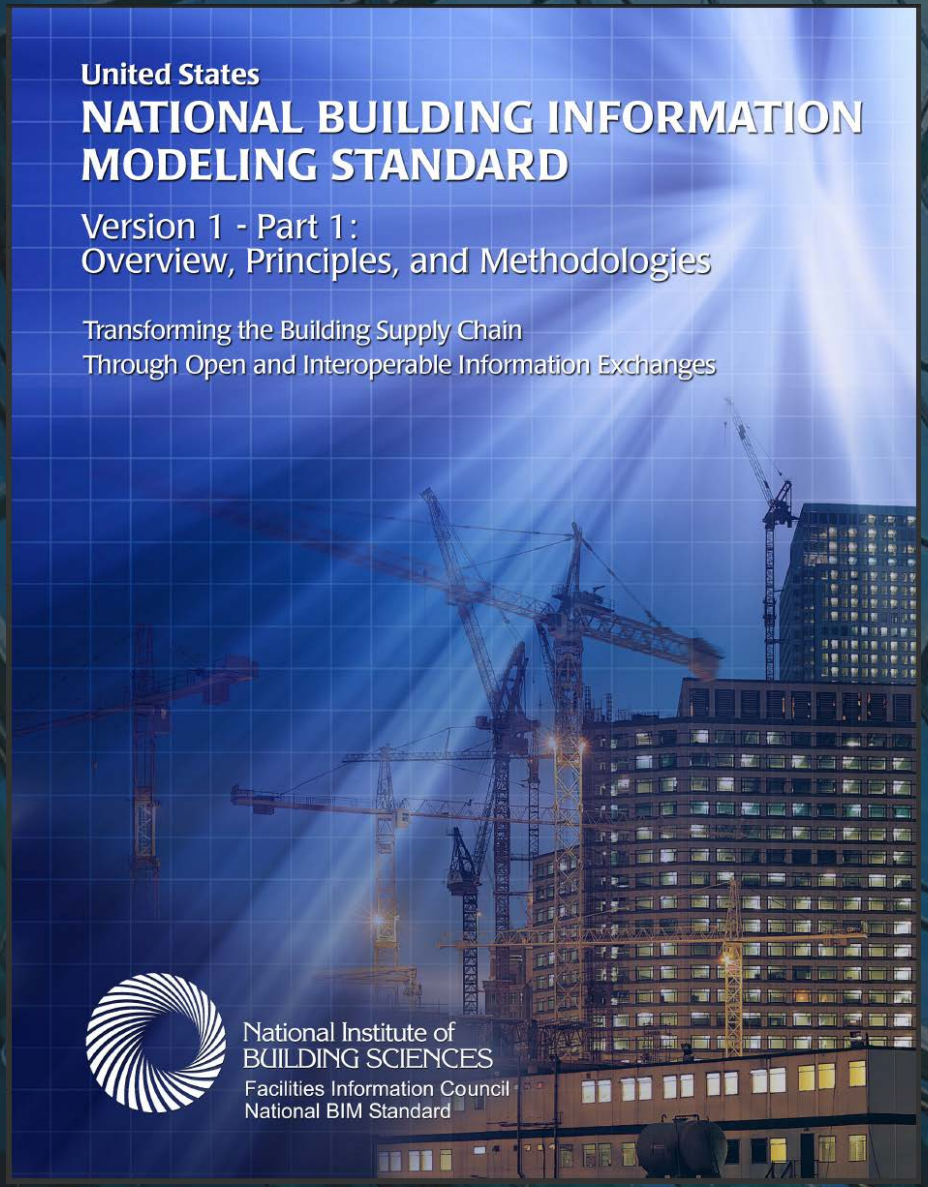
- 跟据不同楼层或区域的总人数及其用途，计算男女人数分布，及

BIM DEVELOPMENTS – SPECIFICATIONS



Link: www.arcomnet.com

BIM STANDARD -US



BIM STANDARD - US

AEC (UK) BIM Standard

A practical & pragmatic BIM standard for the Architectural, Engineering and Construction industry in the UK.

Version 1.0 November 2009 First release

AEC (UK) BIM Standard for Autodesk Revit

A workable implementation of the AEC (UK) BIM Standard for the Architectural, Engineering and Construction industry in the UK.

