What does BIM mean to Developers

BIM Practices

1. BIM office infrastructure
2. In-house Setup - Local Office > International Office
3. External Collaboration Setup
4. Cloud Base Project Collaboration Setup

B = Building 建築

I = Information 資訊

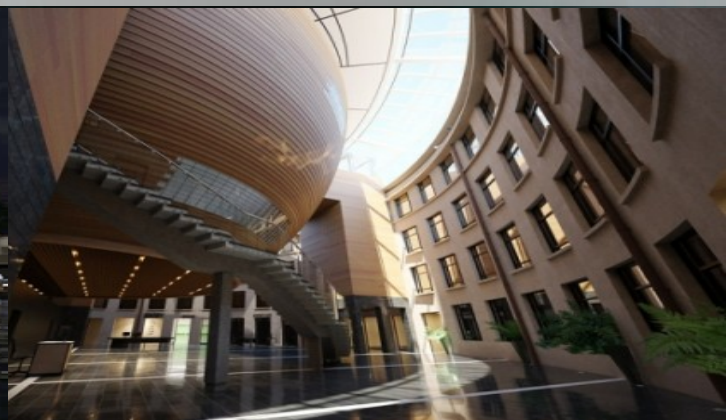
M = Modelling 模型/ 模擬

Fake BIM

M + ?

JUST 3D MODEL – NOT BIM





HALF-BIM

I <> M

3D MODEL >> QTO , CLASH ANALYSIS

HALF BIM

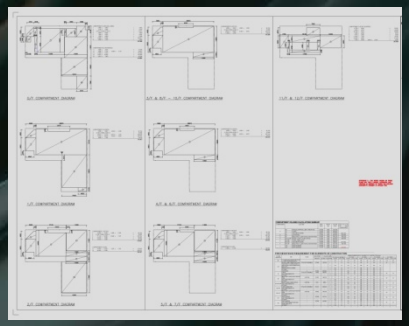
DESIGN

CAD

CAD

REVIT / NAVISWORKS

???



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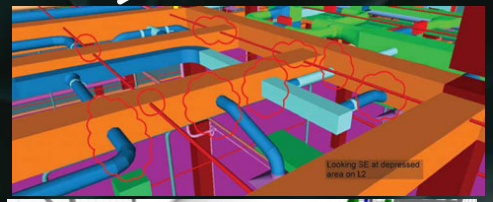
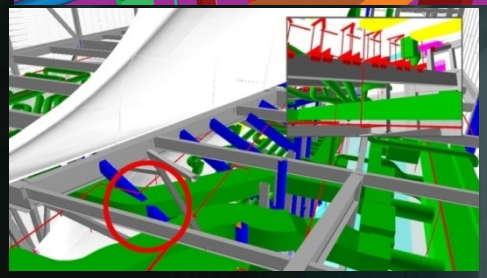




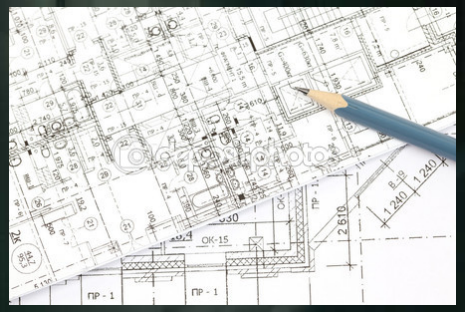
CAD

CONSTRUCTION INFORMATOIN

STATUTORY SUBMISSION

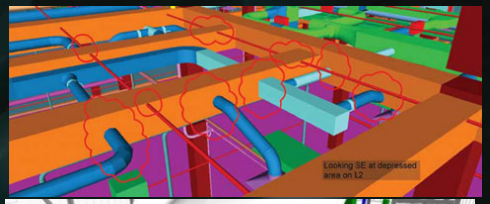
CLASH DETECTION

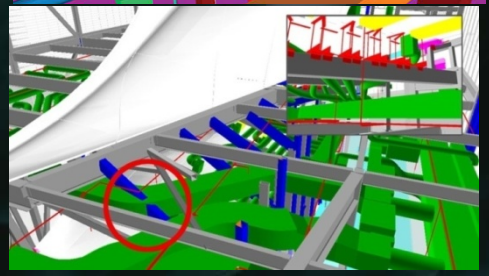
REAL BIM



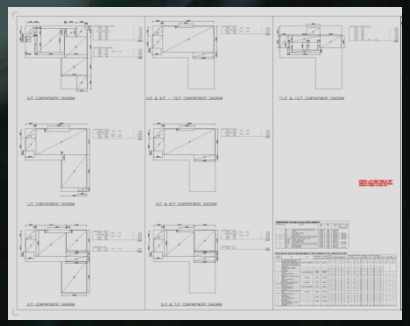
CONSTRUCTION
INFORMATOIN

DESIGN
in
BIM





CLASH
DETECTION



STATUTORY
SUBMISSION

REAL BIM

I = M

I > M

INFORMATION FROM MODEL,

INFORMATION MORE IMPORTANT

B I M

=

=

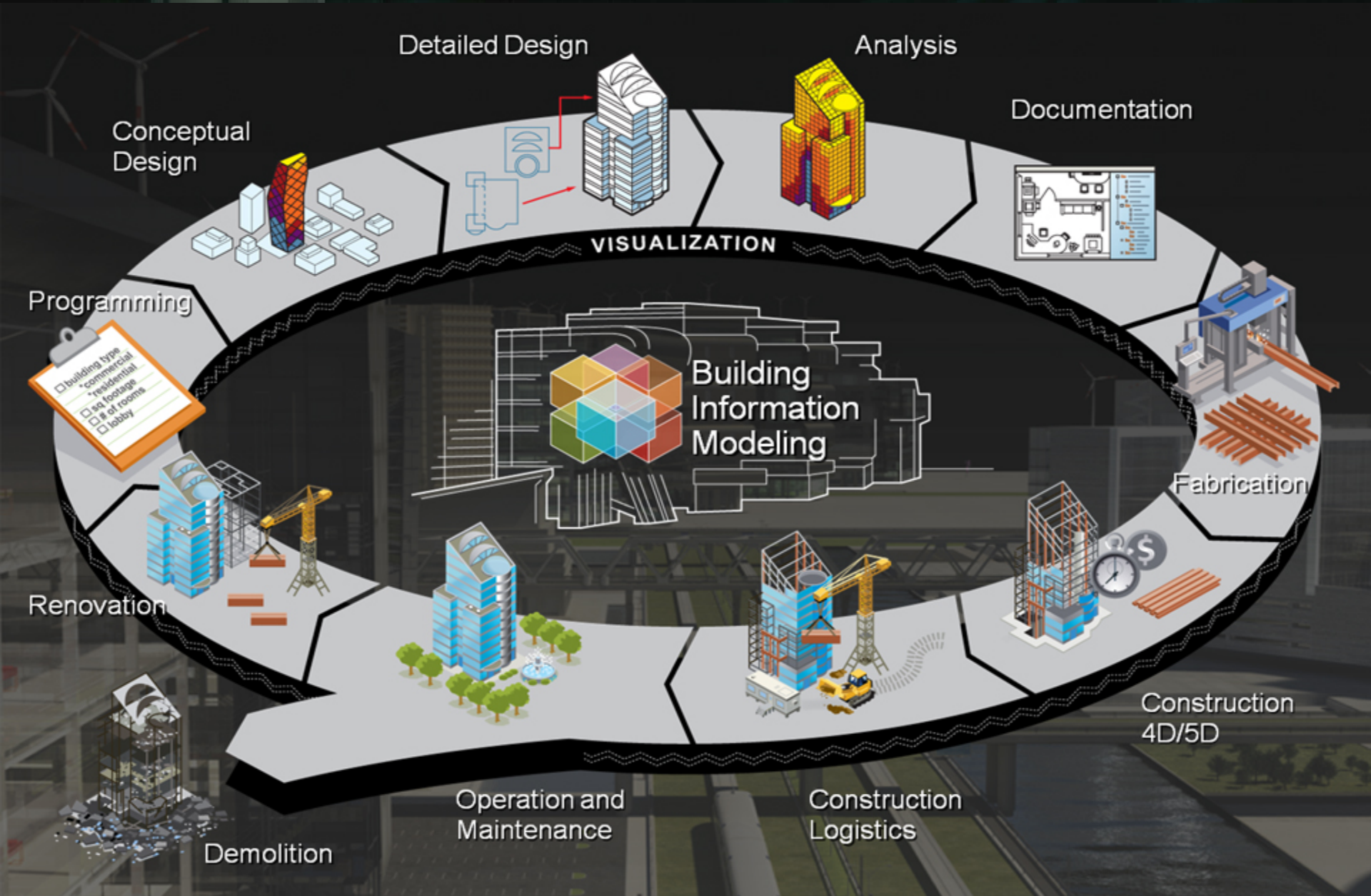
Modelling **Information** **Business**

REAL BIM

M + I = B

BIM is a process, Business is the objective

Use of Building Information Modeling (BIM)



Building Projects

Modelling

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

Word

Excel (spreadsheet)

Access (Data Base)

MS Project

BQ Softwares

.....

Building Projects

Modelling

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

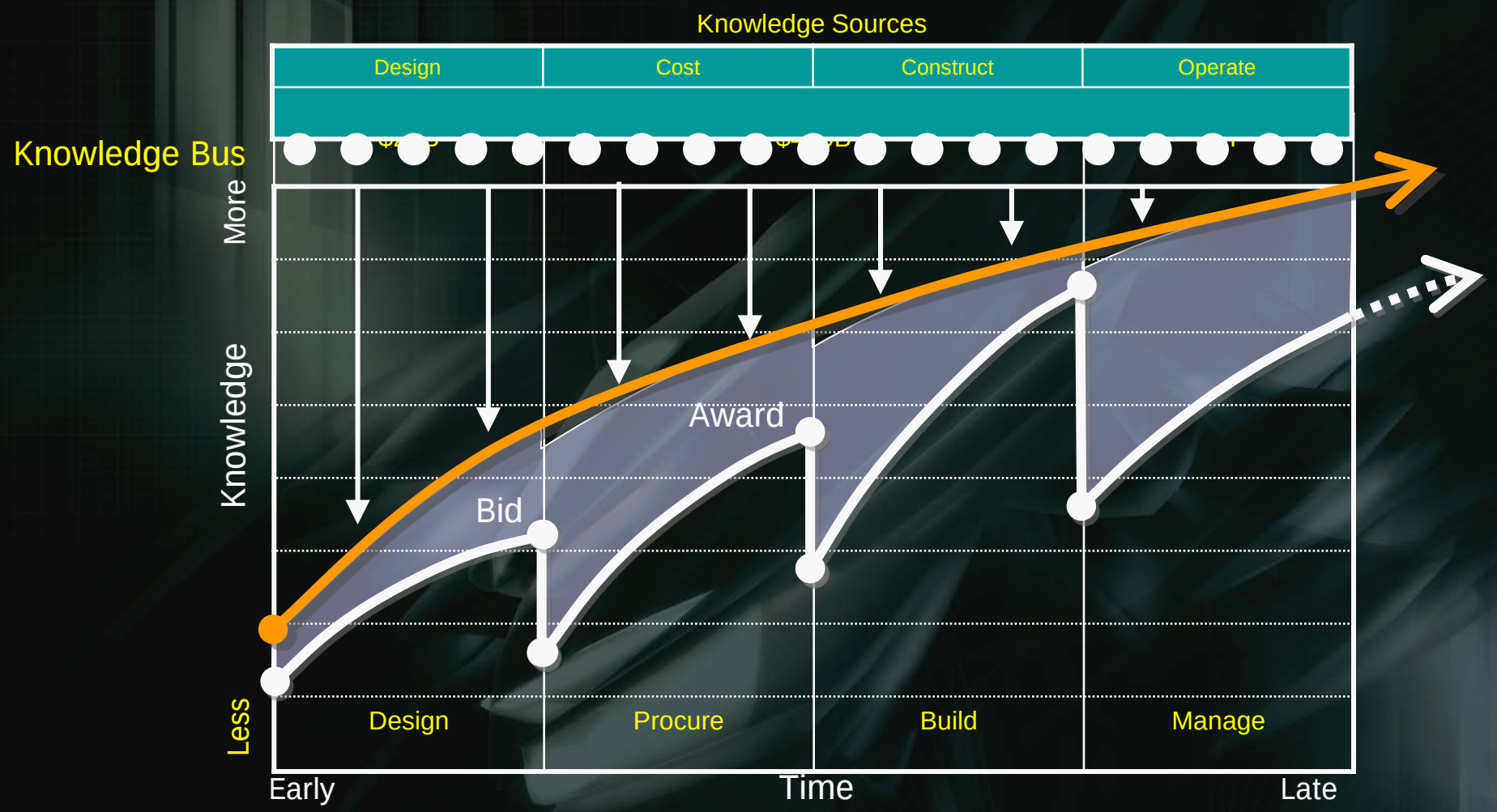
Information

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

BIM

Building Information Modeling

信息化建築模型



INFORMATION "BACKFLOW"

What is BIM (Building Information Model)

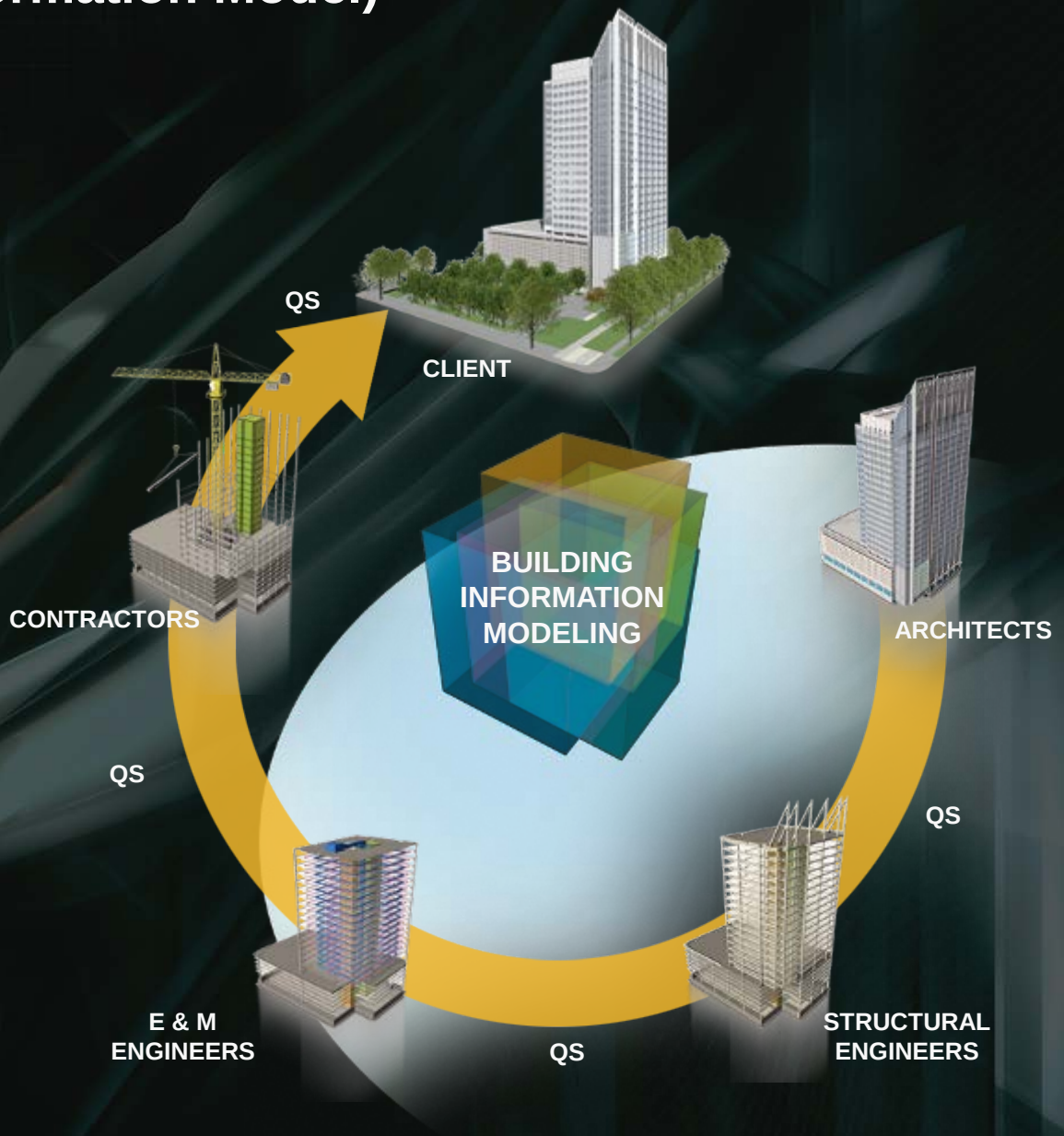
Graphical Data

+

Non-Graphical Data

+

New workflow



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

Tier 3 – Derived Lifecycle View

Laws and regulations
-Building regulations
-Building specifications

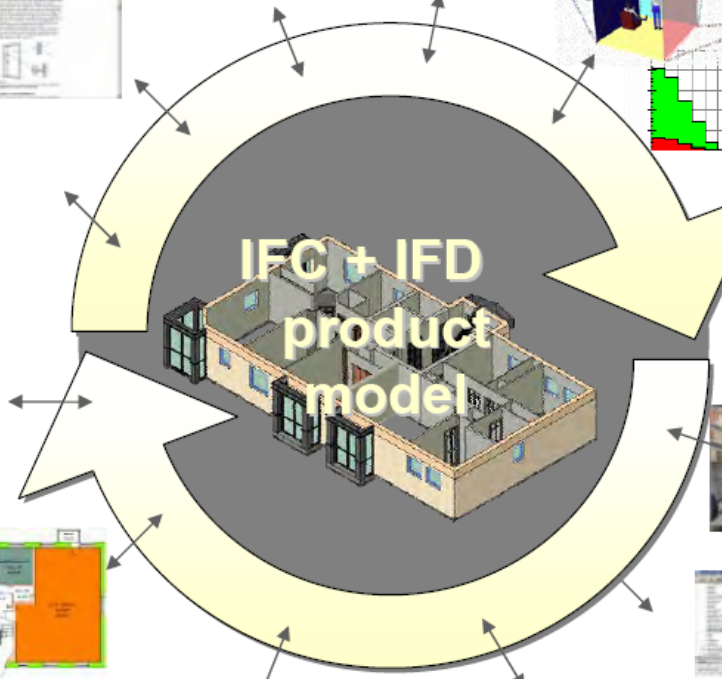
CAD software
-Drawings, calculations
-Architect, engineer,…

Knowledge databases
-Best practise knowledge
-Own practice

VRML
-Visualisation, 3D models

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

Briefing
-Functional req.
-Estimates
-Conditions
-Requirements



Demolition, refurbishment
-Rebuild
-Demolition
-Restoration

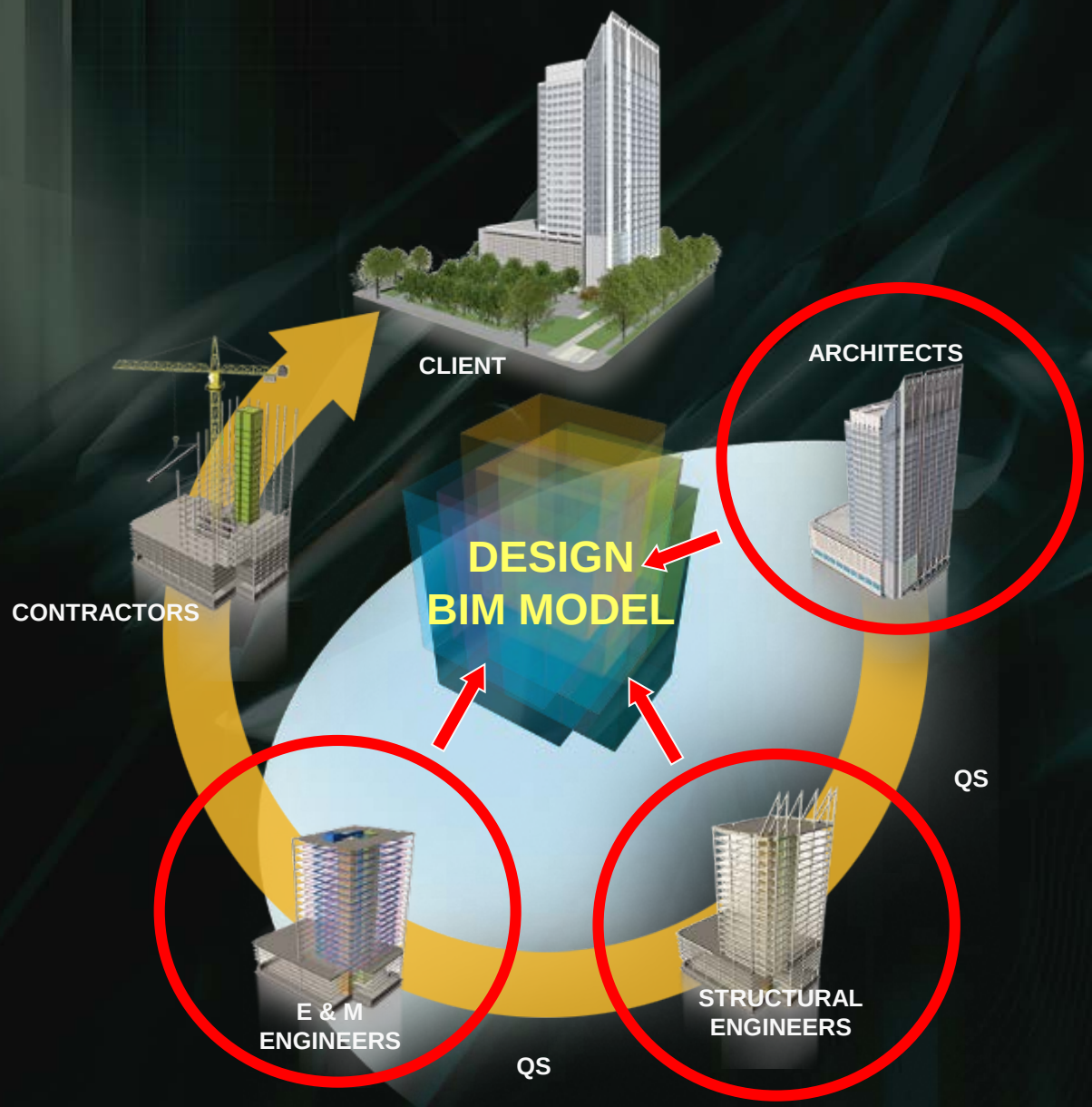
Facility management
-Letting, sale, operations
-Maintenance
-Guaranties

Specifications
-Specification sheets
-Classification standards
-Estimates, accounting

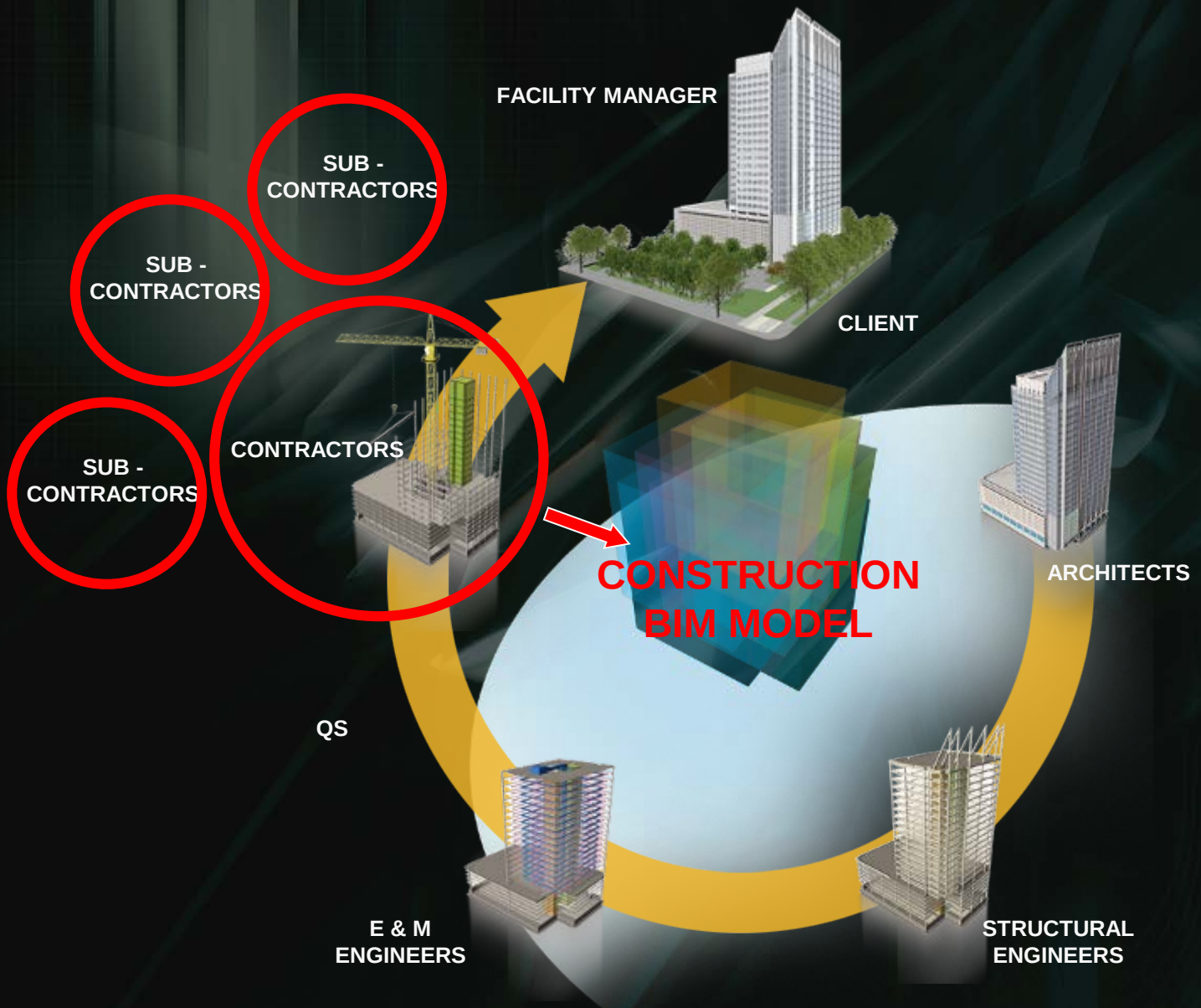
Construction management
-Scheduling
-Logistics, 4D

Procurement
-Product databases
-Price databases

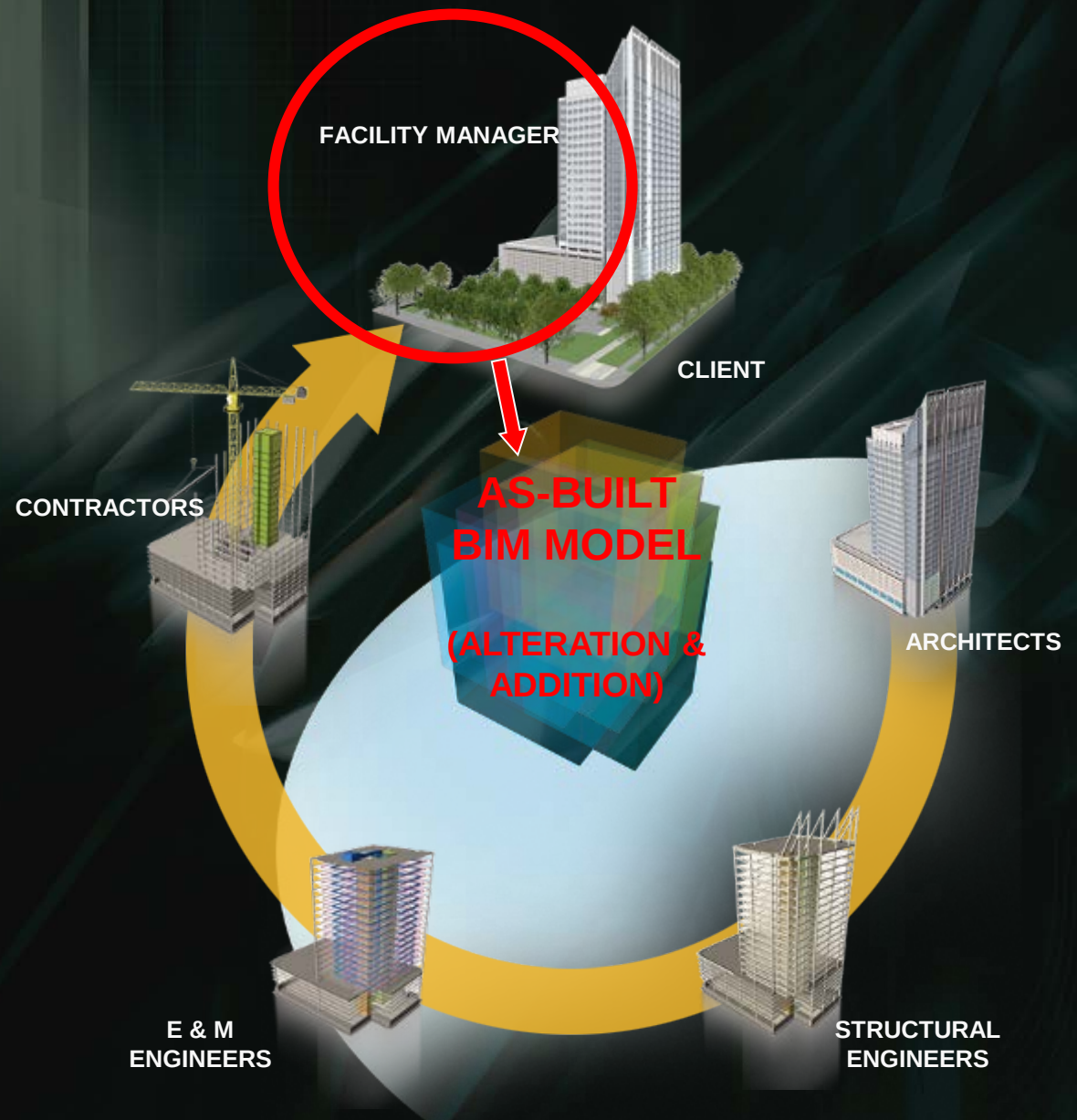
HOW BIM WORKS?



CONSTRUCTION BIM MODEL



AS BUILT BIM MODEL



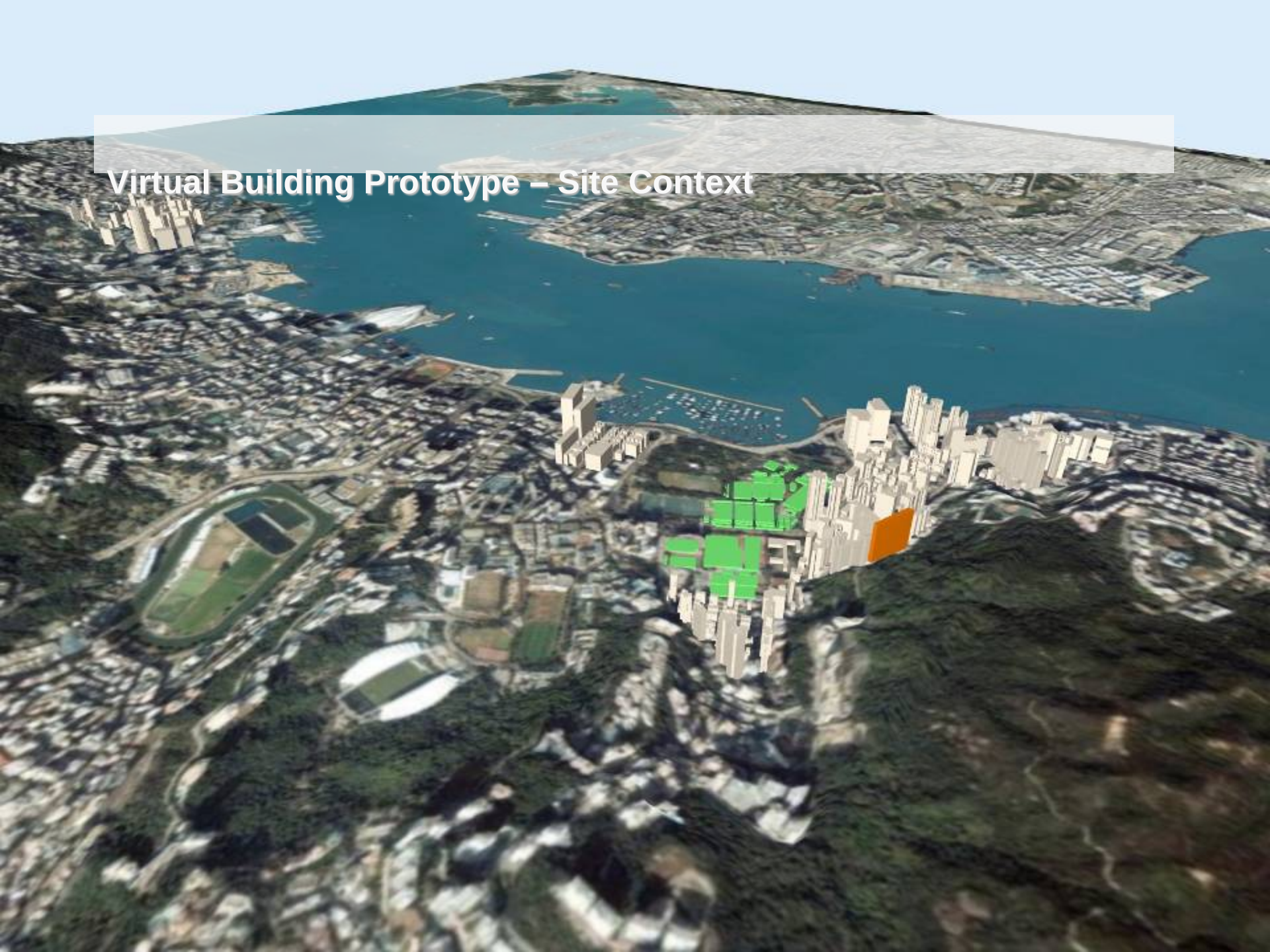
Use of Building Information Modeling (BIM)
BIMの活用

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

Use of Building Information Modeling (BIM)

1. **Design visualization** 設計の可視化
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
8. Complex Geometry

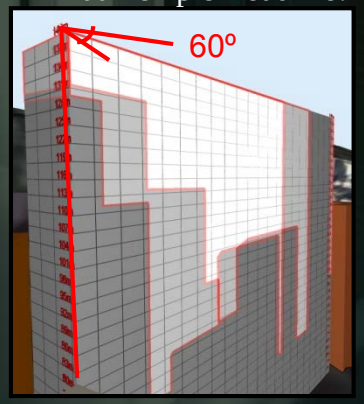
Virtual Building Prototype – Site Context



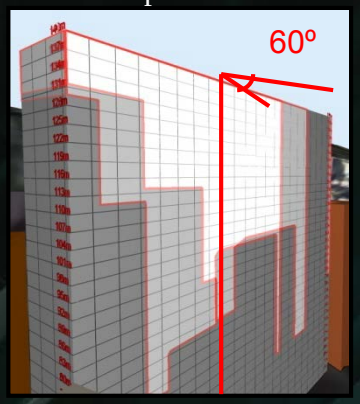
Views from: 140m

140m

Tin Hau Temple Road No.1



Tin Hau Temple Road No.1



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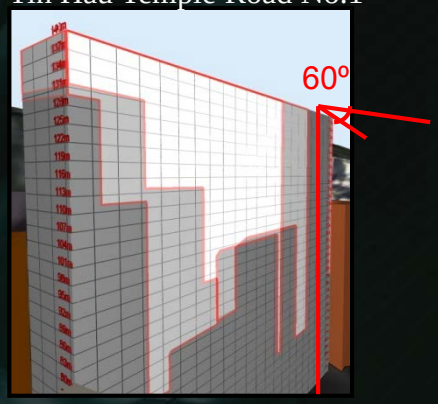

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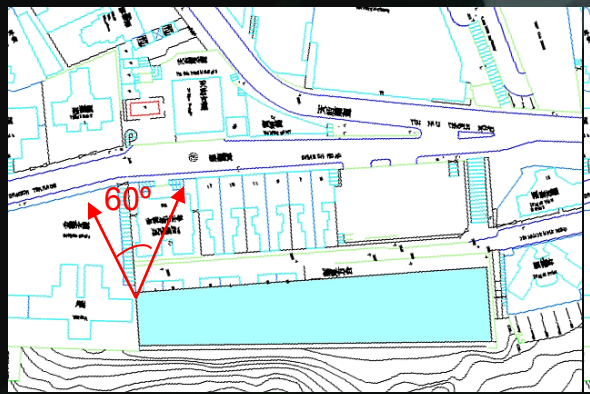

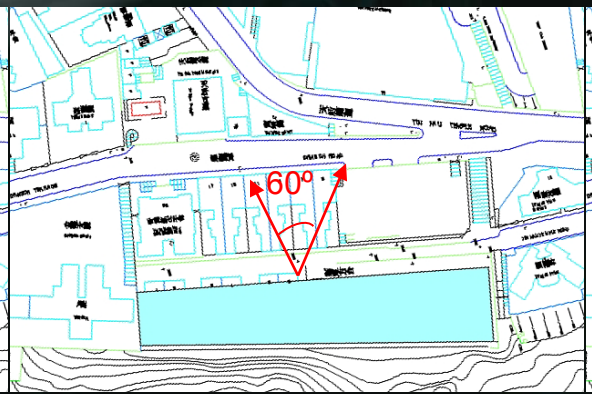

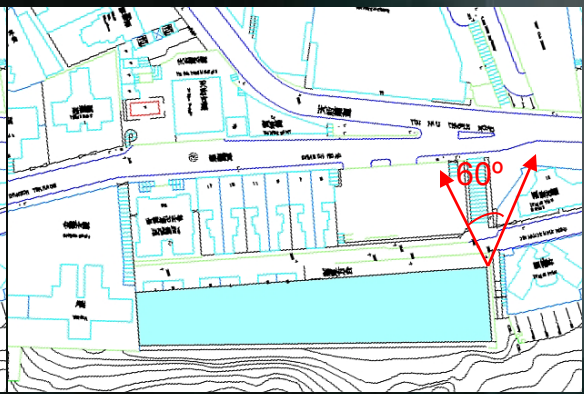

Views from: 135m

135m

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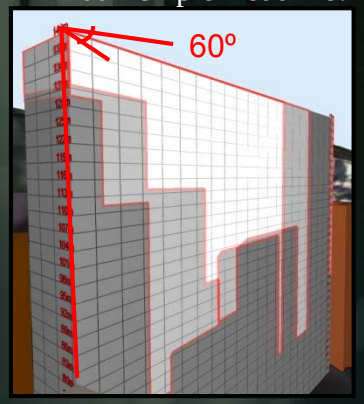

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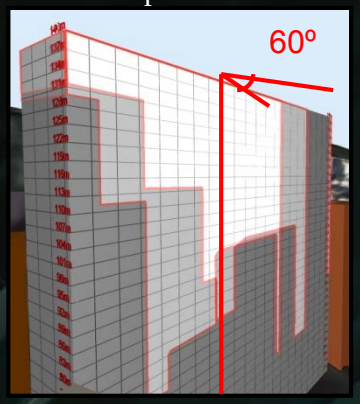

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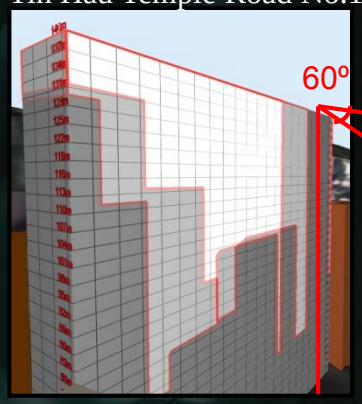

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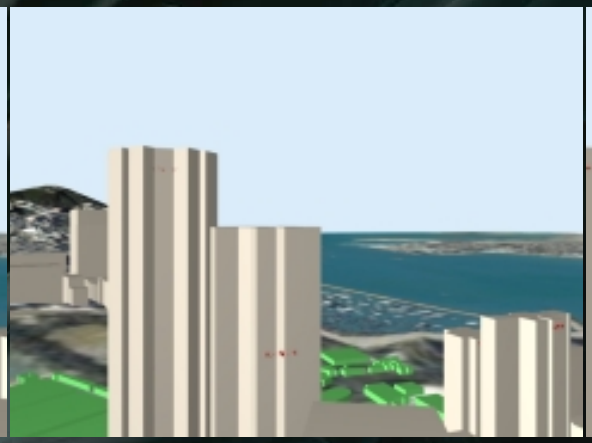

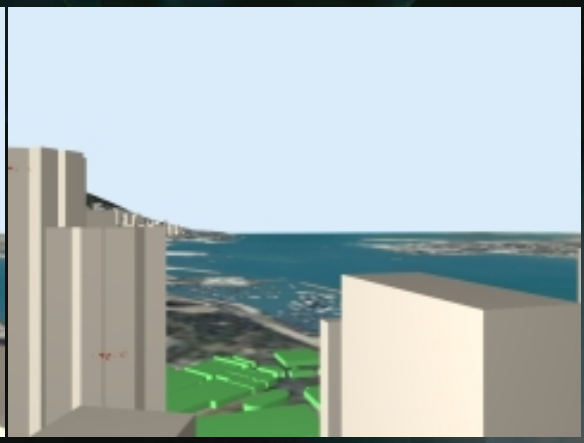

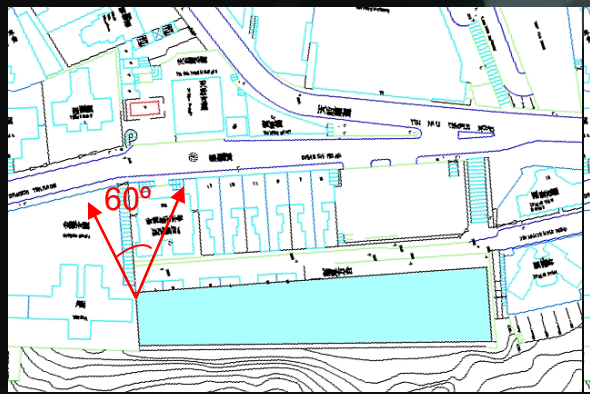

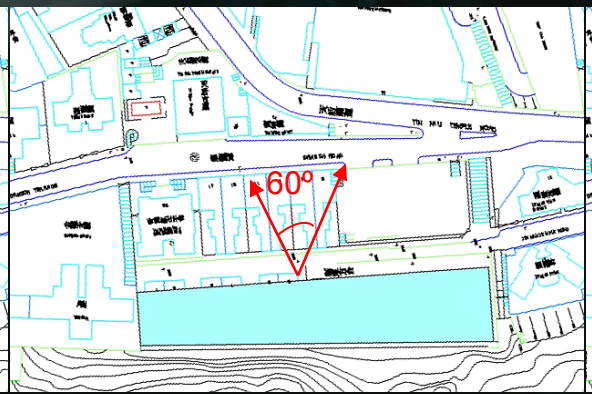

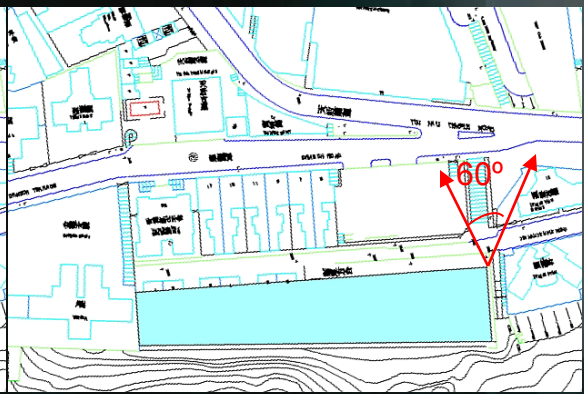

Views from: 130m

130m

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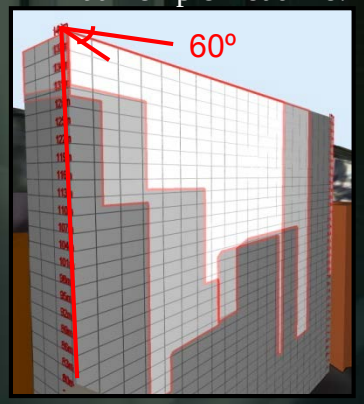

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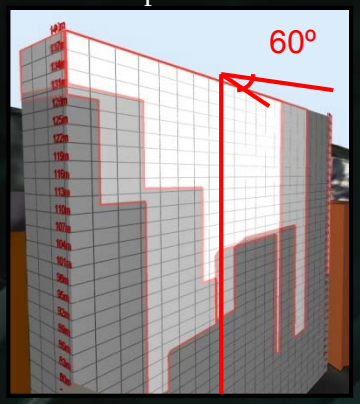

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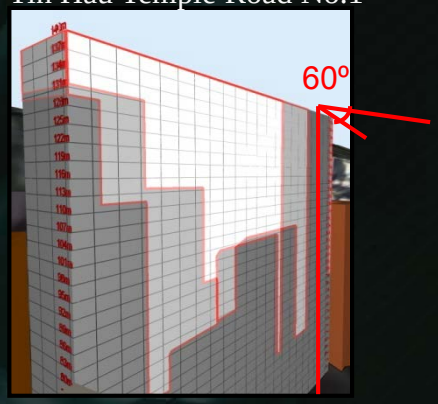

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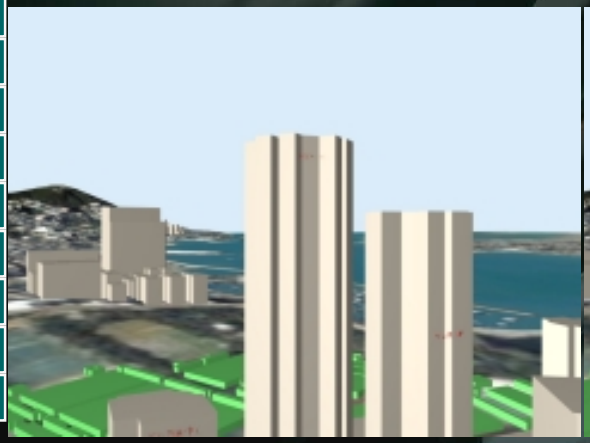
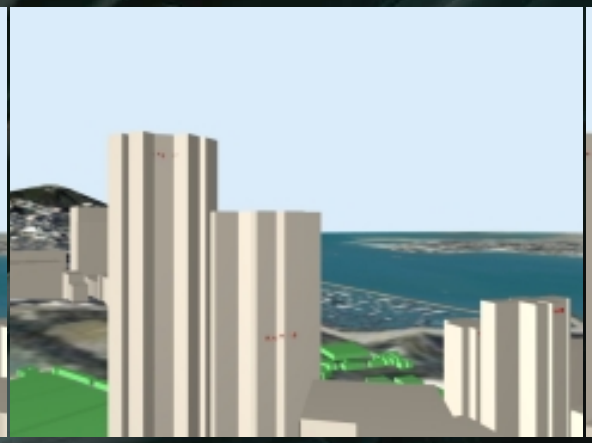
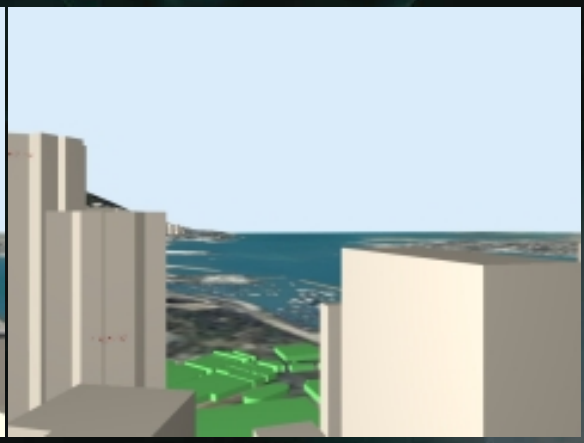
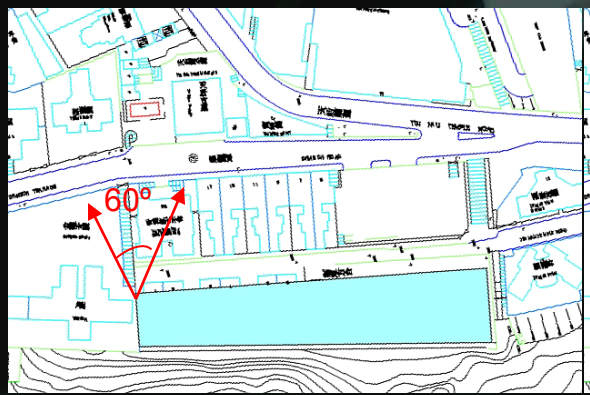
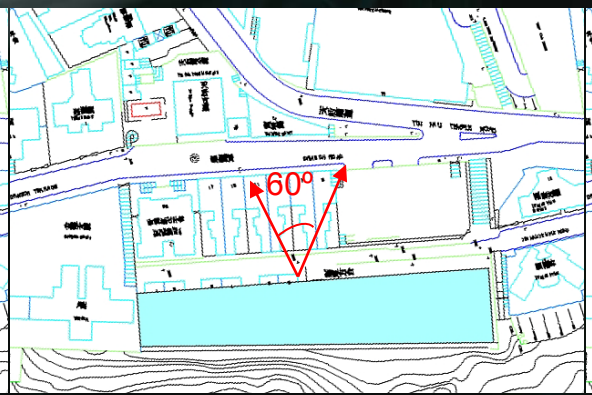
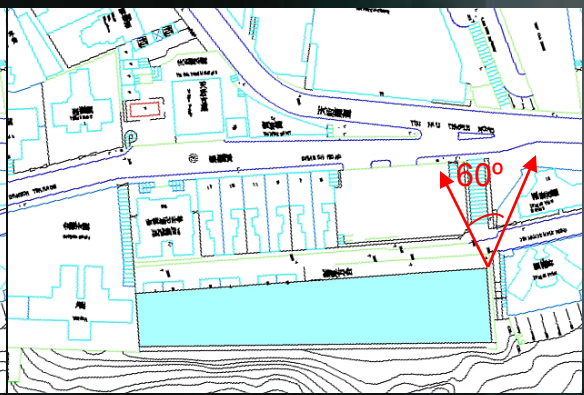








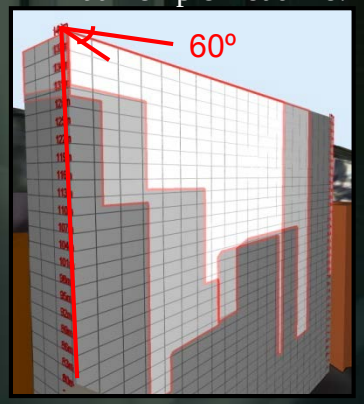




Views from: 125m

Tin Hau Temple Road No.1

125m



Tin Hau Temple Road No.1

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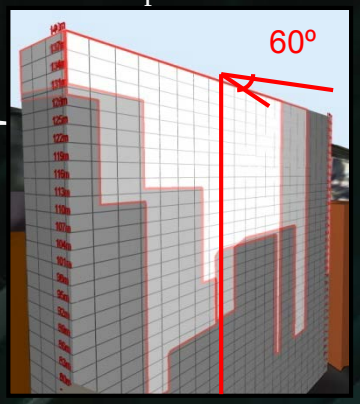

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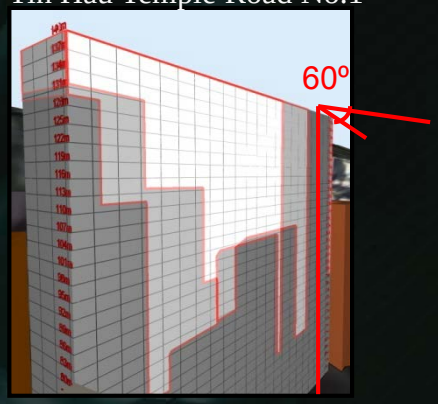

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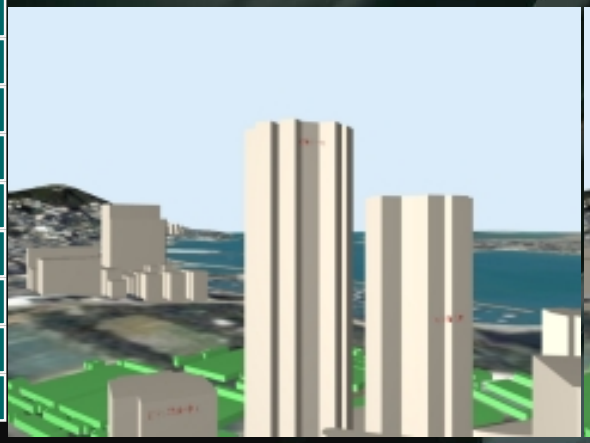
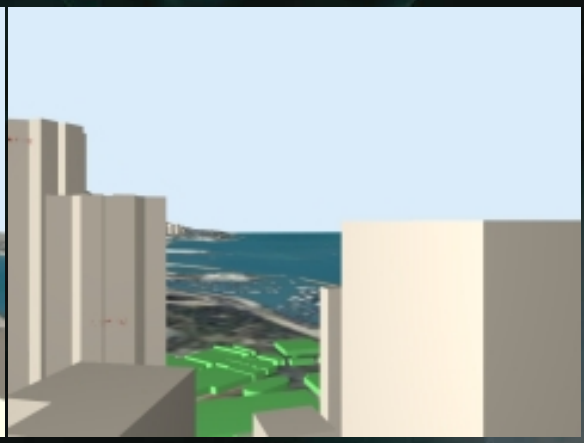
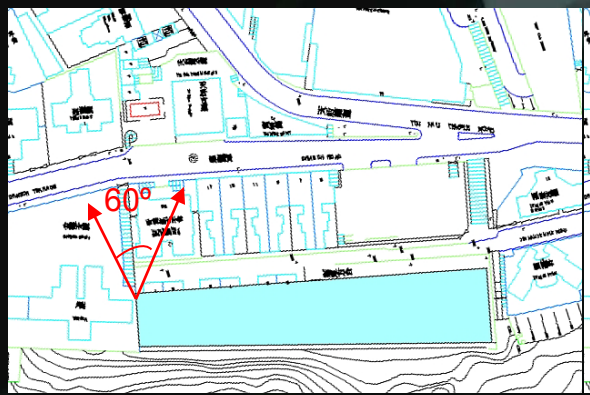
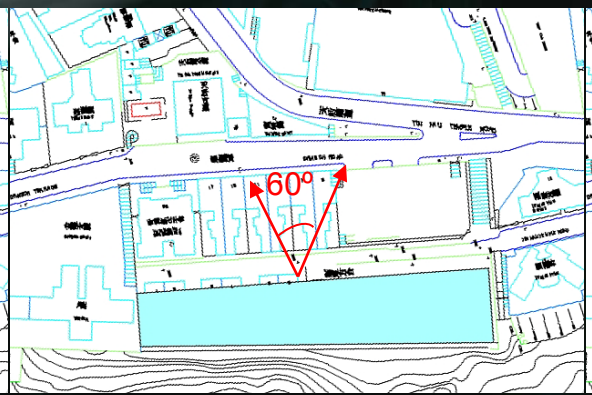
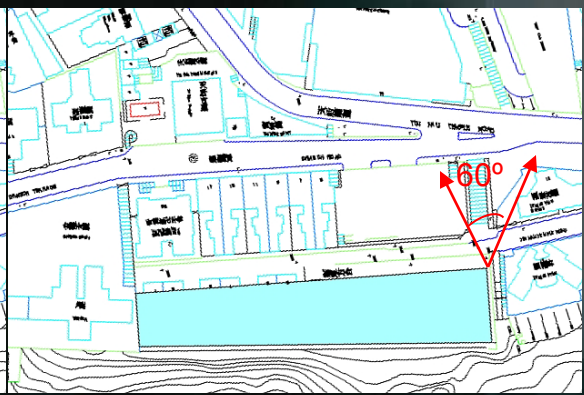






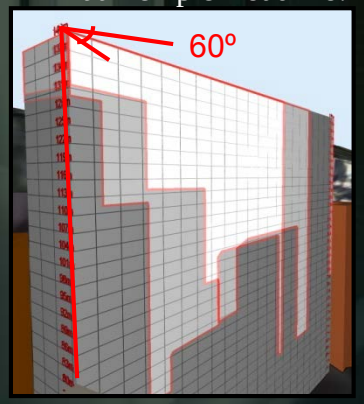




Views from: 120m

Tin Hau Temple Road No.1

120m



Tin Hau Temple Road No.1

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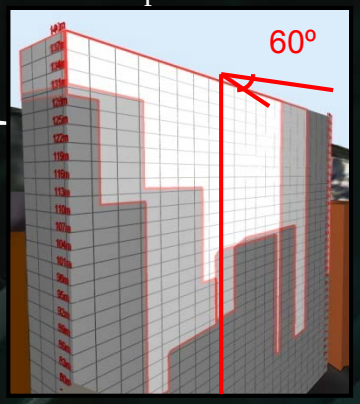
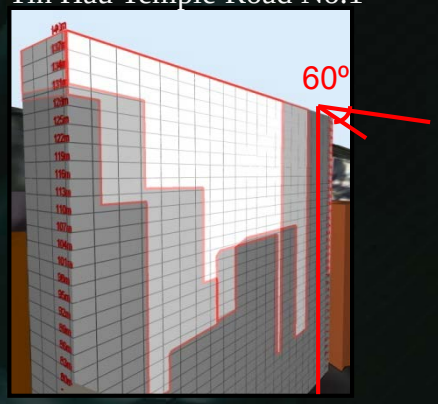


Tin Hau Temple Road No.1



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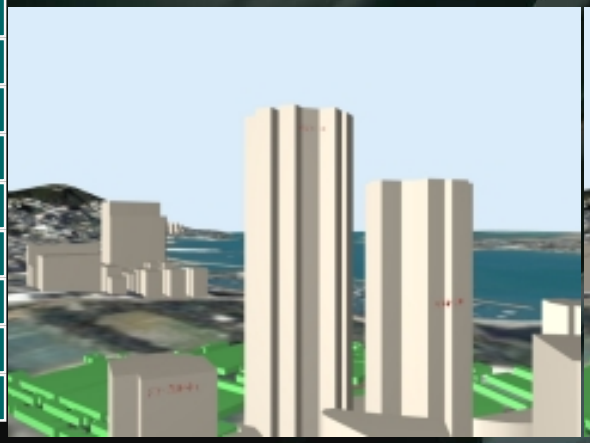
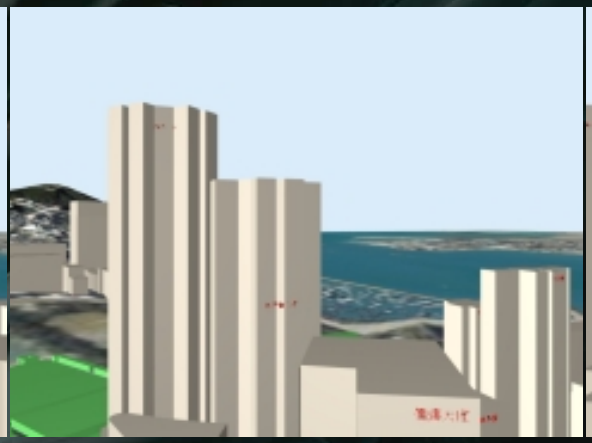
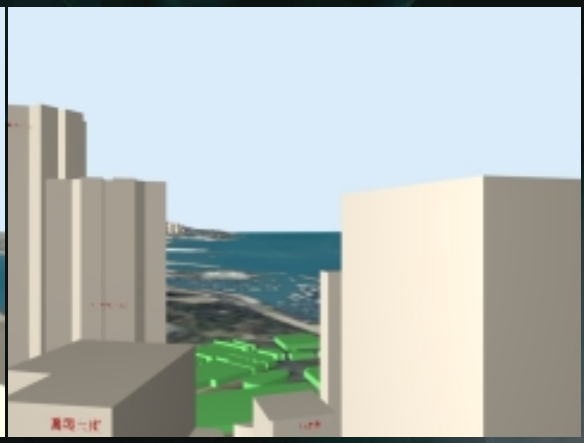
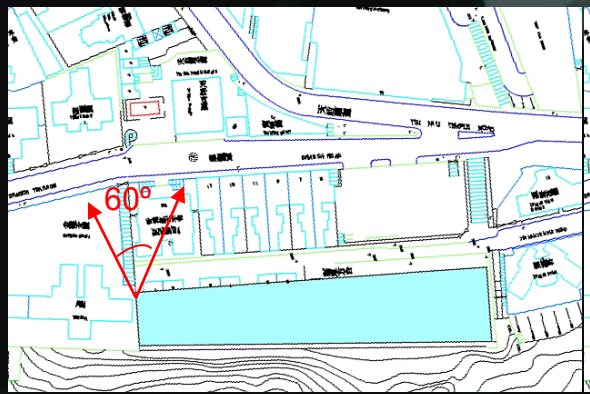
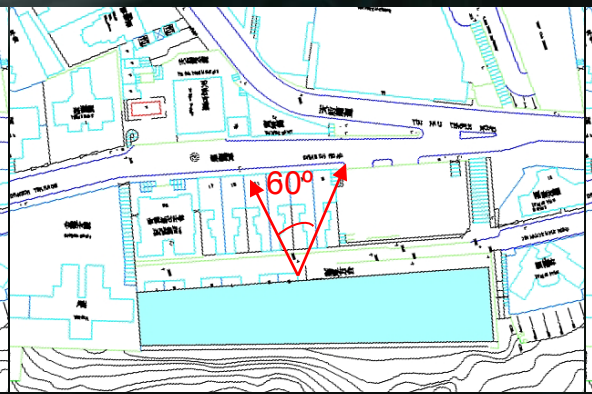
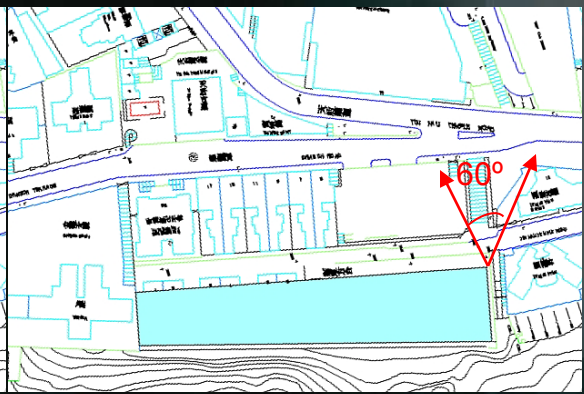








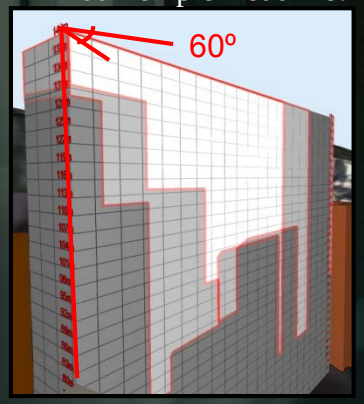




Views from: 115m

Tin Hau Temple Road No.1

115m



Tin Hau Temple Road No.1

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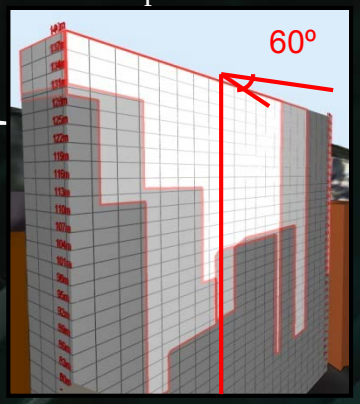

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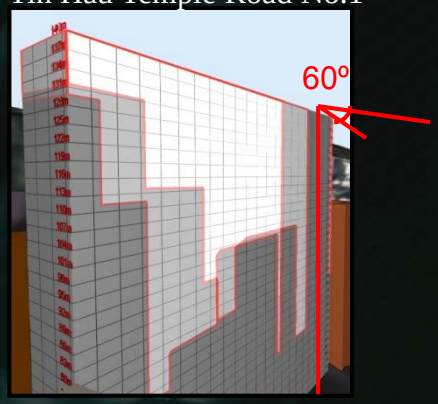

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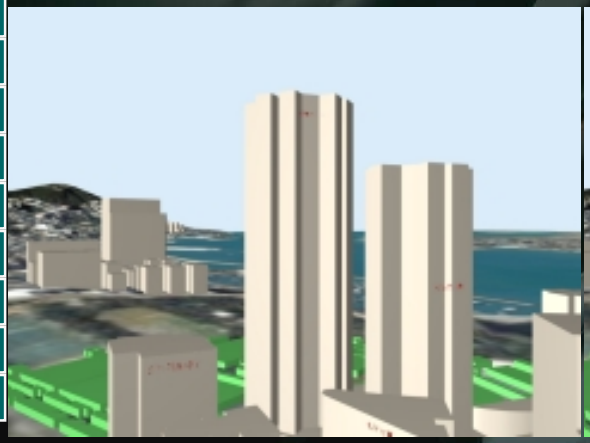
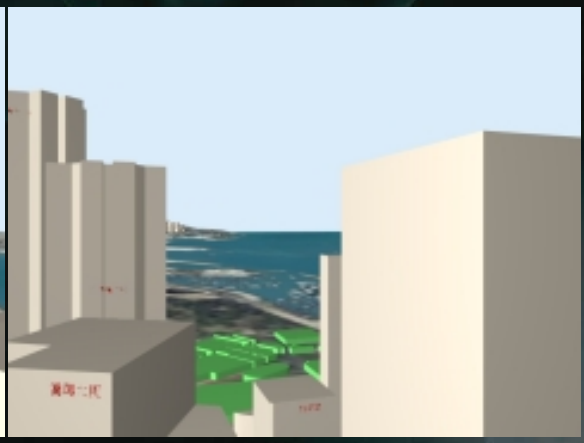
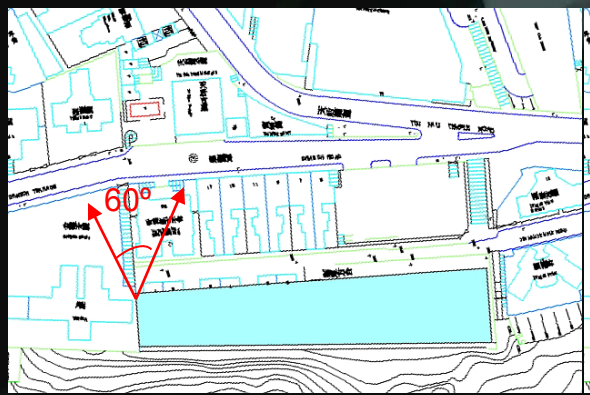
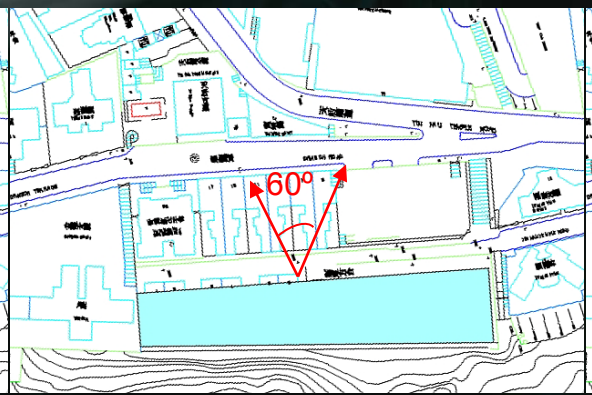
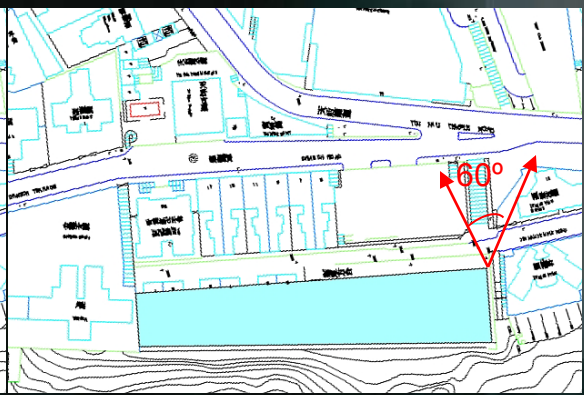






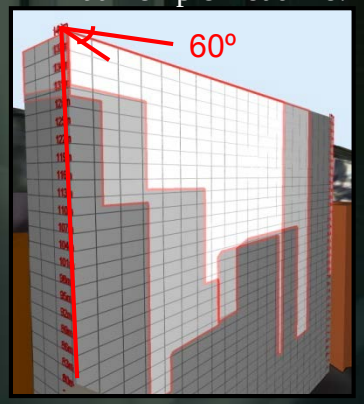




Views from: 110m

Tin Hau Temple Road No.1

110m



Tin Hau Temple Road No.1

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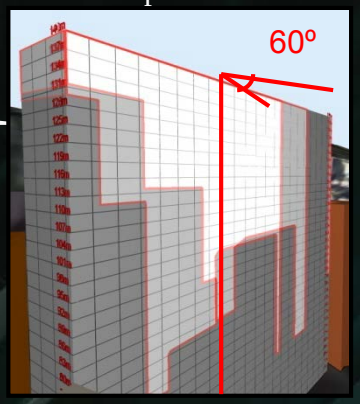
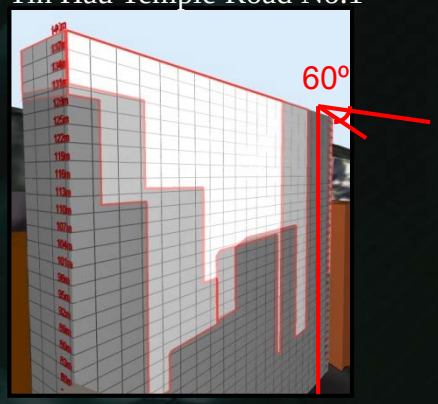


Tin Hau Temple Road No.1



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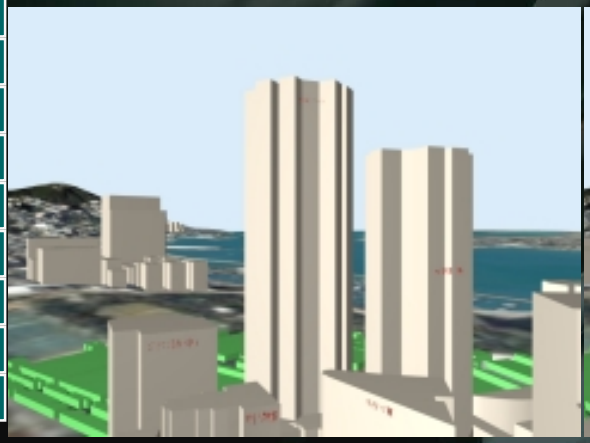
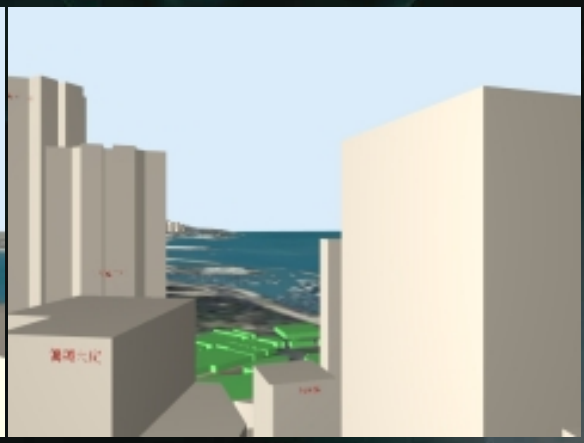
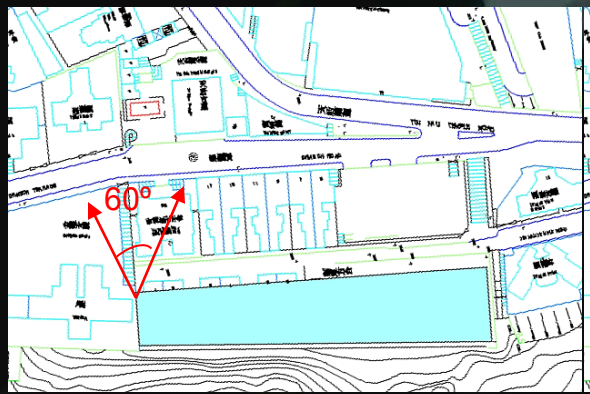
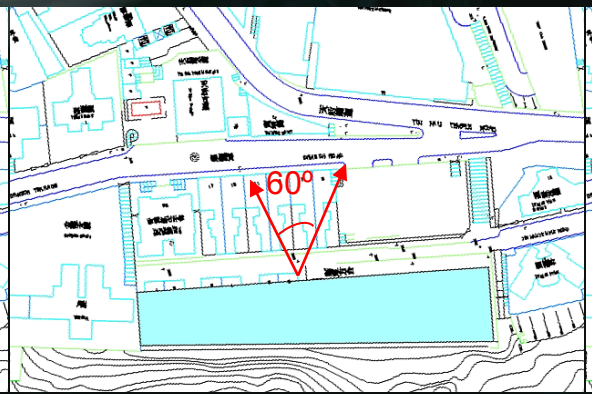
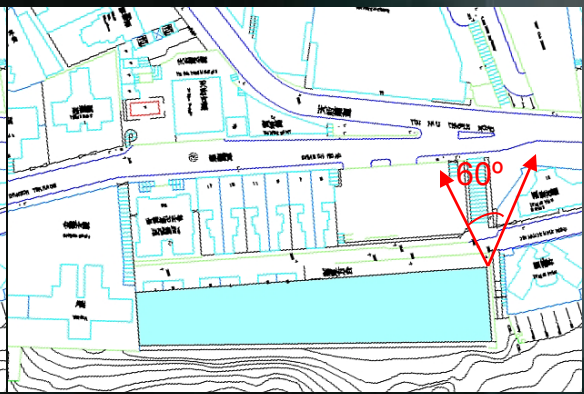






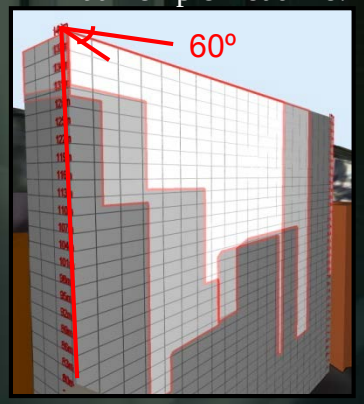




Views from: 105m

Tin Hau Temple Road No.1

105m



Tin Hau Temple Road No.1

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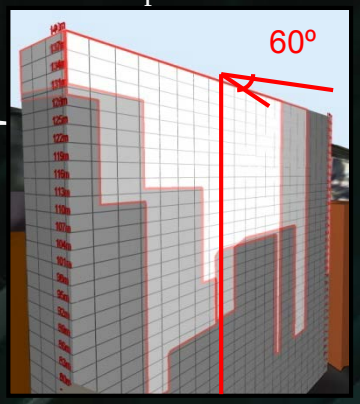
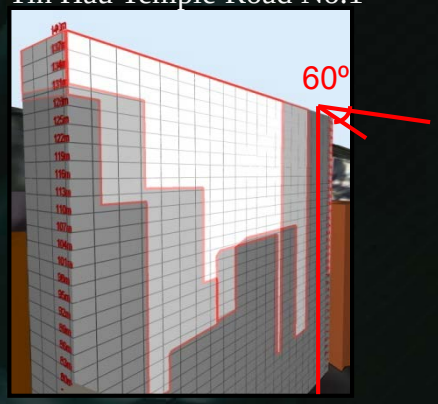


Tin Hau Temple Road No.1



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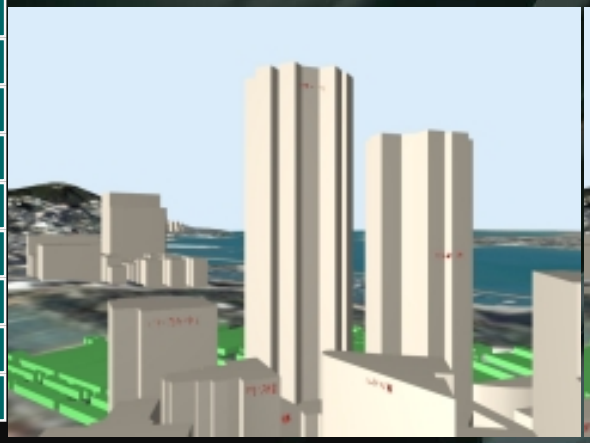
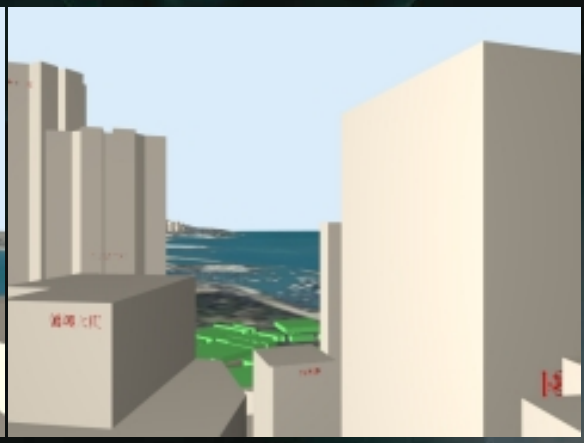
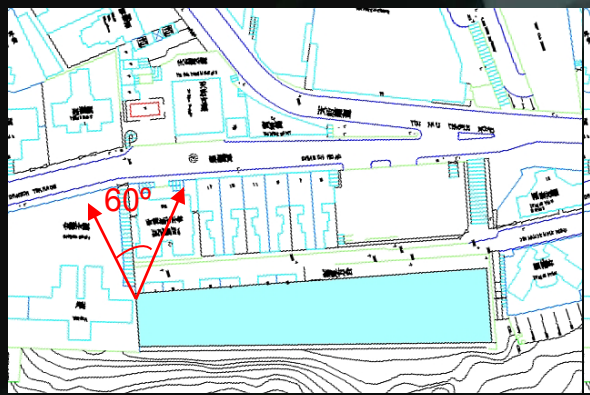
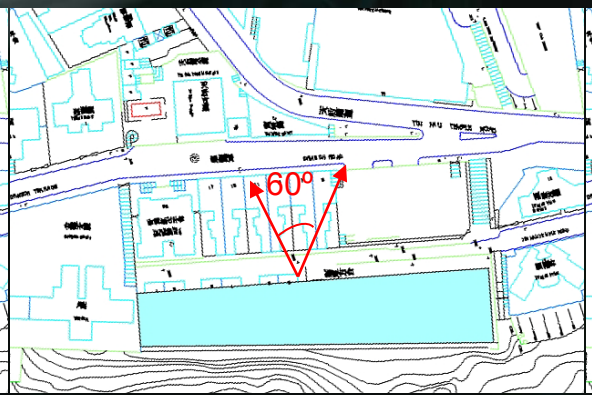
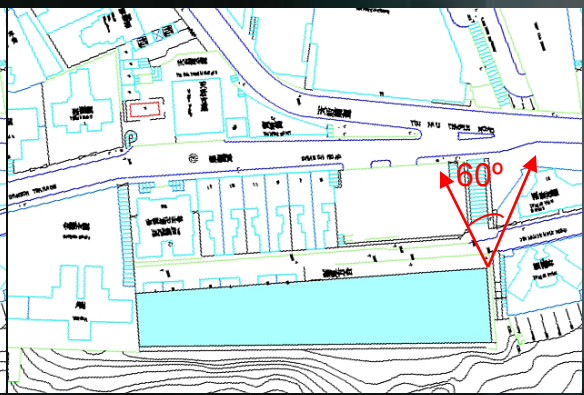






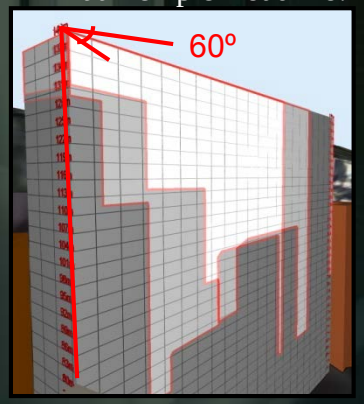




Views from: 100m

Tin Hau Temple Road No.1

100m



Tin Hau Temple Road No.1

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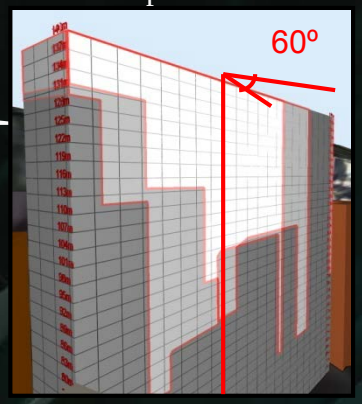
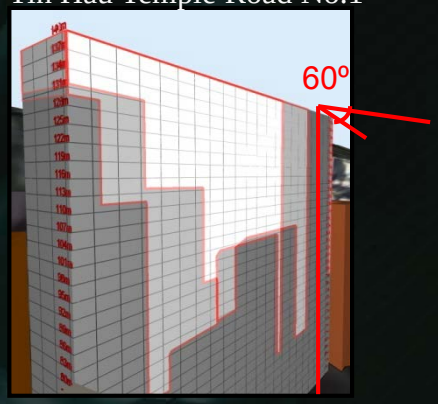


Tin Hau Temple Road No.1



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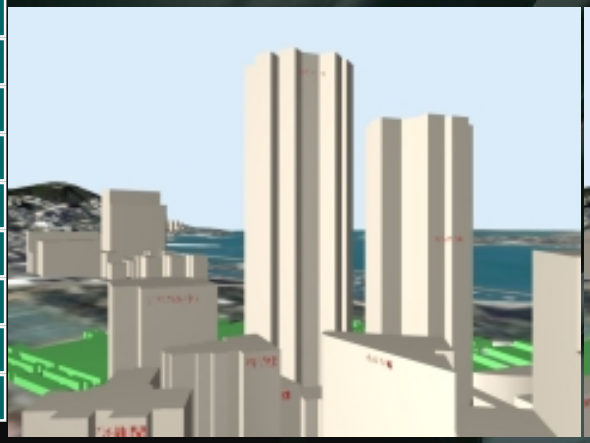
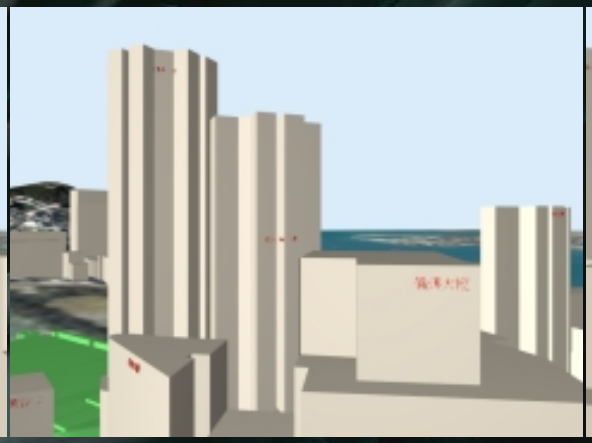
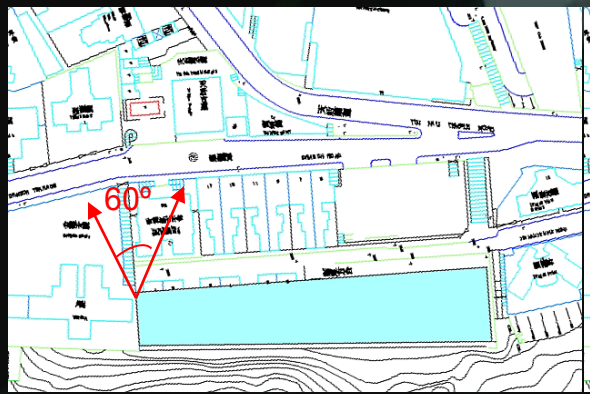
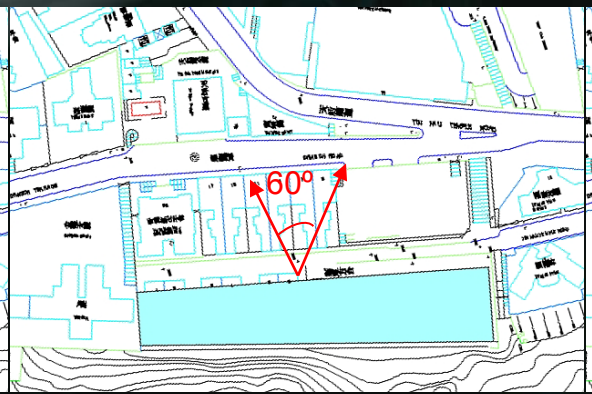
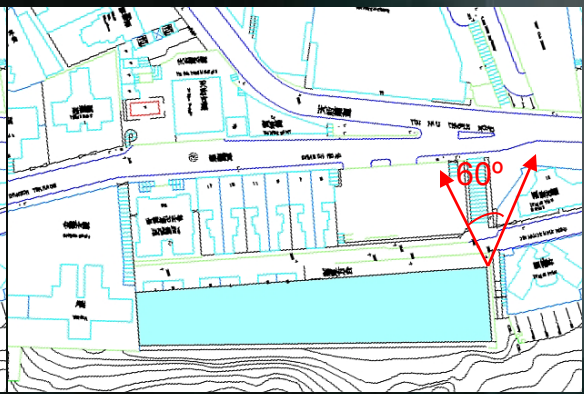










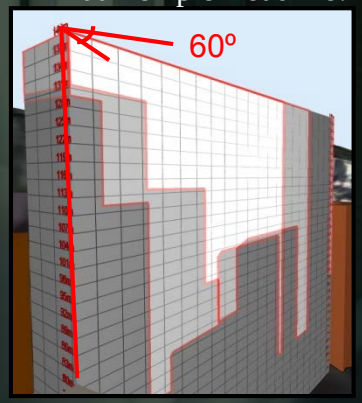
Views from: 95m

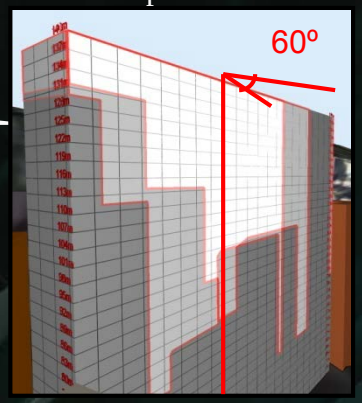
Tin Hau Temple Road No.1

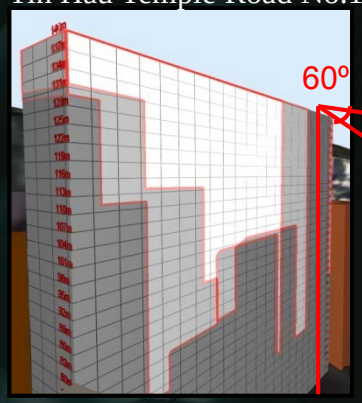
Tin Hau Temple Road No.1

Tin Hau Temple Road No.1

95m







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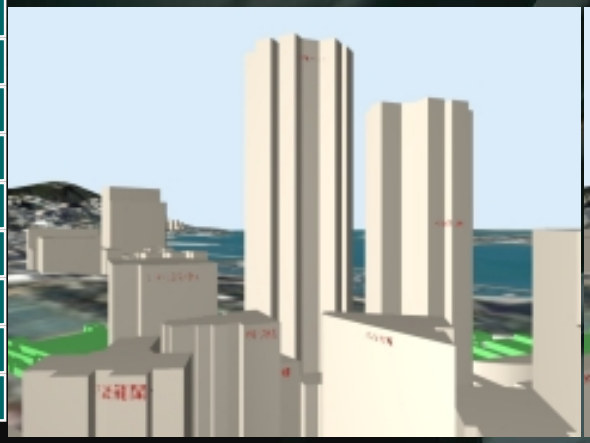
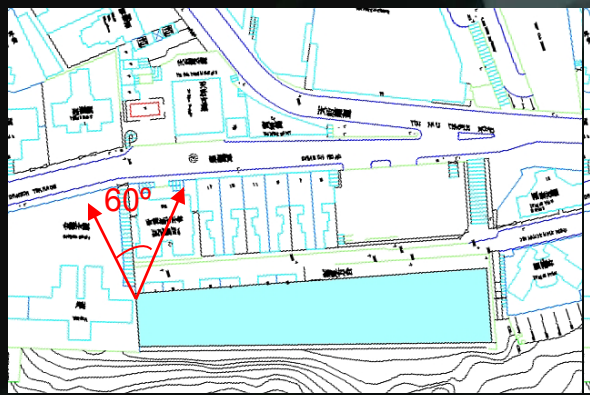
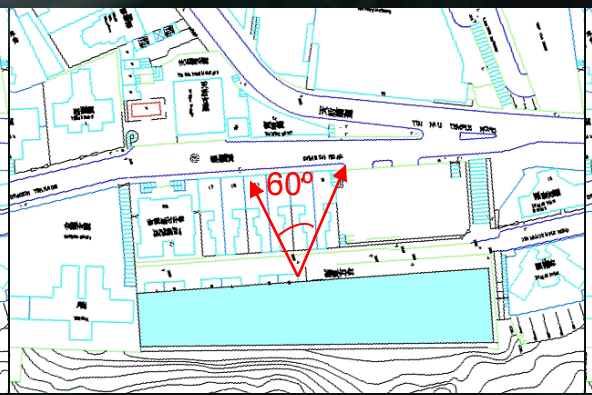
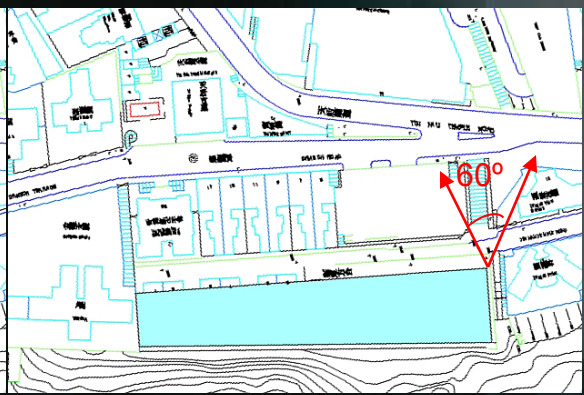




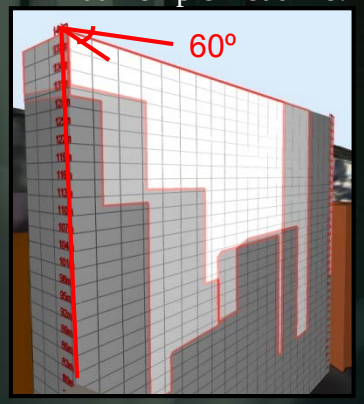




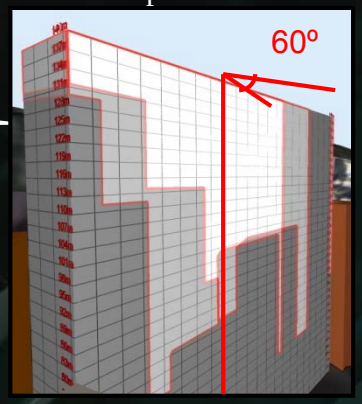
Views from: 90m

90m

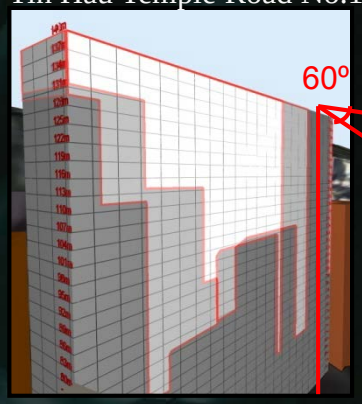
Tin Hau Temple Road No.1



Tin Hau Temple Road No.1



Tin Hau Temple Road No.1



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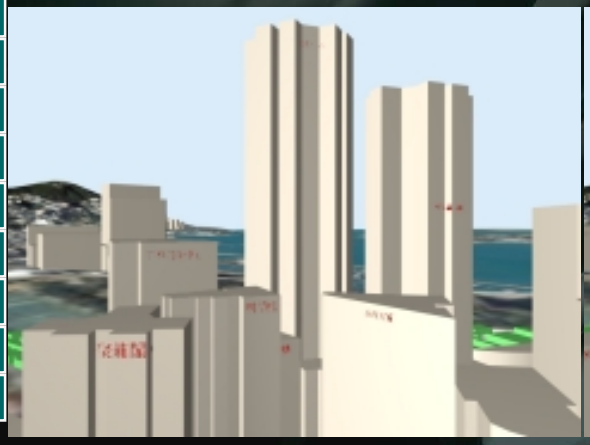
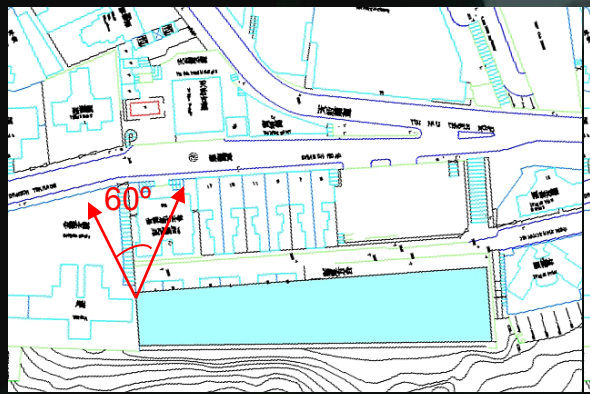
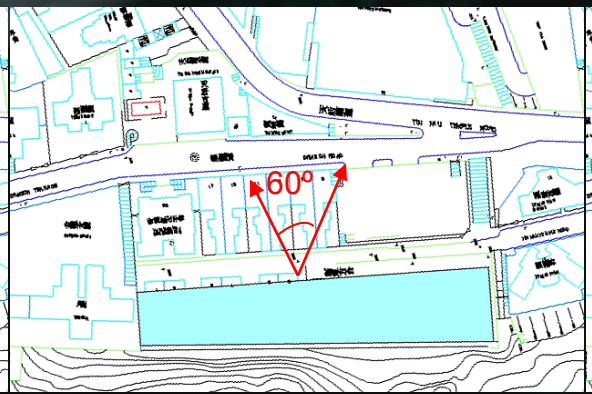
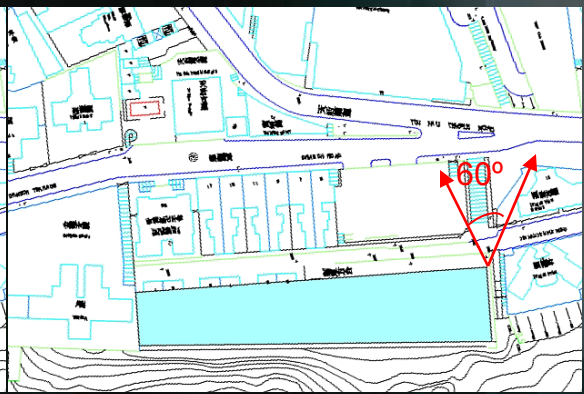








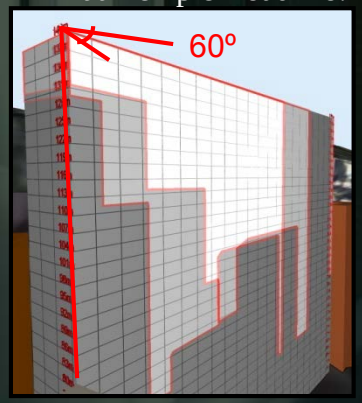
Views from: 85m

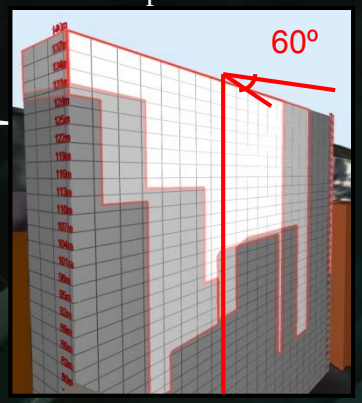
Tin Hau Temple Road No.1

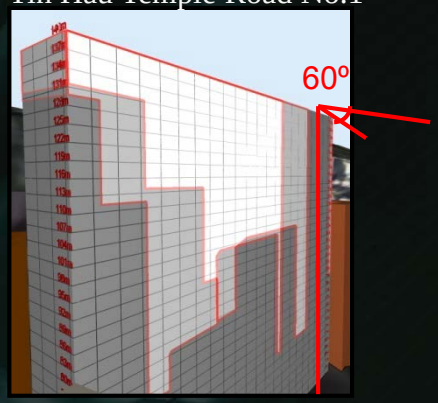
Tin Hau Temple Road No.1

Tin Hau Temple Road No.1

85m







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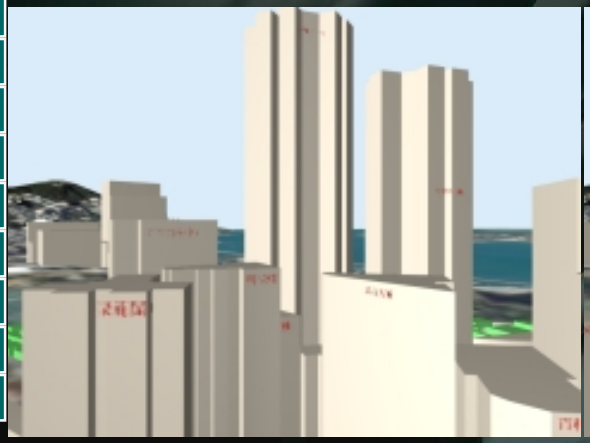
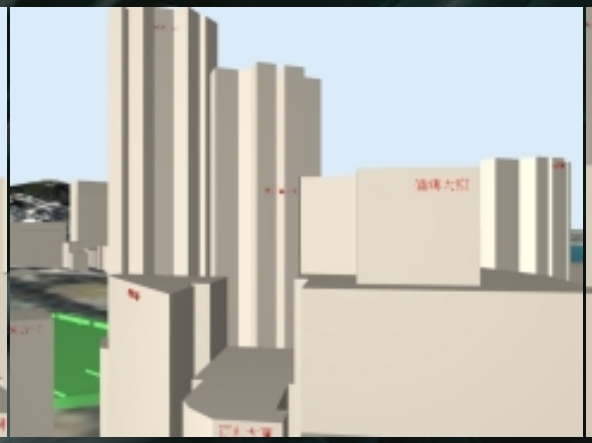
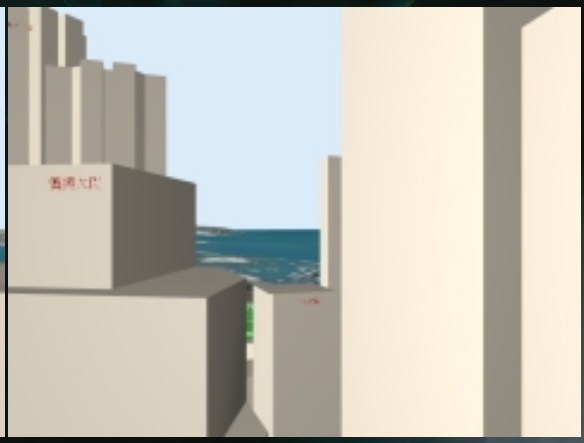
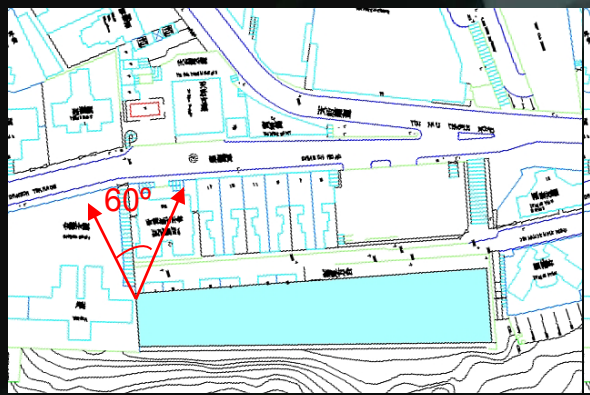
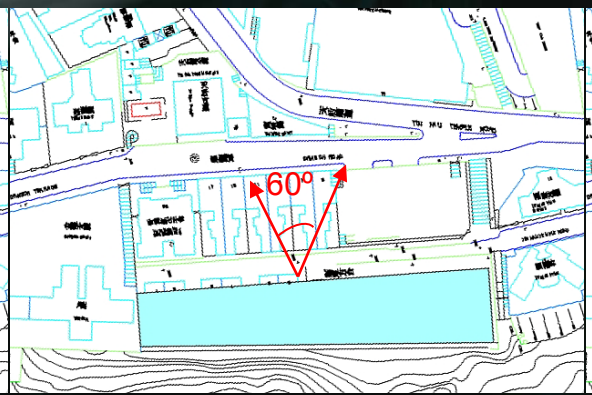
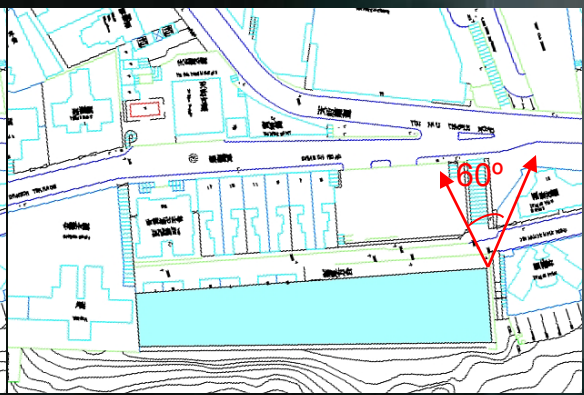












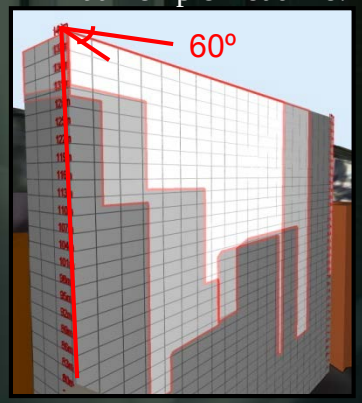
Views from: 80m

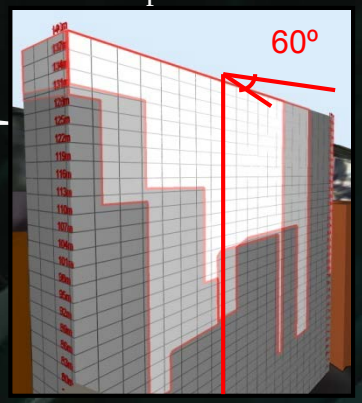
Tin Hau Temple Road No.1

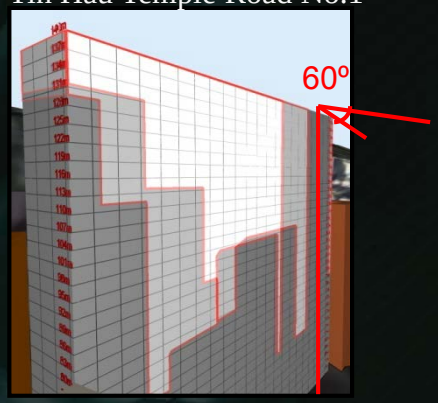
Tin Hau Temple Road No.1

Tin Hau Temple Road No.1

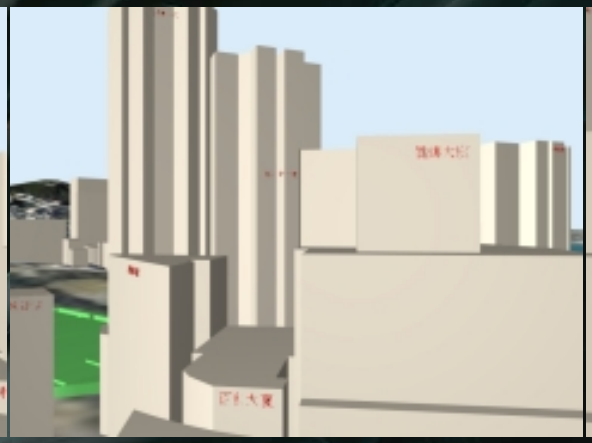
80m

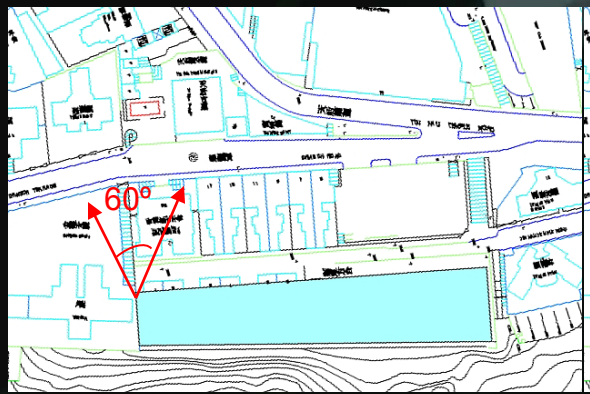


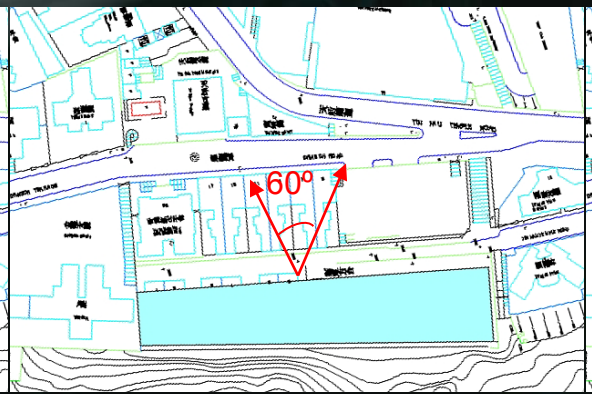


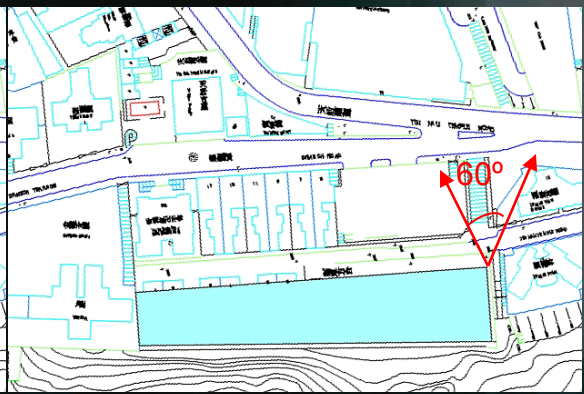


140m
135m
130m
125m
120m
115m
110m
105m
100m
95m
90m
85m
80m



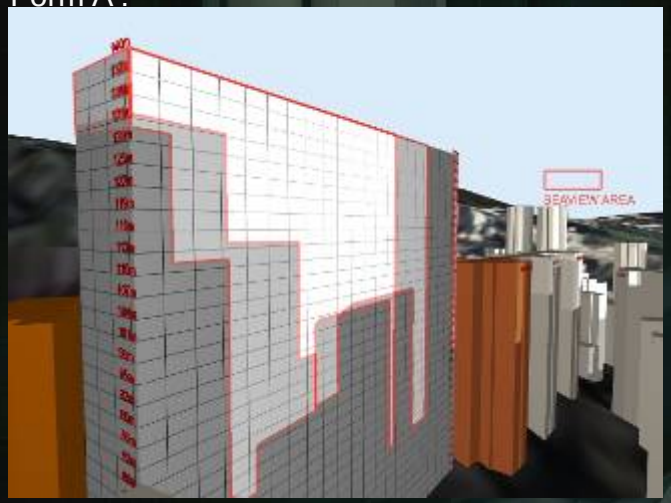




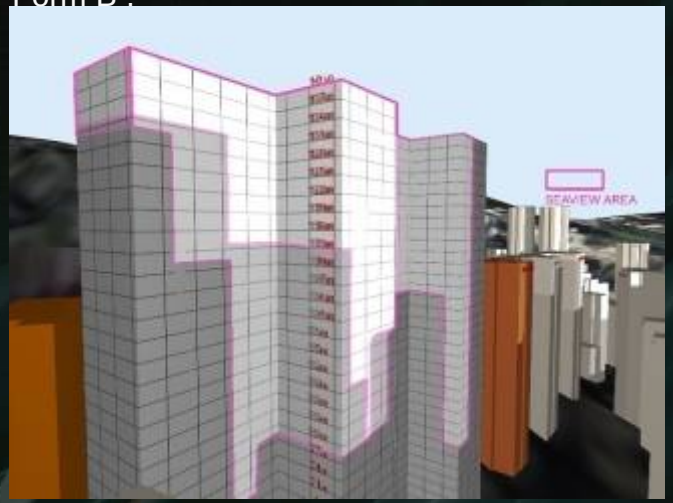


Sea View Area of Star Ferry Pier & Tsim Sha Tsui East

Form A :

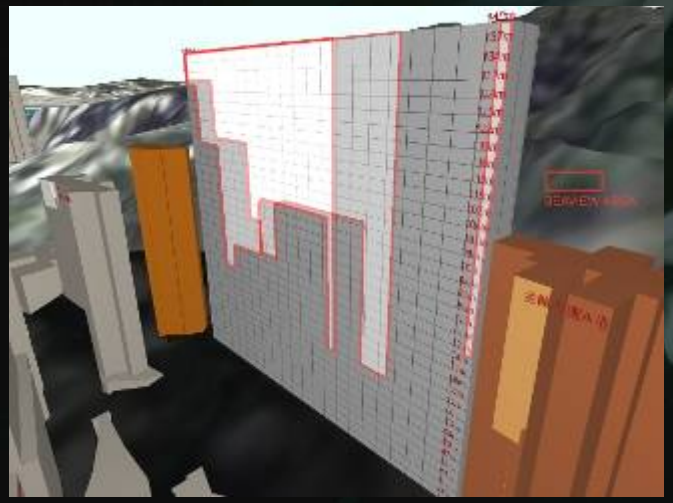


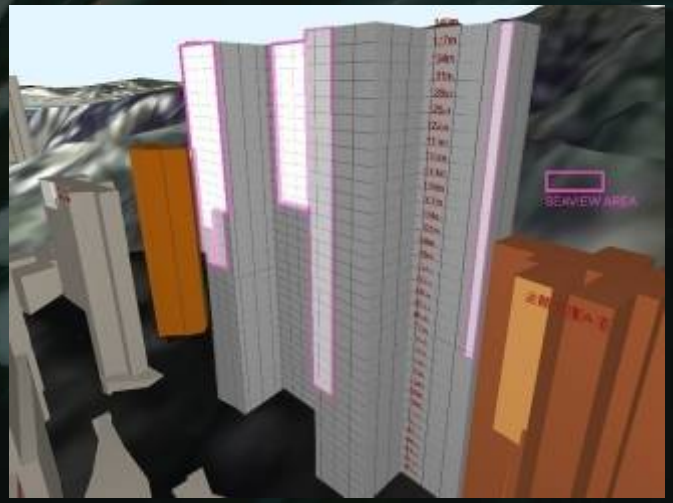
Form B :