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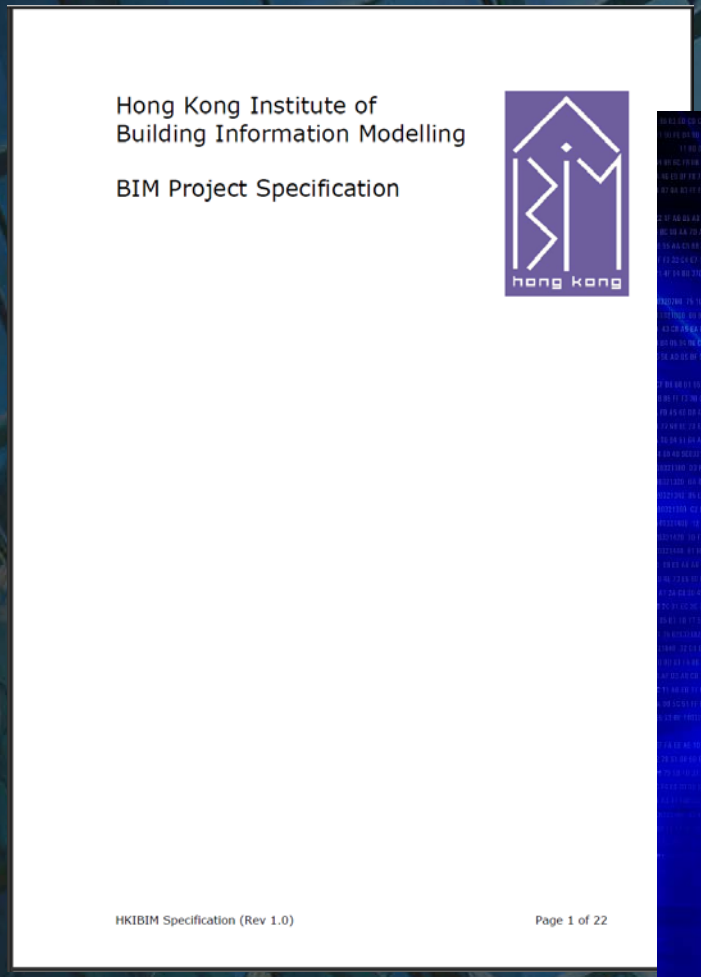