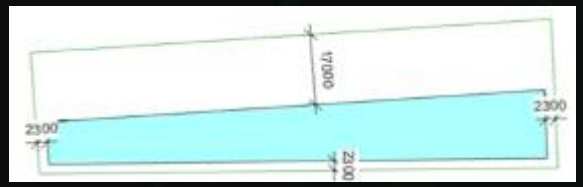


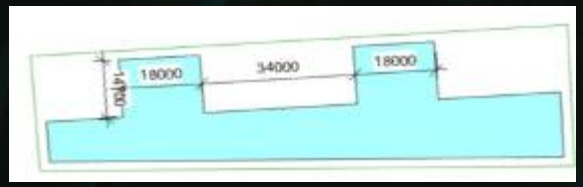
Form A Sea View Area

Form B Sea View Area

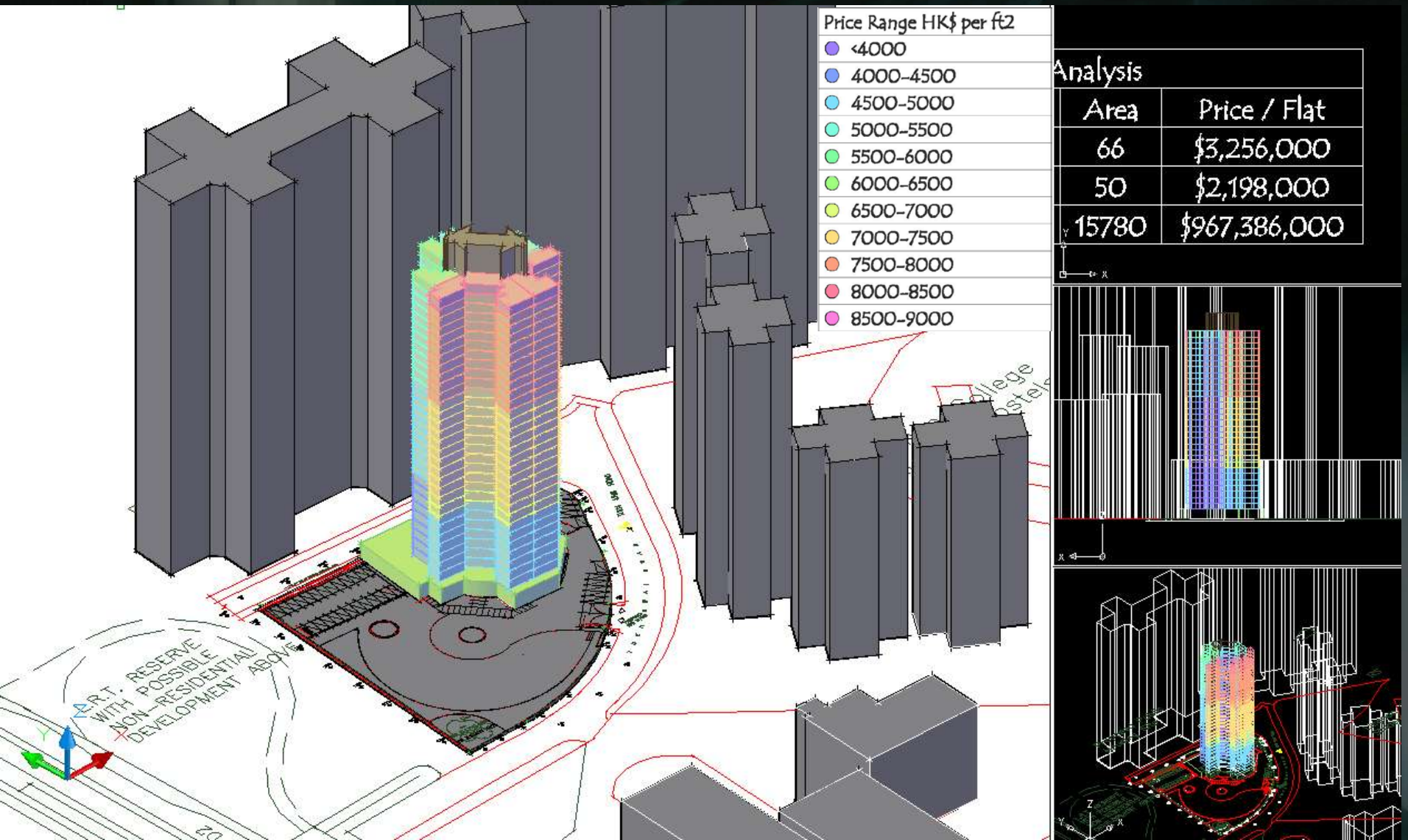


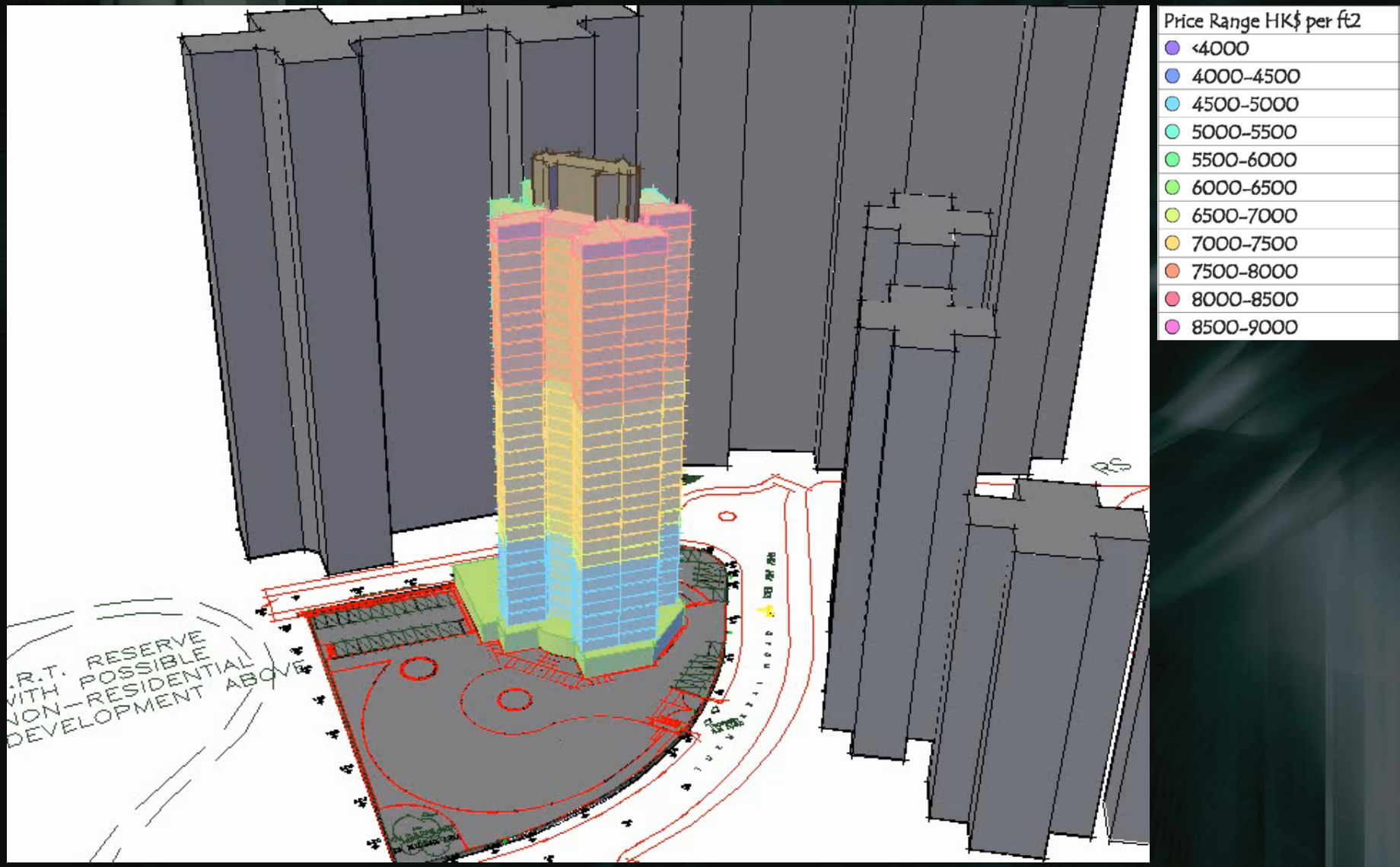




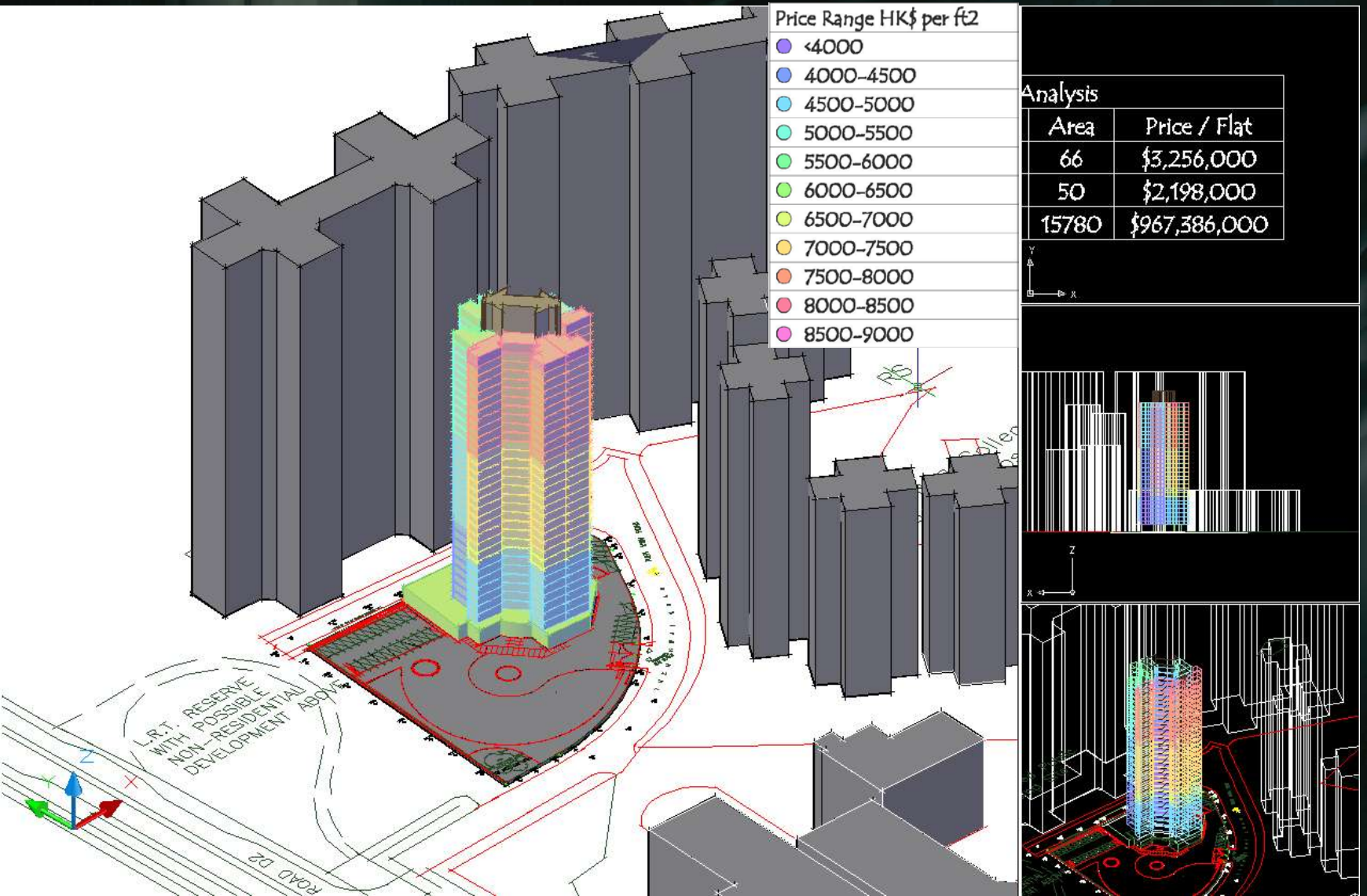


可研通設計平台
網上整合佈置,收益,景觀,成本,等等數據

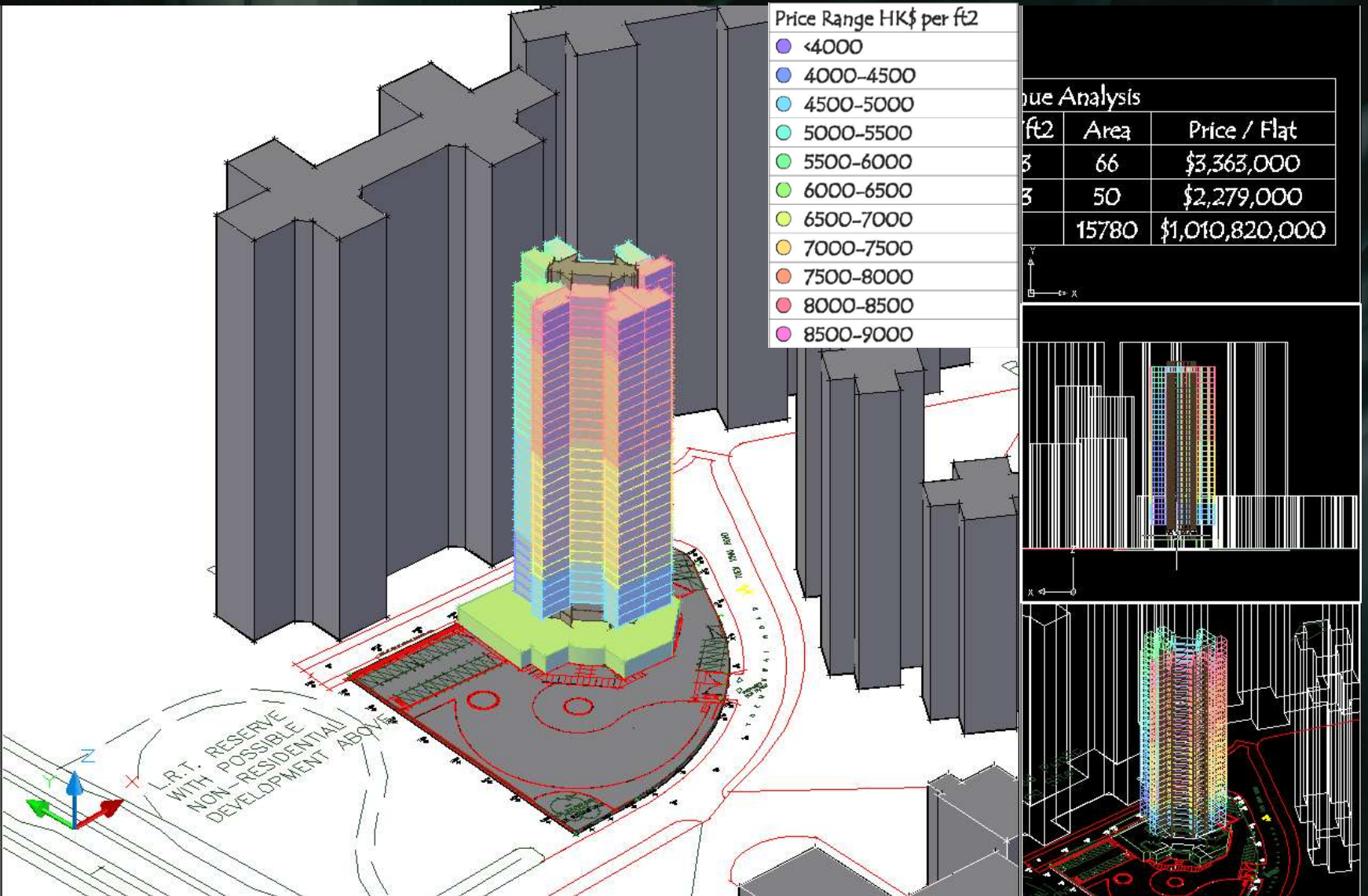



Price Range HK$ per ft2
<4000
4000-4500
4500-5000
5000-5500
5500-6000
6000-6500
6500-7000
7000-7500
7500-8000
8000-8500
8500-9000
.R.T. RESERVE
WITH POSSIBLE
NON--RESIDENTIAL
DEVELOPMENT ABOVE

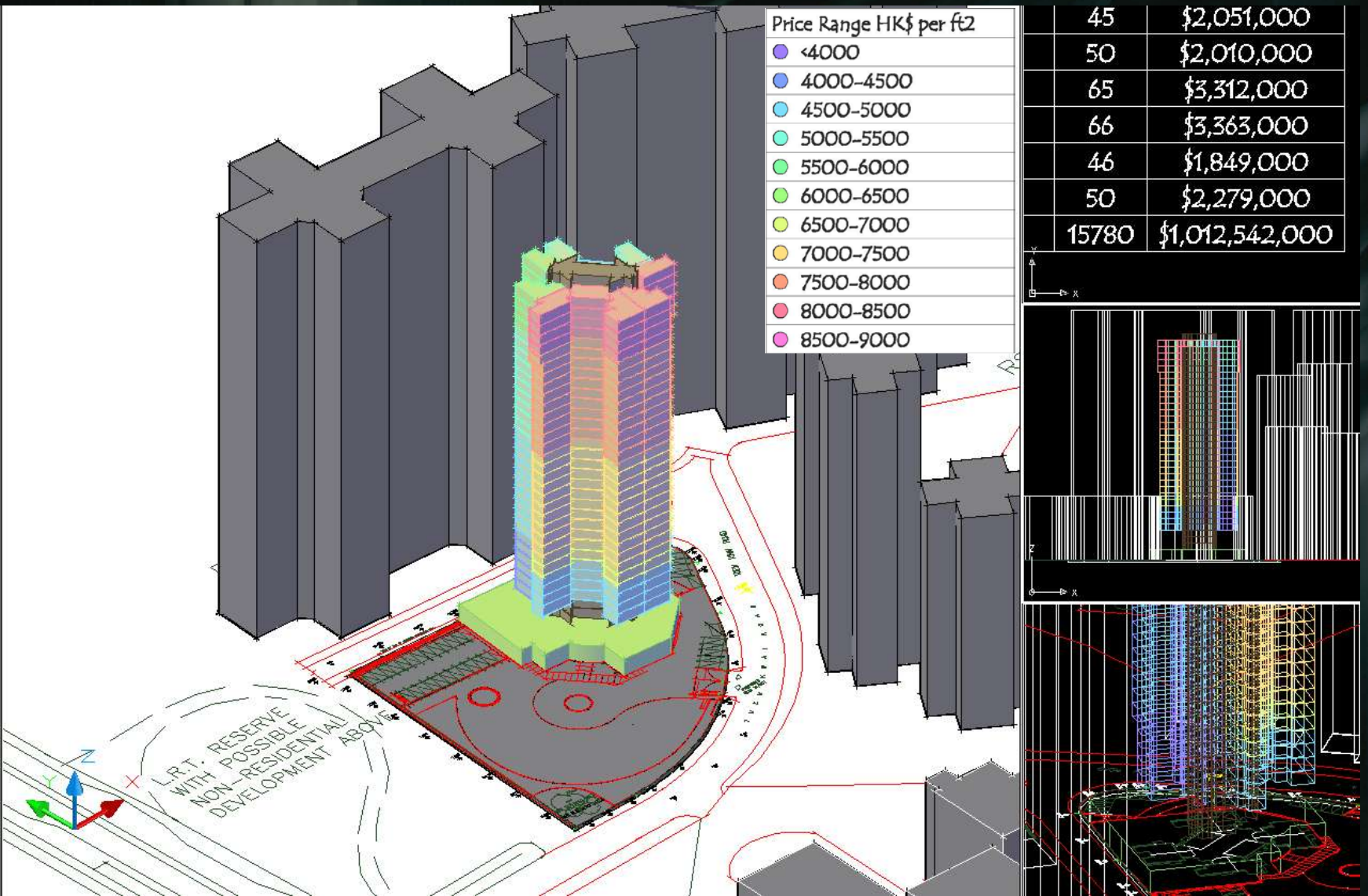
可研通設計平台
網上整合佈置,收益,景觀,成本,等等數據

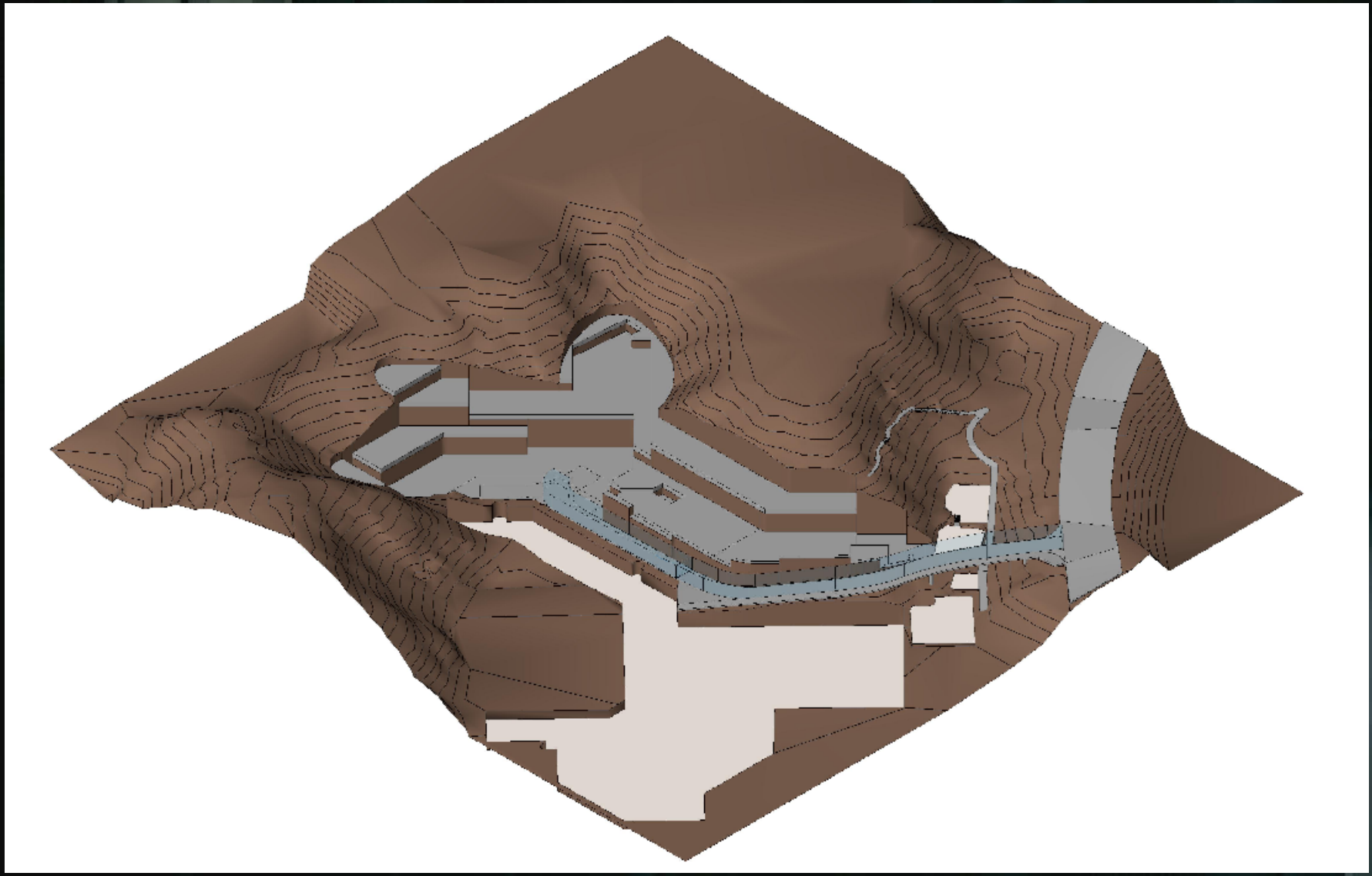


可研通設計平台
網上整合佈置,收益,景觀,成本,等等數據

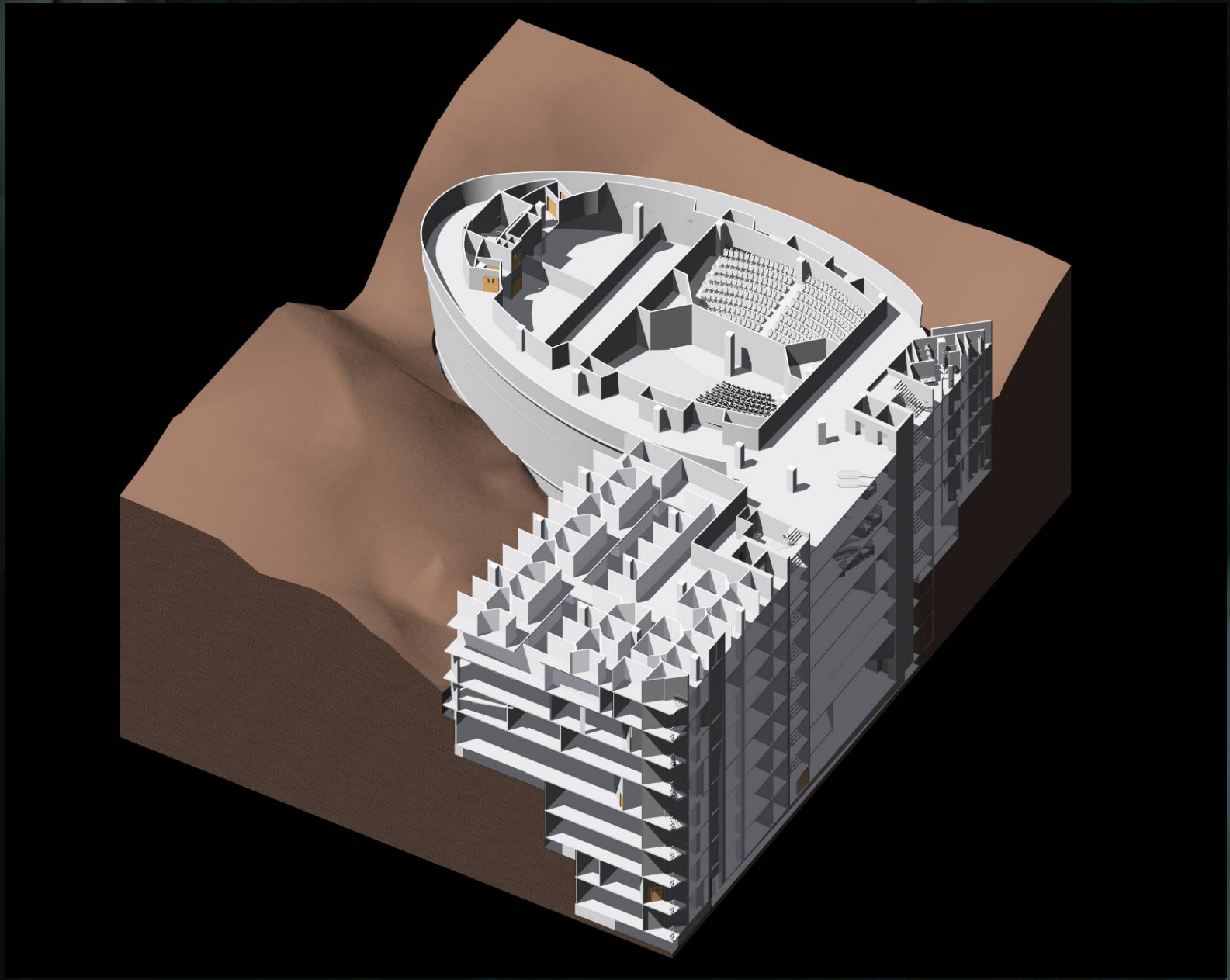


可研通設計平台
網上整合佈置,收益,景觀,成本,等等數據





TOPOGRAPHY HANDLING



BUILDING IN SITE CONTEXT

VISUALIZATION & DRAWING PRODUCTION

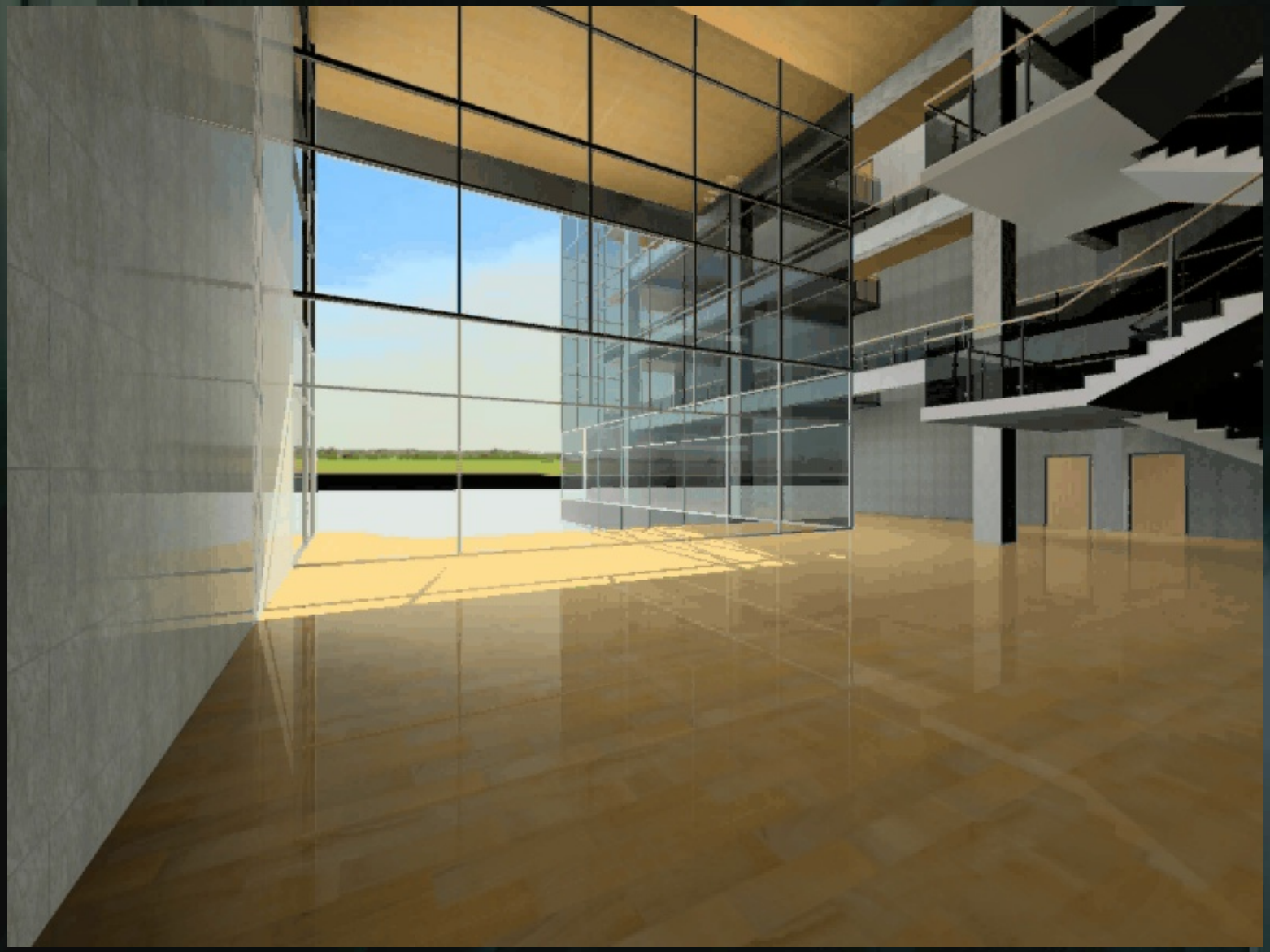
VISUALIZATION & PRODUCTION

PERSPECTIVE

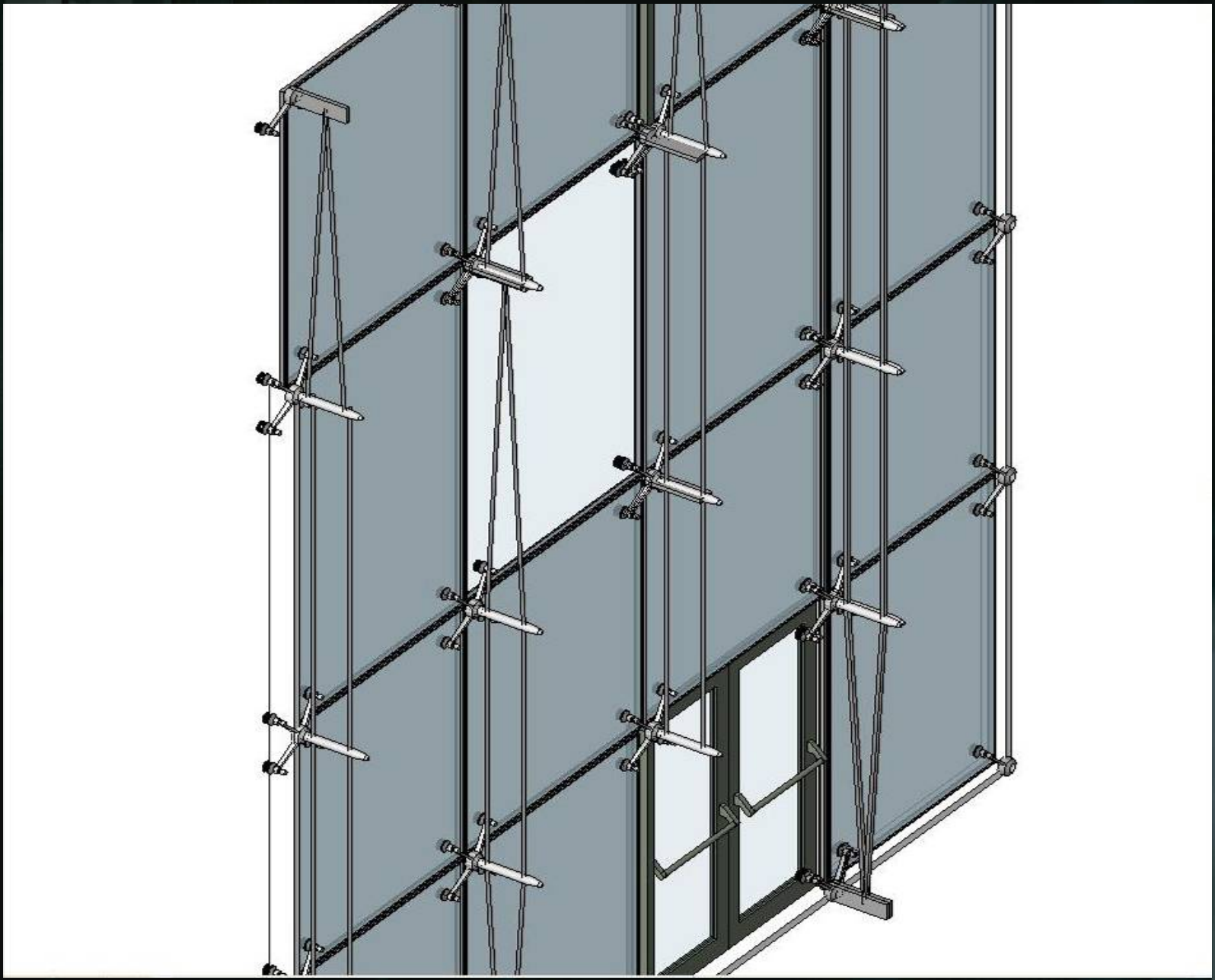
VISUALIZATION & PRODUCTION

VISUALIZATION & PRODUCTION

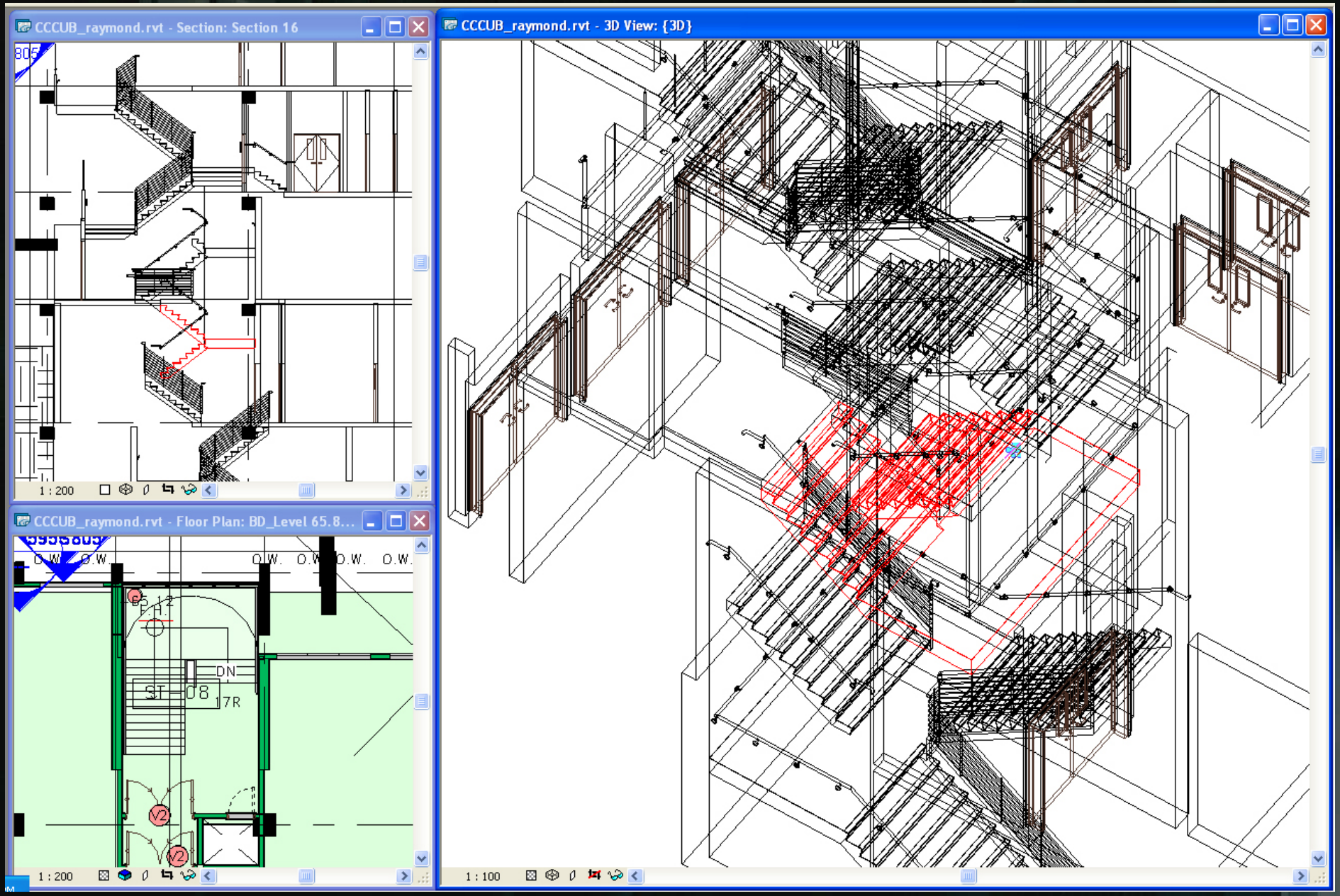
VISUALIZATION & PRODUCTION



VISUALIZATION

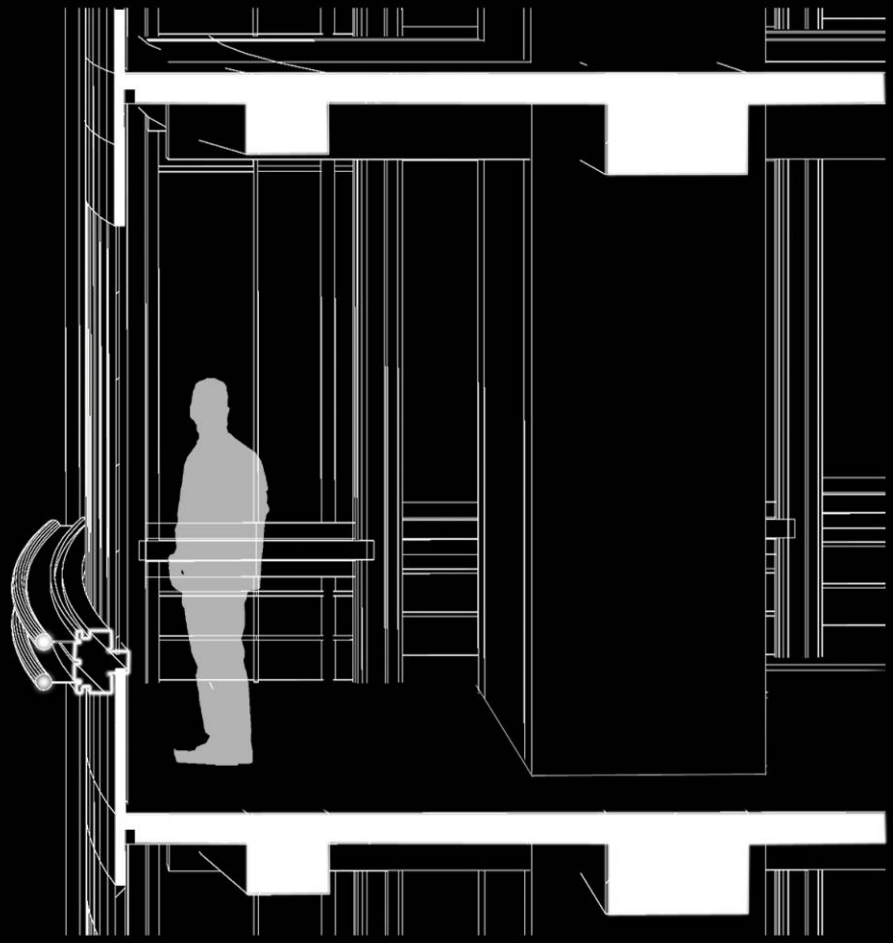


FAÇADE PANEL DESIGN



VERTICAL CO-ORDINATION

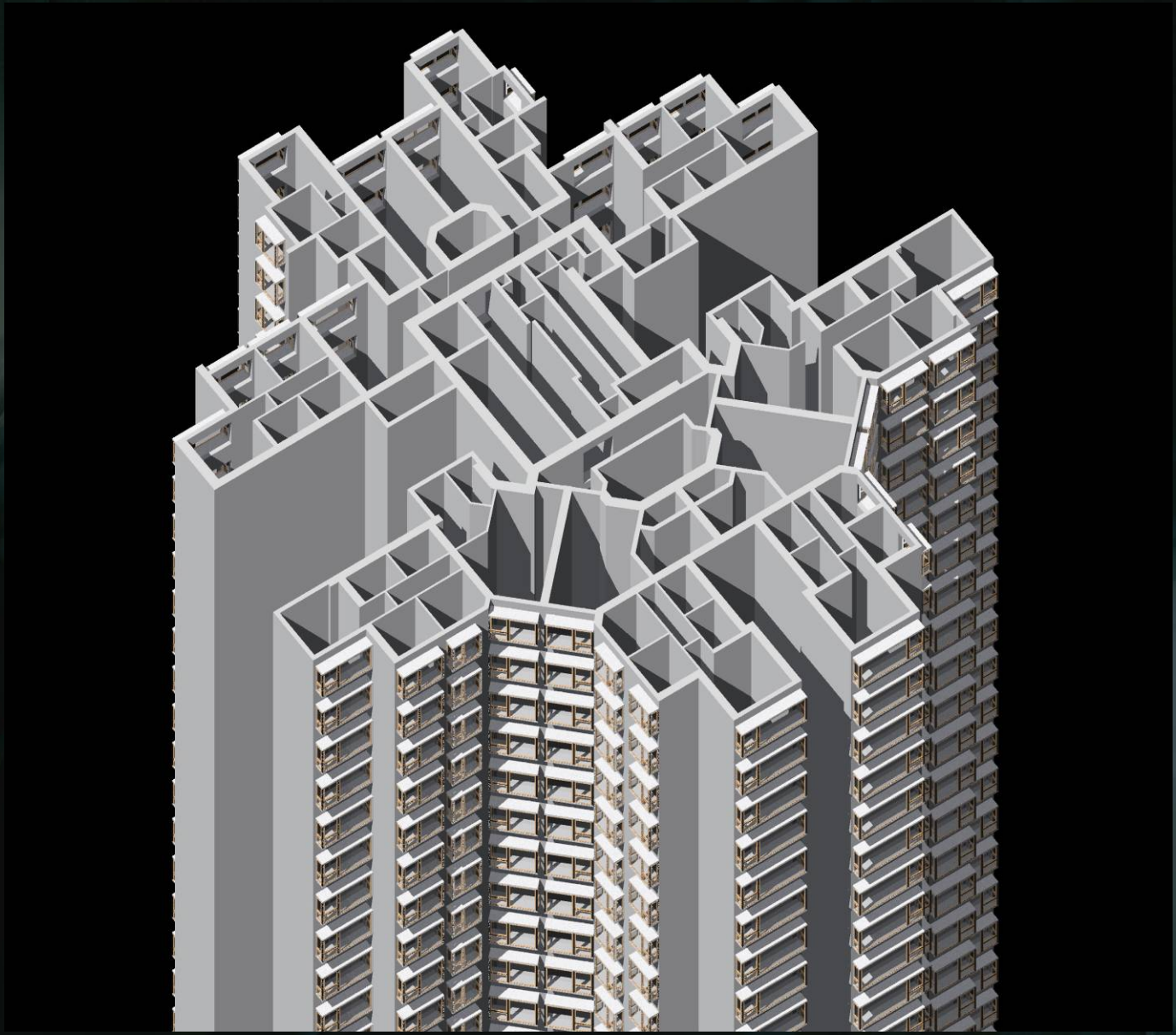
FAÇADE DESIGN and CO-ORDINATION



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

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

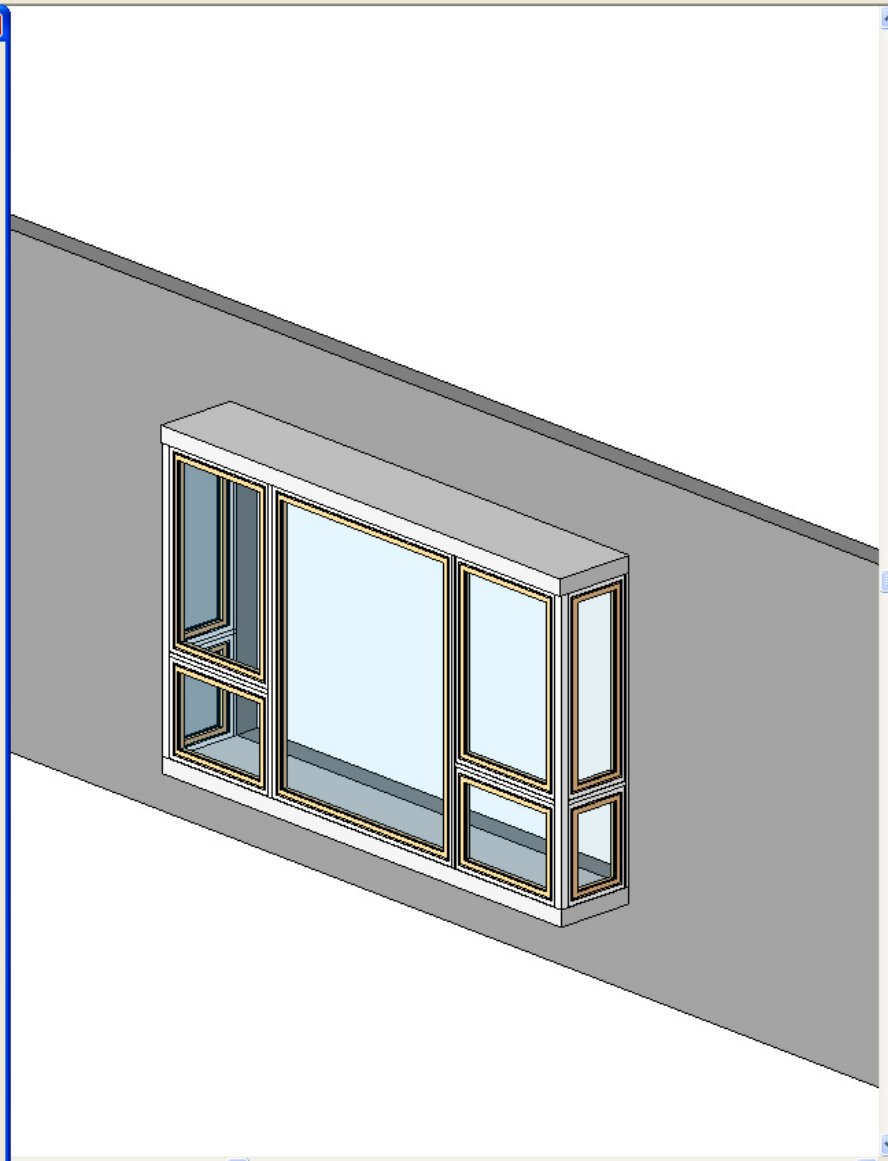
Name: AED-Bay Window

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

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

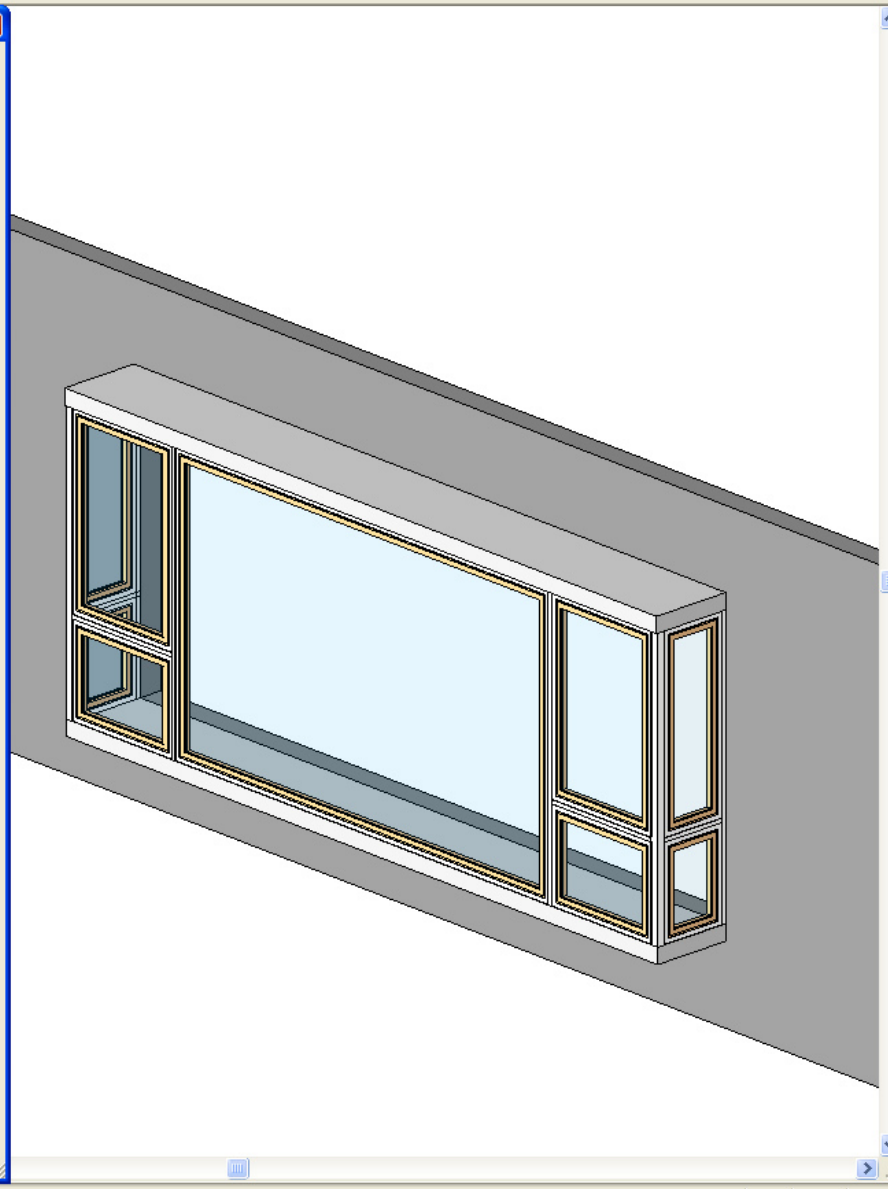
Name: AED-Bay Window

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	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
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

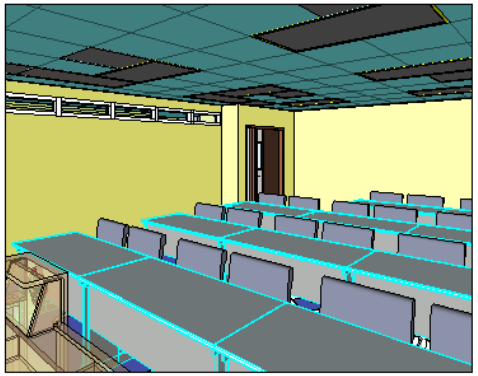


Ready

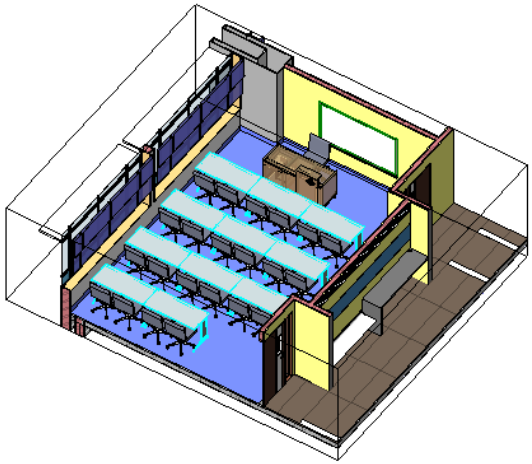
start | Control Panel | Microsoft PowerPoint ... | 20070107 Shunde Re... | Autodesk Revit Buildi... | Adobe Photoshop | EN | 55% | 9:36 AM

Use of Building Information Modeling (BIM)

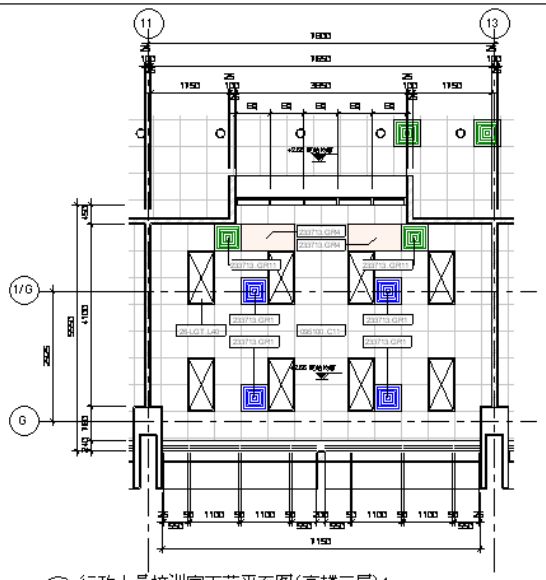
1. Design visualization
2. **Drawing Productions** 図面製作
3. Services Co-ordination and Clash detection with other disciplines
4. Quantity taking and preparation of Tender Document
5. Automated Statutory Submission
6. Scientific analysis of different environmental aspects
7. Supply Chain Integration with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



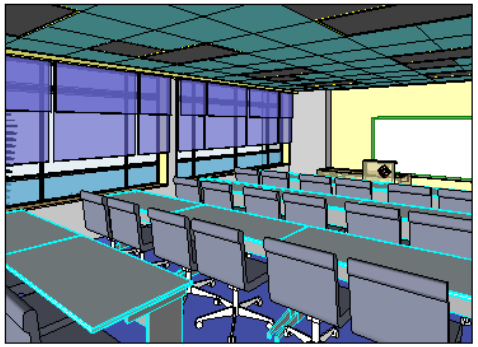
6 行政人员培訓室立体示意图2



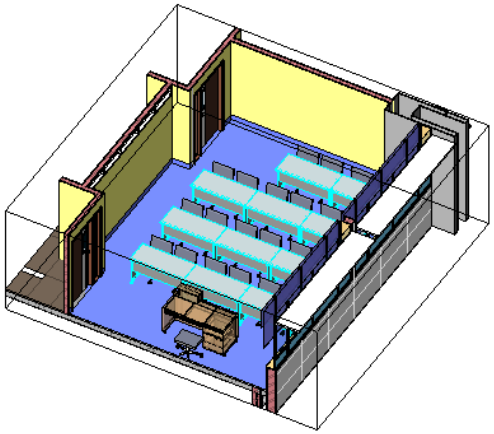
4 行政人员培训室立体剖面示意图2



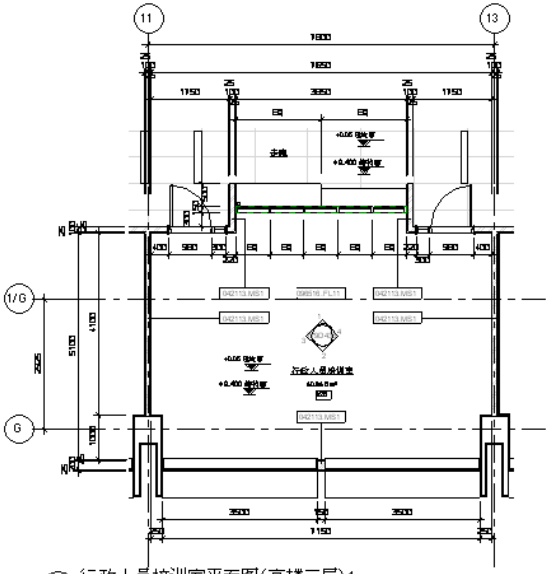
2 行政人员培训室天花平面图(高楼三层)1
1 : 50



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

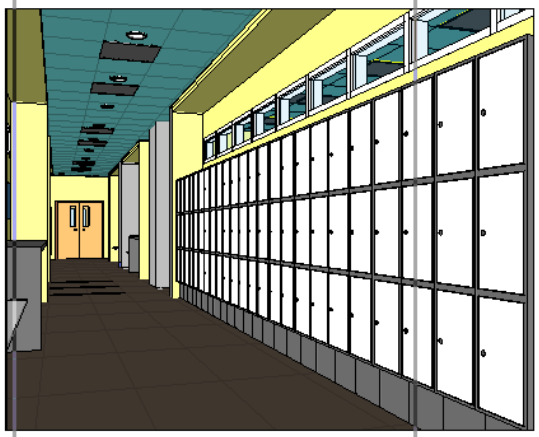


1 行政人员培训室平面图(高楼三层)1
1 : 50

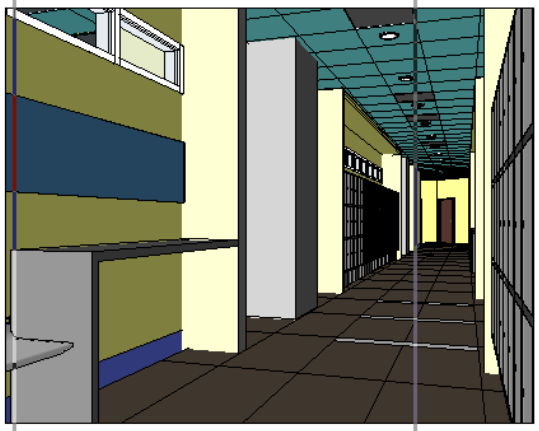
Drawing Type: B.D. SUBMISSION
B.D. Reference No.: GOVERNMENT_REFERENCE_NO.
F.S.D. Reference No.: GOVERNMENT_REFERENCE_NO.
Authorised by: AUTHORIZE PERSON EXCLUDE AREA
Notes:

Rev.	Description	Issue Date	Initial

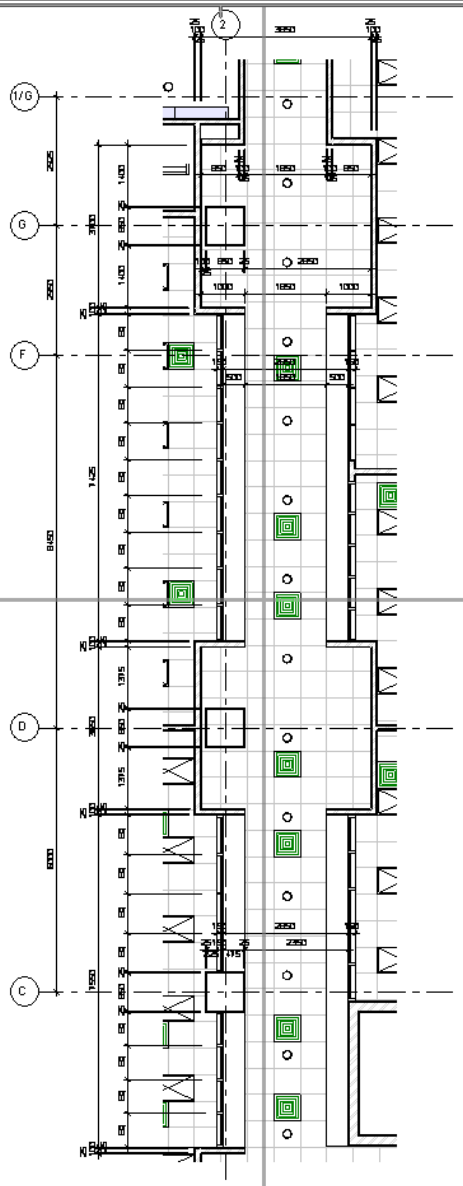
Originator: Date 04/04/07 Drawn Check App.
Structural Engineer: BENAIM benaim
E & M: J.ROGER PRESTON
Q.S.: 利比 RLB | Rider Levett Bucknall
Aedas
Aedas Ltd. 15th Floor 1063 King's Road Quarry Bay Hong Kong
T +852 2561 1728 F +852 2520 6419 E hongkong@aedas.com aedas.com
Client: The Hong Kong Polytechnic University 香港理工大學
Project: 香港理工大學高層一教課場地
Drawing: 行政人员培训室平面图(高楼三层)1
Date 04/04/07
Project Number: 08778
Scale: 1 : 50
Drawing Number: 778 D430
Rev.: REV.
Issue Status: TENDER



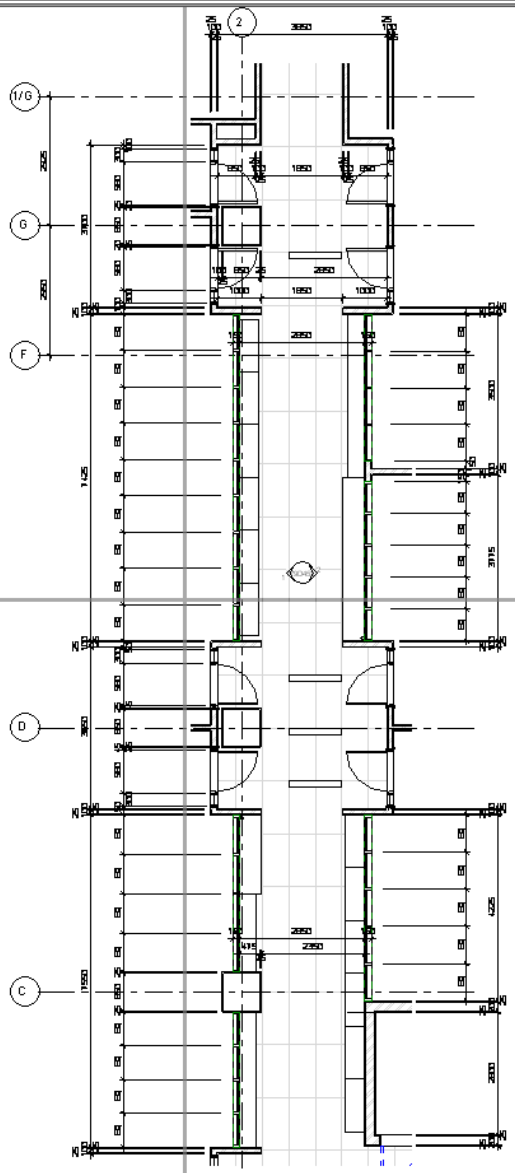
4 走廊立体示意图(低楼三至四层)2



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



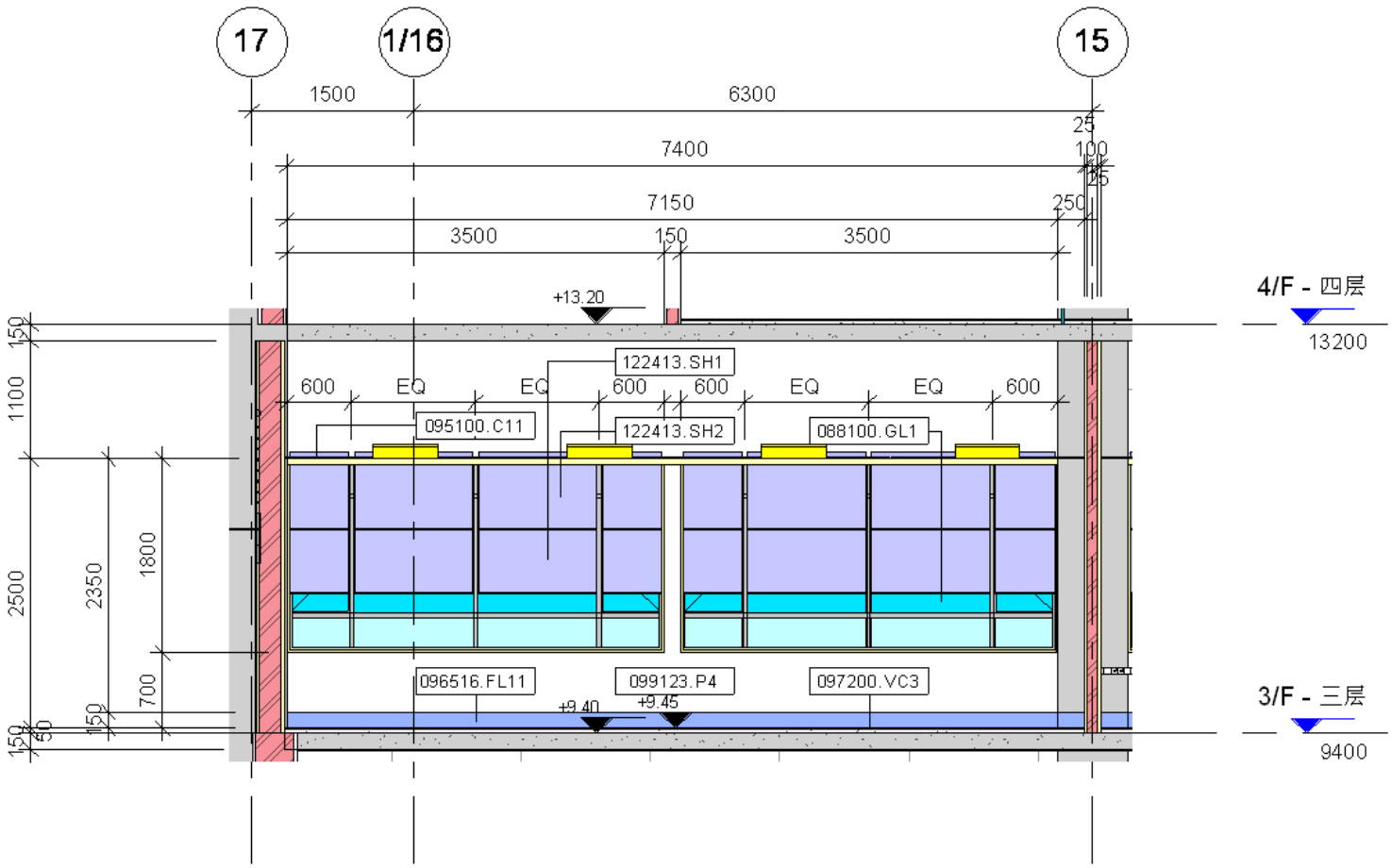
1 走廊平面图(低楼三至四层)
1 : 50

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

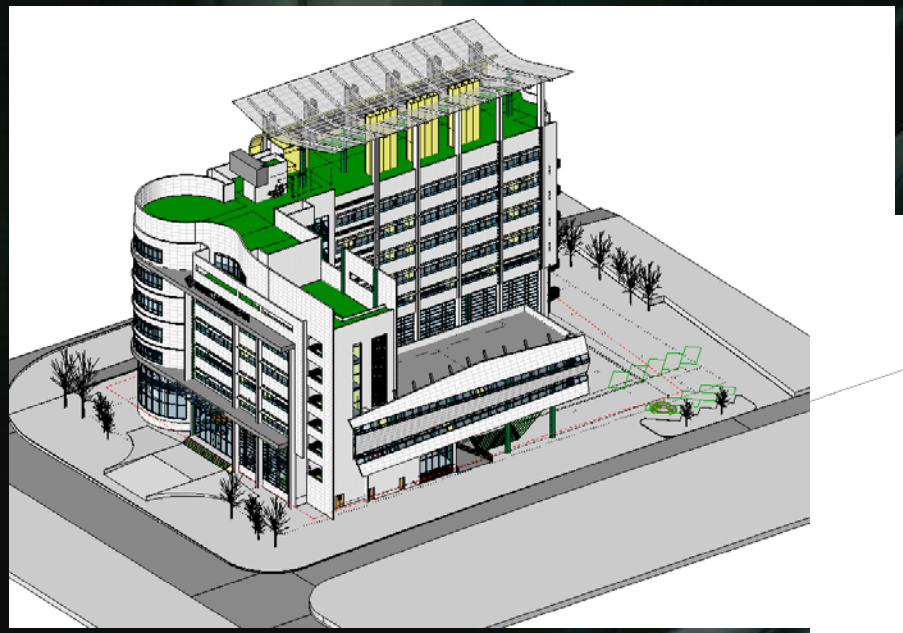
1 : 50

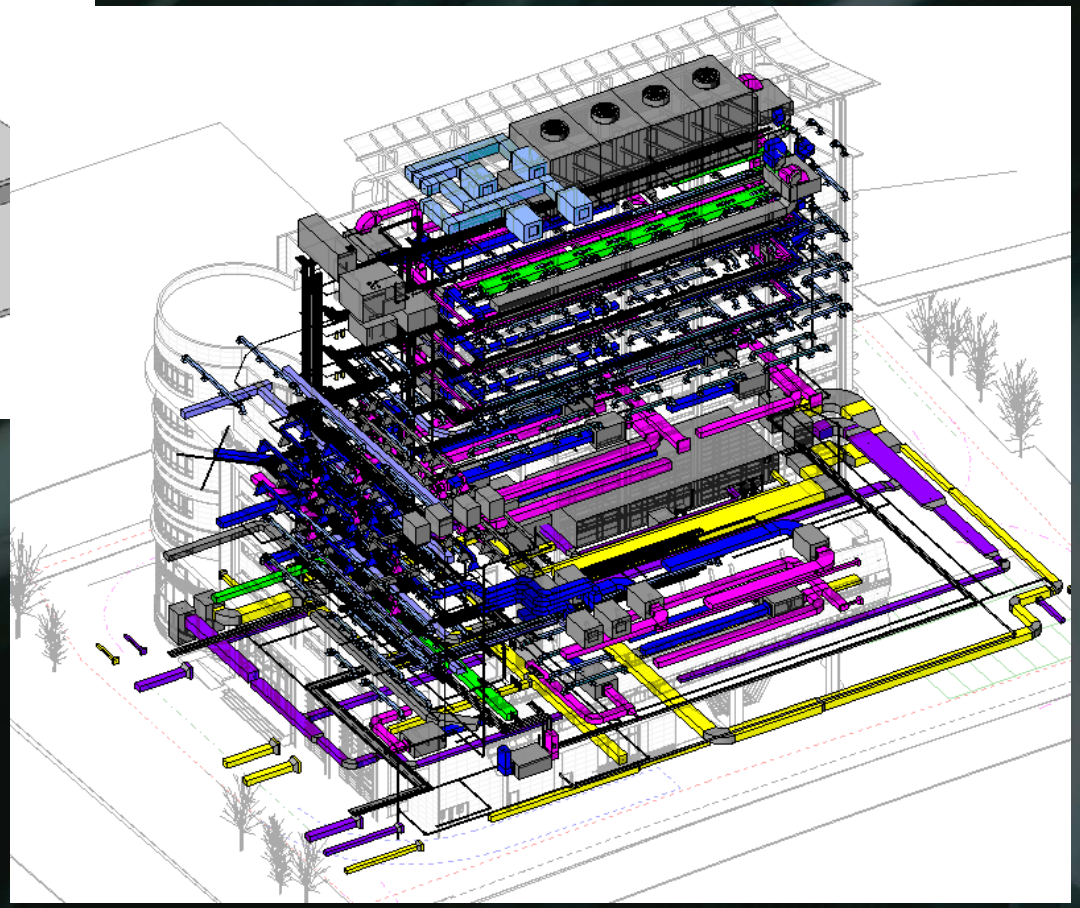
Use of Building Information Modeling (BIM)

1. Design visualization
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
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

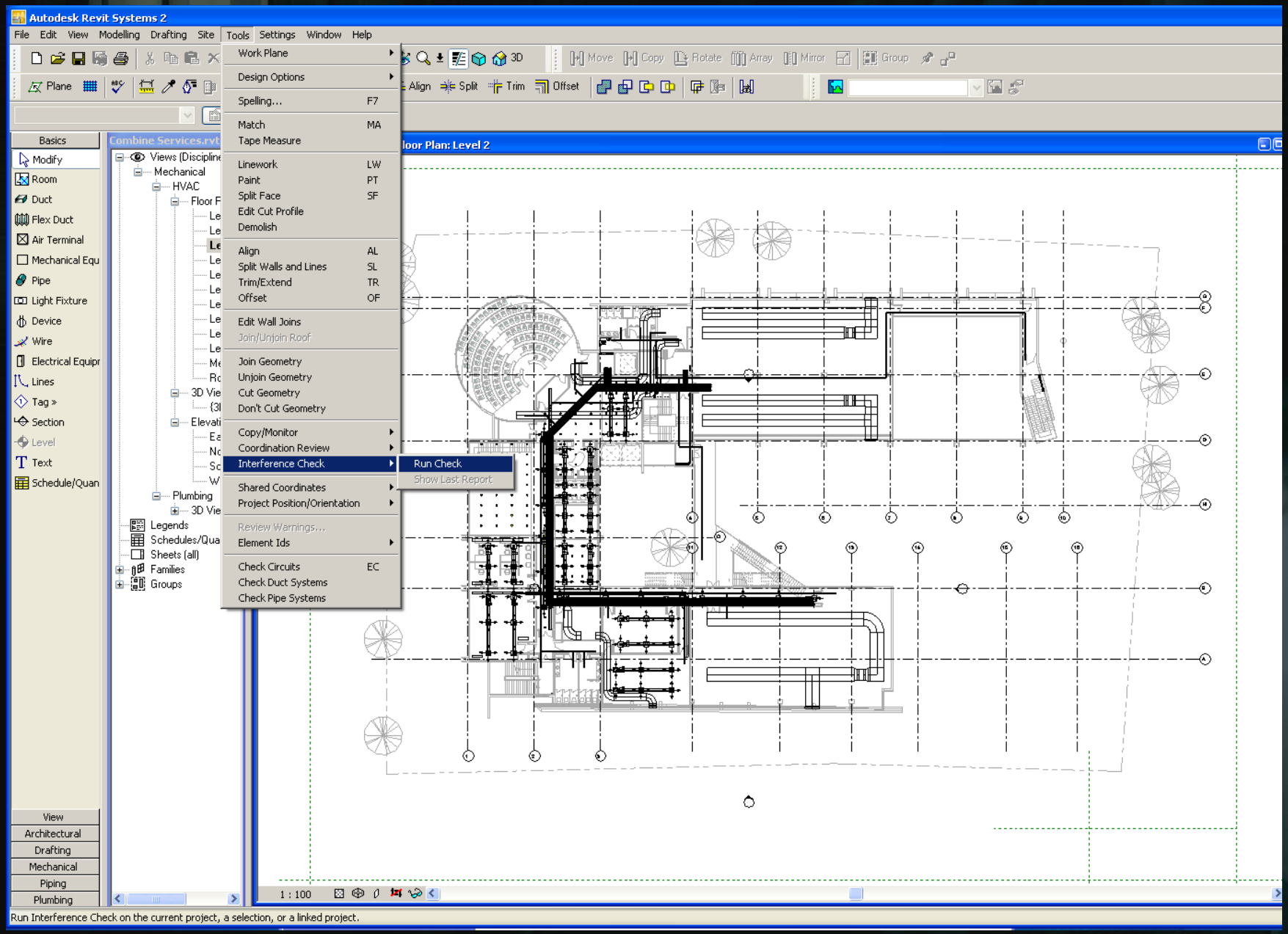
CO-ORDINATION / COLLABORATION

Work Flow – Establish BIM Models



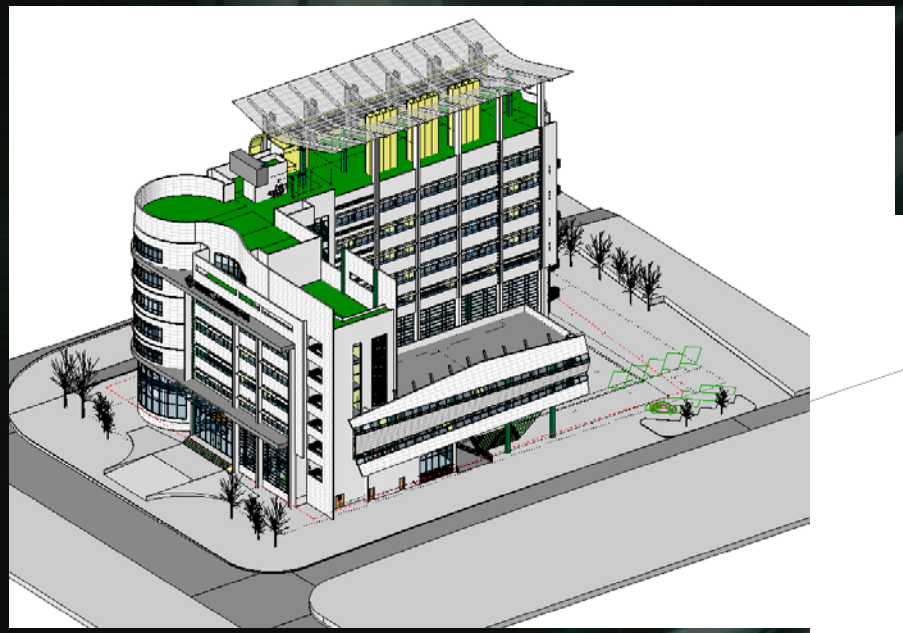


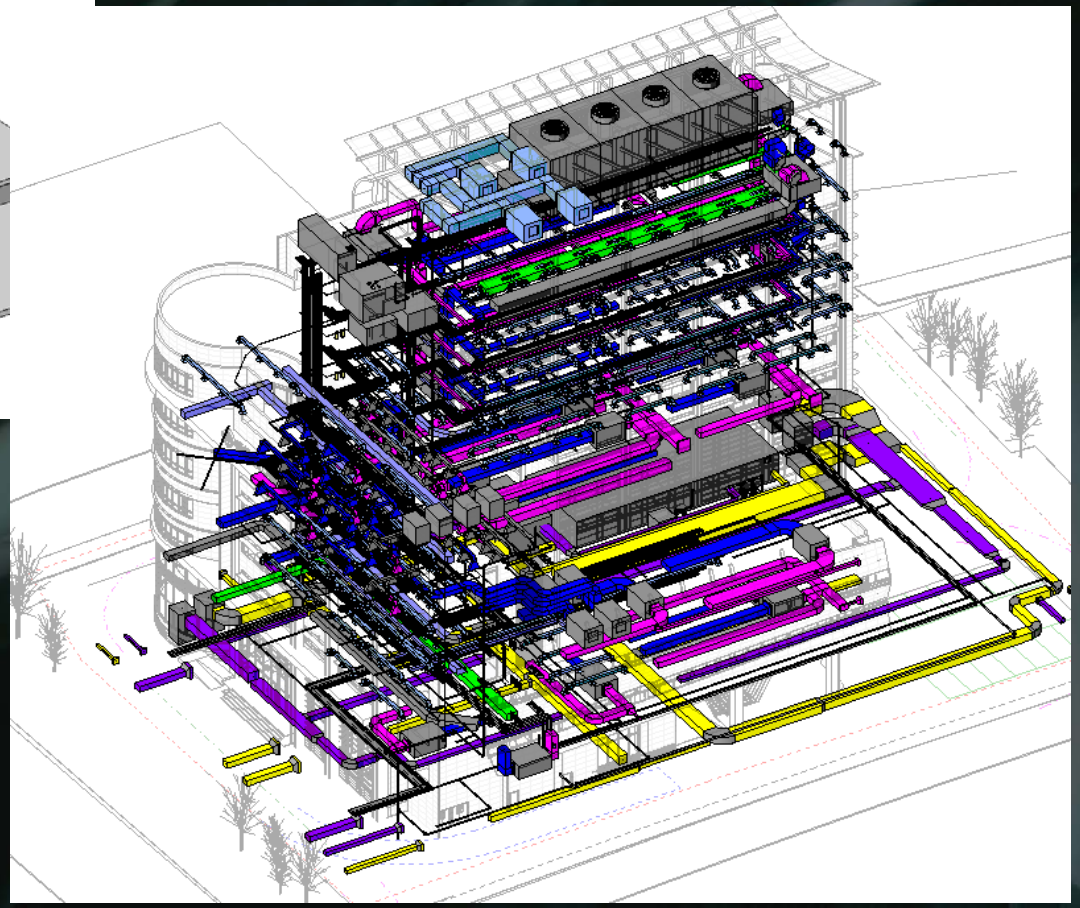
Work Flow – Clashes Report

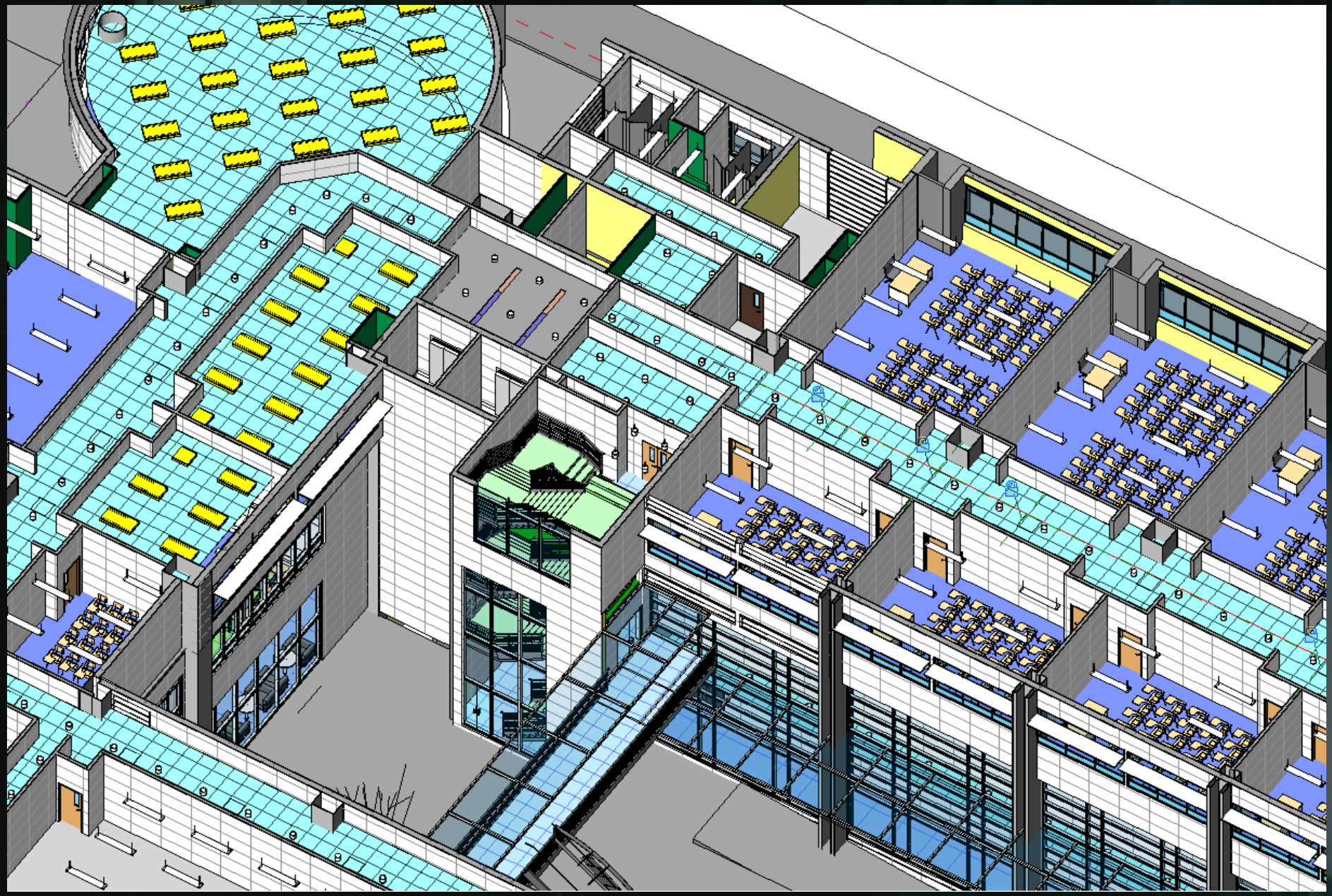


CO-ORDINATION / COLLABORATION

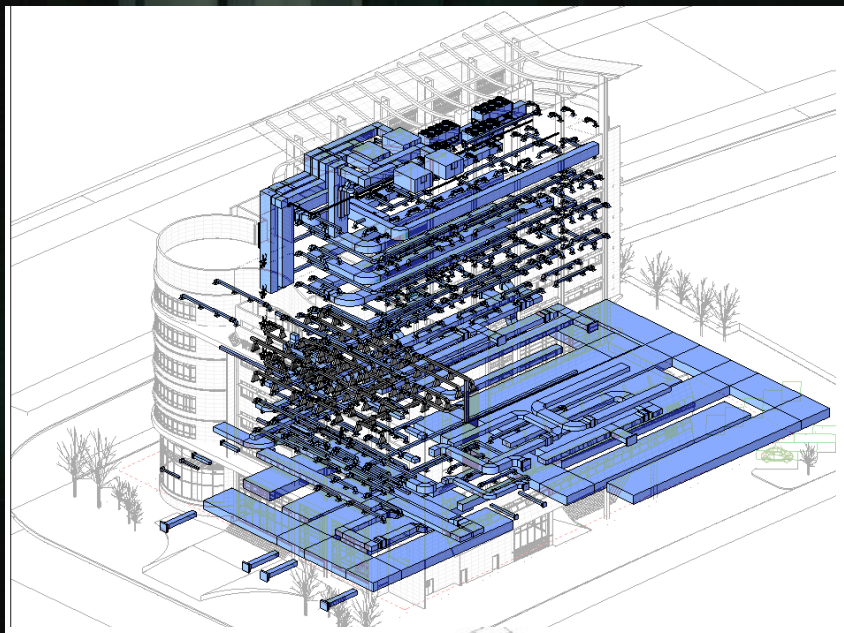
Work Flow – Establish BIM Models



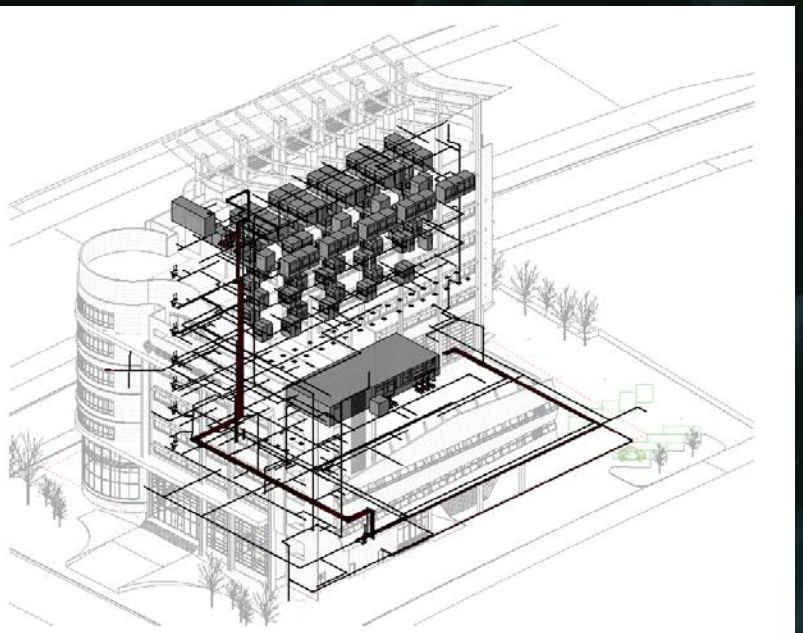


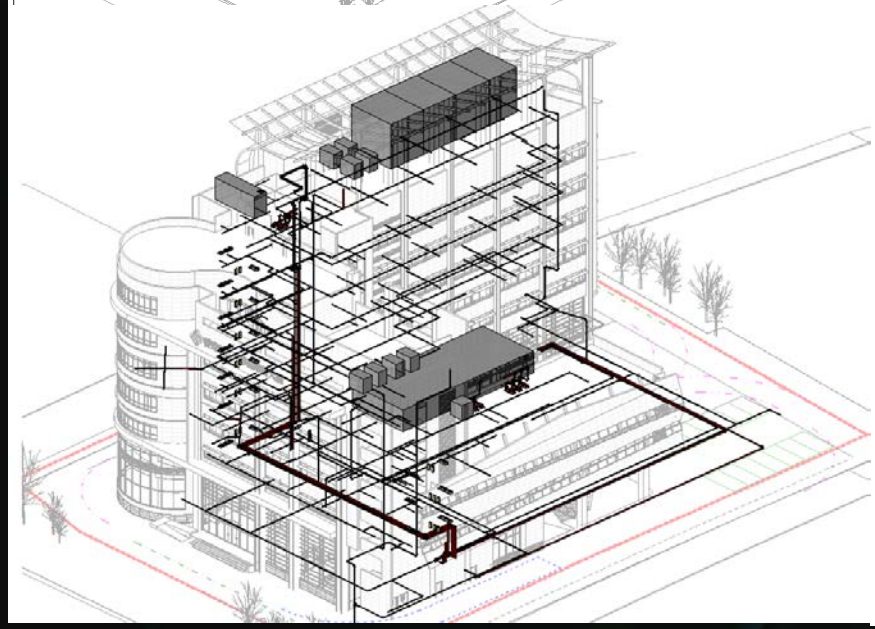


HVAC Installation

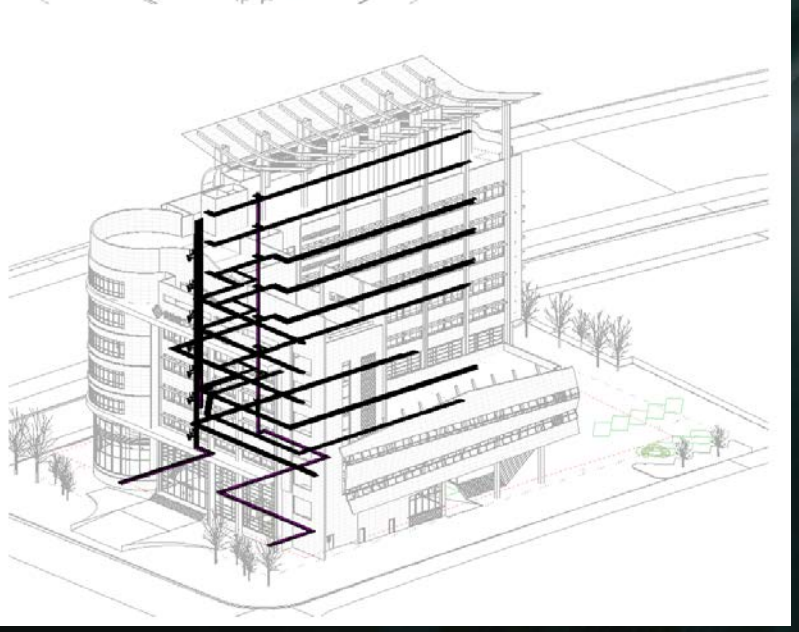


Fire Services Installation



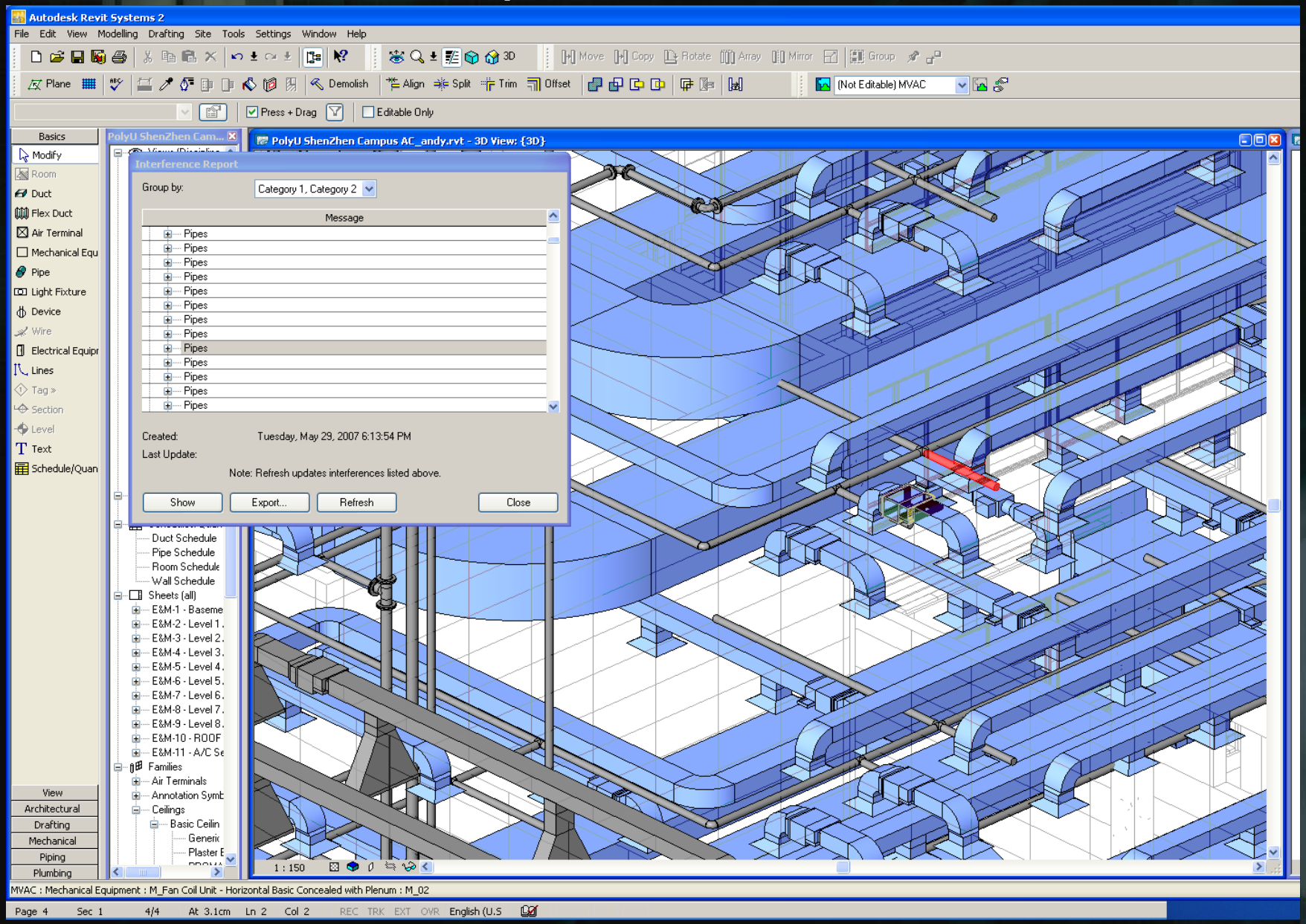


P/D Installation

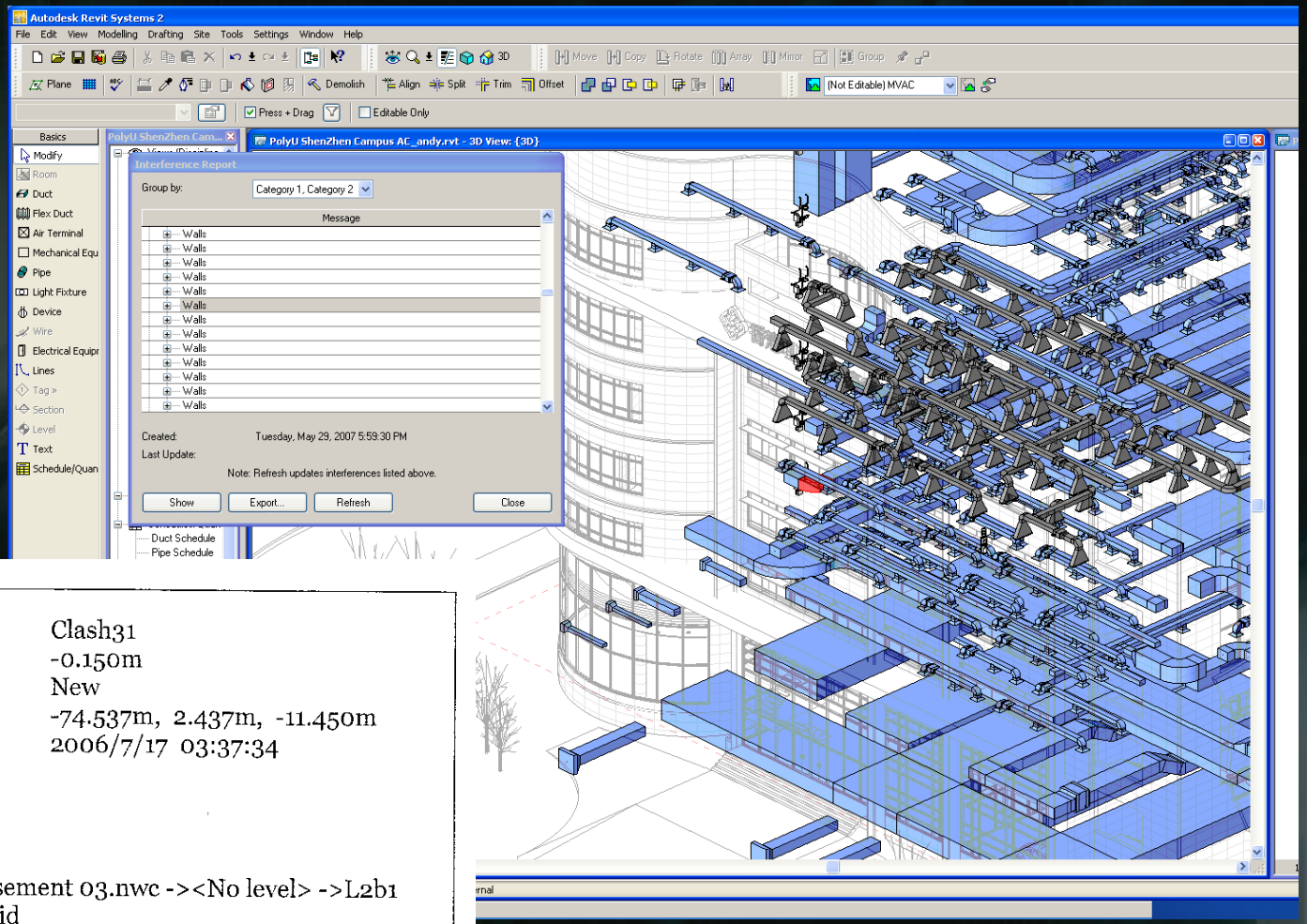


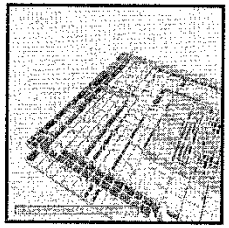
Electricity Installation

Work Flow – Clashes Report



Work Flow – Clashes Report





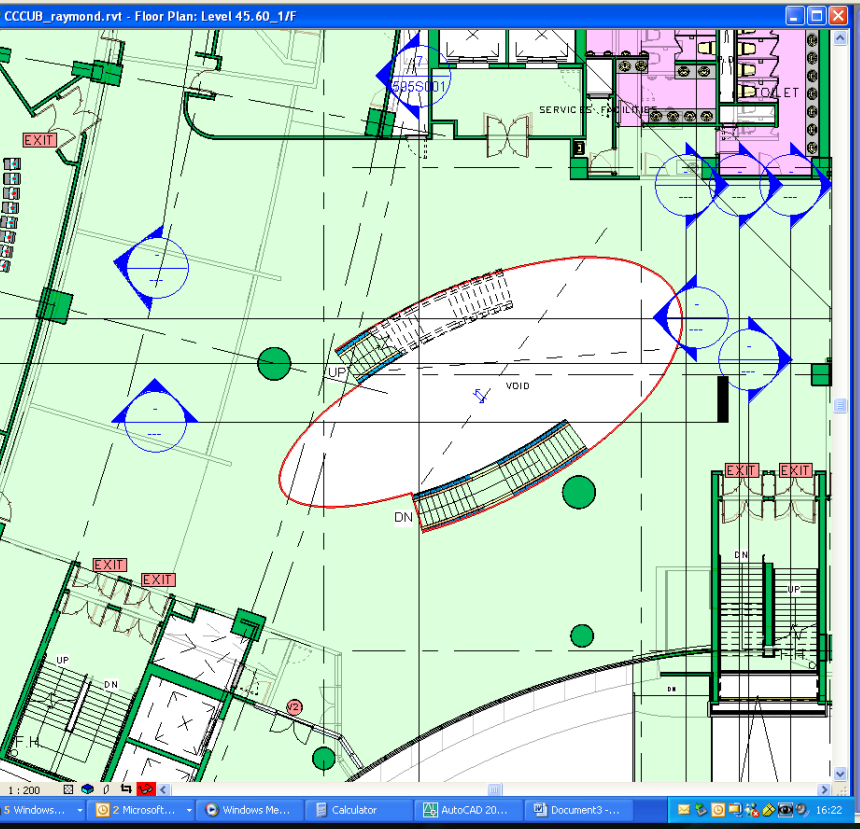
Name	Clash31
Distance	-0.150m
Status	New
Clash Point	-74.537m, 2.437m, -11.450m
Date Created	2006/7/17 03:37:34
Approved By	

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
EXIT
SERVICES FACILITIES
TOILET
UP
VOID
DN
EXIT
EXIT
EXIT
EXIT
UP
DN
1 : 200


CCCUB_raymond.rvt - 3D View: Interior void area G/F
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

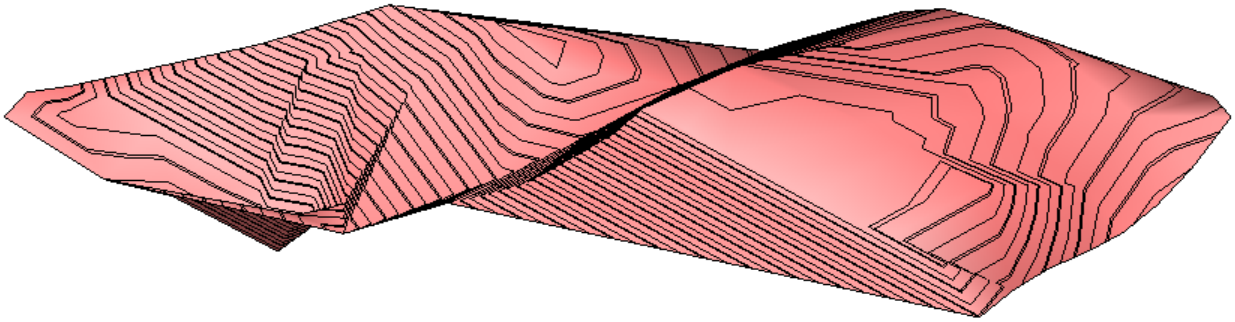
Plane Demolish Align Split Trim Offset

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 & 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 Eleva
  - 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: 2. Mini-piles]

File Edit View Modelling Drafting Site Tools Settings Window Help

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 & Footing
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
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    - 8. UG/F & New Flat R
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    - 11. Pool Interior
    - {3D}
  - Elevations (Building Eleva
  - Sections (Building Section
- Legends
- Schedules/Quantities
  - 2. Mini-Piles
  - 3. Pile Caps & Footings
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  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
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  - 8a. Beams (Superstructure
  - 8b. Columns (Superstructu
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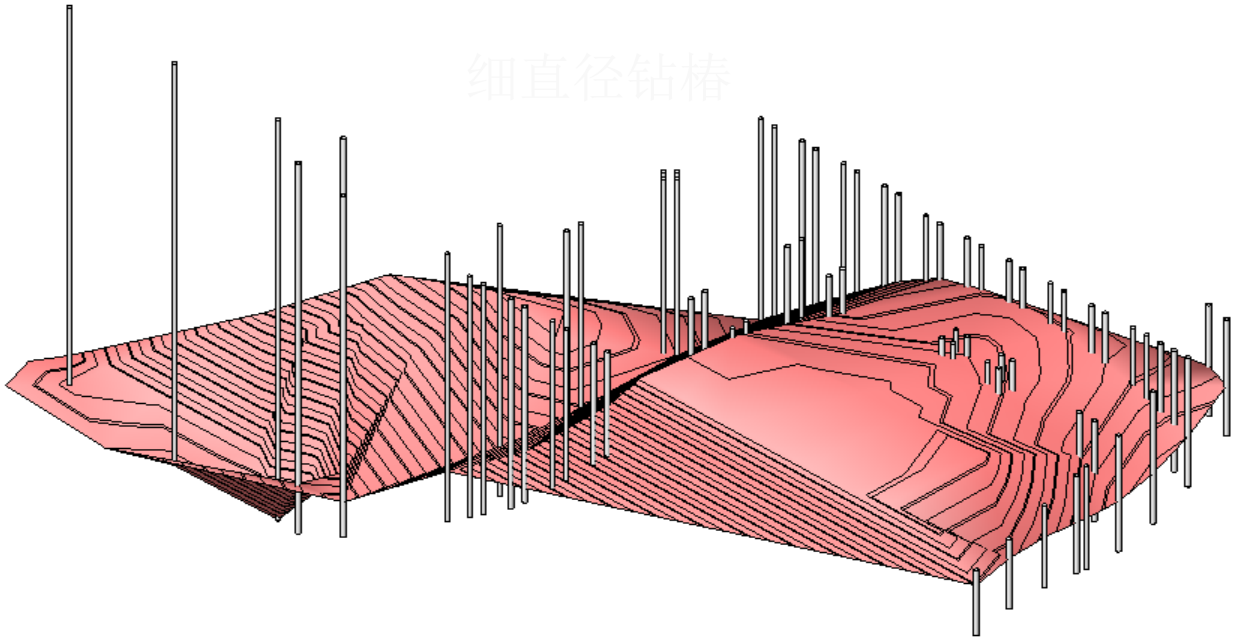
  - 10. Roof Material Takeof
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



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View
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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

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 & Foo**
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
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- Legends
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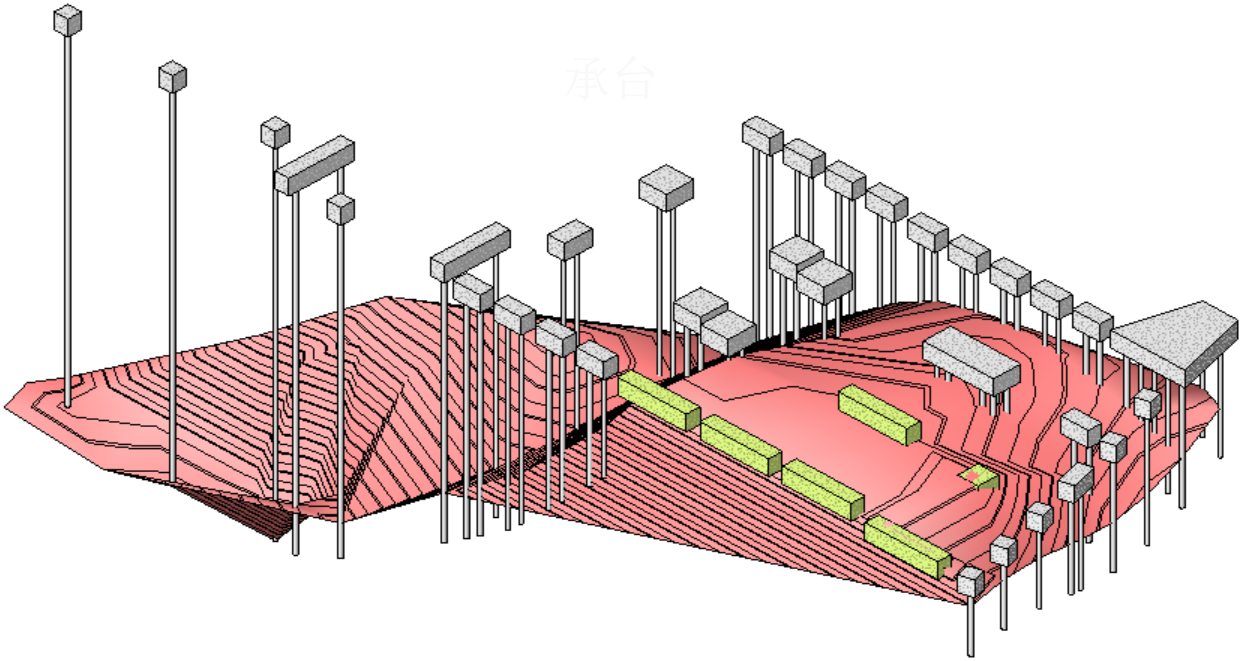

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View
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Drafting
Rendering
Site

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

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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

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
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  - 3D Views
    - 1. Rock Profile
    - 2. Mini-piles
    - 3. Pile Caps & Footing
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    - 5. Columns & Walls (
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- Legends
- Schedules/Quantities
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  - 3. Pile Caps & Footings
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  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
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  - 8b. Columns (Superstructu
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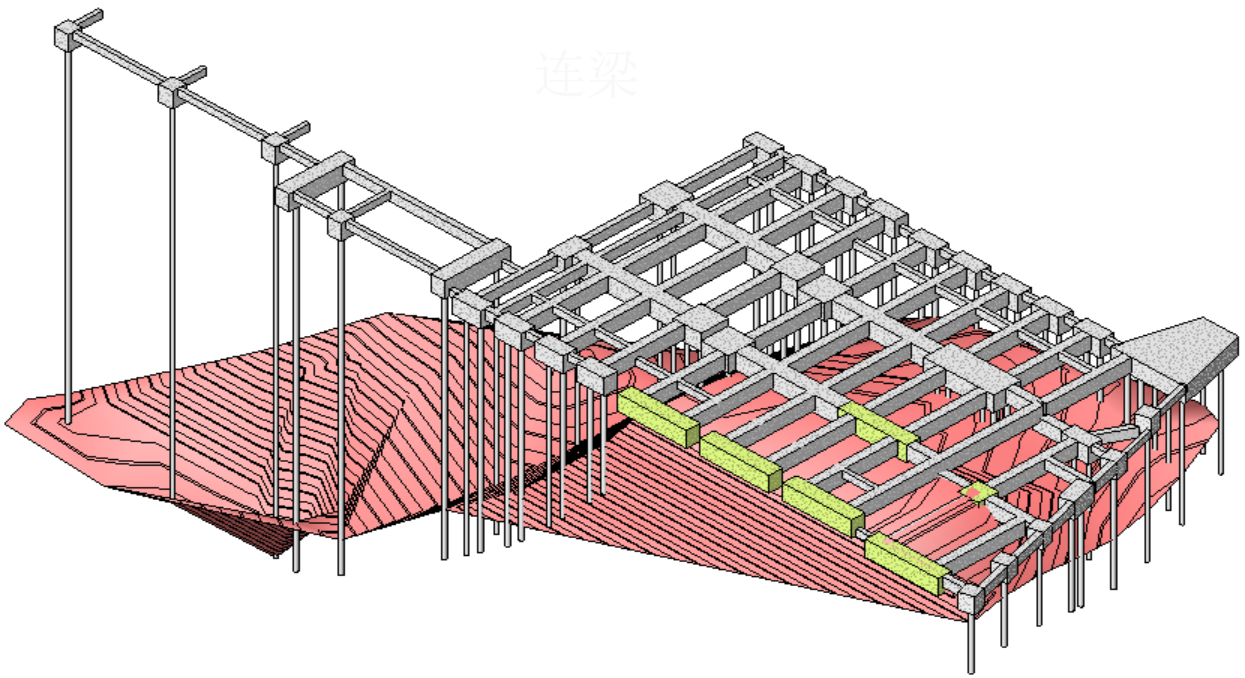
  - 11. Ramp Schedule
  - 12. Stairs Material Takeof
- Sheets (all)
- Families
- Groups



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

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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

Plane Demolish Align Split Trim Offset Press + Drag

Basics
- Modify
- Wall
- Door
- Window
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- 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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  - 5b. Bearing/Screen Walls
  - 6. Ground Beams
  - 7. Floor Material Takeoff
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  - 8b. Columns (Superstructu
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  - 11. Ramp Schedule
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- Groups