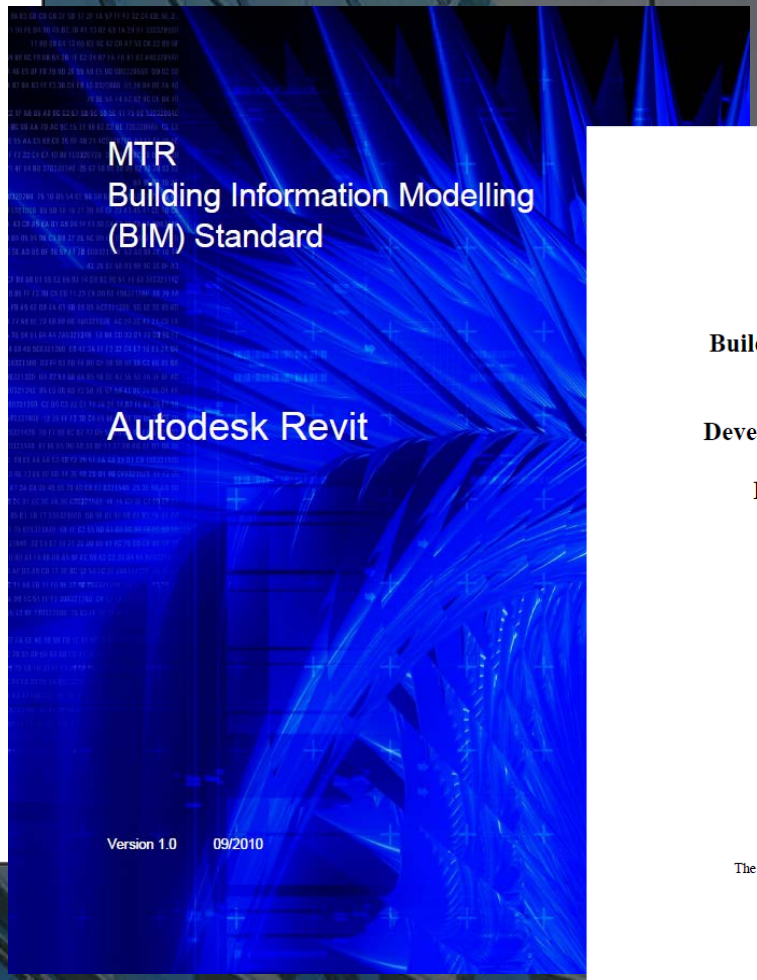
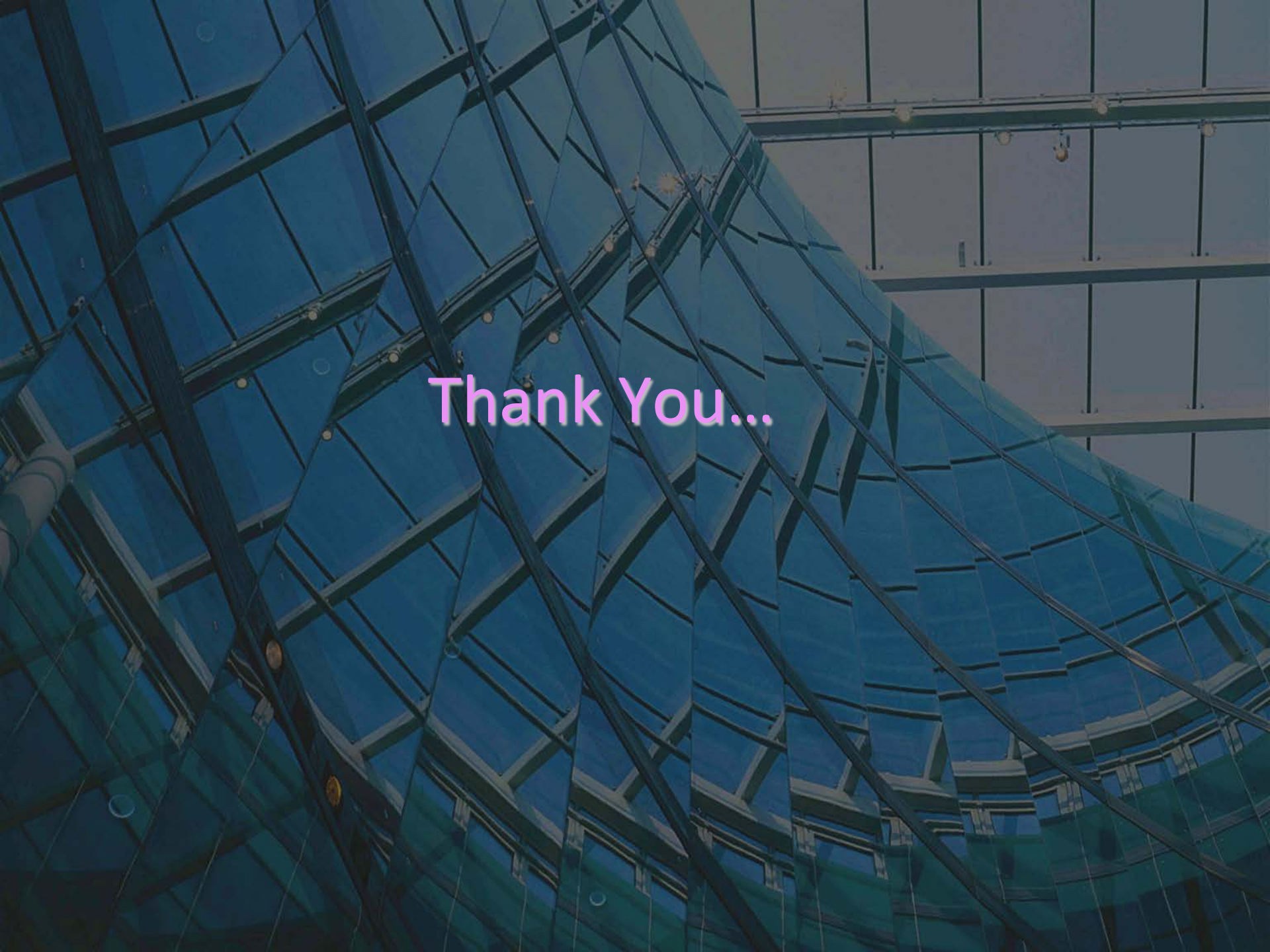
HK BIM STANDARDS –HKIBIM, MTRC, HA






Thank You…