View
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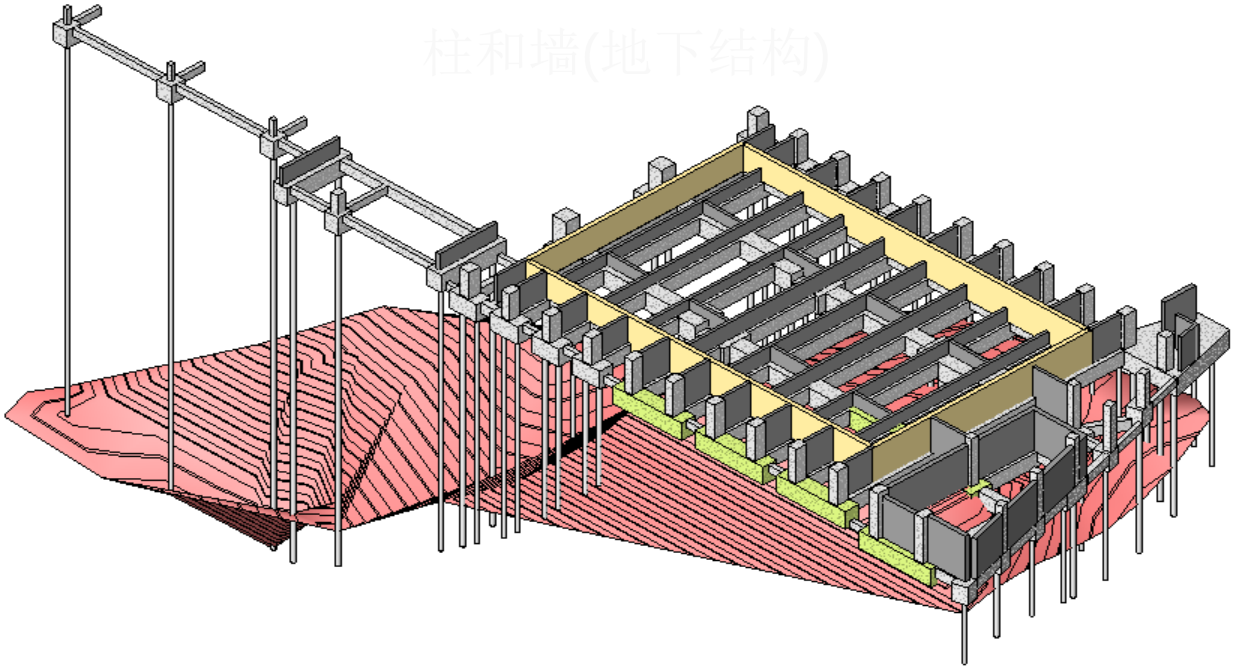
Site



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

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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

Plane Demolish Align Split Trim Offset Press + Drag

Basics
- Modify
- Wall
- Door
- Window
- Component
- Room
- Roof »
- Floor
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- Ref Plane
- Dimension
- Section
- Level
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Swimming Pool 11 Oct 0...
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  - Floor Plans
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    - 3. Pile Caps & Footing
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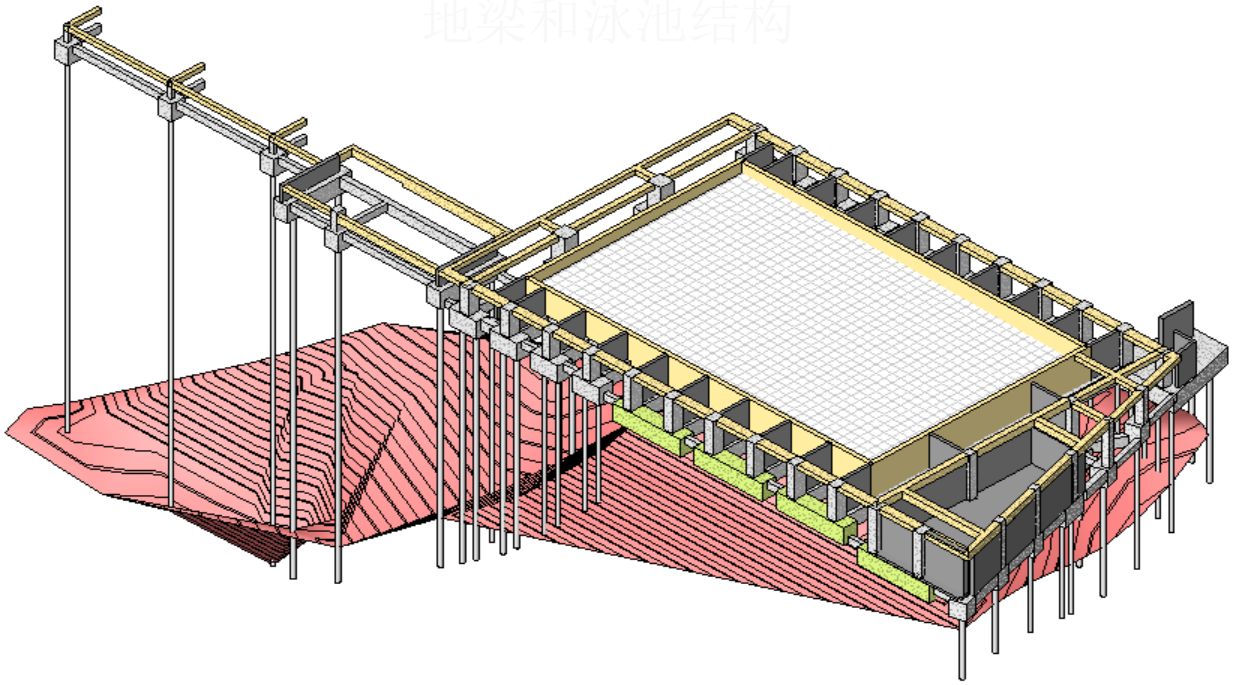

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View
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Rendering
Site

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

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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

Plane Demolish Align Split Trim Offset Press + Drag

Basics
Modify
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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
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    - 11. Pool Interior
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  - 3. Pile Caps & Footings
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  - 6. Ground Beams
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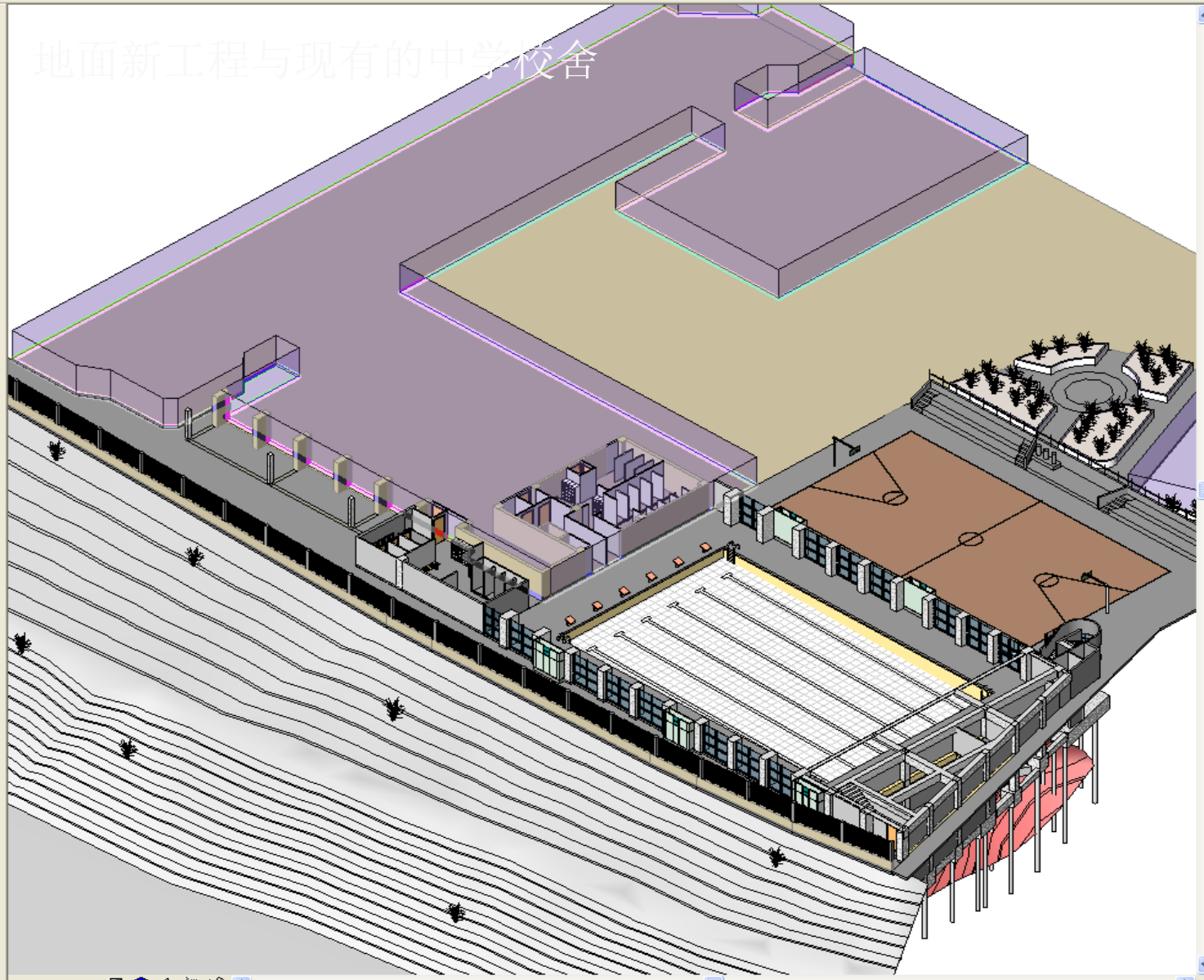
- Families
- Groups



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

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
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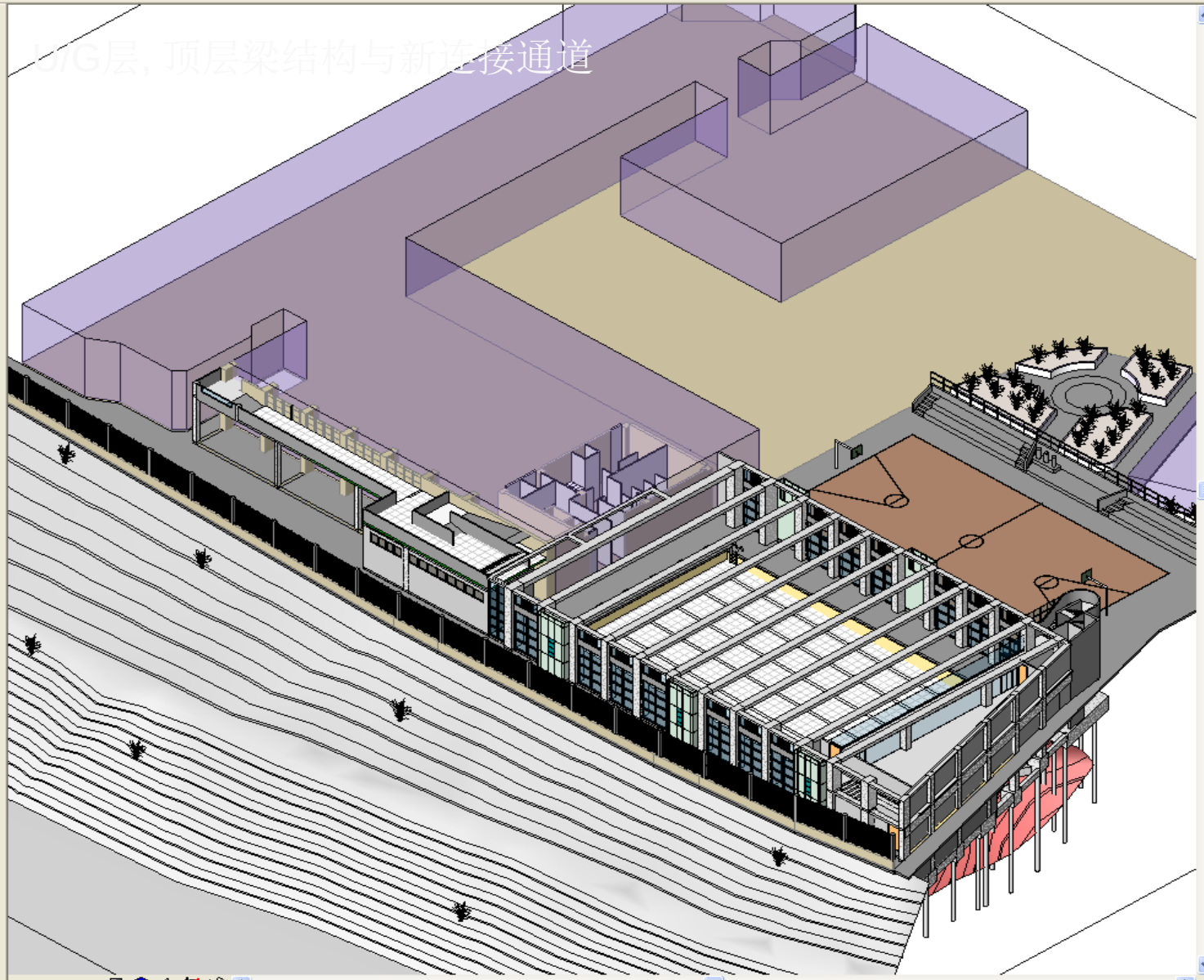
- Families
- Groups



View
Modelling
Drafting
Rendering
Site

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

NUM

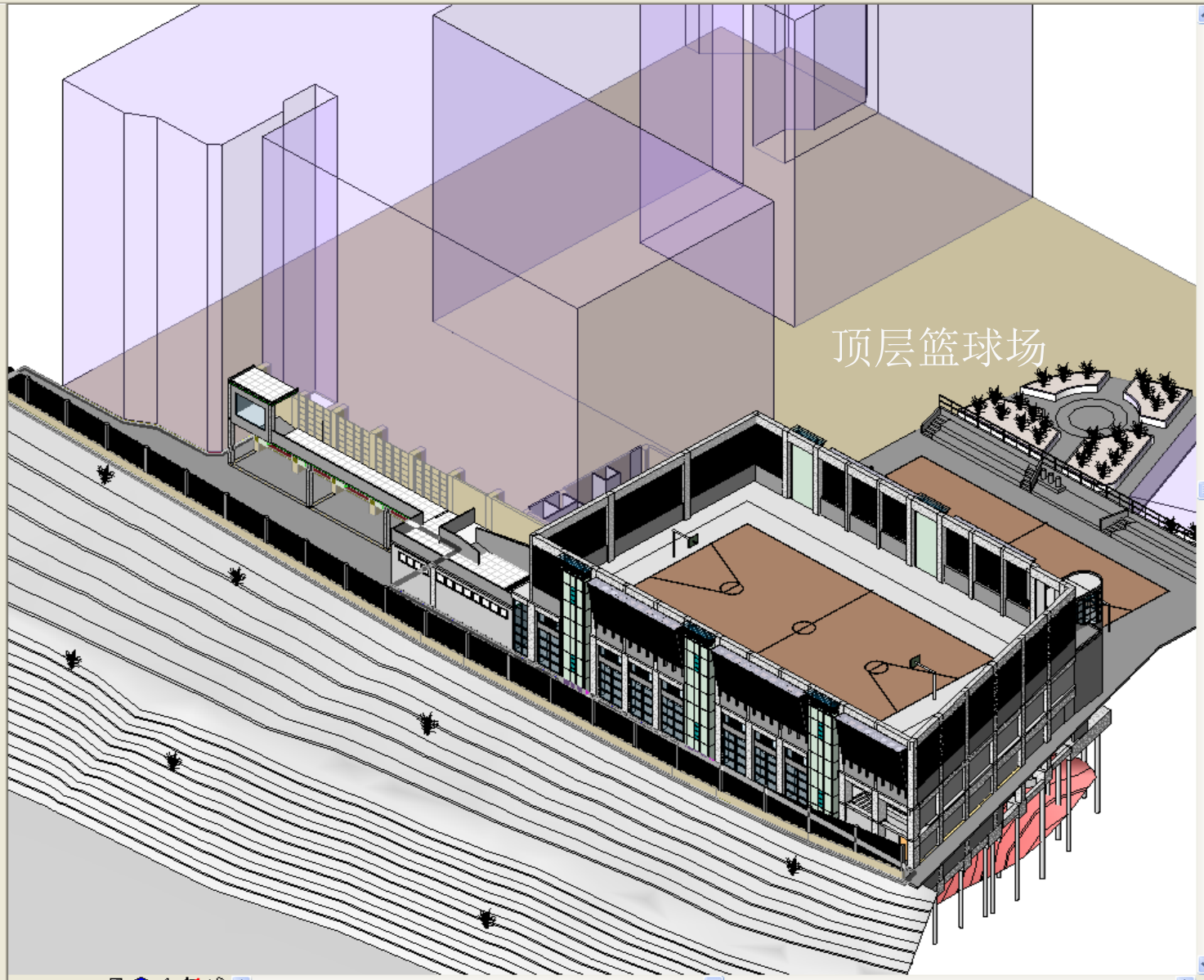
Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - 3D View: 9. Roof]

File Edit View Modelling Drafting Site Tools Settings Window Help

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 & 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 Eleva
  - 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

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

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 & 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

View
Modelling
Drafting
Rendering
Site

Perspective

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

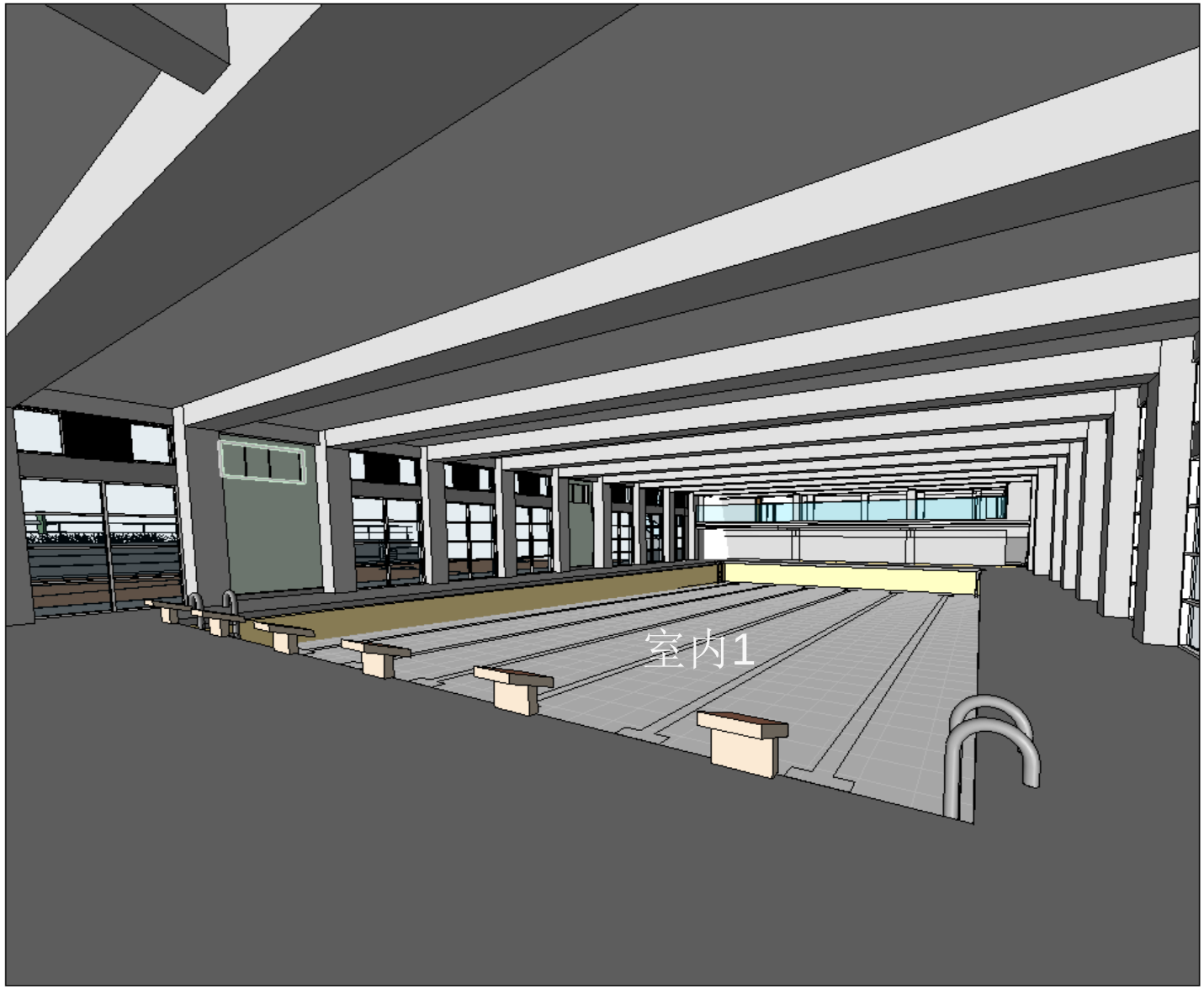
Section

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 & Footing
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
    - 7. G/F
    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. N W Exterior
    - **11. Pool Interior**
    - {3D}
  - Elevations (Building Eleva
  - 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...

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

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

View
Modelling
Drafting
Rendering
Site

1 : 100

Create a material takeoff

NUM

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

File Edit View Modelling Drafting Site Tools Settings Window Help

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 & 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

View
Modelling
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Rendering
Site

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

Name: Column Material Takeoff

Phase: New Construction

☐ Show categories from all disciplines

OK Cancel Help

1 : 100

Ready NUM

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

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 & Footing
    - 4. Tie Beams
    - 5. Columns & Walls (
    - 6. Slabs & Gd. Beams
    - 7. G/F
    - 8. UG/F & New Flat R
    - 9. Roof
    - 10. N W Exterior
    - 11. Pool Interior
    - {3D}
  - Elevations (Building Eleva
  - 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

View
Modelling
Drafting
Rendering
Site

Material Takeoff Properties

Fields | 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...

Scheduled fields (in order):

Family
Type
Material: Area

Edit... Delete
Edit... Delete

Select available fields from:
Walls

Move Up Move Down

Include elements in linked files

確定 取消 說明

1 : 100

Ready NUM

Autodesk Revit Building 9 - [Swimming Pool 11 Oct 06.rvt - Schedule: 8b. Columns (Superstructure)]

File Edit View Modelling Drafting Site Tools Settings Window Help

Headers Group Ungroup Rows: New Delete Show

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
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    - 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 Eleva
  - 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 (Superst**
  - 9. Walls (Superstructure)
  - 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)	P3F	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
Modelling
Drafting
Rendering
Site

Ready NUM

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- FREE - Self-paced training videos ($600 value)
- FREE - Login to Live Webcast Scheduled Training Classes ($600 value)

WAIVED – MasterSpec-Revit database fees ($180 - $750 value)
This offer expires July 31, 2010.
Don't miss your chance to save $1785 - $2355!
Perpetual licenses are also available.
Call with questions or to request a free live webinar.

Integrate MasterSpec specifications with your BIM/CAD drawings and building materials.
e-SPECS for Revit or e-SPECS for AutoCAD interfaces with:

- Autodesk® Revit®
- Autodesk® AutoCAD®

e-SPECS® for Revit® - Limited Time Offer

For a limited time we offer you e-SPECS for Revit for $1295. This offer includes:

1 seat (one year) of e-SPECS for Revit (value $1295)

FREE - 3 seats of e-SPECS for Revit Plug-In Console -- allows you to view and markup specifications directly into Revit without requiring additional seats of e-SPECS for Revit (value $405)

FREE - Self-paced training videos ($600 value)

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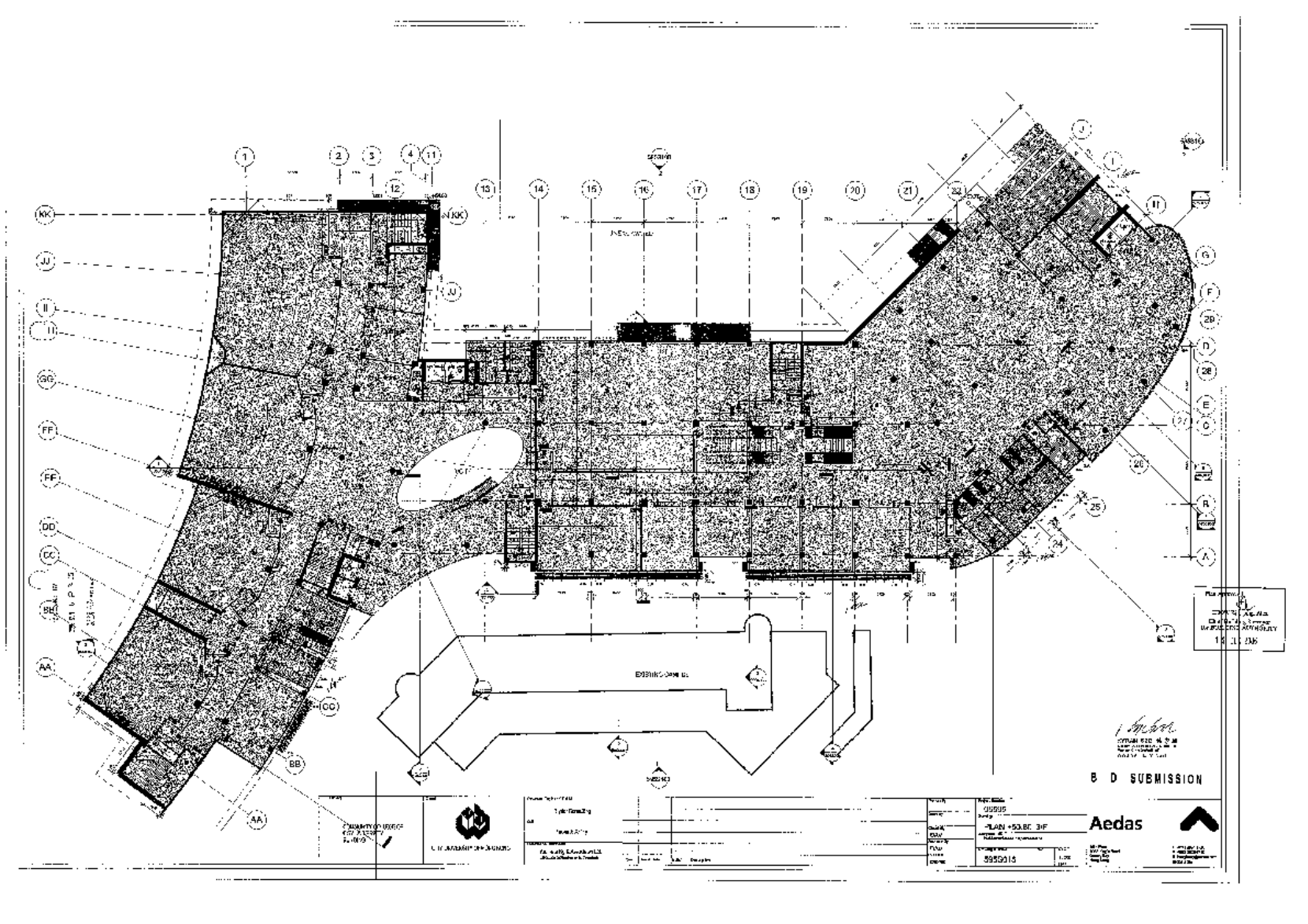
WAIVED – MasterSpec-Revit

Link: www.arcomnet.com

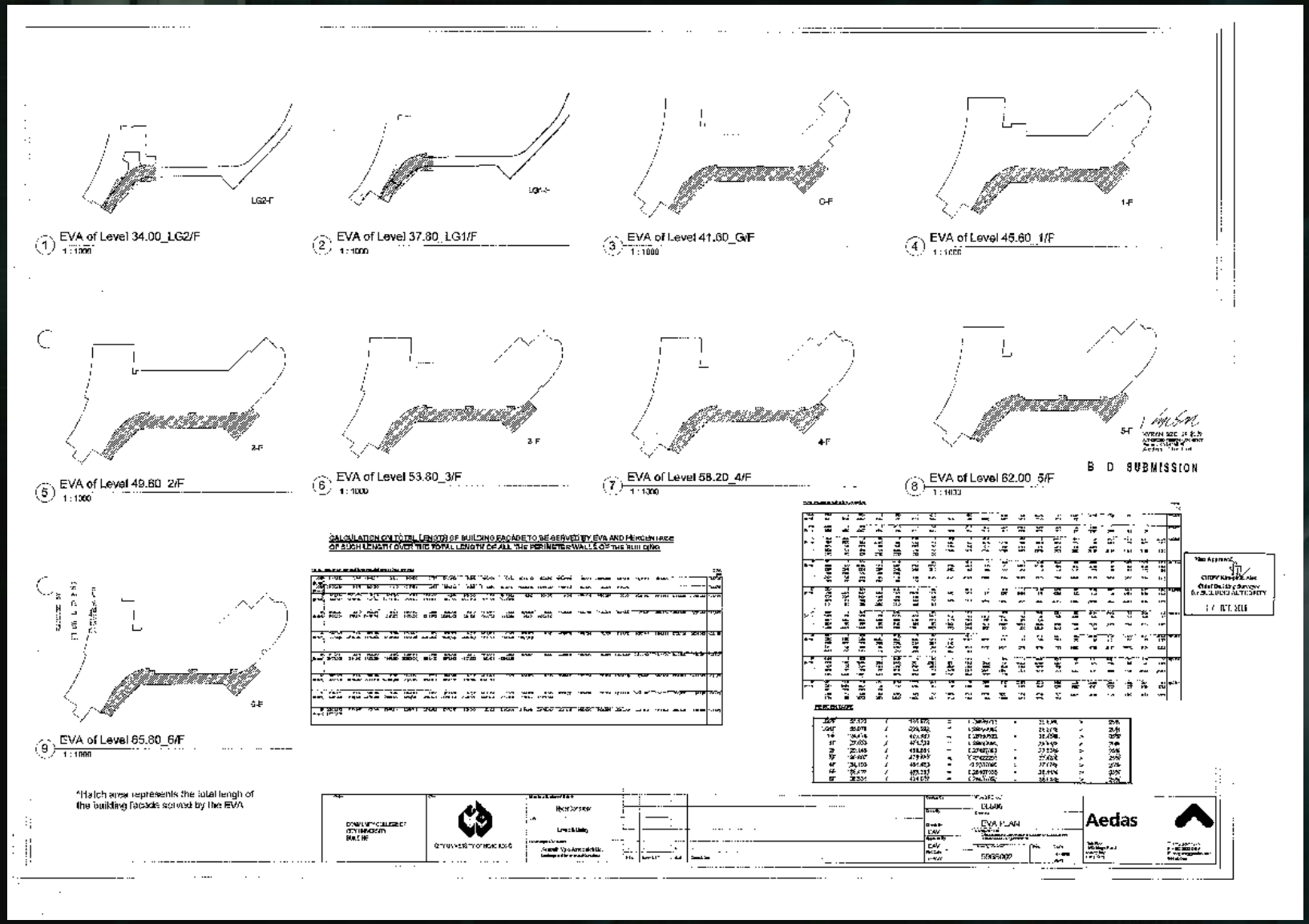
Use of Building Information Modeling (BIM)

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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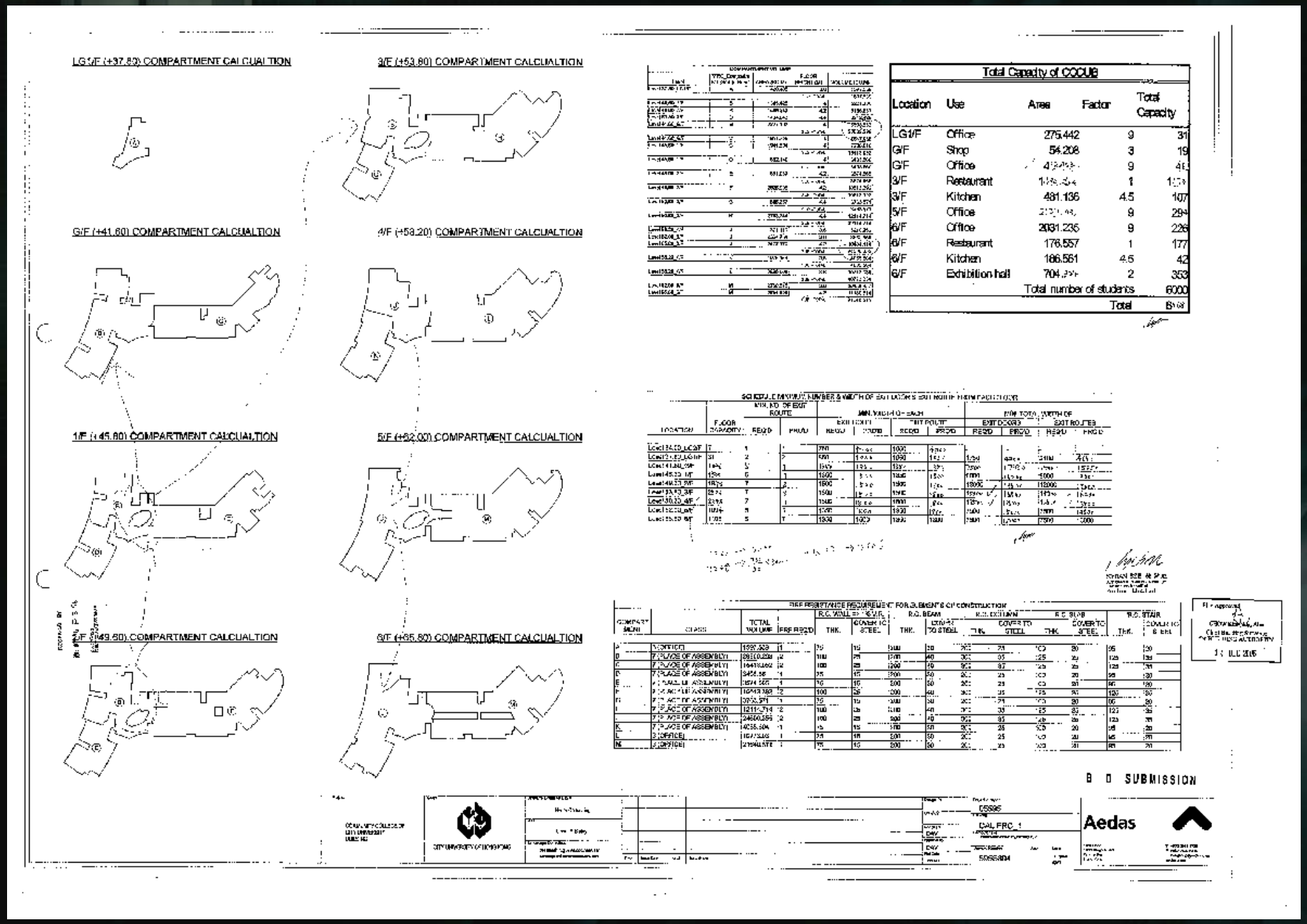

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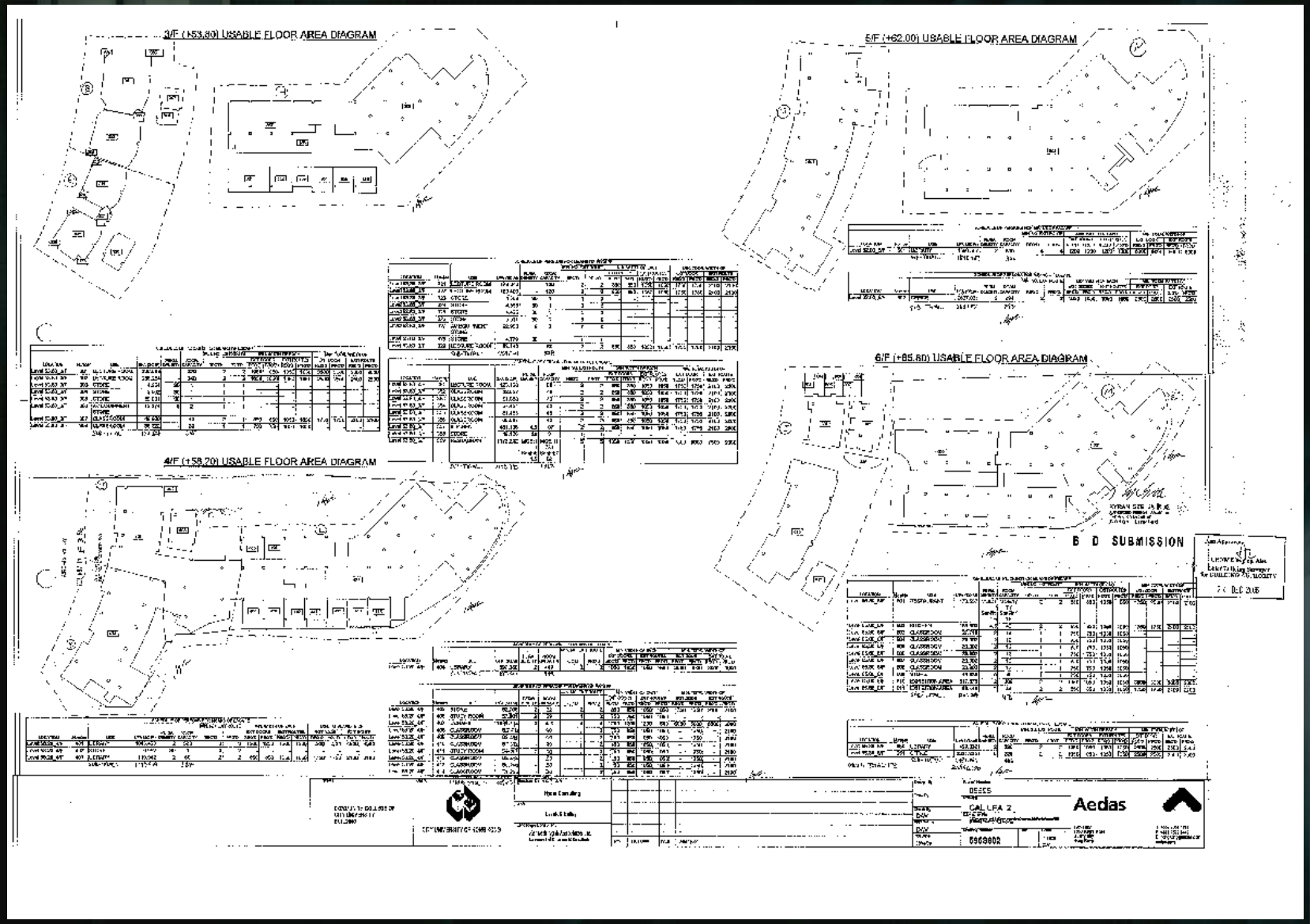

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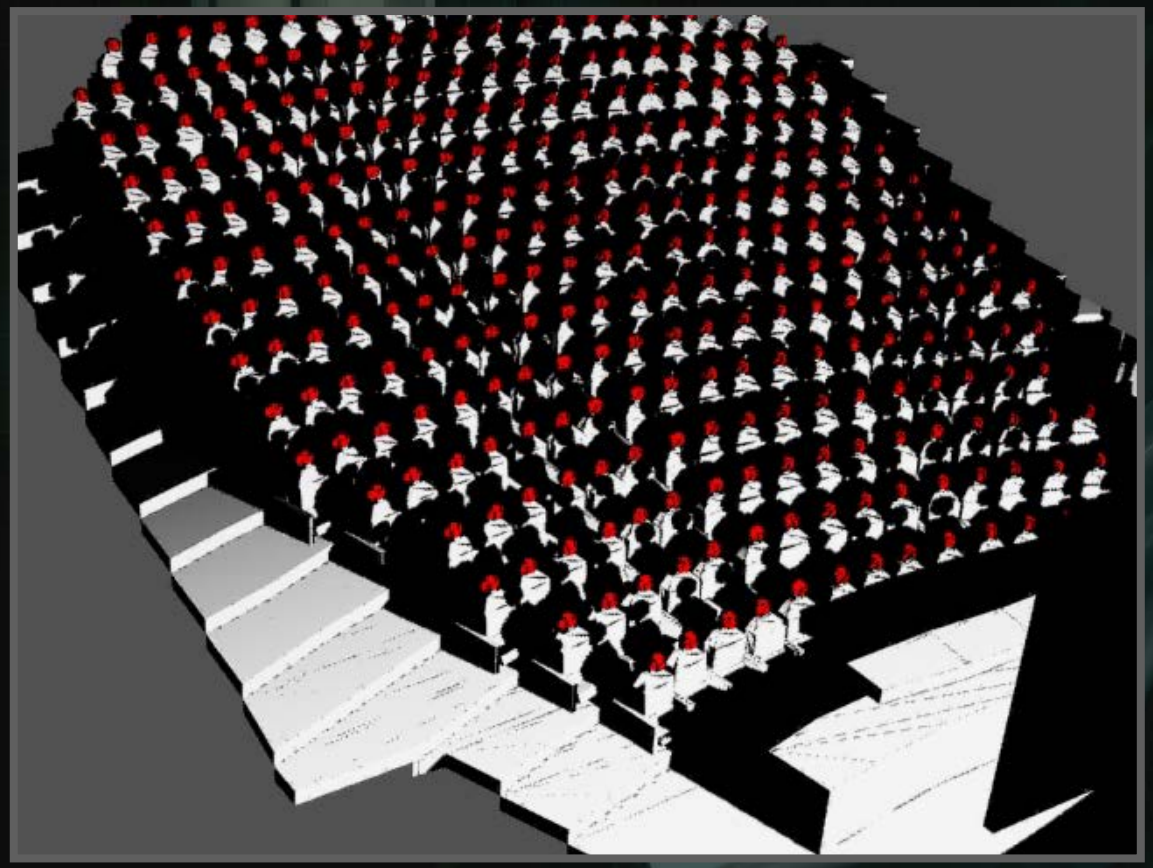
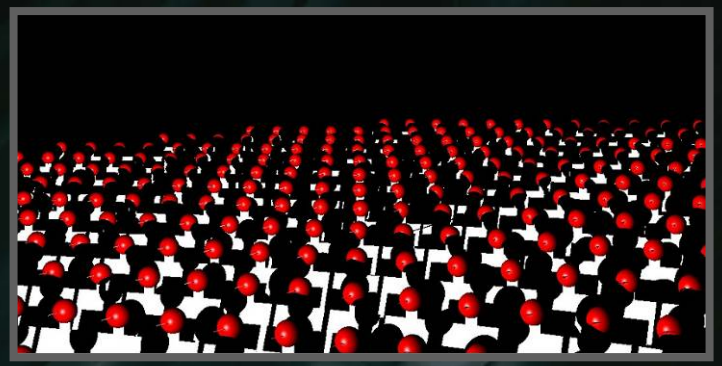
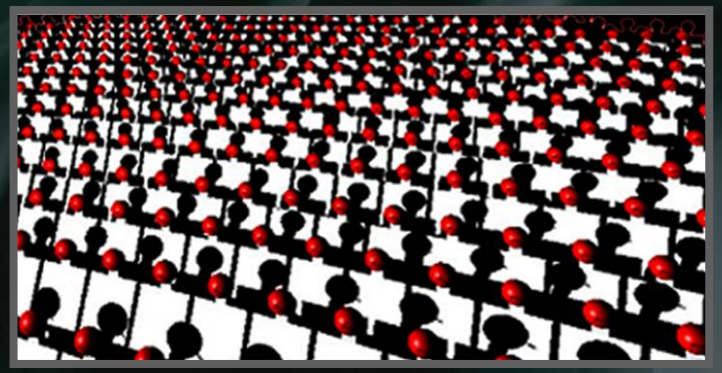
7. Supply Chain Integration with the manufacturing and production
8. Complex Geometry



Radiating Light Method



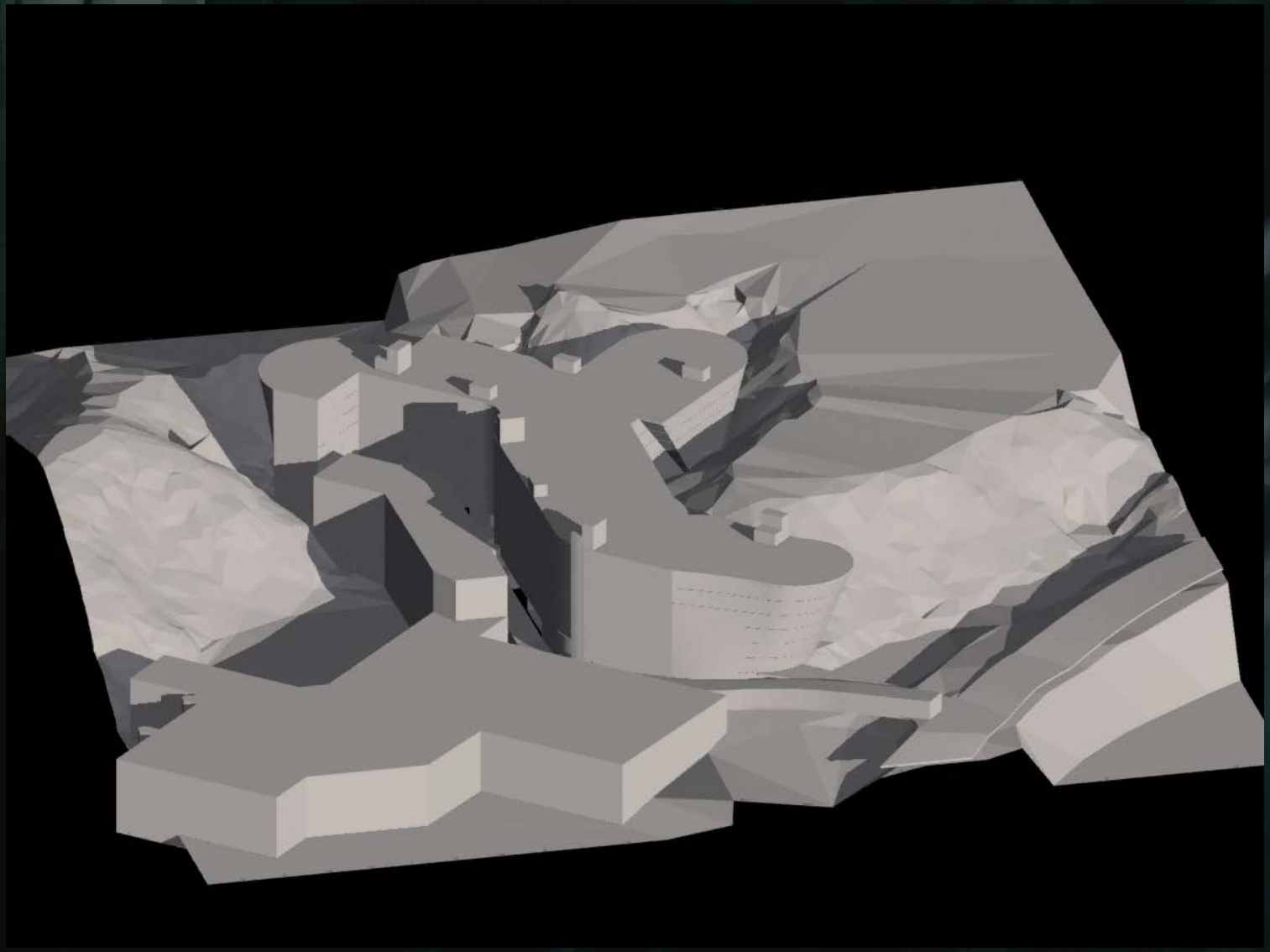
Unsatisfactory sightlines



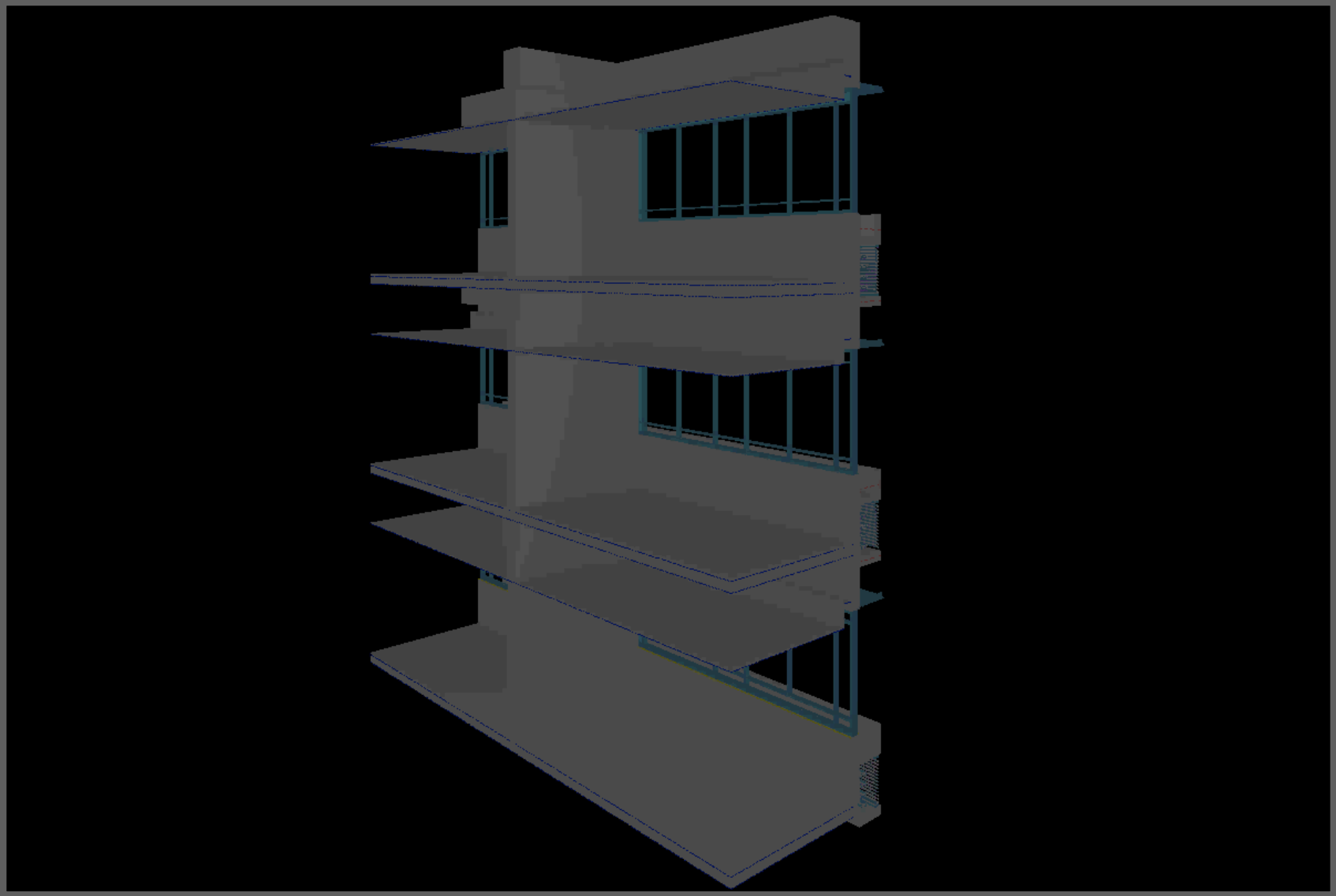
Satisfactory sightlines

SIGHTLINE STUDIES

ANALYSIS



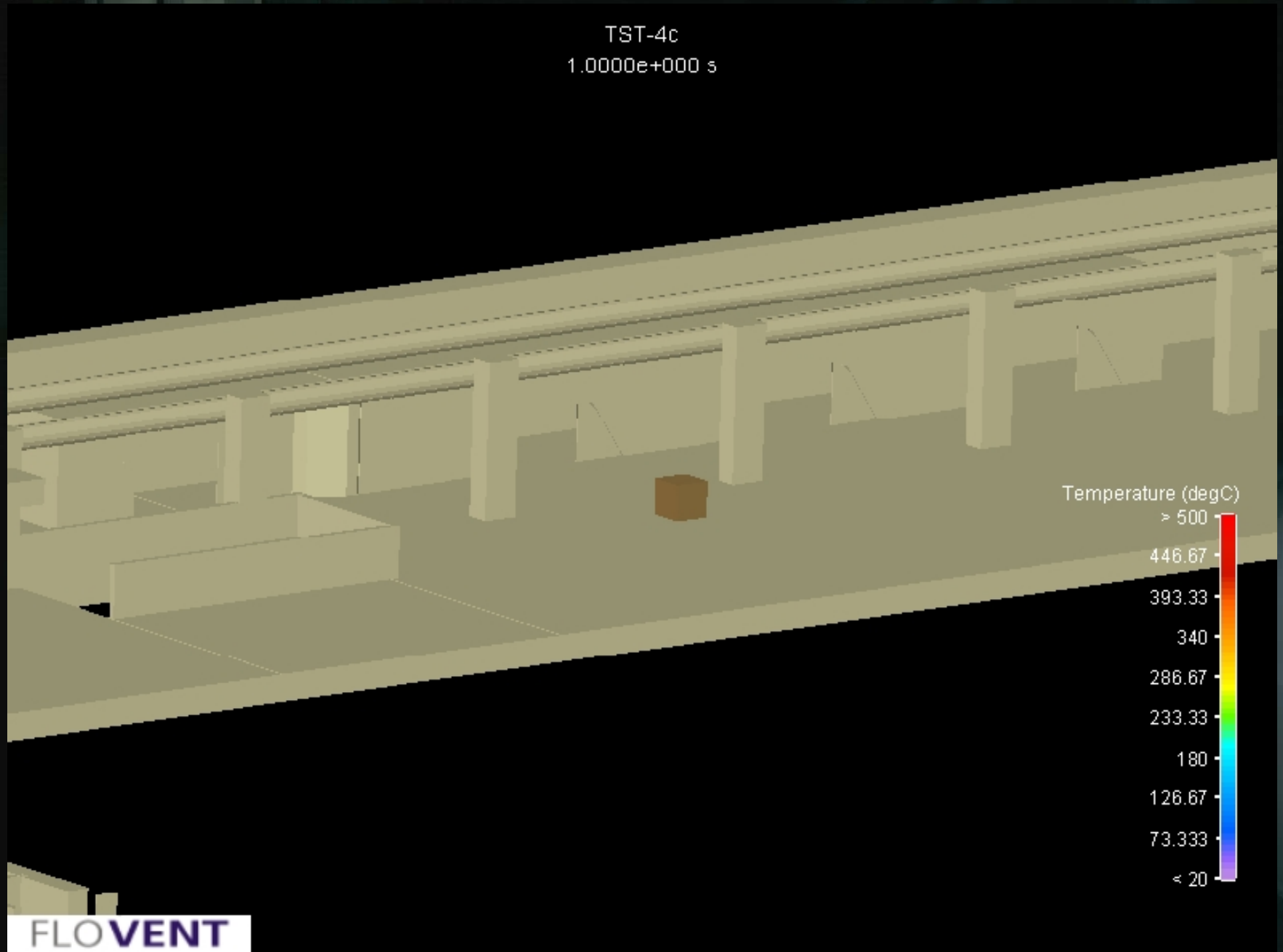
SUN STUDY



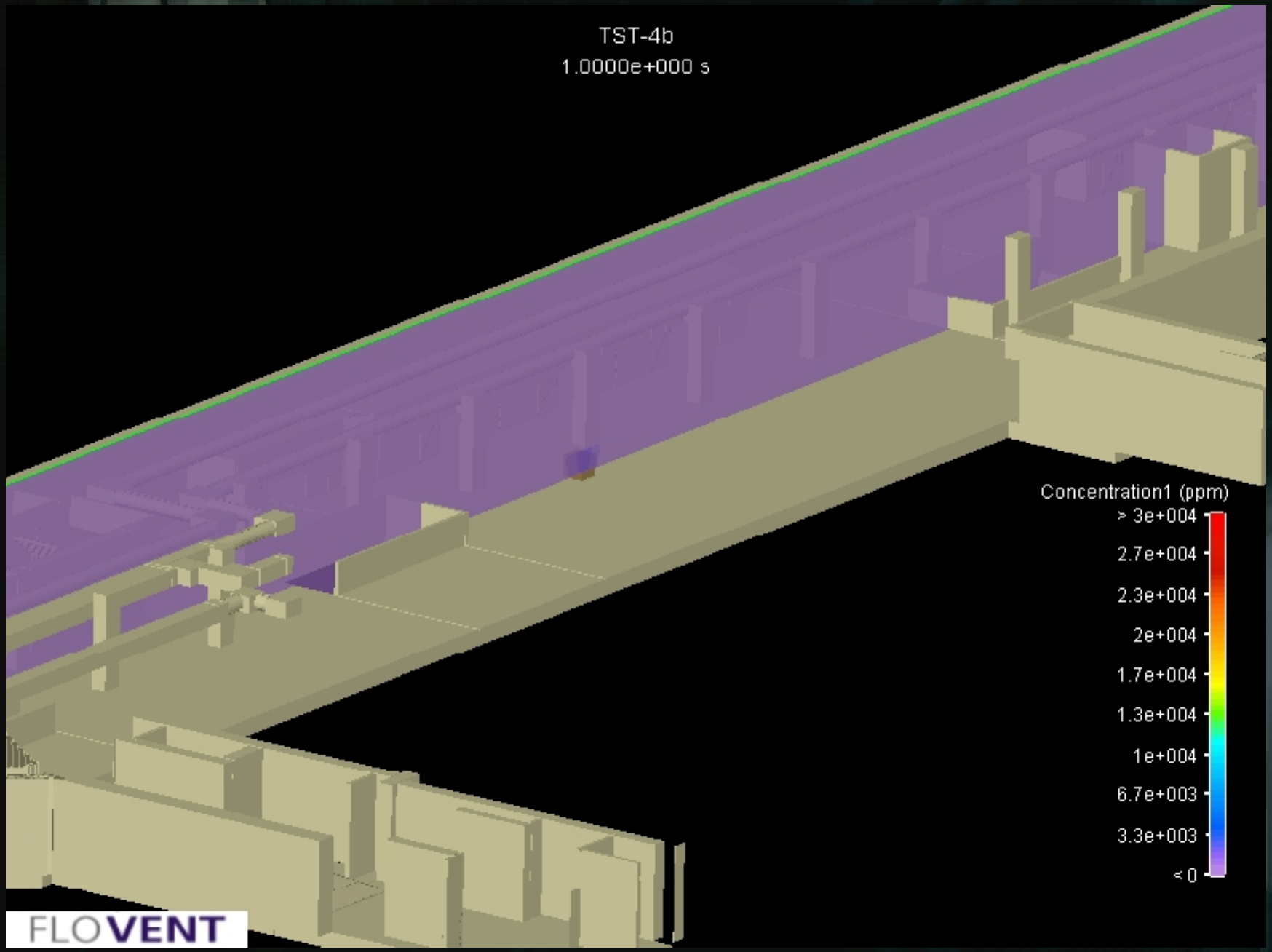
FAÇADE SOLAR STUDY

21/12/2006 7:00am – 6:00pm

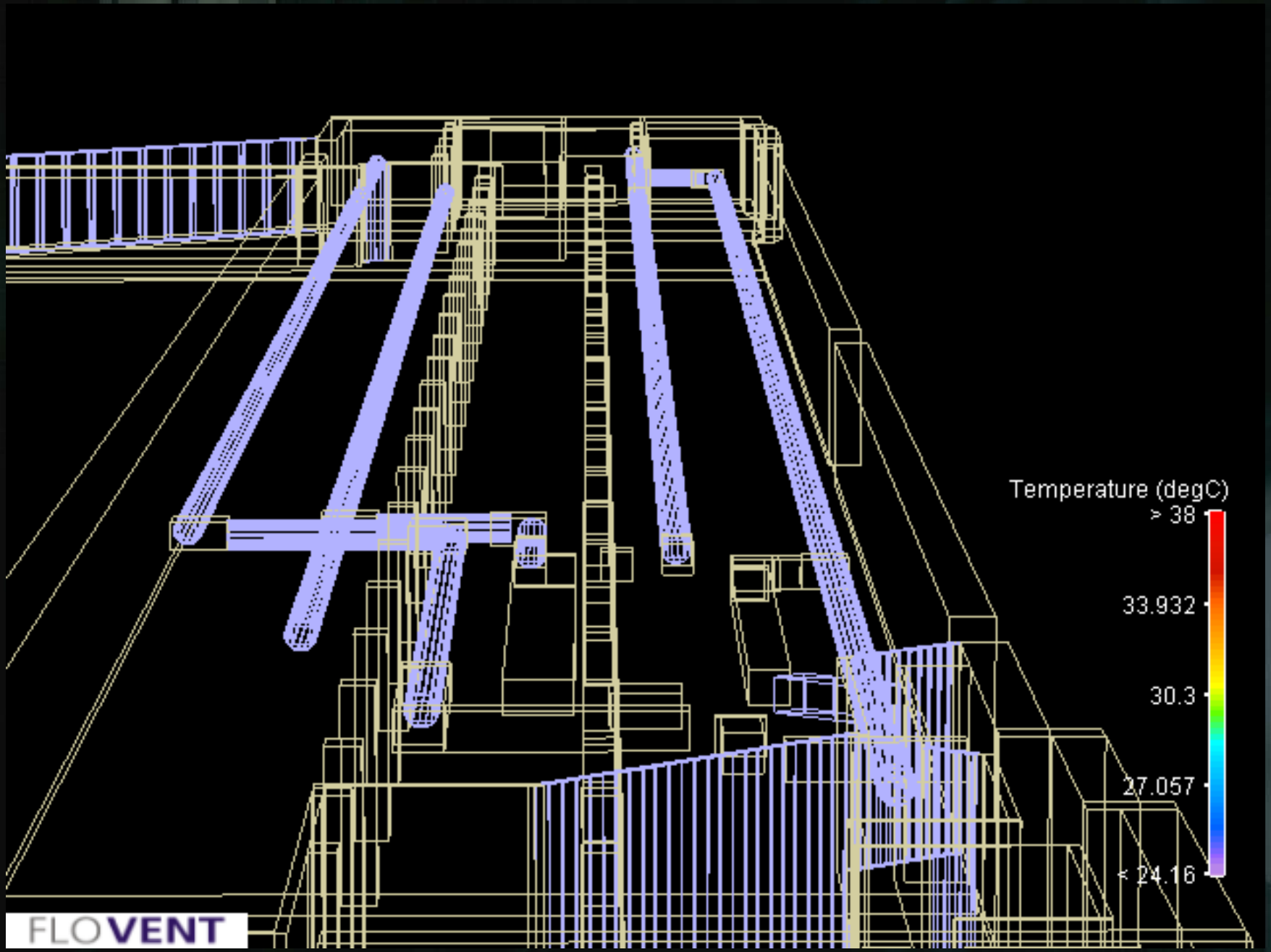
ANALYSIS


TST-4c
1.0000e+000 s
Temperature (degC)
> 500
446.67
393.33
340
286.67
233.33
180
126.67
73.333
< 20
FLOVENT

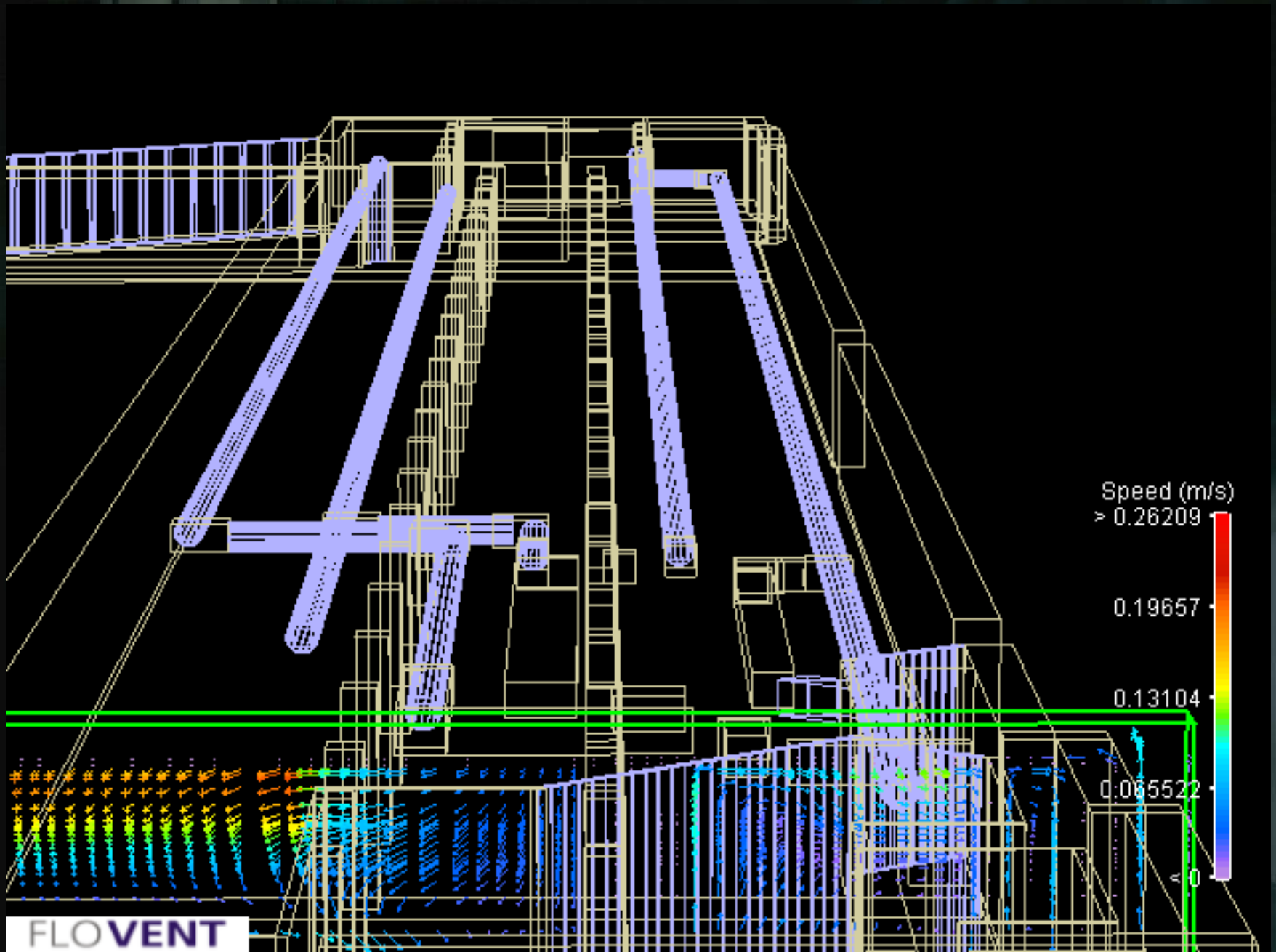
ANALYSIS


TST-4b
1.0000e+000 s
Concentration1 (ppm)
> 3e+004
2.7e+004
2.3e+004
2e+004
1.7e+004
1.3e+004
1e+004
6.7e+003
3.3e+003
< 0
FLOVENT

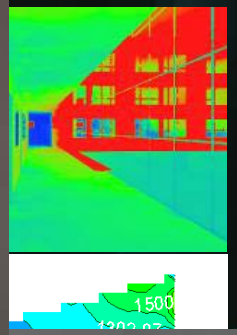
ANALYSIS

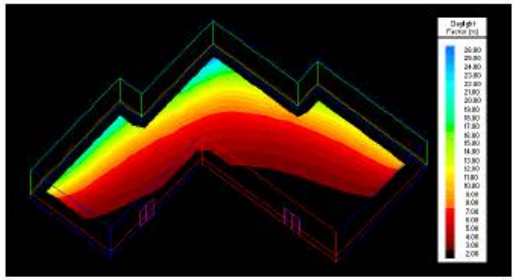


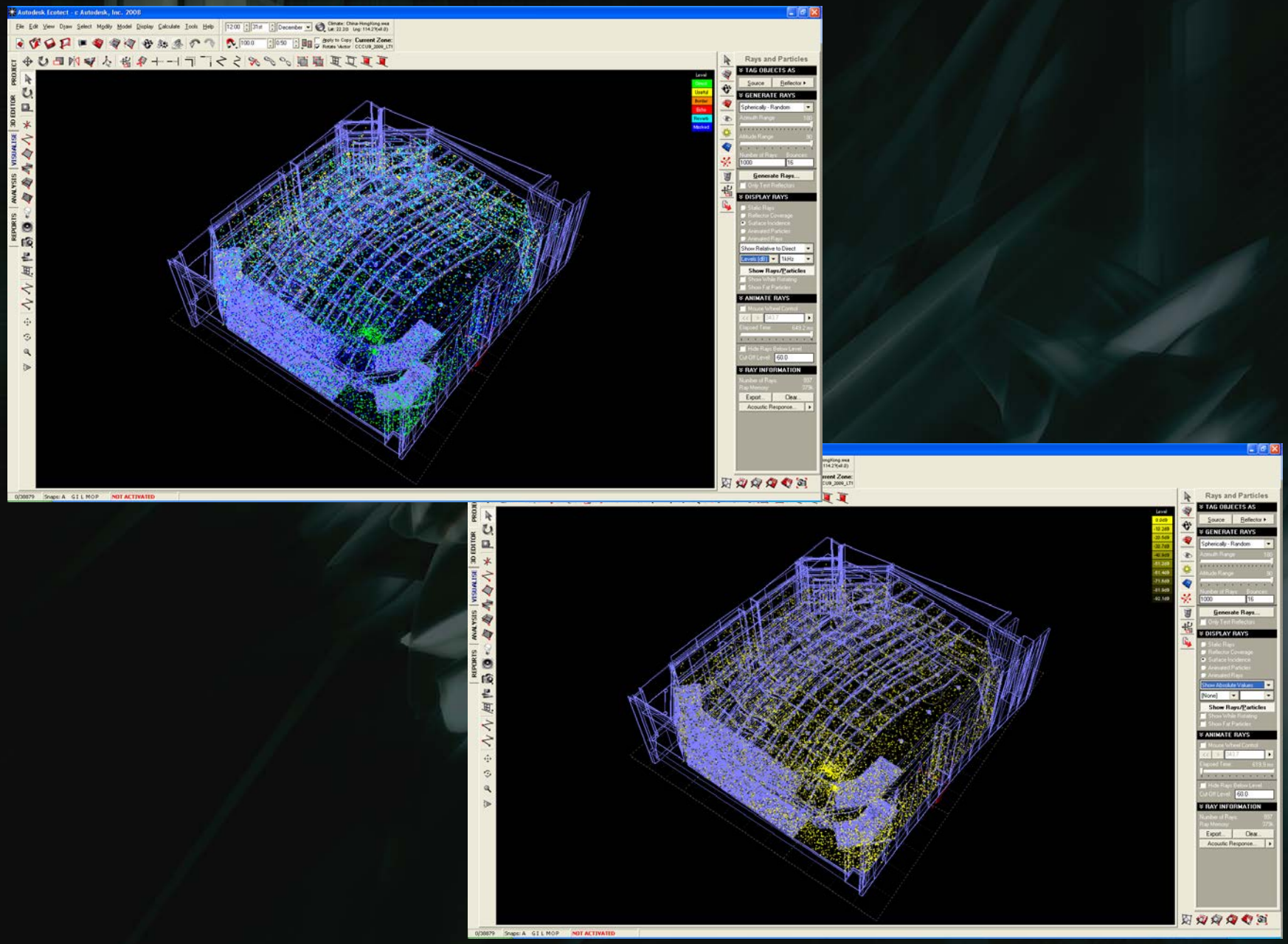
ANALYSIS



esign






Autodesk Ecotect - © Autodesk, Inc. 2008
File Edit View Draw Select Modify Model Display Calculate Tools Help
PROJECT
3D EDITOR
VISUALISE
ANALYSIS
REPORTS
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...
NOT ACTIVATED

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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

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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

Autodesk Revit Building 9.1 - [Round tube.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

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
- Ref Plane
- Dimension
- Section
- Level
- Text

Round tube.rvt...
- Views (all)
  - Floor Plans
    - Level 1
    - Level 2
    - Level 3
    - Level 4
    - Level 5
    - Level 6
    - Level 7
    - Level 8
    - Level 9
    - Level 10
    - Level 11
    - Level 12
    - Level 13
    - Level 14
    - Level 15
    - Level 16
    - Level 17
    - Level 18
    - Level 19
    - Level 20
    - Level 21
    - Level 22
    - Level 23
    - Level 24
    - Level 25
    - Level 26
    - Level 27
    - Level 28
    - Level 29
    - Level 30
    - Site
  - Ceiling Plans
    - Level 1
    - Level 2
  - 3D Views
    - 3D View 1
    - 3D View 2
    - {3D}
  - Elevations (Build
    - East
    - North
    - South
    - West

Element Properties

Family: ElvisBlend | Load...

Type: ElvisBlend | Edit / New...

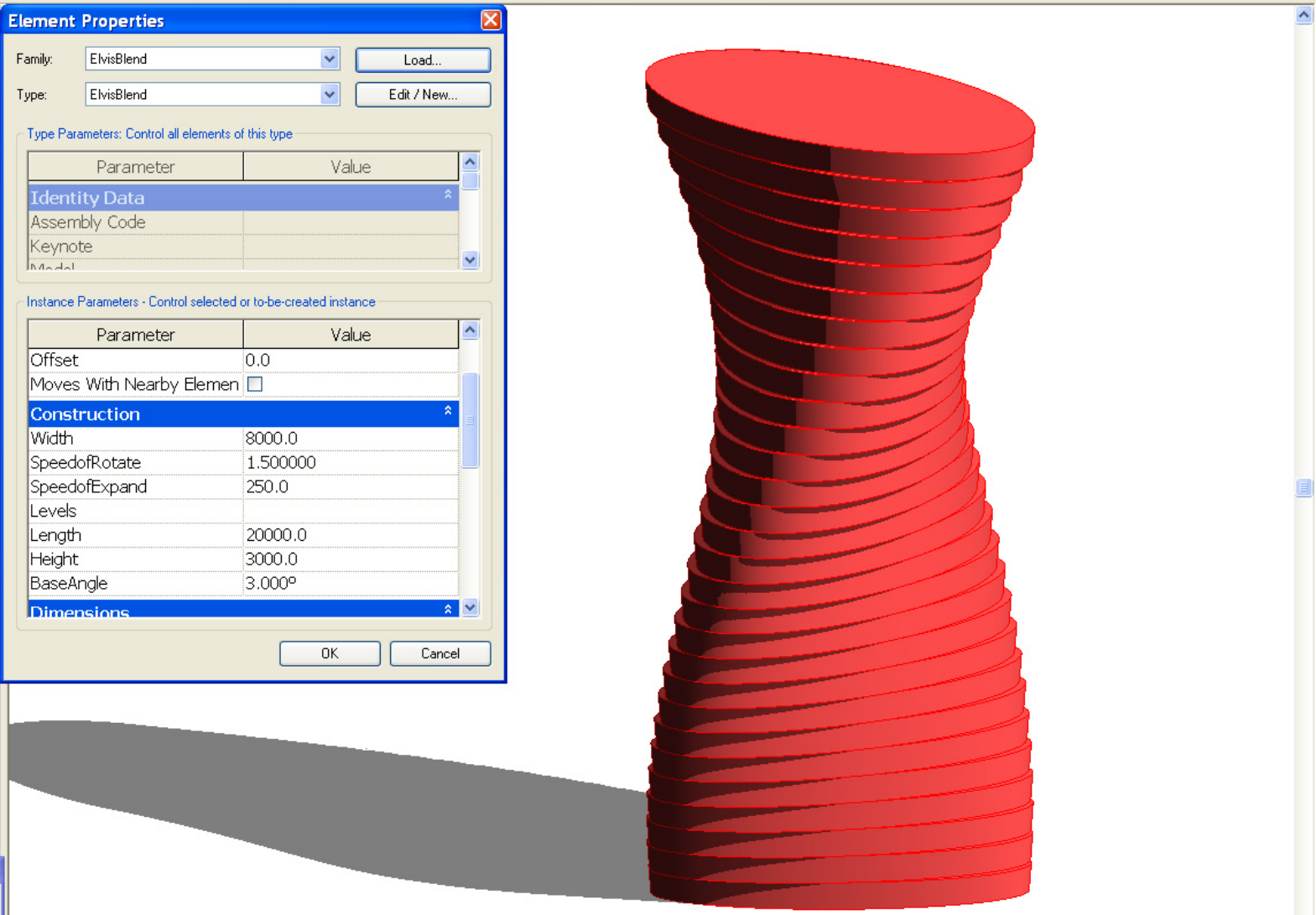
Type Parameters: Control all elements of this type

Parameter	Value
Identity Data	
Assembly Code	
Keynote	
Model	

Instance Parameters - Control selected or to-be-created instance

Parameter	Value
Offset	0.0
Moves With Nearby Elemen	☐
Construction	
Width	8000.0
SpeedofRotate	1.500000
SpeedofExpand	250.0
Levels	
Length	20000.0
Height	3000.0
BaseAngle	3.000°
Dimensions	

OK | Cancel



Dynamic View

Drag mouse to change view via indicated mode.

Scroll | Zoom (Ctrl) | Spin (Shift)

Wheel zooms. Without dialog use middle button.

Examine

1 : 100

Hold button and move mouse to Scroll the view. Hold Ctrl key to Zoom. Hold Shift key to Spin.

start | Control Panel | 20070107 Shunde Re... | Autodesk Revit Buildi... | Adobe Photoshop | EN | 69% | 9:49 AM

Autodesk Revit Building 9.1 - [Round tube.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

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
- Ref Plane
- Dimension
- Section
- Level
- Text

View
Modelling
Drafting
Rendering
Site

Round tube.rvt...
- Views (all)
  - Floor Plans
    - Level 1
    - Level 2
    - Level 3
    - Level 4
    - Level 5
    - Level 6
    - Level 7
    - Level 8
    - Level 9
    - Level 10
    - Level 11
    - Level 12
    - Level 13
    - Level 14
    - Level 15
    - Level 16
    - Level 17
    - Level 18
    - Level 19
    - Level 20
    - Level 21
    - Level 22
    - Level 23
    - Level 24
    - Level 25
    - Level 26
    - Level 27
    - Level 28
    - Level 29
    - Level 30
    - Site
  - Ceiling Plans
    - Level 1
    - Level 2
  - 3D Views
    - 3D View 1
    - 3D View 2
    - {3D}
  - Elevations (Build
    - East
    - North
    - South
    - West
- Legends
- Schedules/Quan
  - Mass Schedule
  - Mass Schedule
  - Multi-Category S
  - Multi-Category S

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Family: ElvisBlend | Load...

Type: ElvisBlend | Edit / New...

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Identity Data	
Assembly Code	
Keynote	
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Moves With Nearby Elemen	☐
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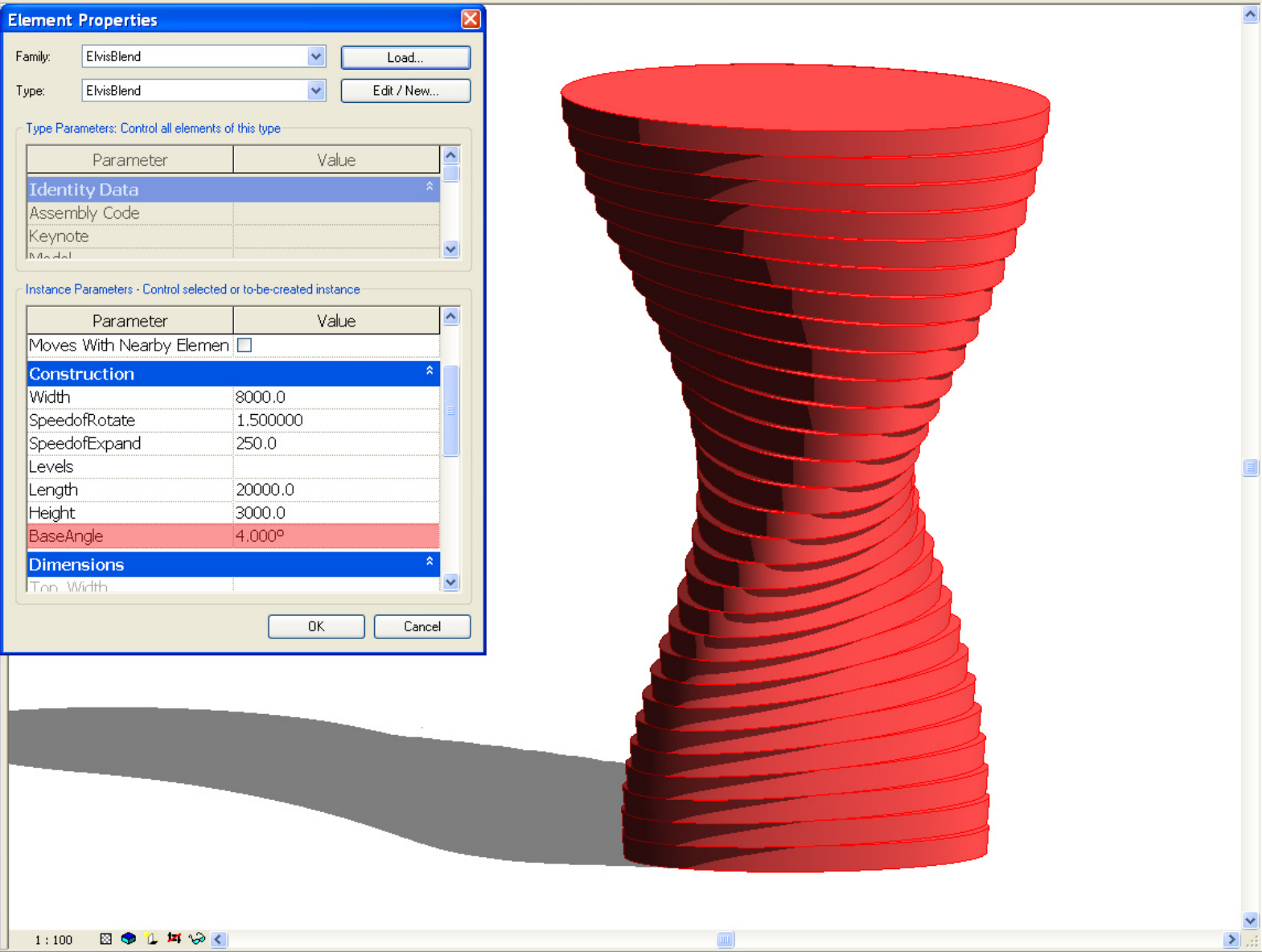
Width	8000.0
SpeedofRotate	1.500000
SpeedofExpand	250.0
Levels	
Length	20000.0
Height	3000.0
BaseAngle	4.000°
Dimensions	
Top Width	

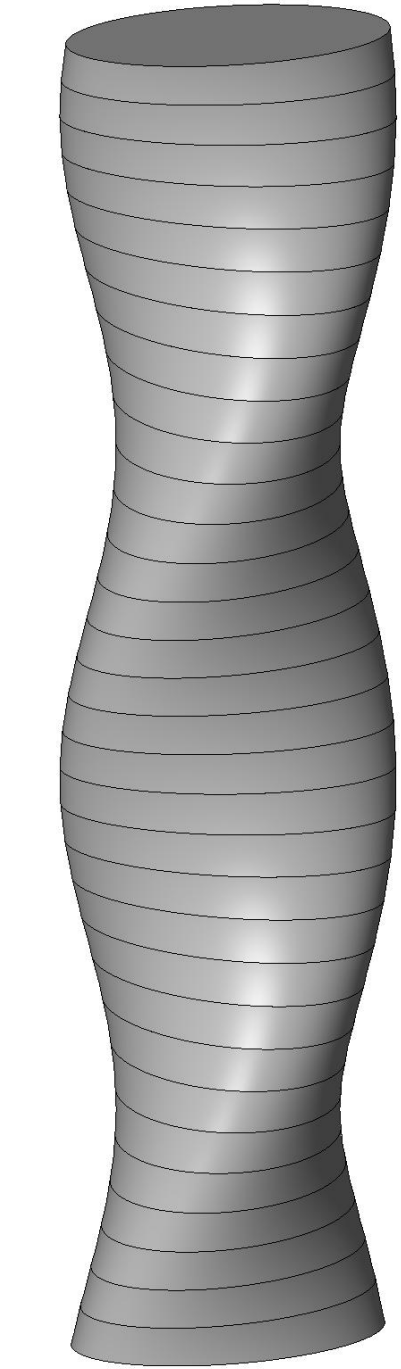
OK | Cancel

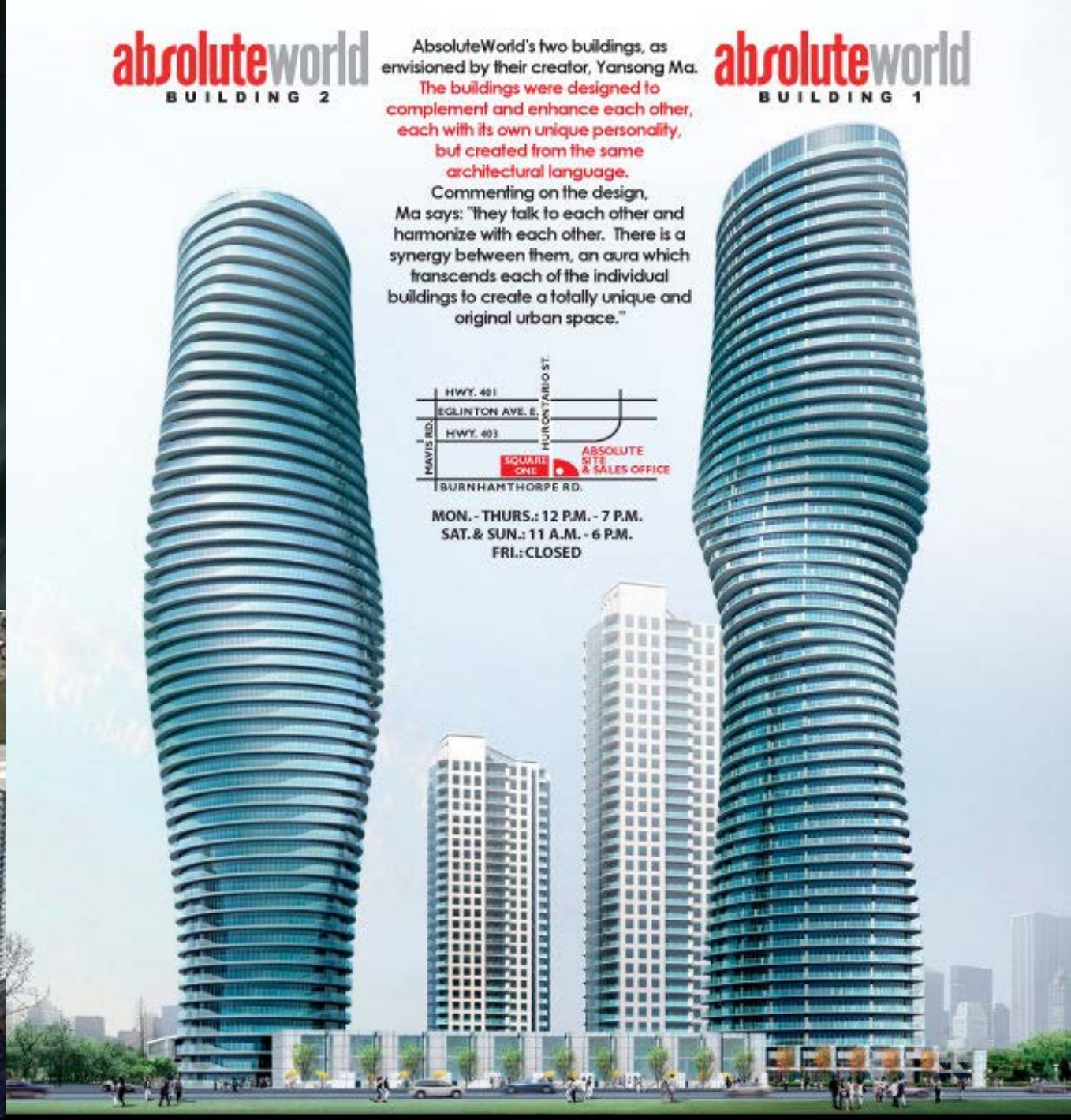


1 : 100

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

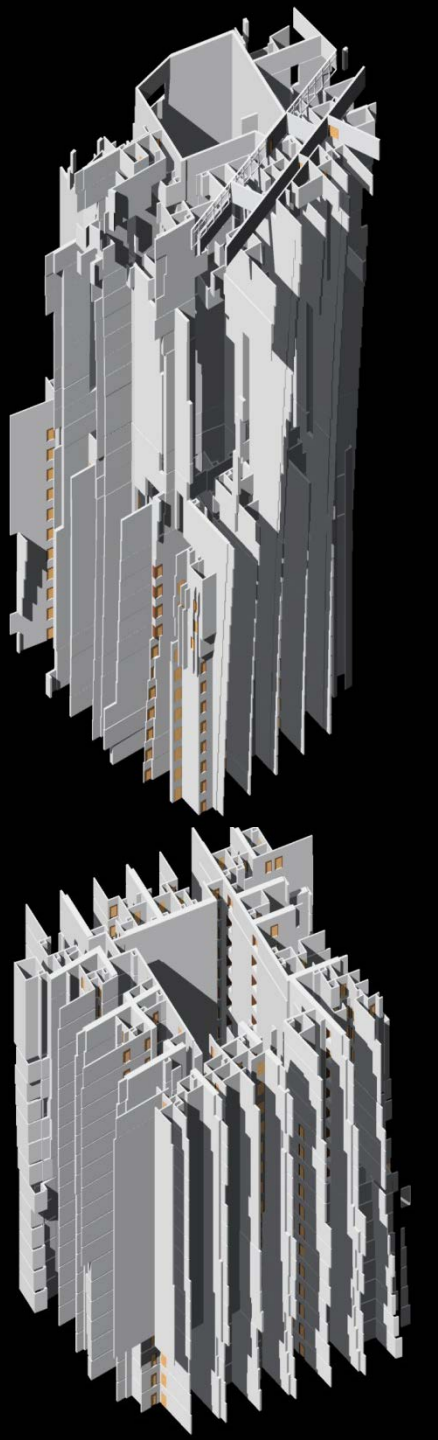
start | Control Panel | 20070107 Shunde Re... | Autodesk Revit Buildi... | Adobe Photoshop | EN | 74% | 9:55 AM



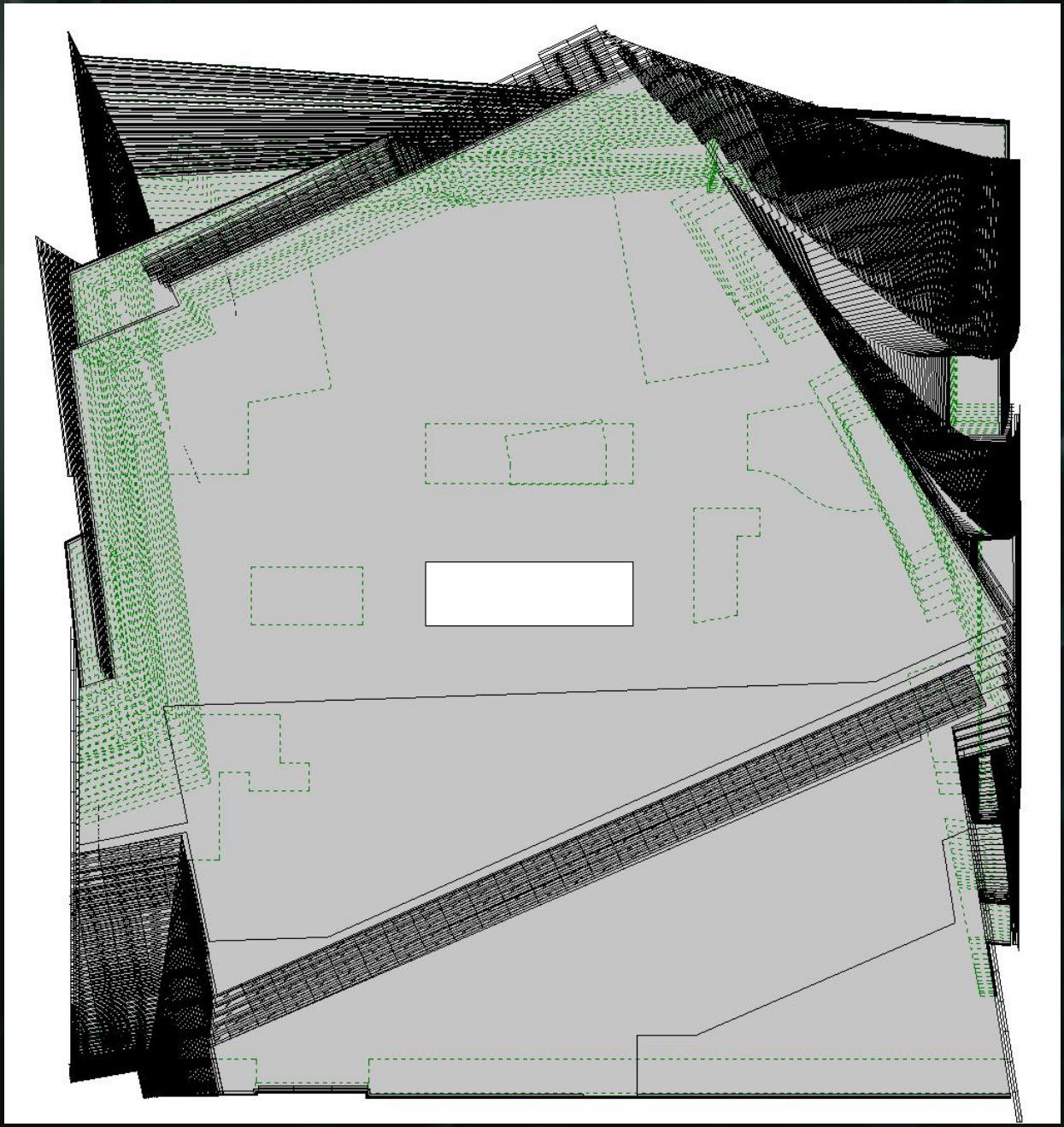

absoluteworld
BUILDING 2
absoluteworld
BUILDING 1
AbsoluteWorld's two buildings, as envisioned by their creator, Yansong Ma.
The buildings were designed to complement and enhance each other, each with its own unique personality, but created from the same architectural language.
Commenting on the design, 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."
HWY. 401
EGLINTON AVE. E.
HWY. 403
MAVIS RD.
HURONTARIO ST.
SQUARE ONE
ABSOLUTE SITE & SALES OFFICE
BURNHAMTHORPE RD.
MON. - THURS.: 12 P.M. - 7 P.M.
SAT. & SUN.: 11 A.M. - 6 P.M.
FRI.: CLOSED

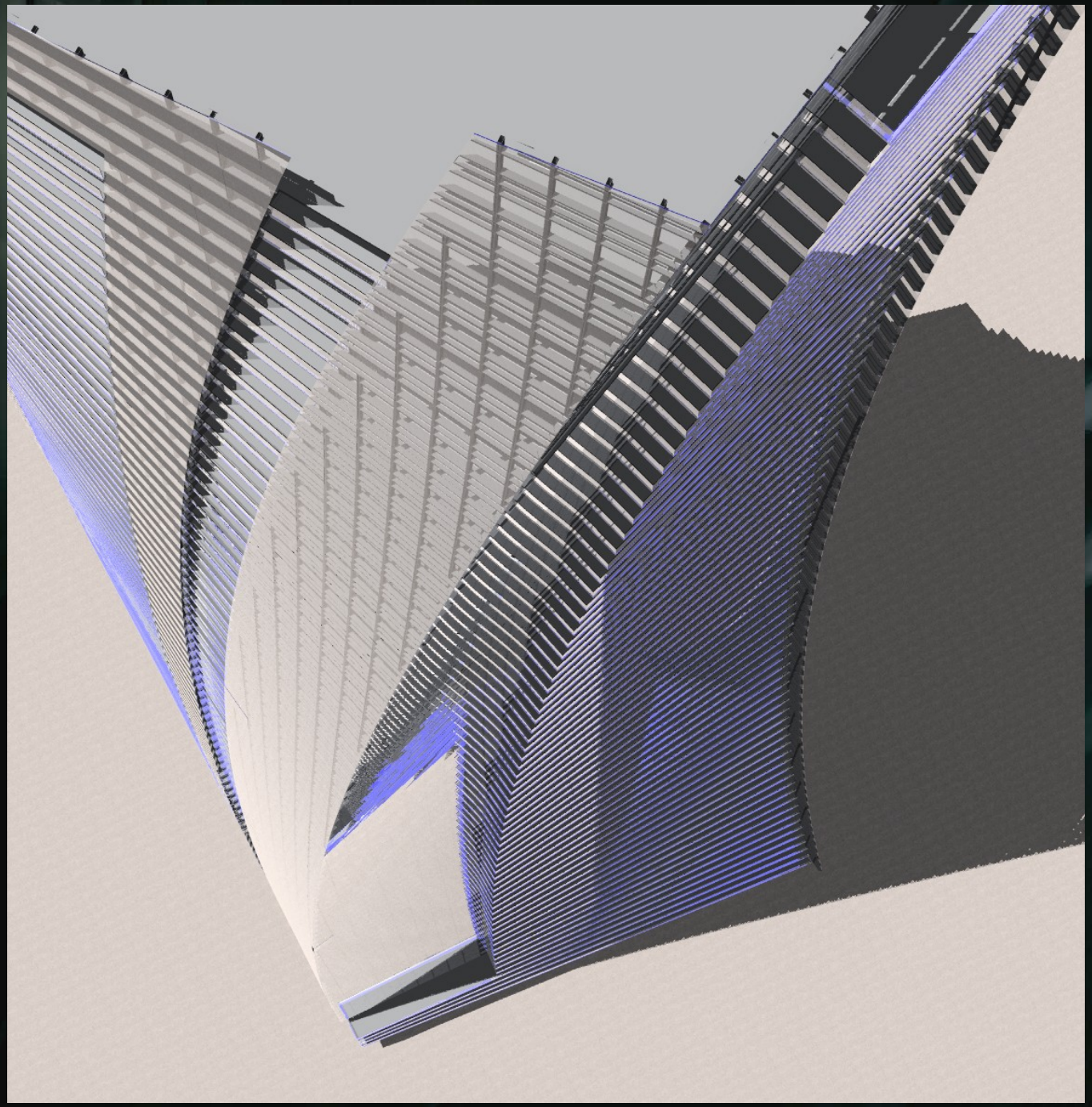
Program **Residential** Site Area **3,746 sqm**
Floor Area 858,855 sqm Building Height **304 m**

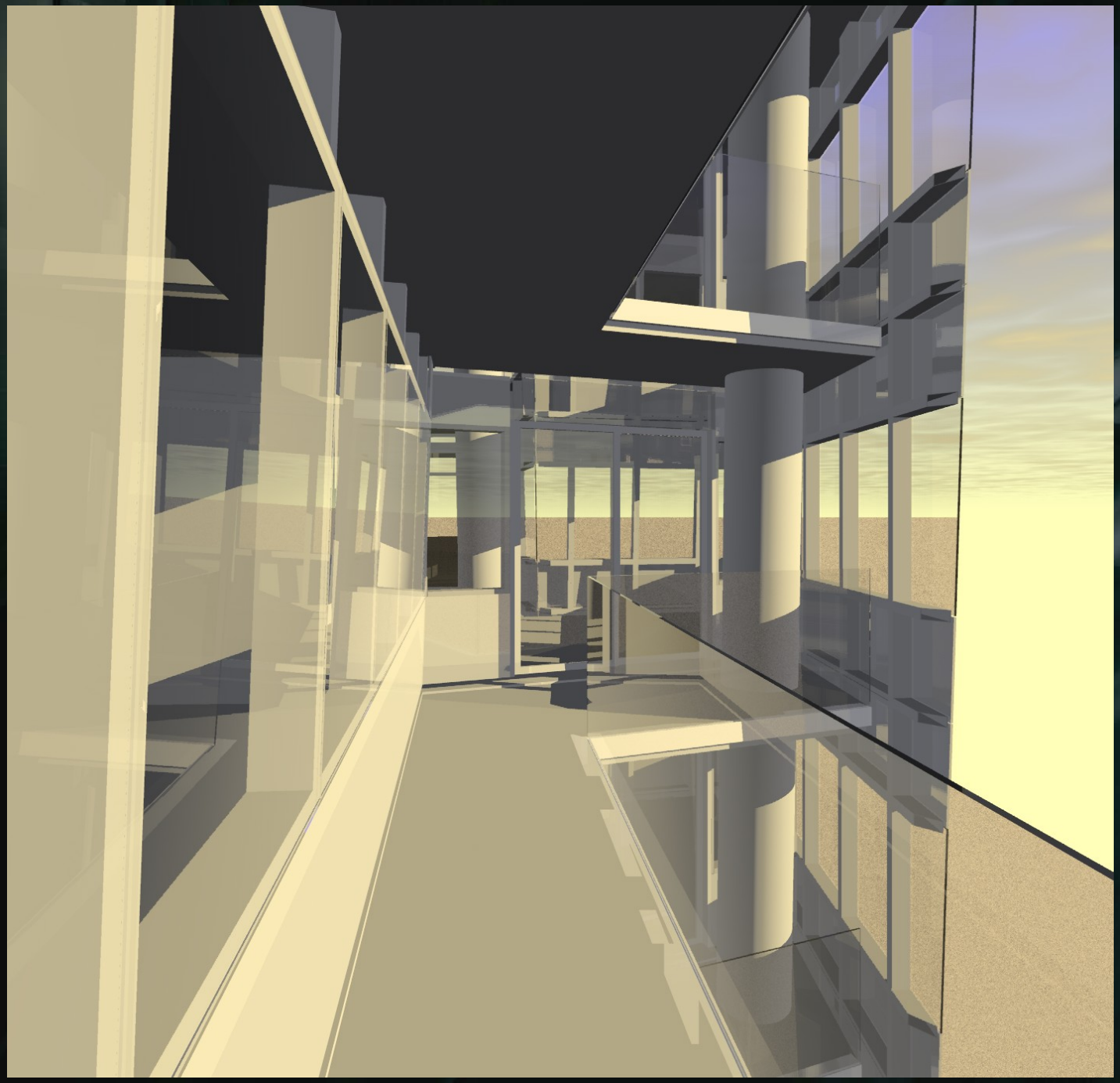
Dubai **Ocean Heights One**

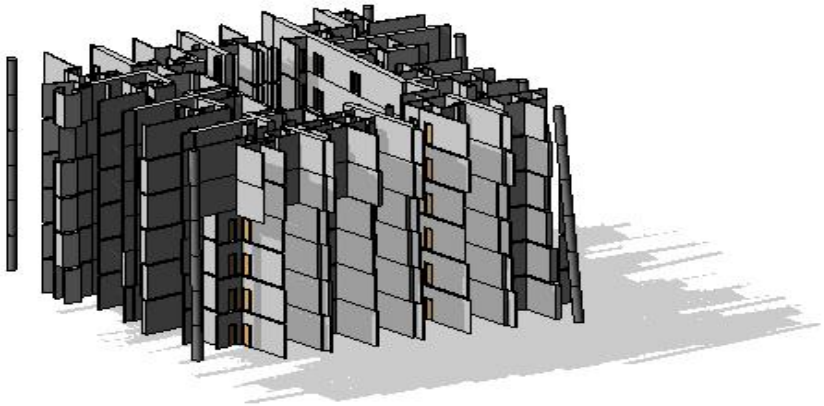


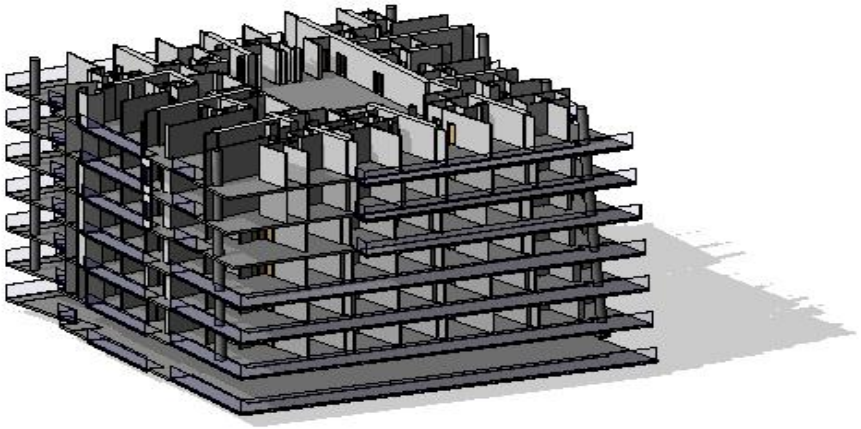
COMPLEX GEOMETRY

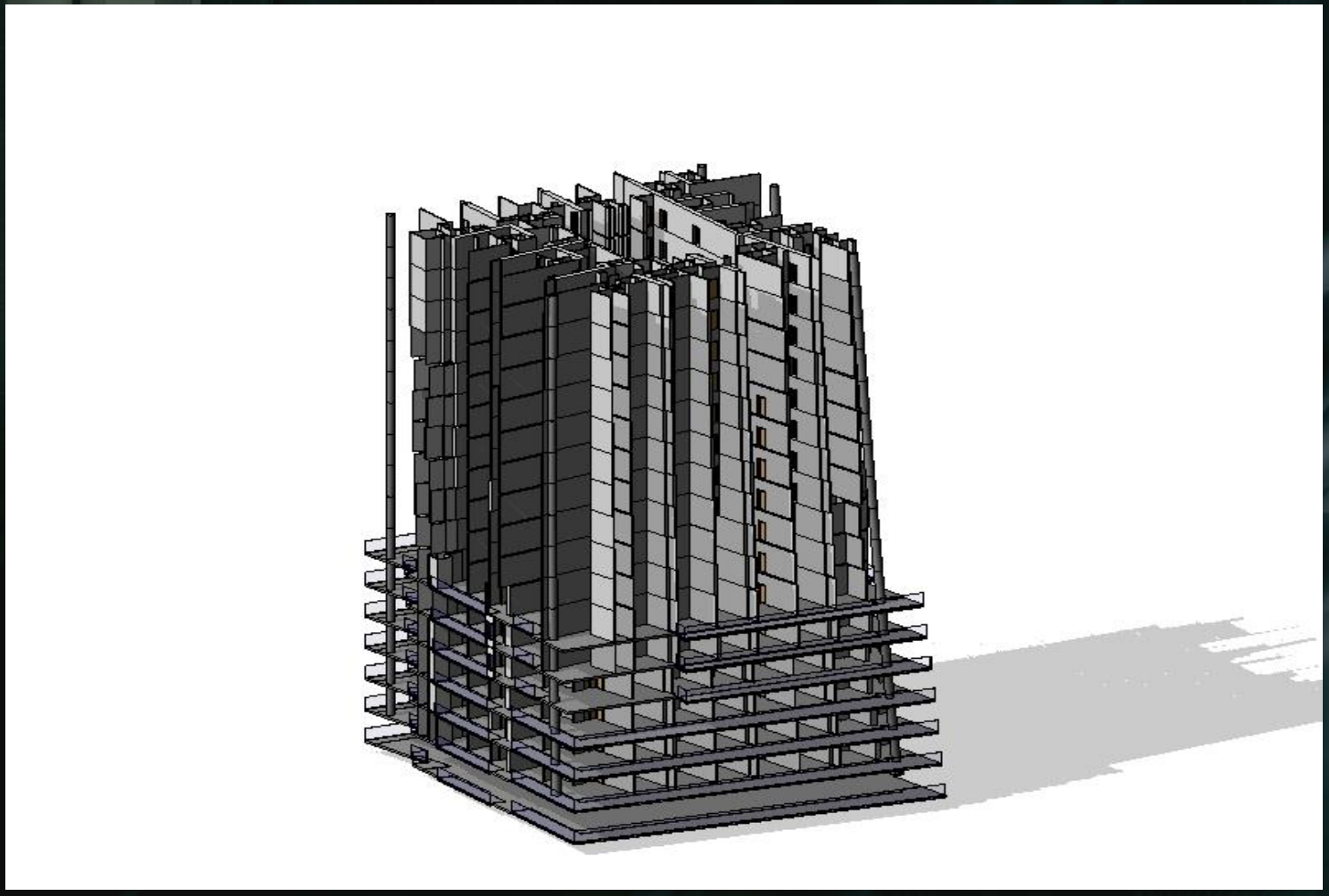


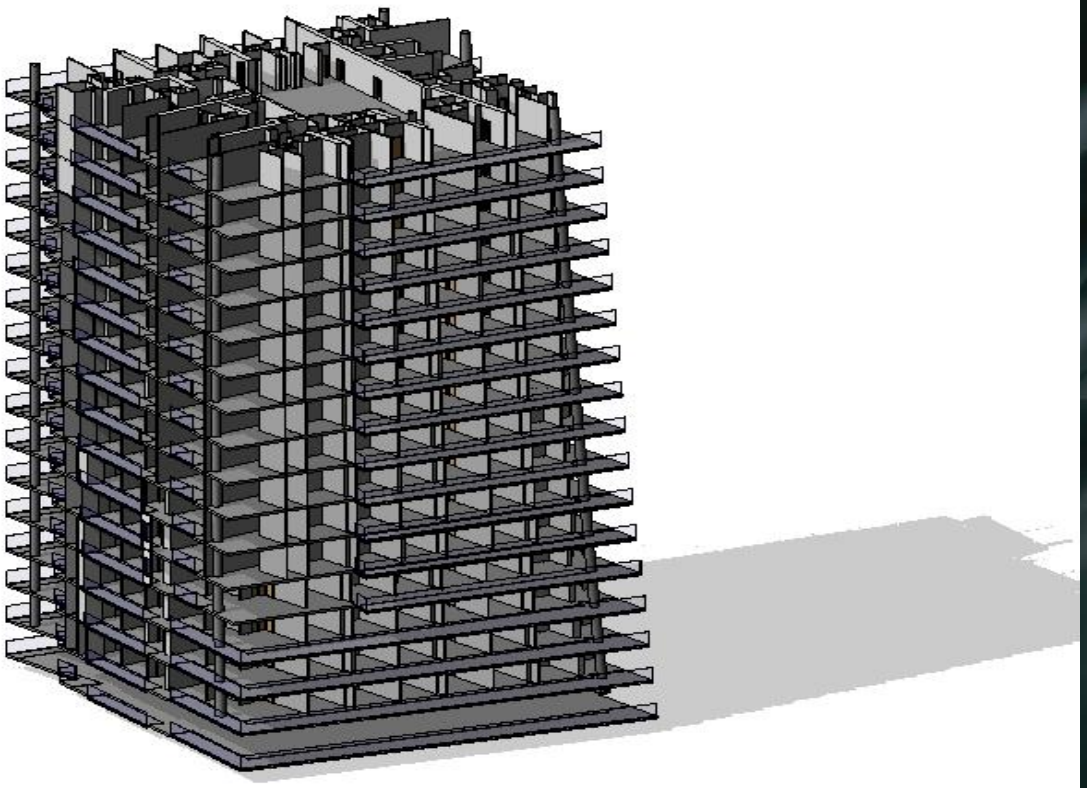


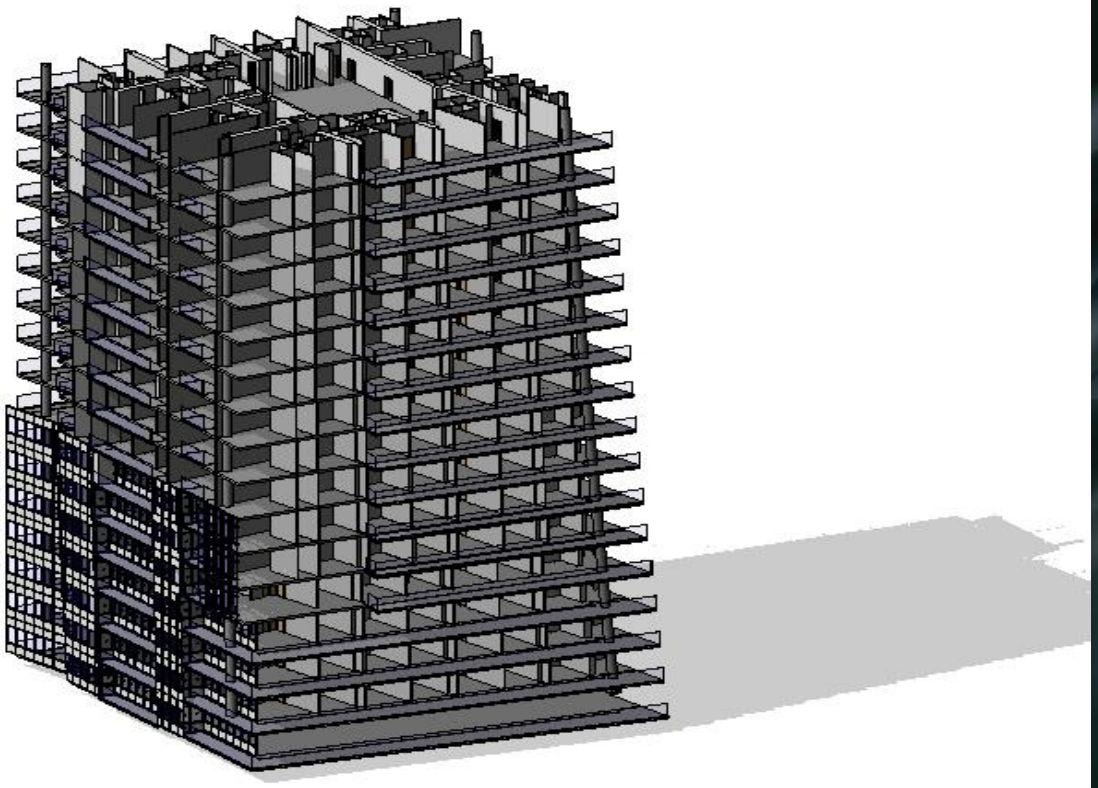


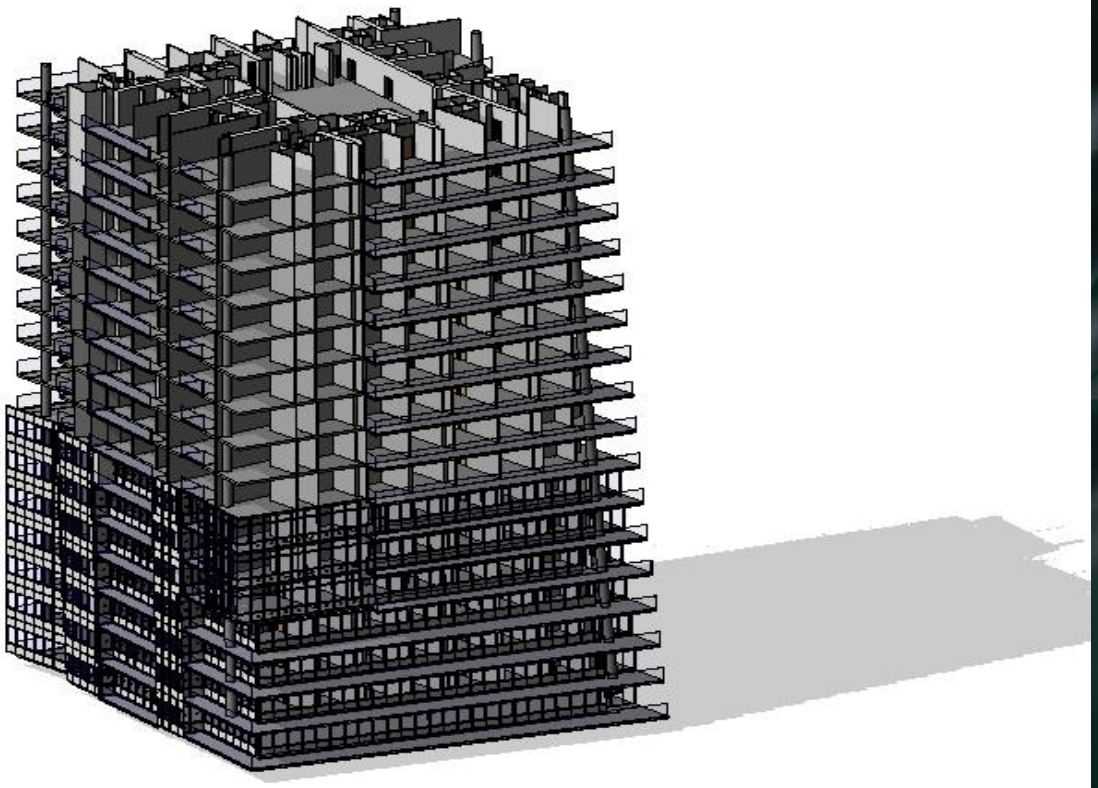


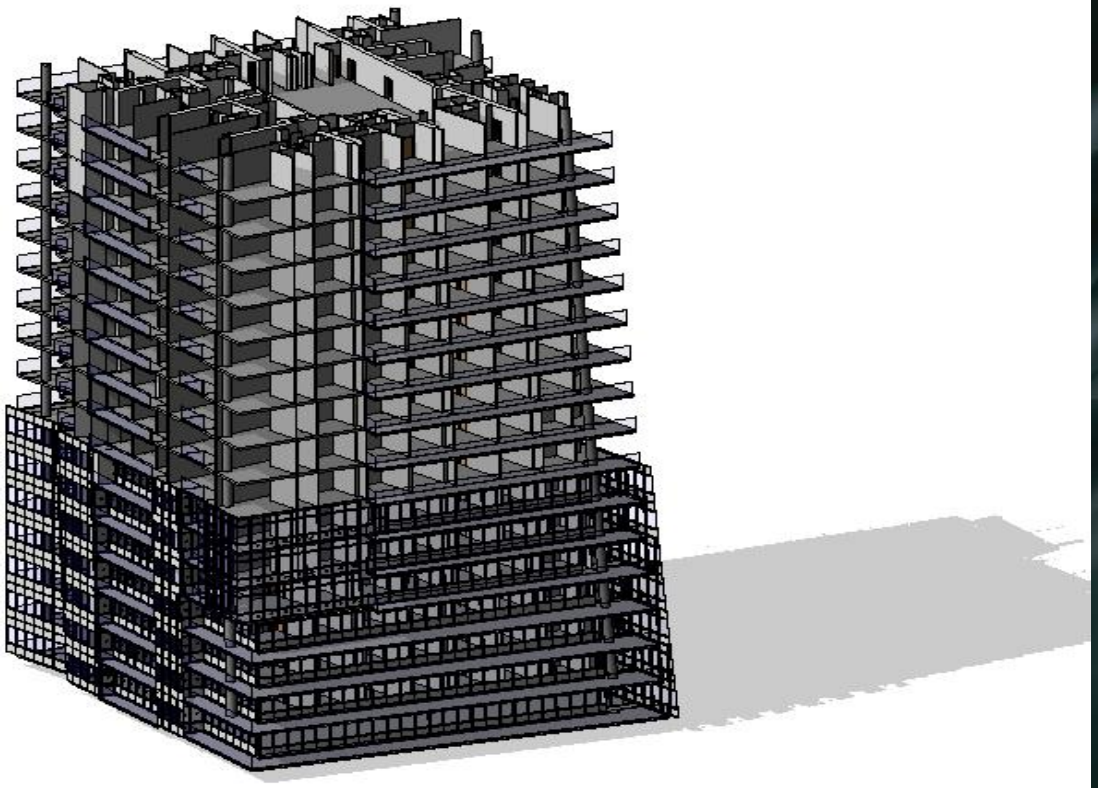


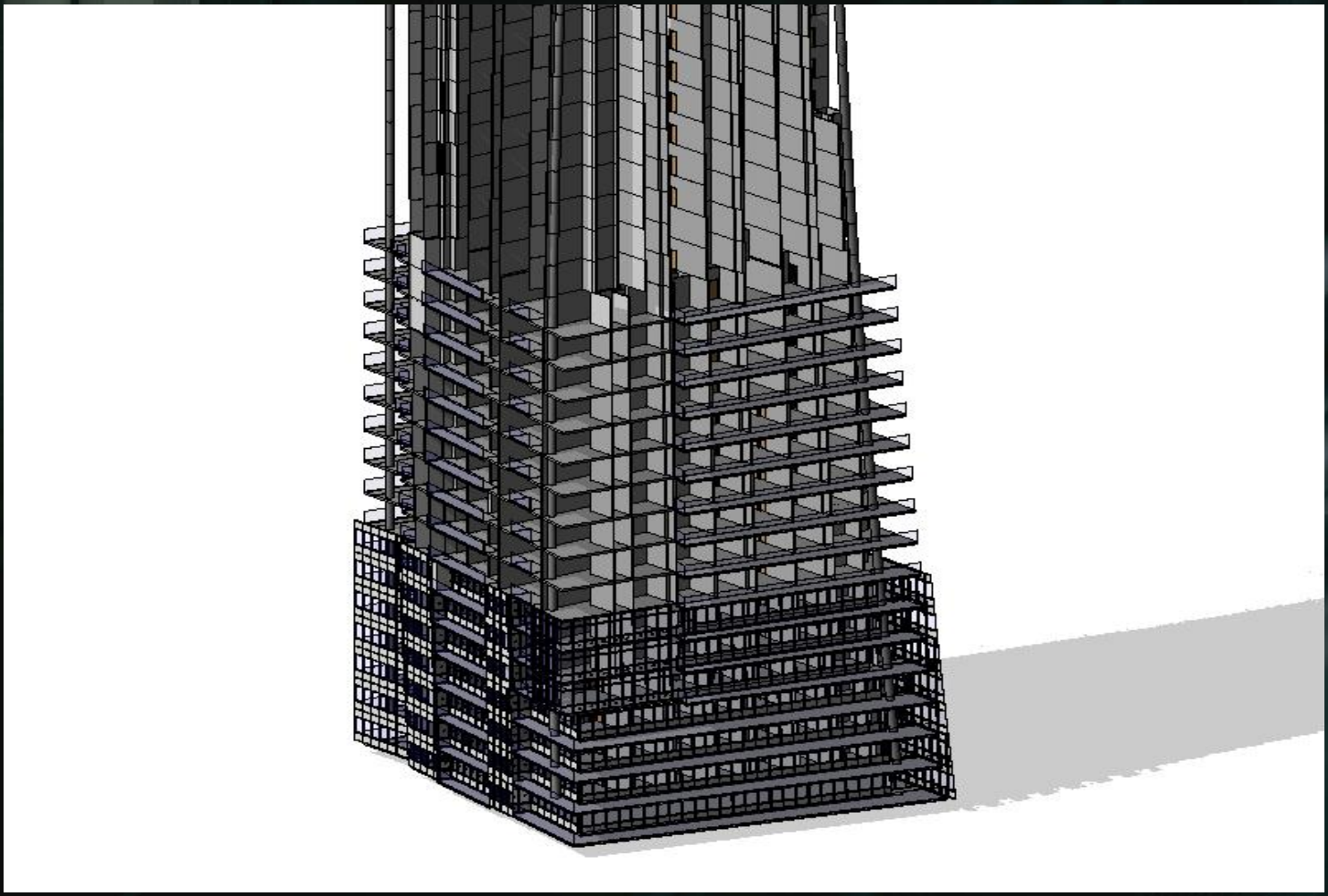


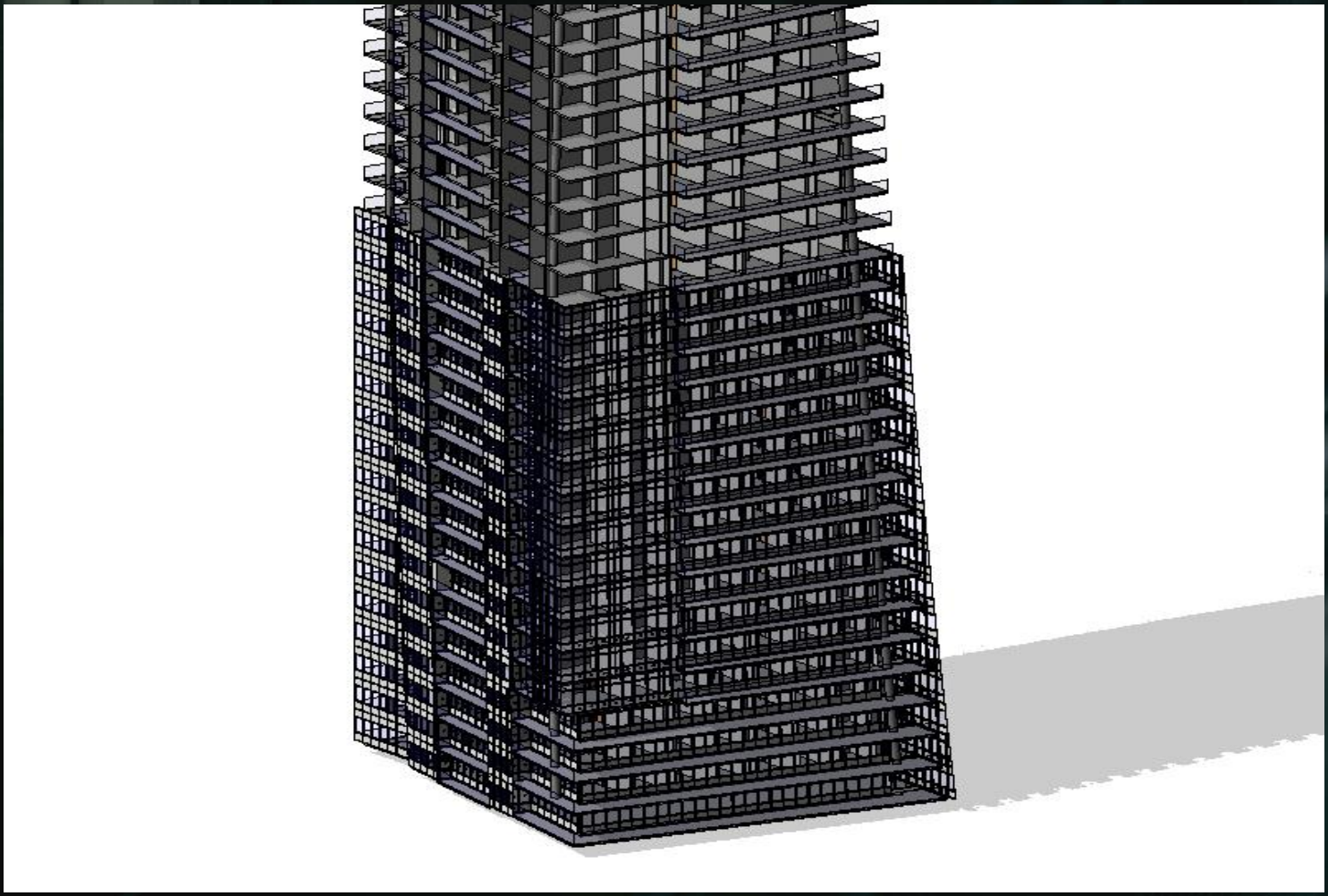


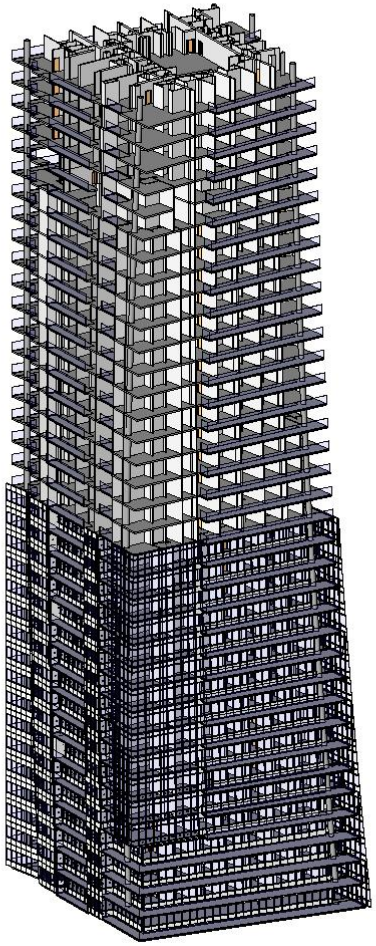


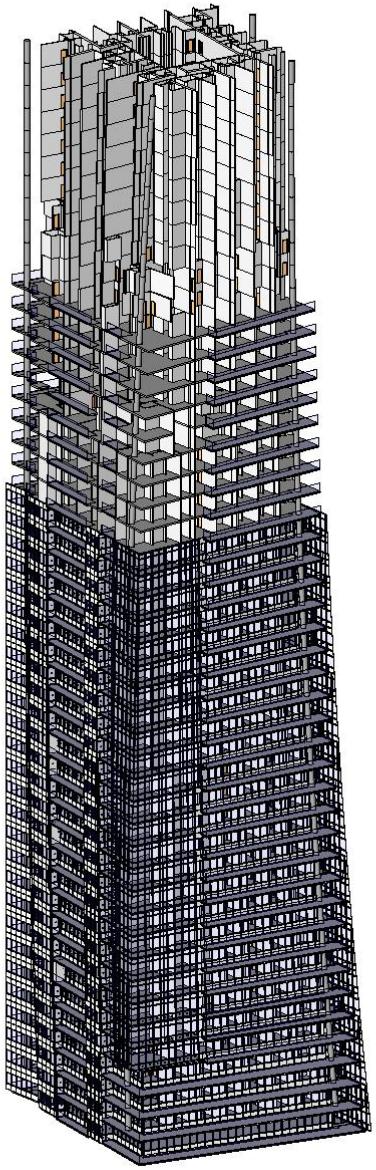


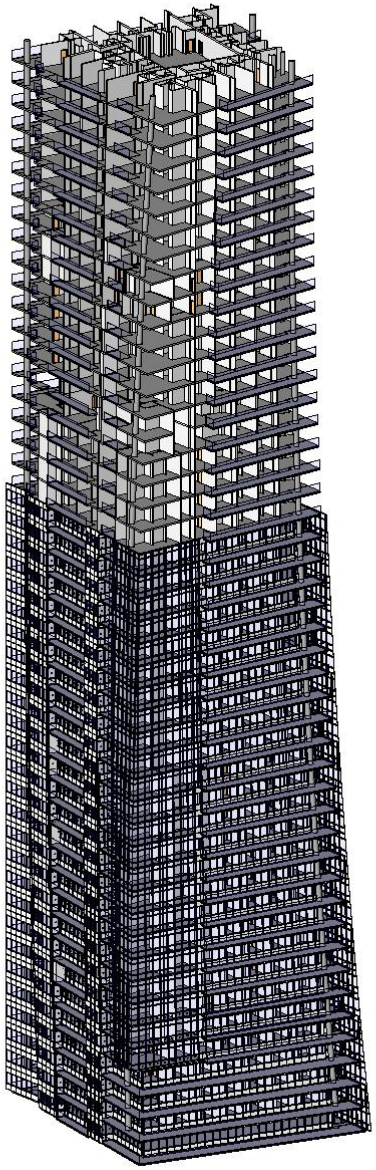


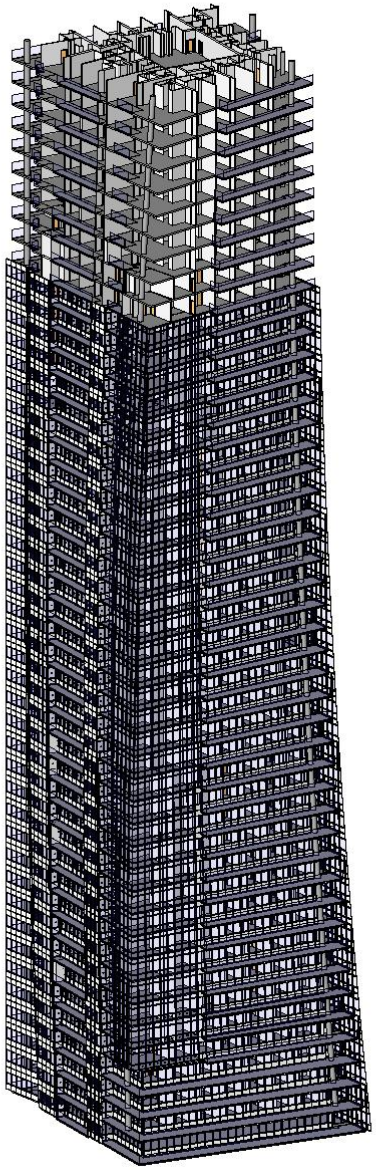


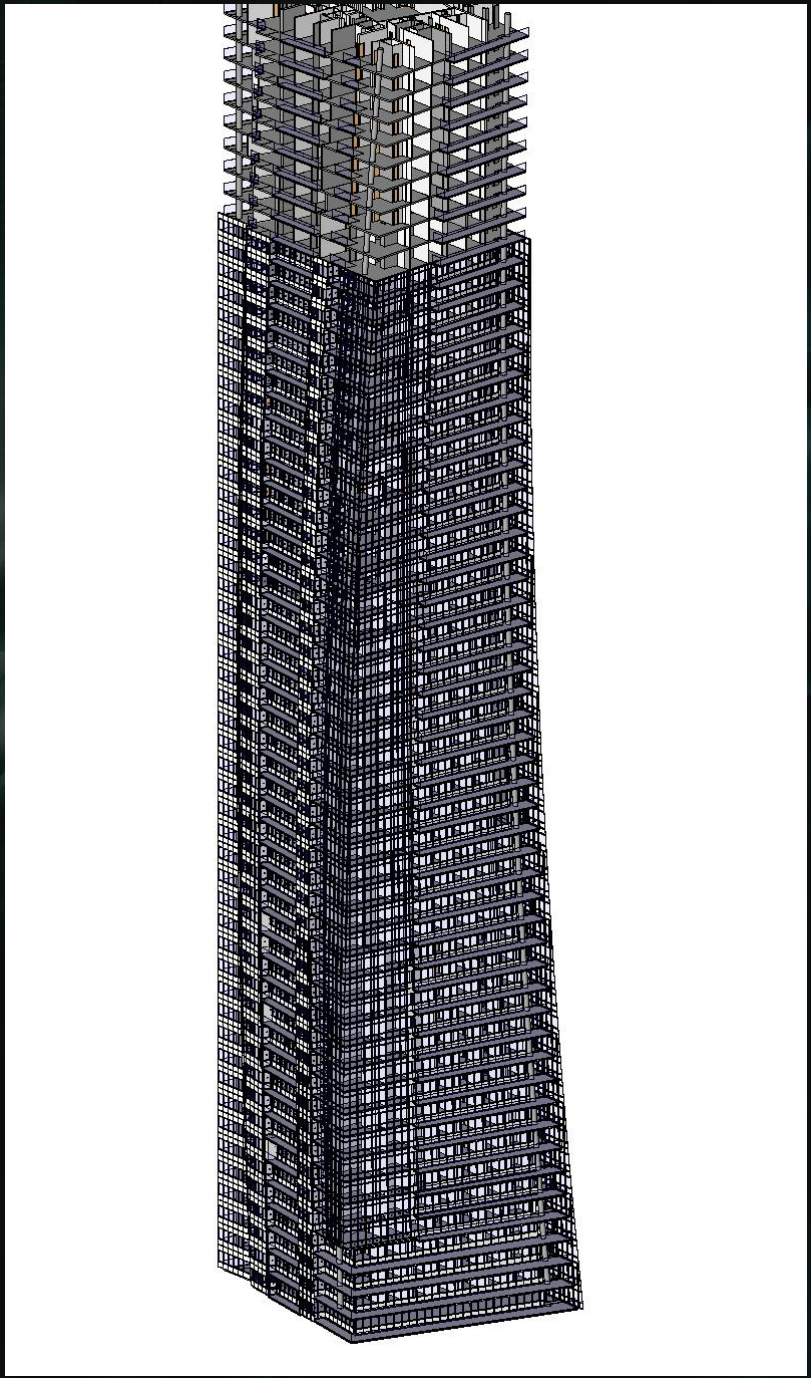


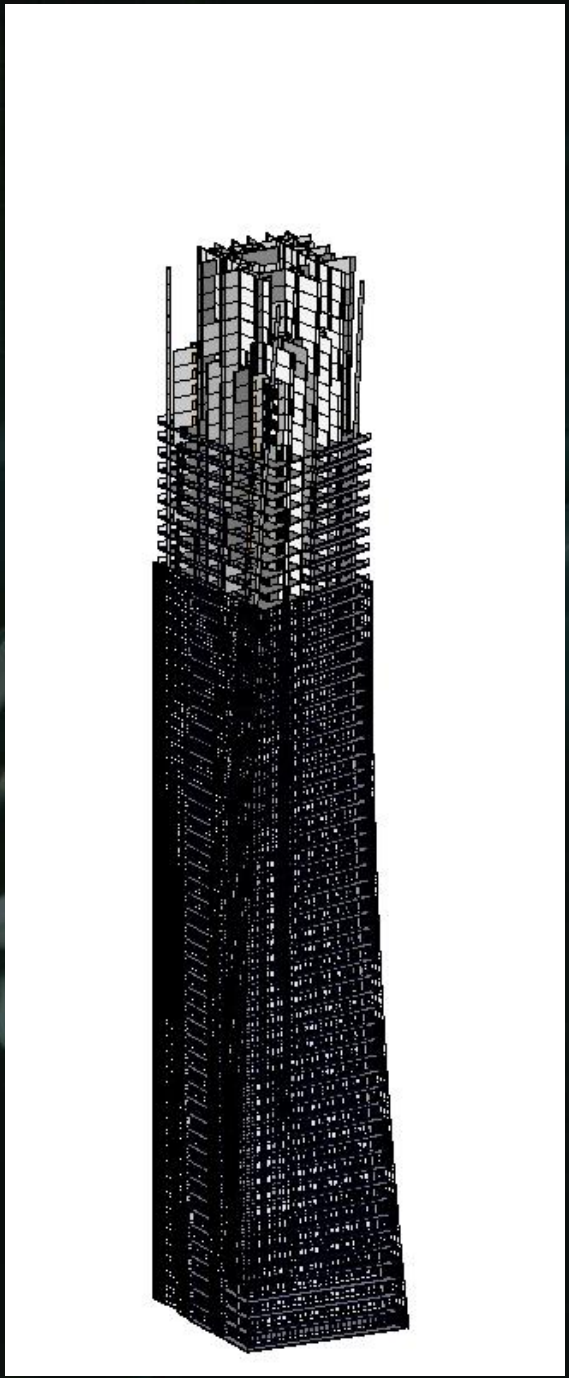


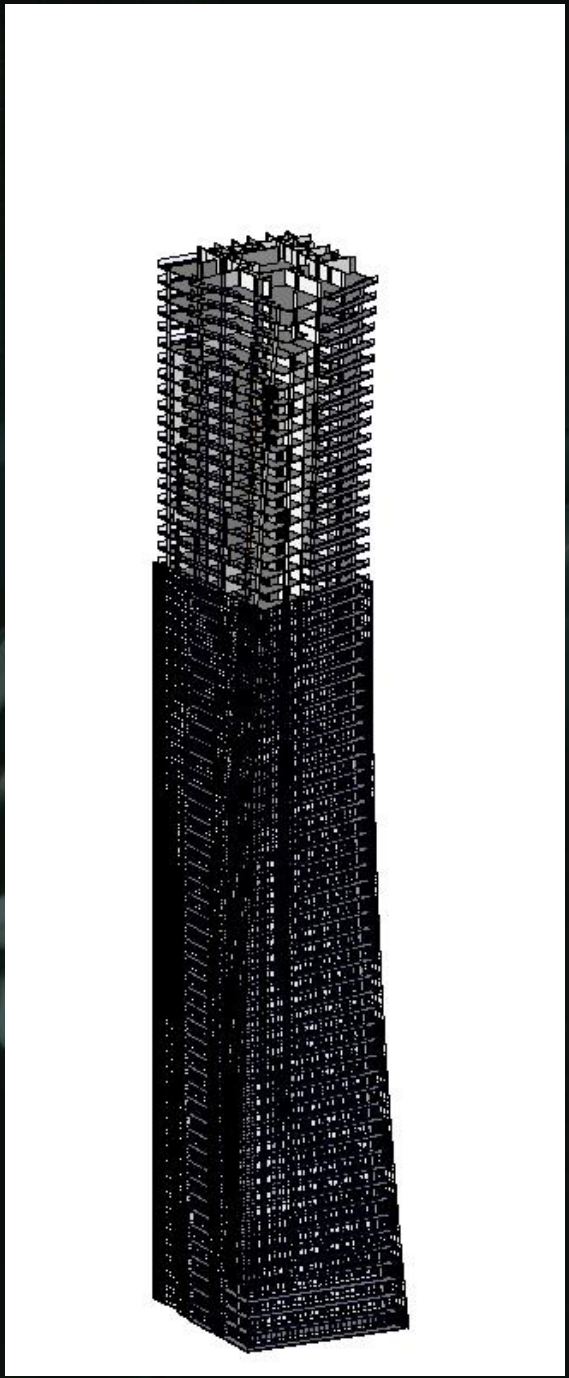


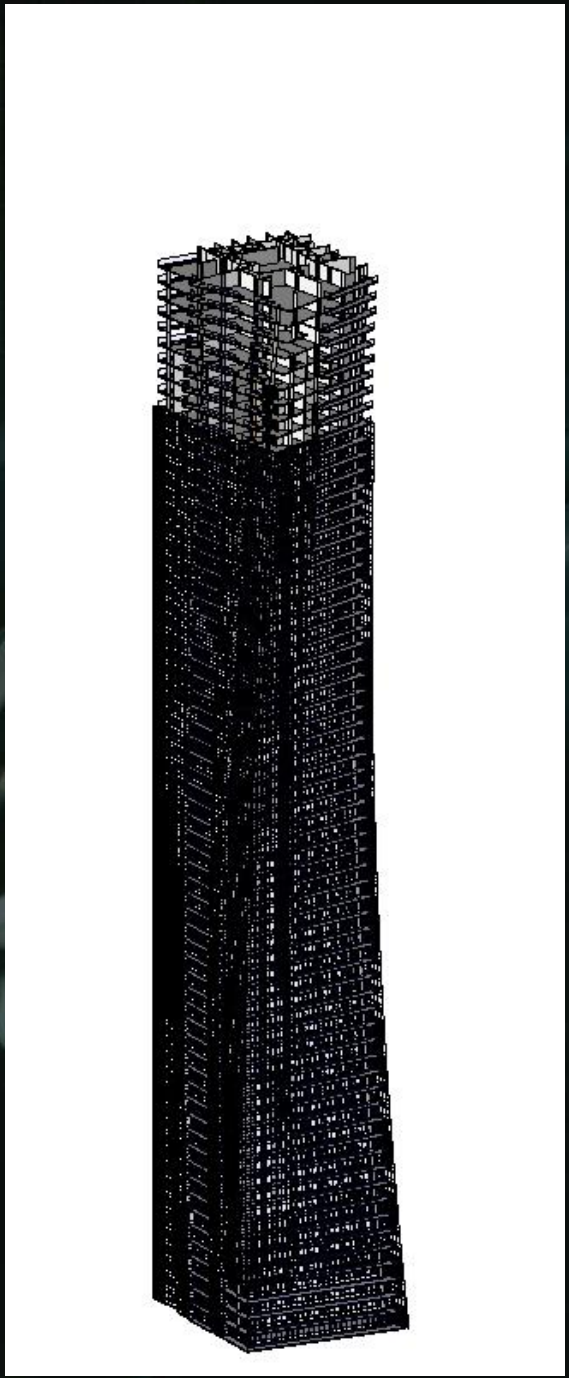


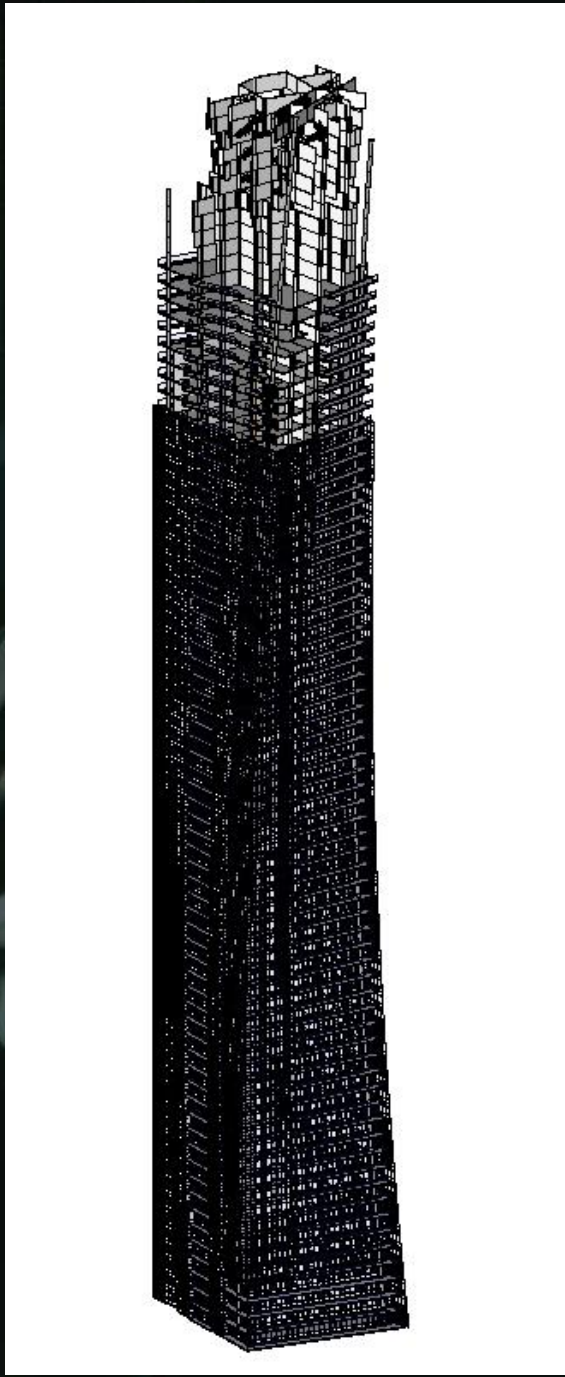


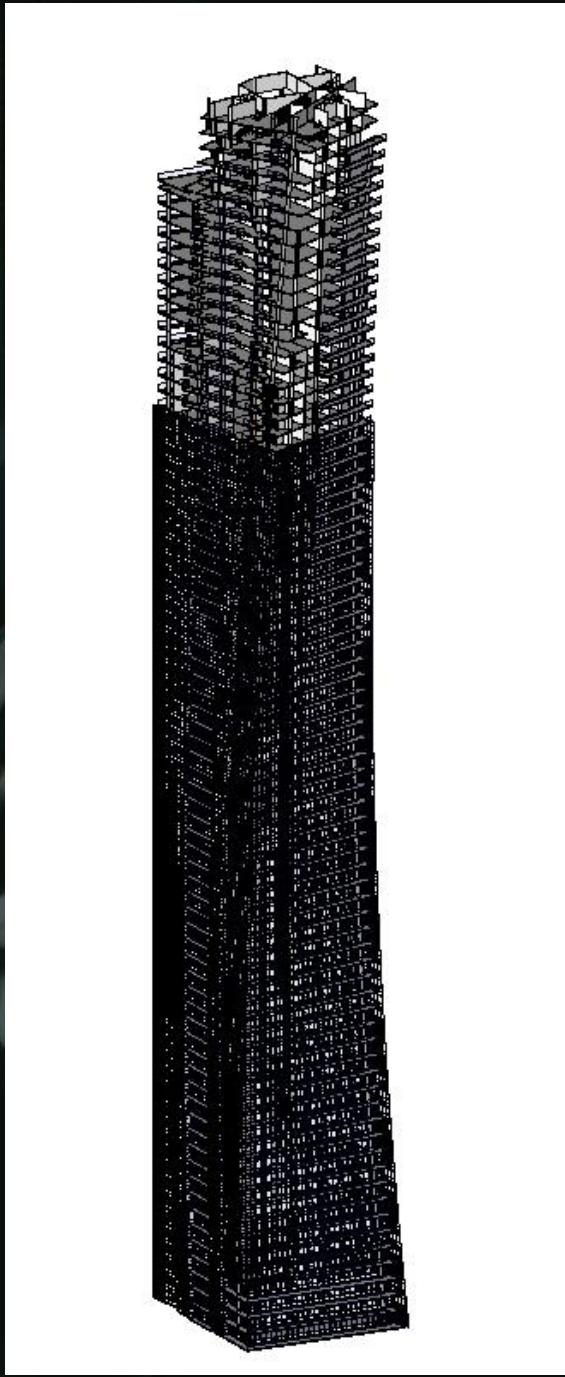


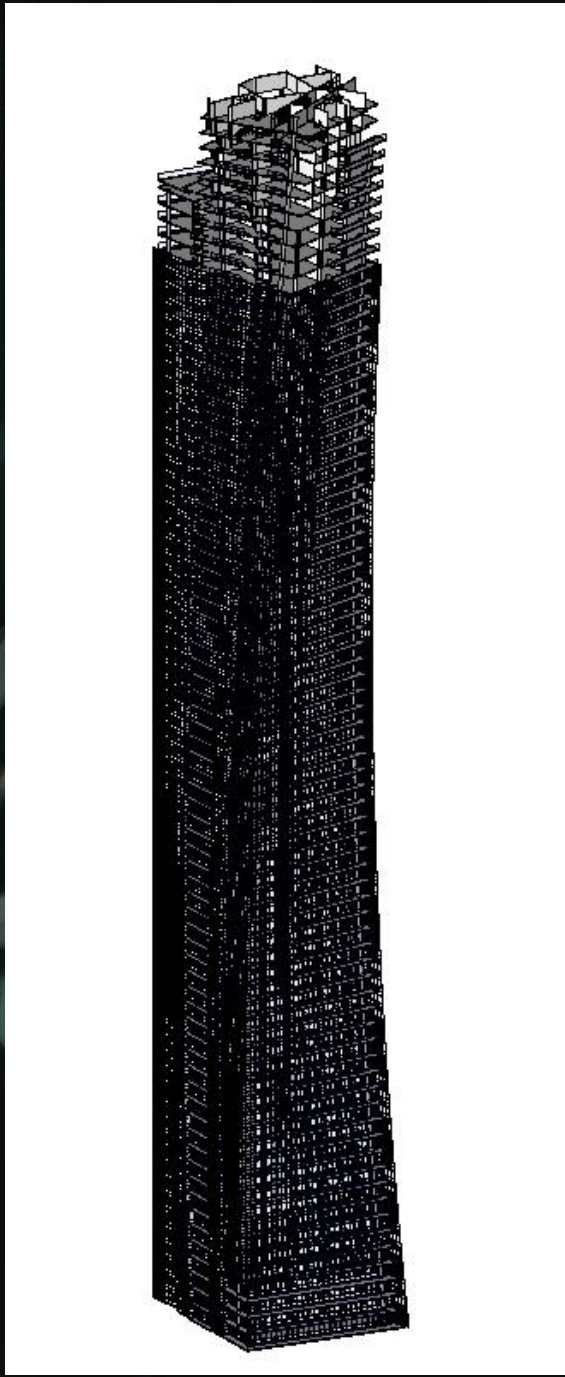


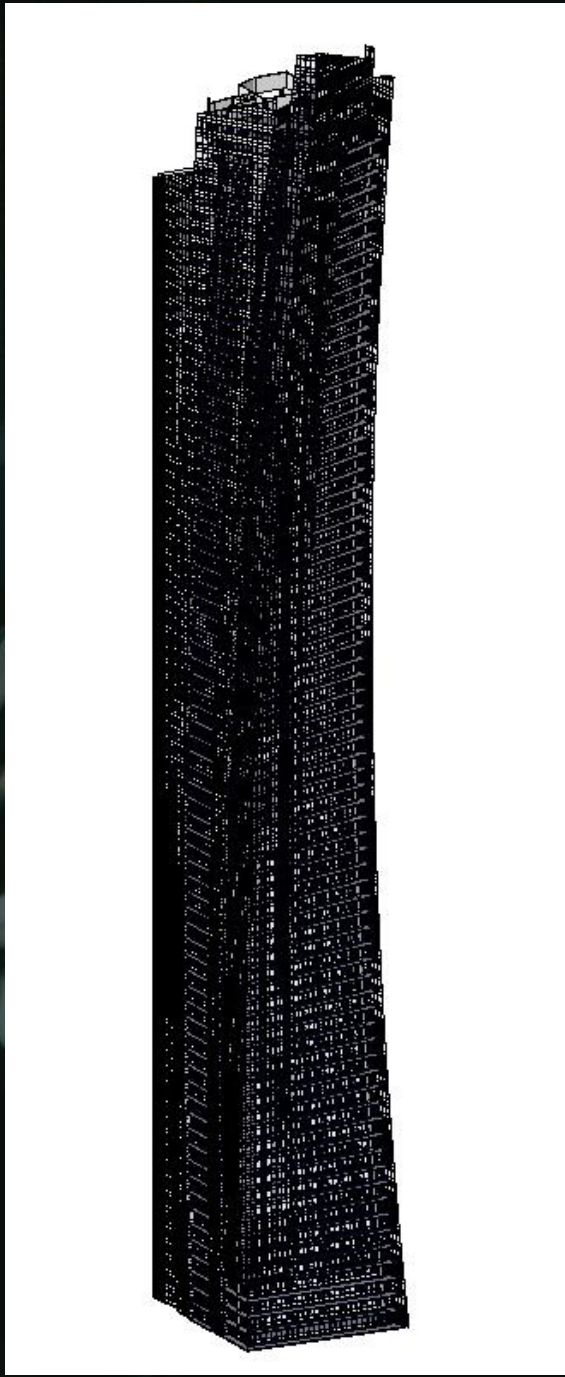


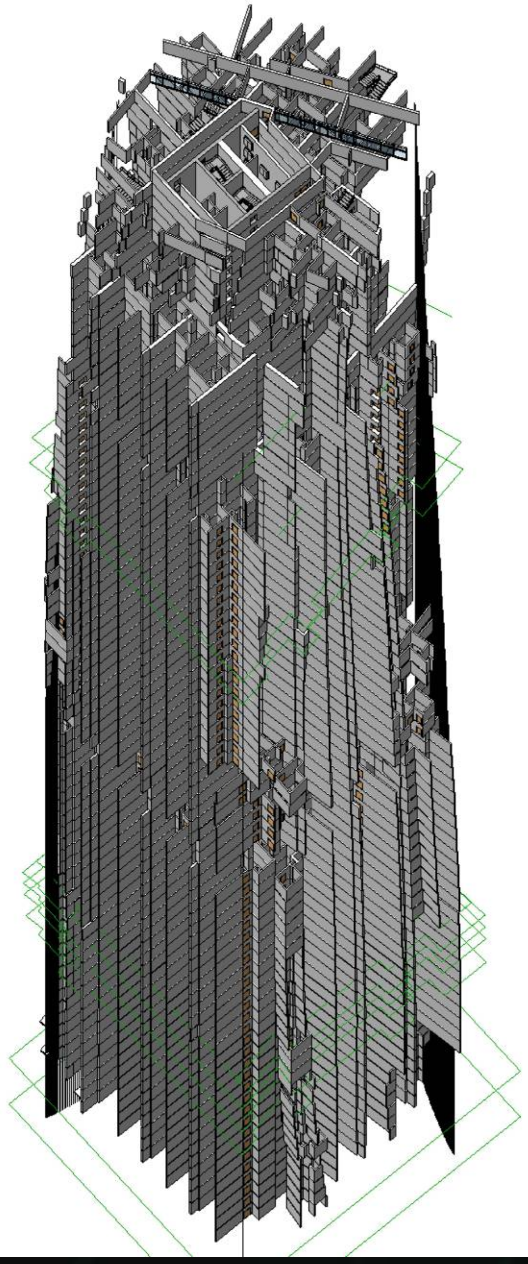


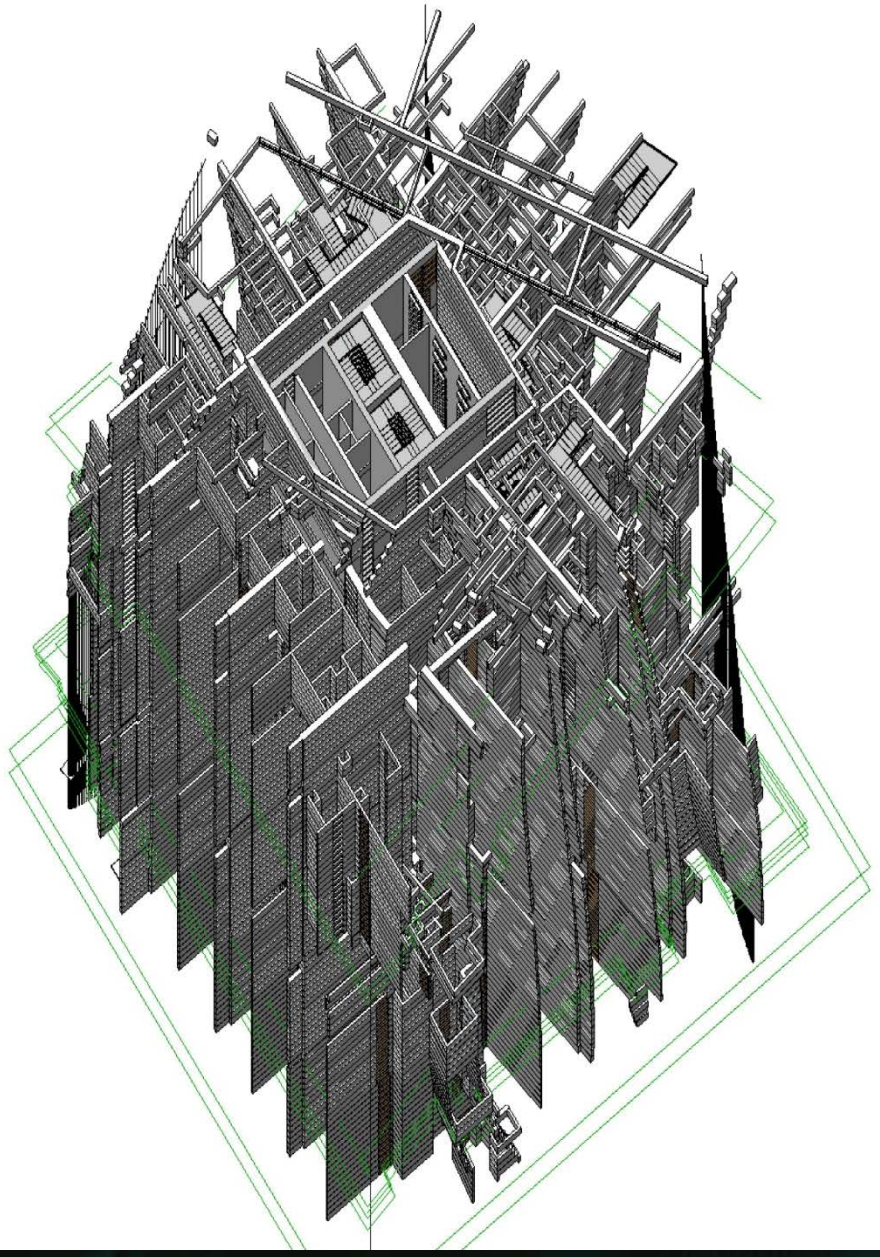




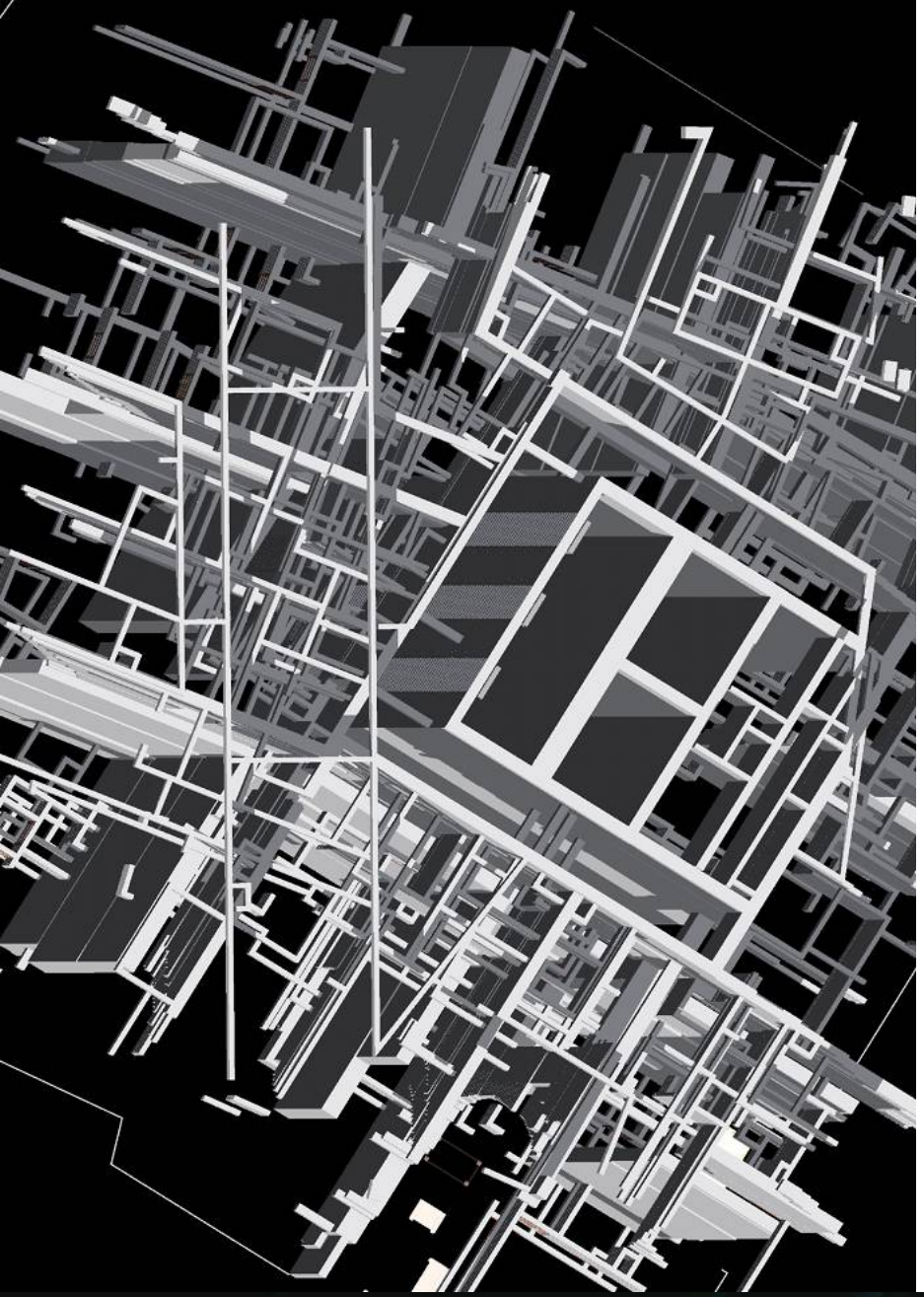


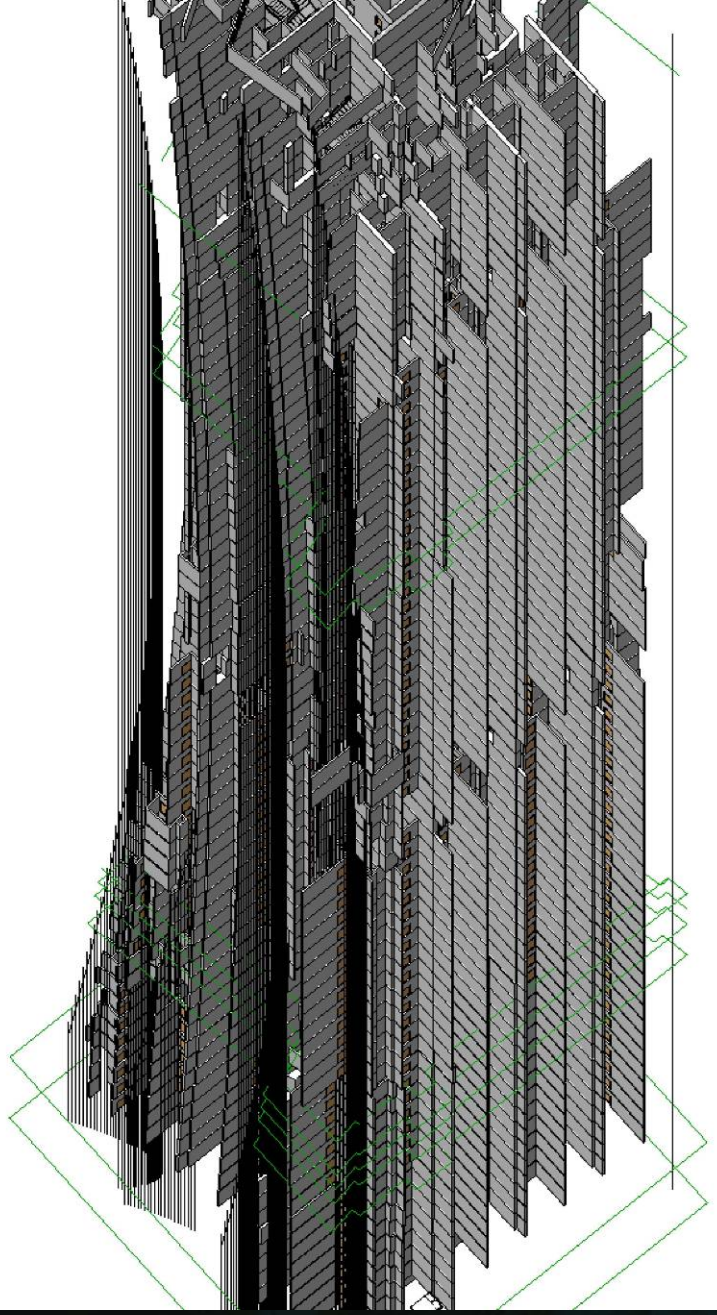




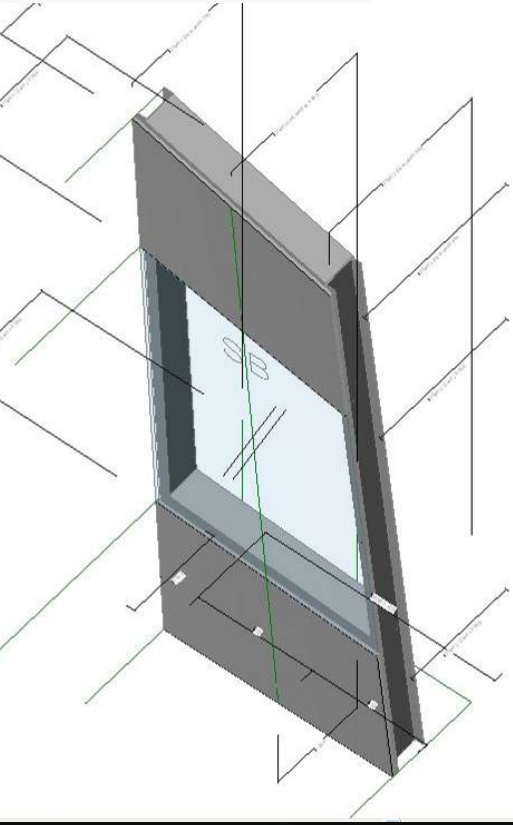


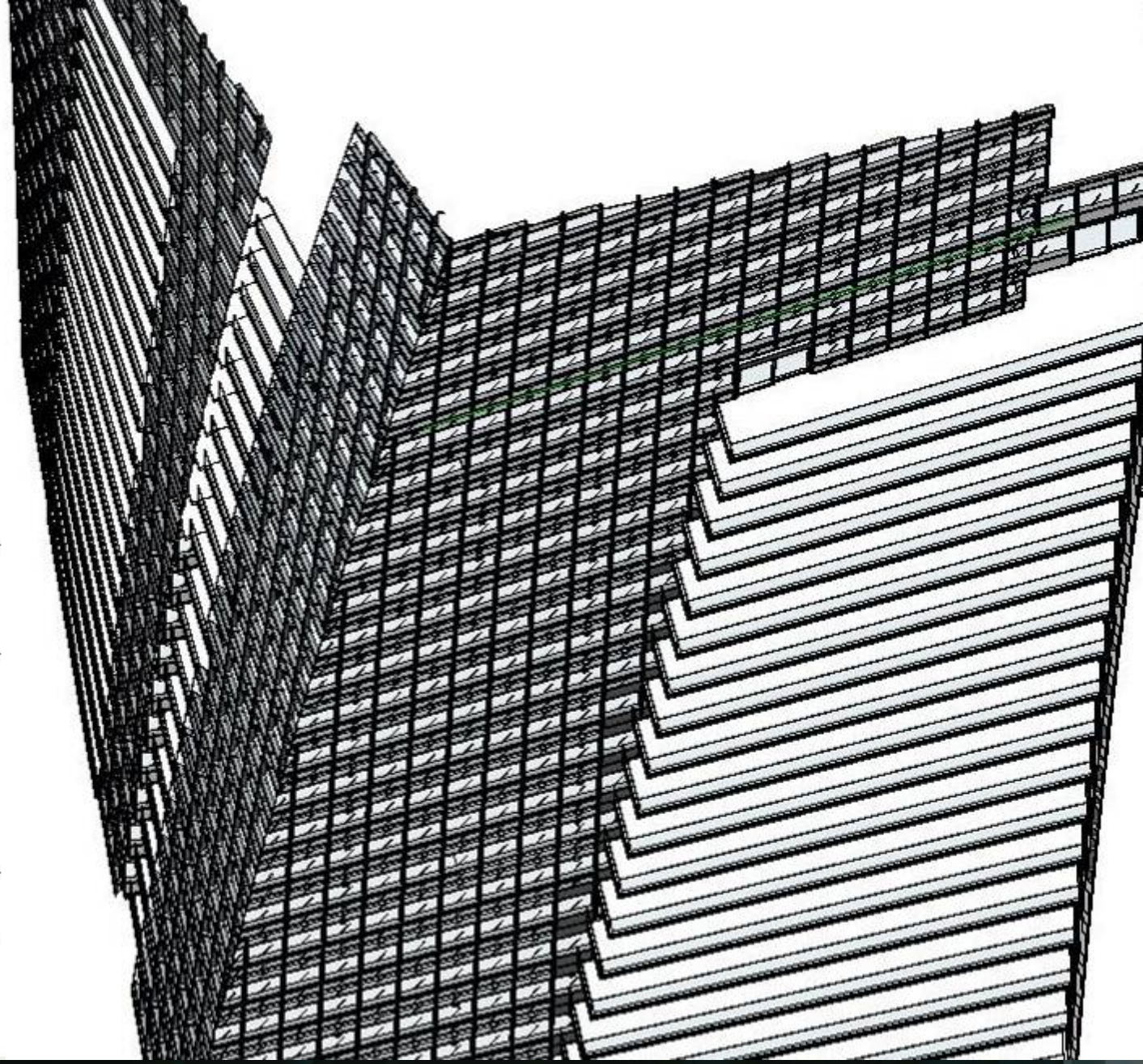
VERTICAL CO-ORDINATION



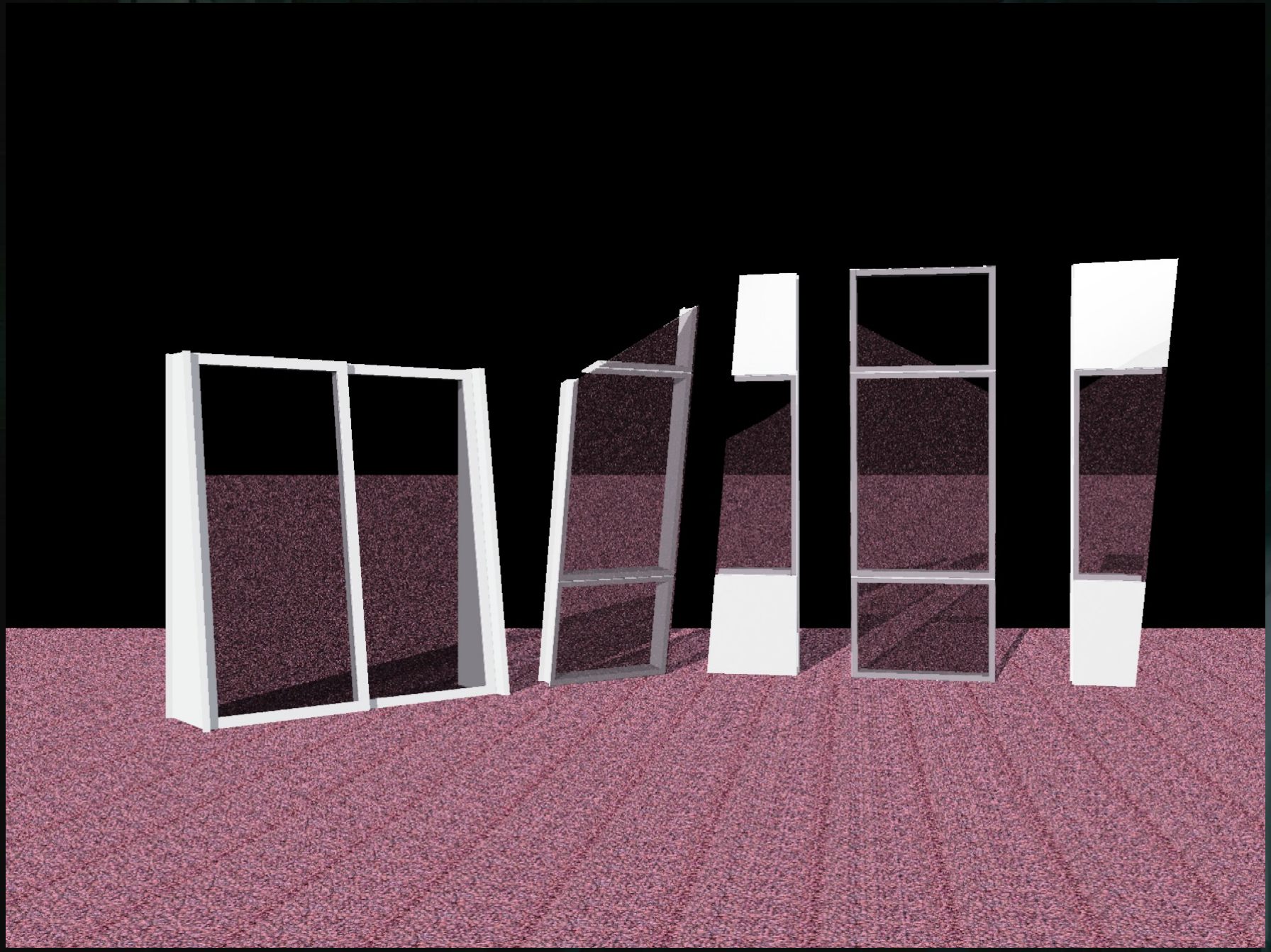


INTERNAL vs EXTERNAL





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

Headers: Group Ungroup Rows: New Delete Show

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

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- Level 30
- Level 40
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- Level 65
- Level 70
- Level 75
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  - 3D View 2
  - 3D View 3
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  - Ceilings
  - Curtain Panels
  - Curtain Systems
  - Curtain Wall Mul
  - Detail Items
  - Doors
  - Floors
  - Furniture

View
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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

Plane

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

View, Modelling, Drafting, Rendering, Site

Curtain Wall Panel Le...

- Views (all)
  - Structural Plans
    - Level 1
    - Level 1 - Analyt
    - Level 2
    - Level 2 - Analyt
  - 3D Views
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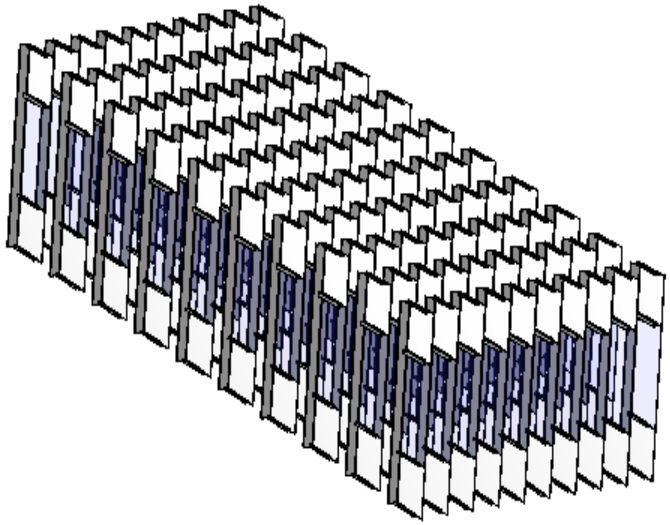
    - {3D}
  - Elevations (Building
    - East
    - North
    - South
    - West
- Legends
- Schedules/Quantitie
- Sheets (all)
- Families
- Groups



1 : 100

Copy Rotate Array Mirror Group

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Autodesk Revit Building 9 - [Curtain Wall Panel Left 100 - 3D View: {3D}]

Microsoft Excel - CornerCurtainPanel

A13 | y

	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								

Sheet1 / Sheet2 / Sheet3

Ready

Autodesk Revit Building 9 - [Curtain Wall Panel Left 100 - 3D View: {3D}]

File Edit View Modelling Drafting Site Tools Settings Window Help

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

View
Modelling
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Rendering
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Curtain Wall Panel Le...
- Views (all)
  - Structural Plans
    - Level 1
    - Level 1 - Analyti
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  - 3D Views
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  - Elevations (Building
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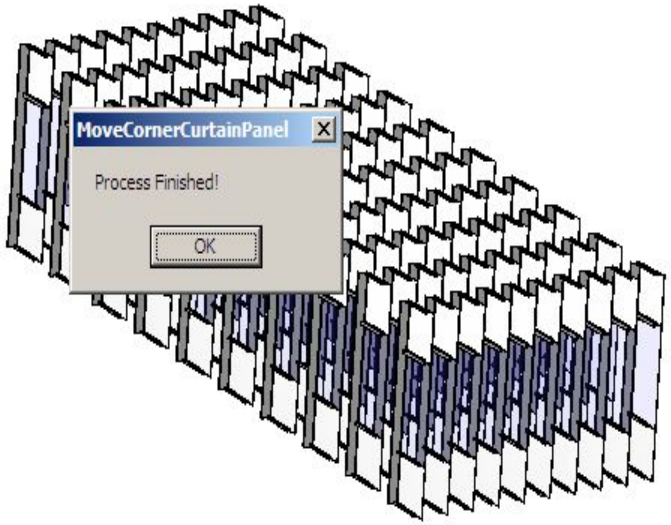
    - West
- Legends
- Schedules/Quantitie
- Sheets (all)
- Families
- Groups



1 : 100

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

3D Move Copy Rotate Array Mirror Group

Plane Demolish Align Split Trim Offset

Press + Drag

Basics

Modify
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Ocean Heights 1 Curt...

Views (all)
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Level 2
Level 2 - Analyt
3D Views
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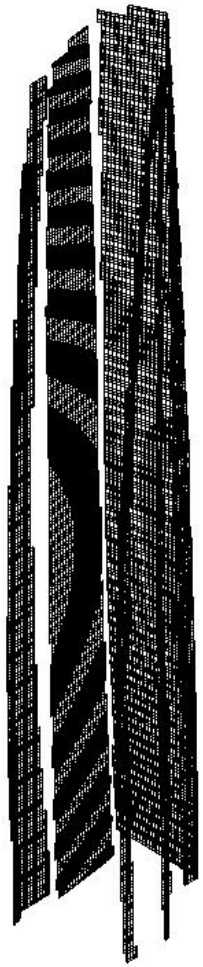
Legends
Schedules/Quantitie
Sheets (all)
Families
Groups



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Wireless Network Connection is not connected
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View
Architectural
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Site
Massing
Modelling
Construction

Ready

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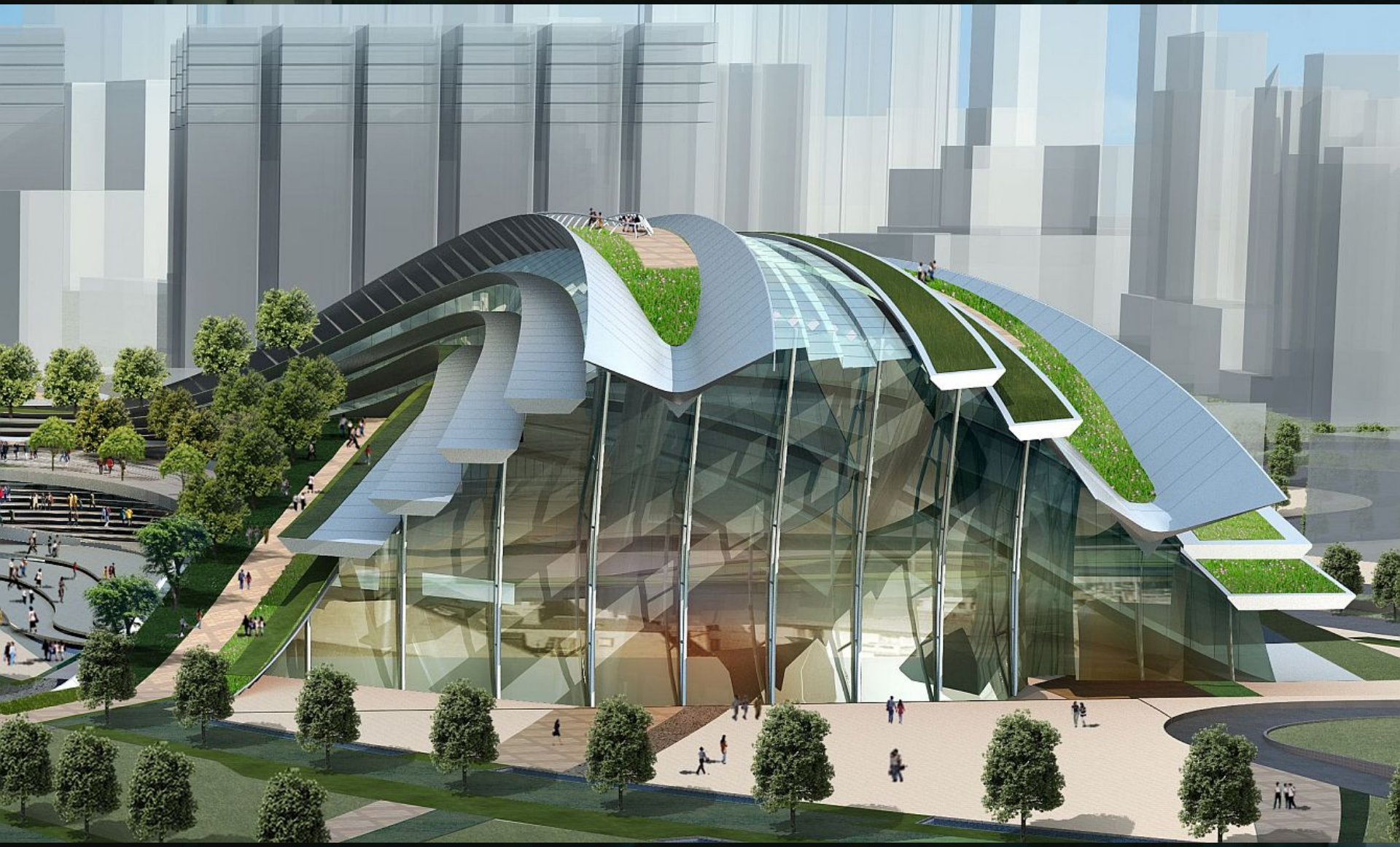
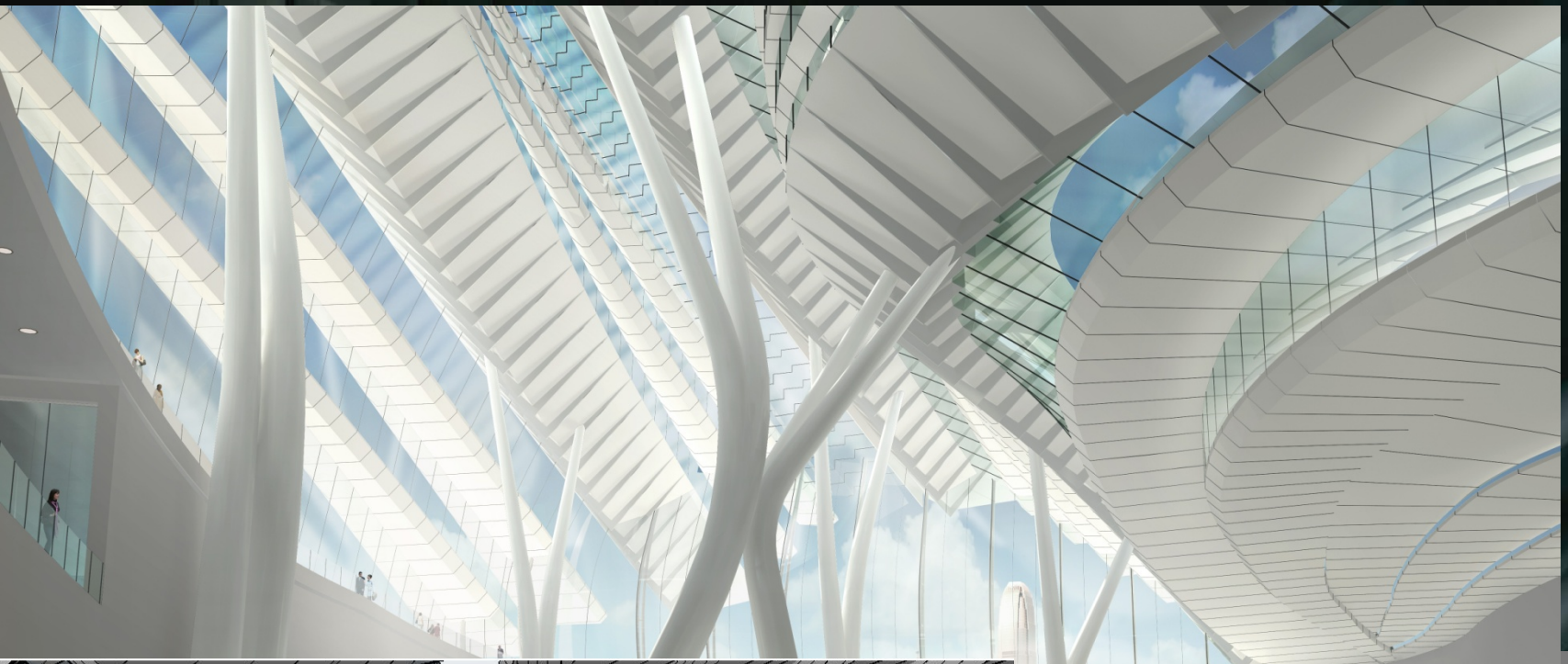
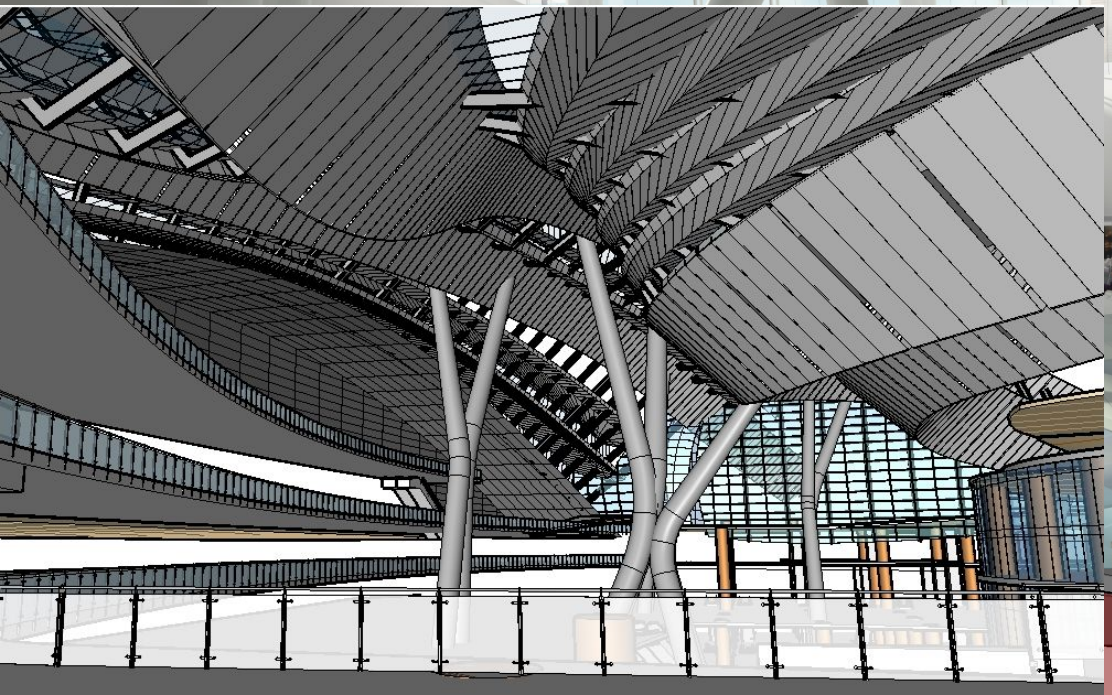
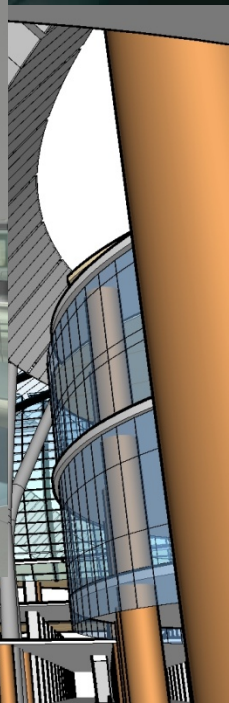
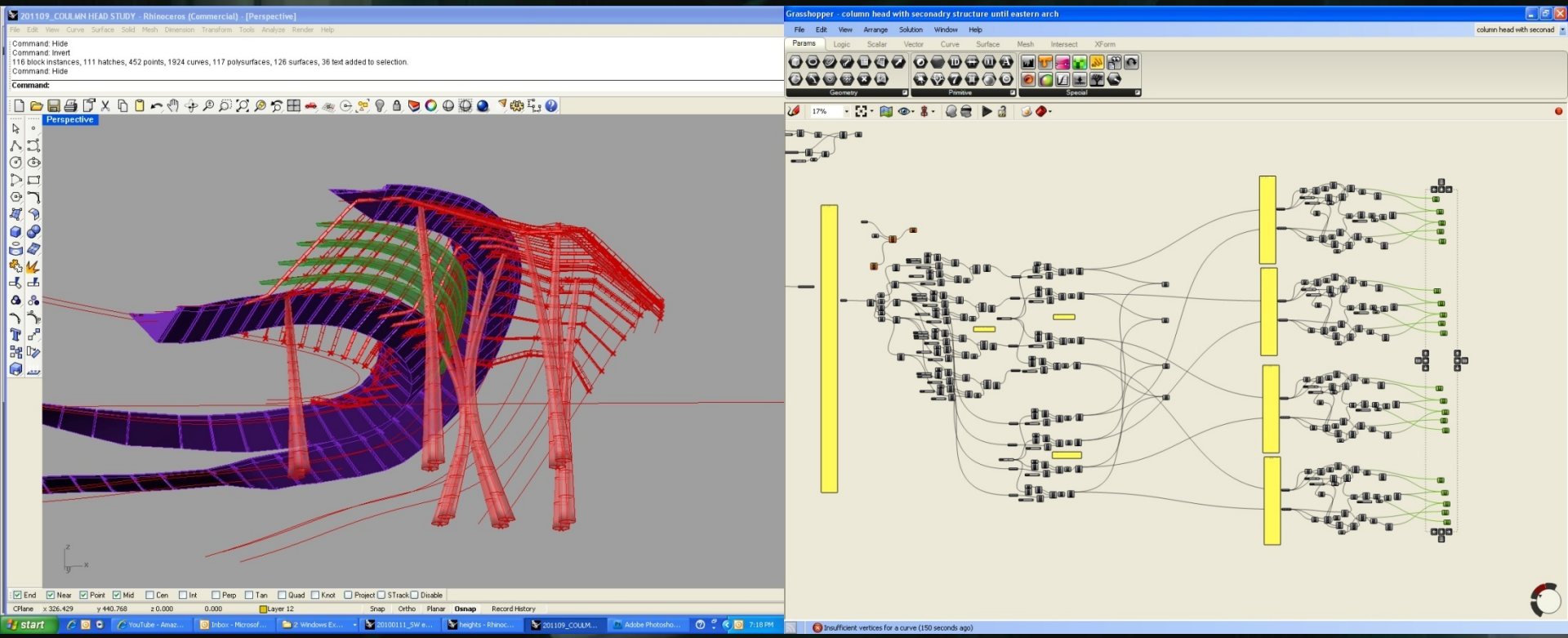
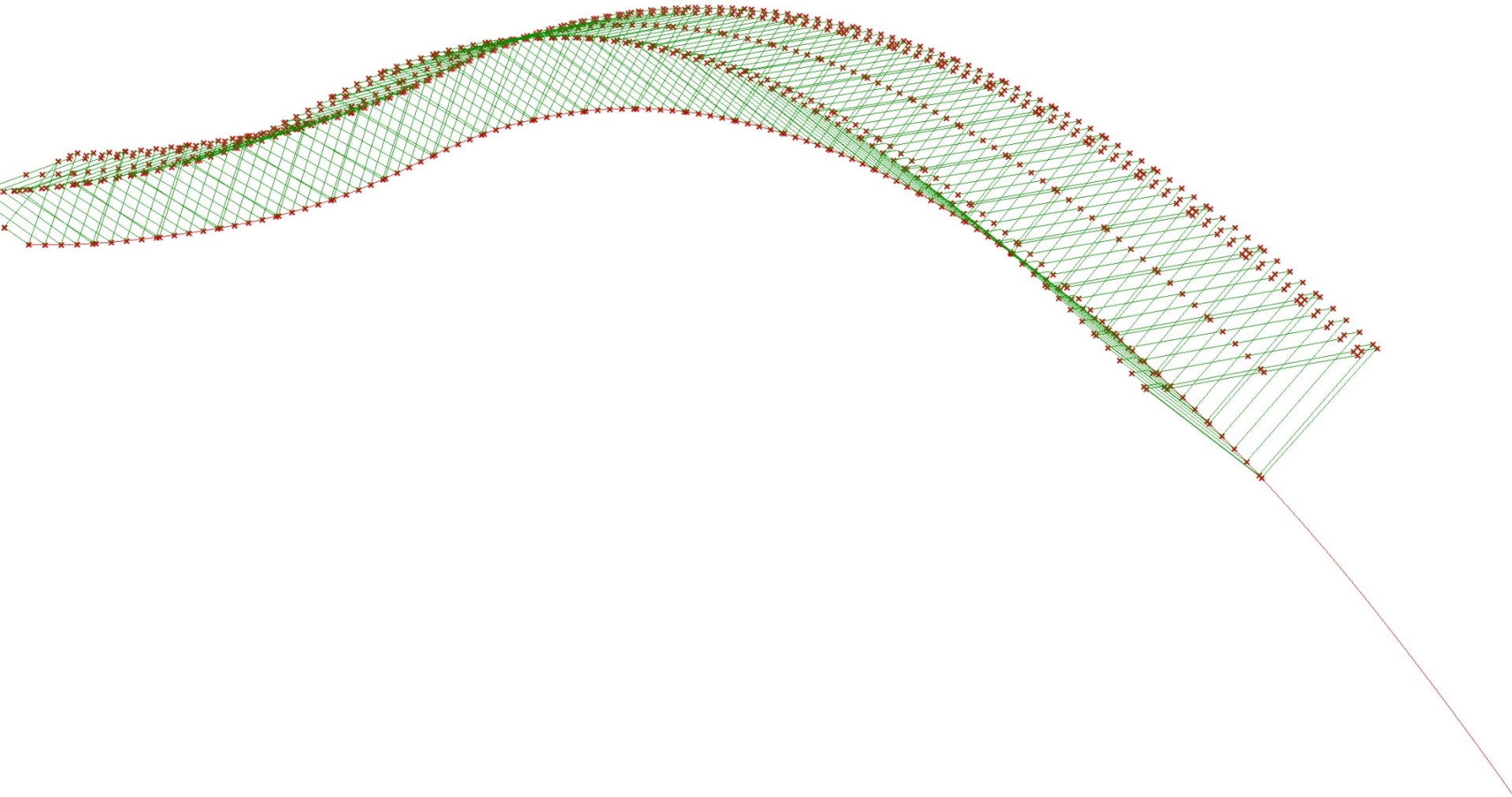


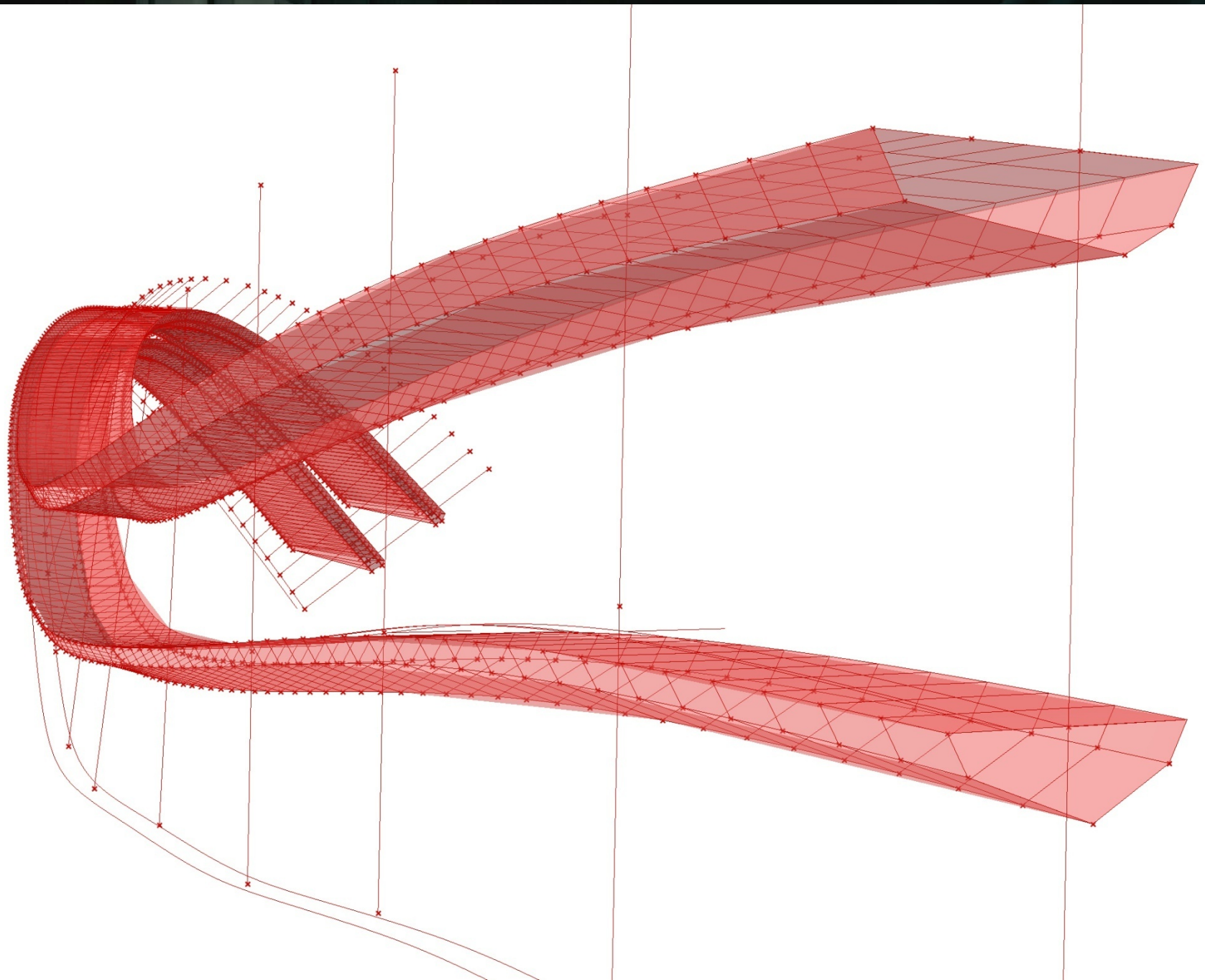







201109_COULMN HEAD STUDY - Rhinoceros (Commercial) - [Perspective]
Command: Hide
Command: Invert
116 block instances, 111 hatches, 452 points, 1924 curves, 117 polysurfaces, 126 surfaces, 36 text added to selection.
Command: Hide
Command:
Perspective
Grasshopper - column head with seconadry structure until eastern arch
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

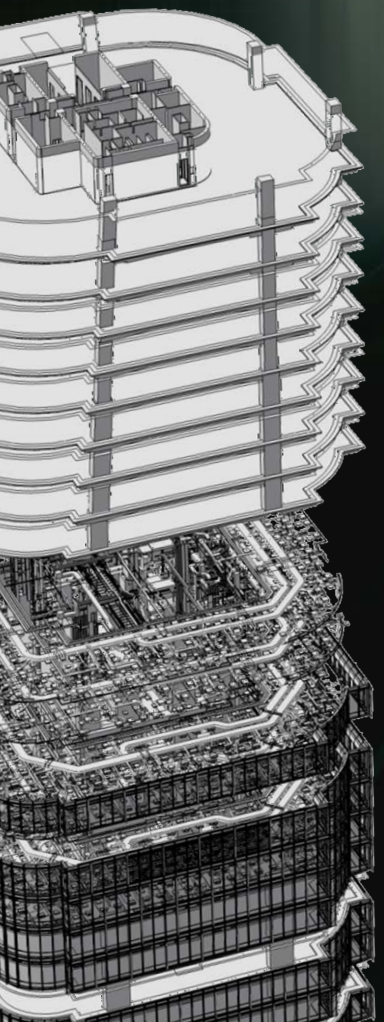
100% Arial 10

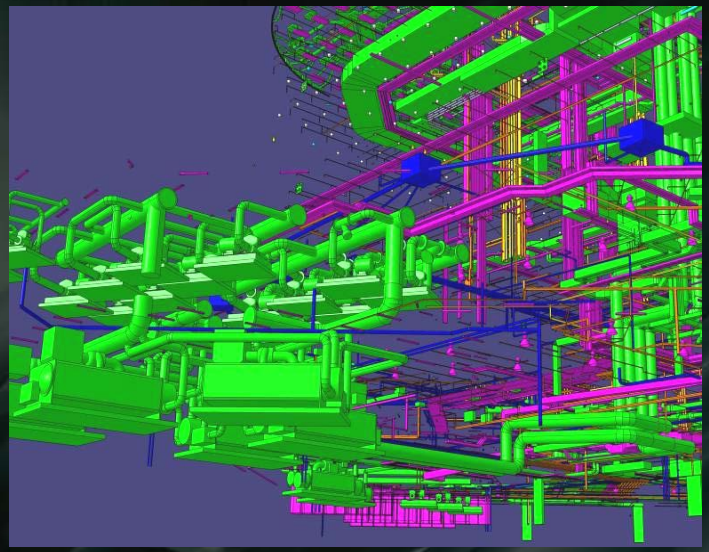
C	D	E	F	G	H	I	J	K	L	M	N	O	P
y## lengt	P01z## lengt	P02x## lengt	P02y## lengt	P02z## lengt	P03x## lengt	P03y## lengt	P03z## lengt	P04x## lengt	P04y## lengt	P04z## lengt	Panel Type##	other##	
24.1138	30997.4089	150034.096	44497.0923	31201.1007	151479.165	44220.6936	29756.4955	151017.994	42846.0425	29553.4116	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		

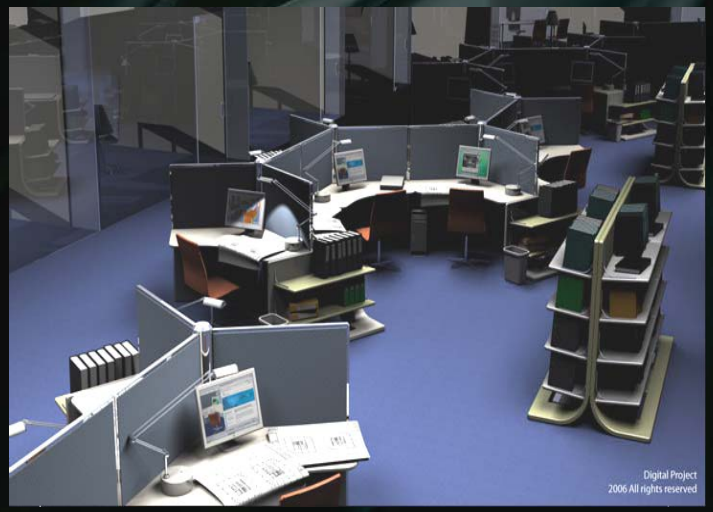
```
    public bool CanBeGroupedWith(CladdingPanel nextPanel, double tolerance)
    {
        if
        (
            Math.Abs(nextPanel.G_edge[0] - G_edge[0]) <= tolerance
            &&
            Math.Abs(nextPanel.G_edge[1] - G_edge[1]) <= tolerance
            &&
            Math.Abs(nextPanel.G_edge[2] - 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

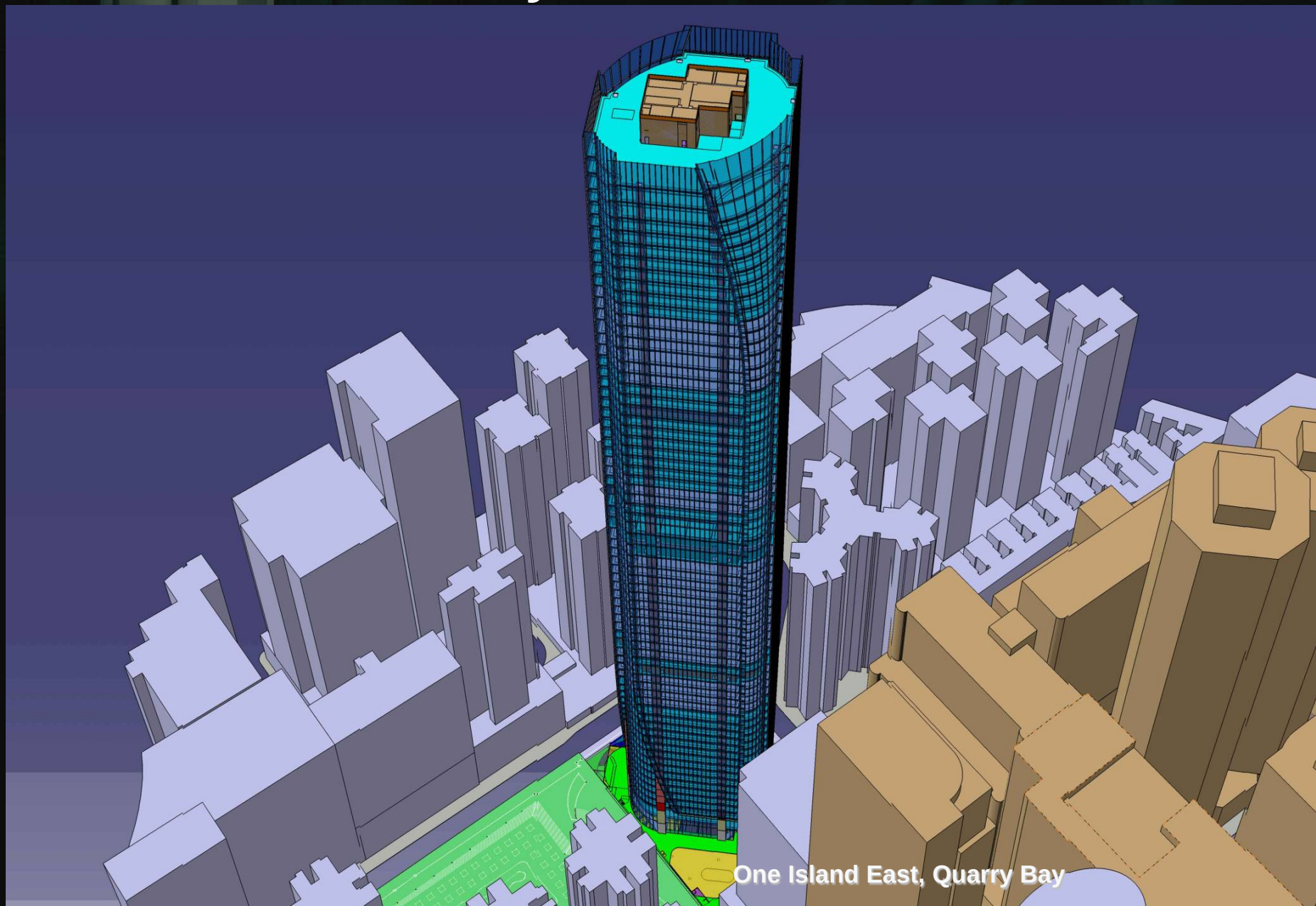
- One Island East



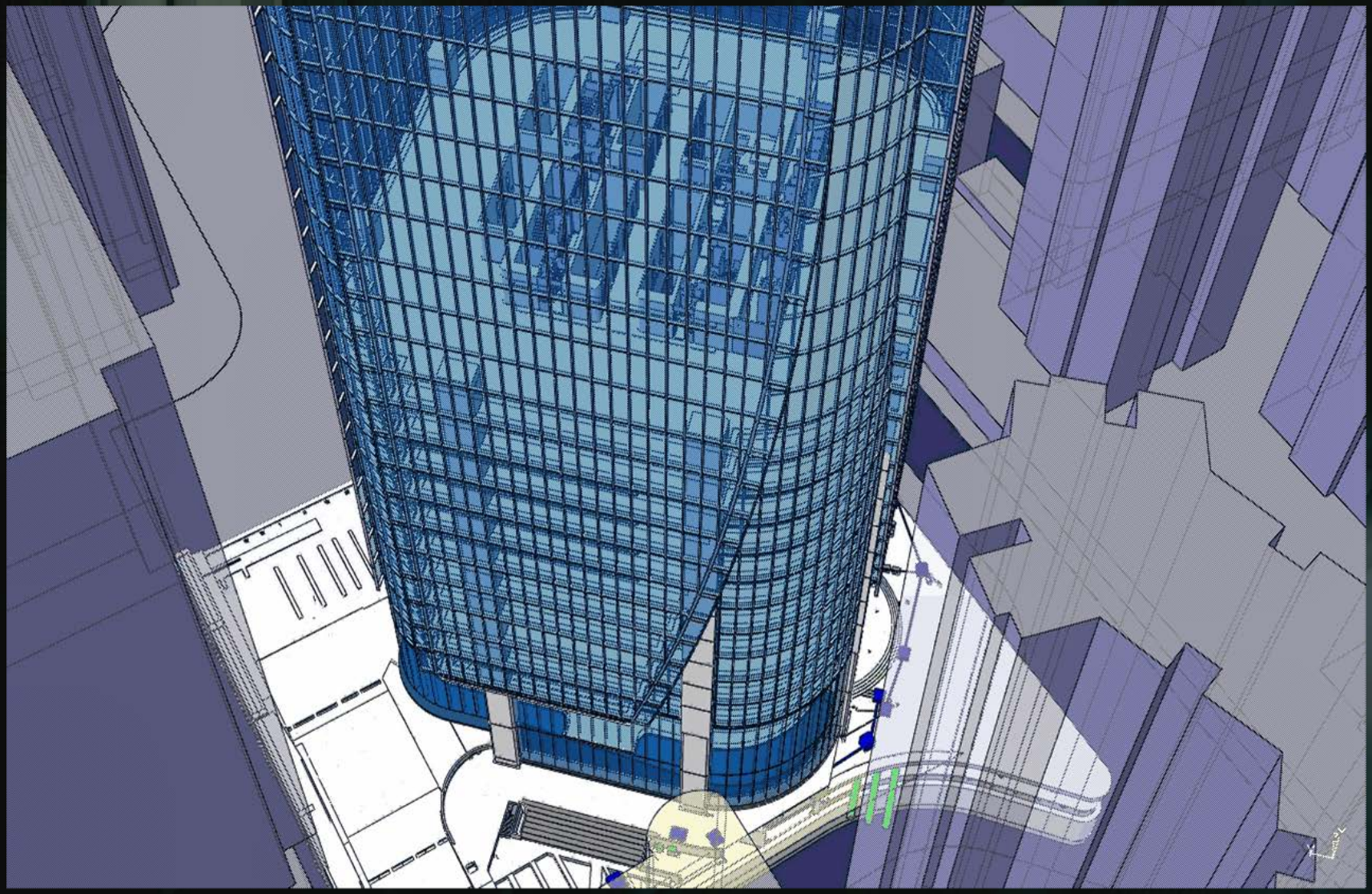




Tender Model by Consultants

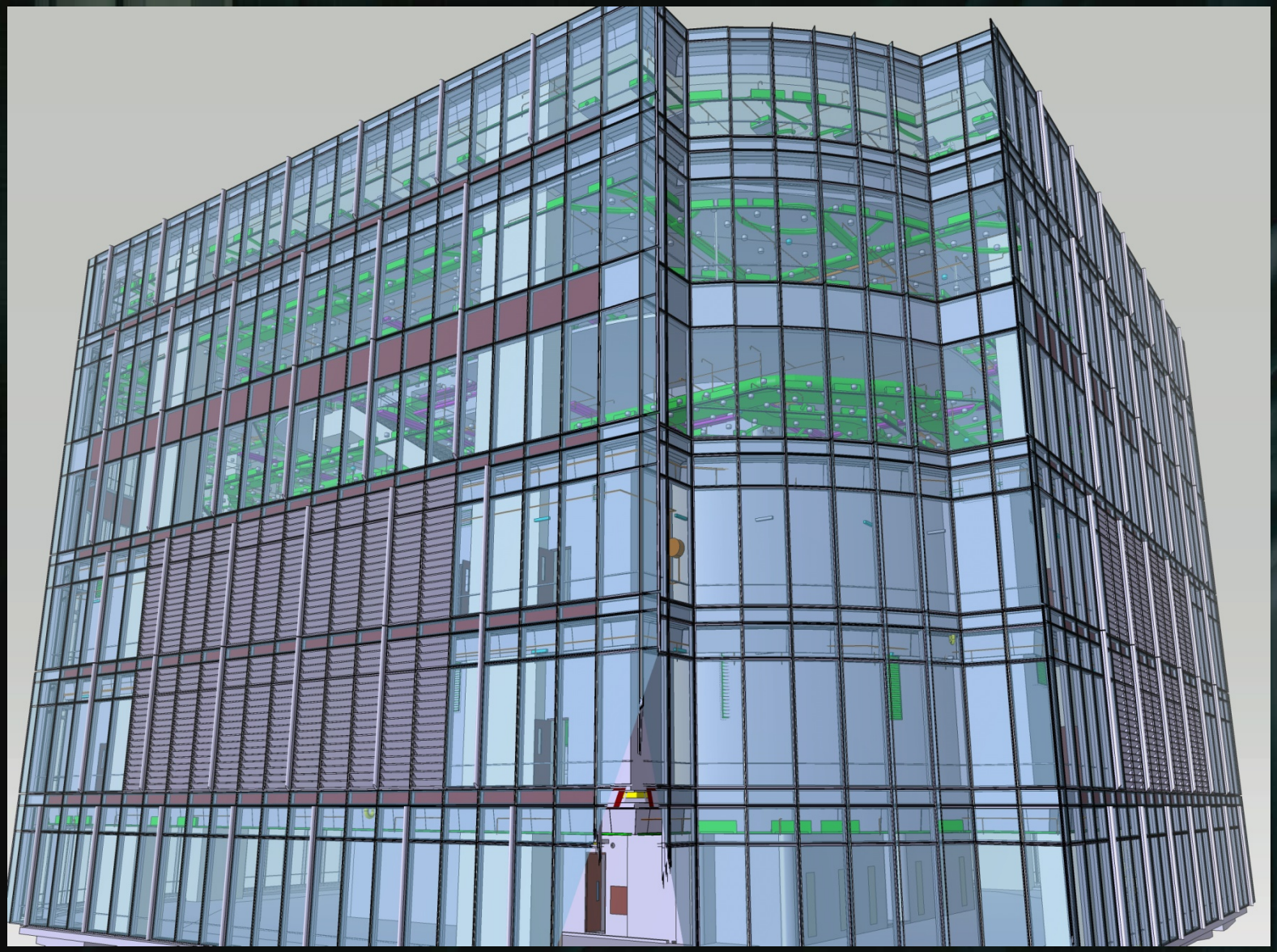


One Island East



BIM Architectural Configuration

One Island East



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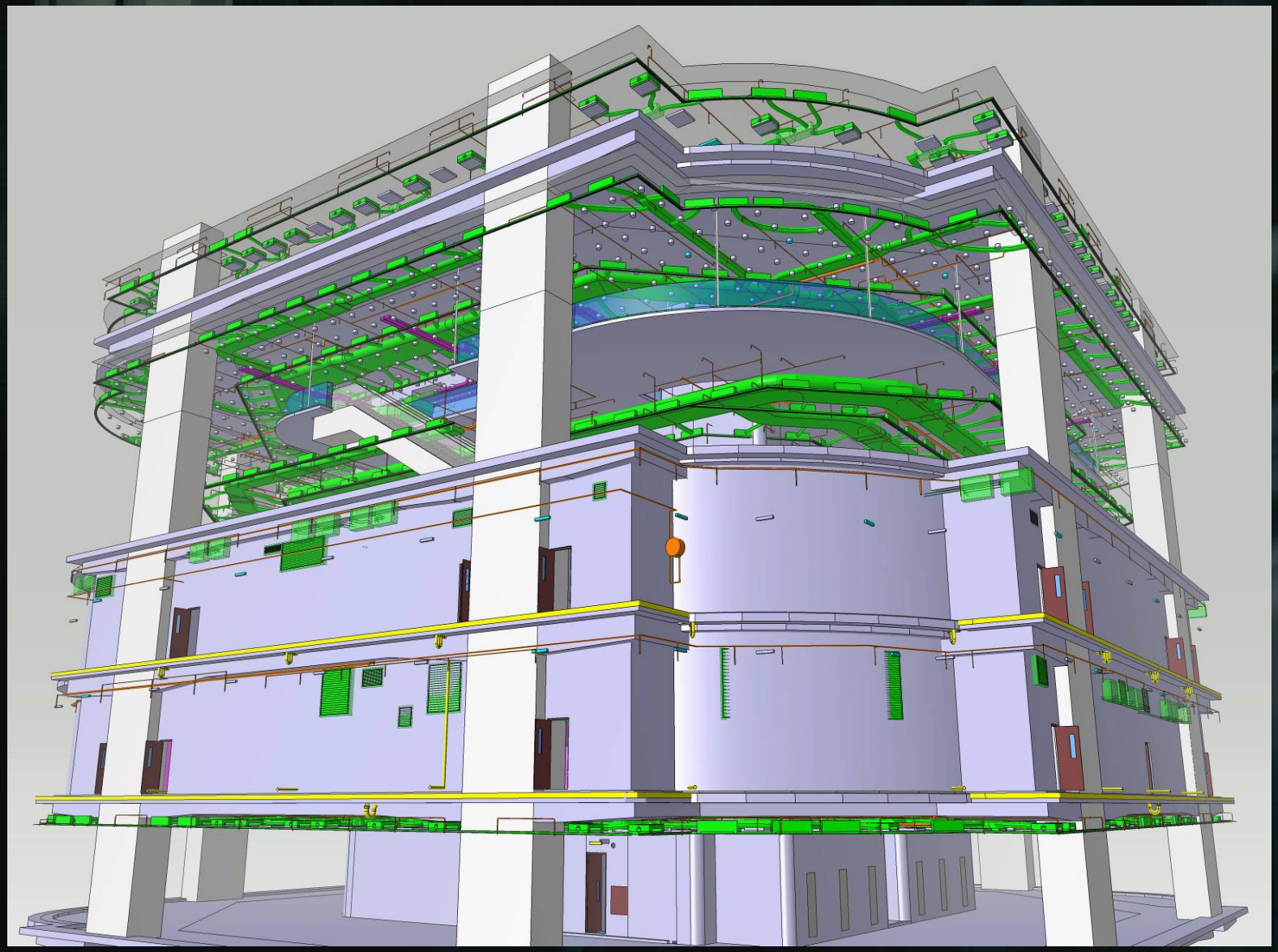

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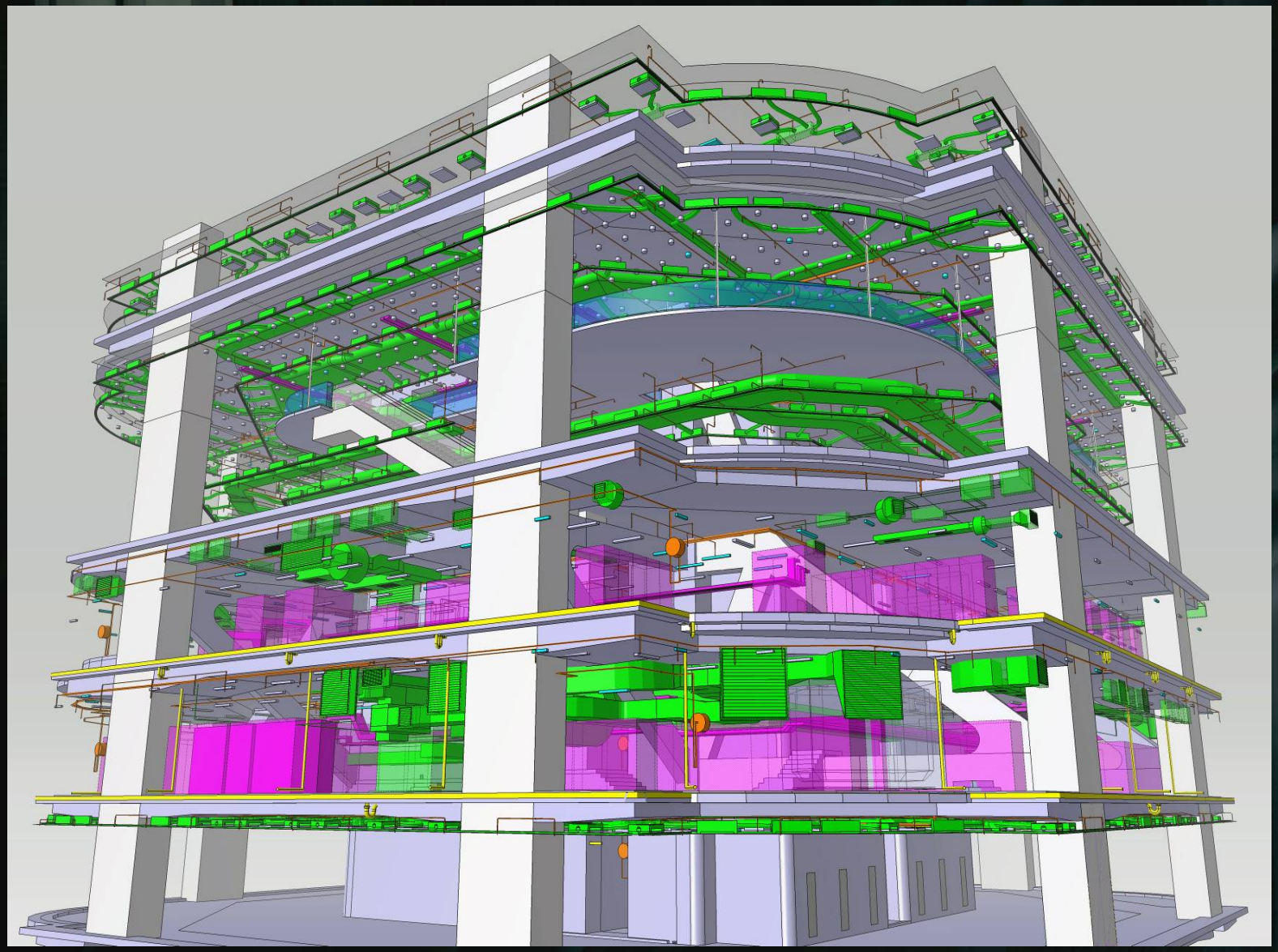

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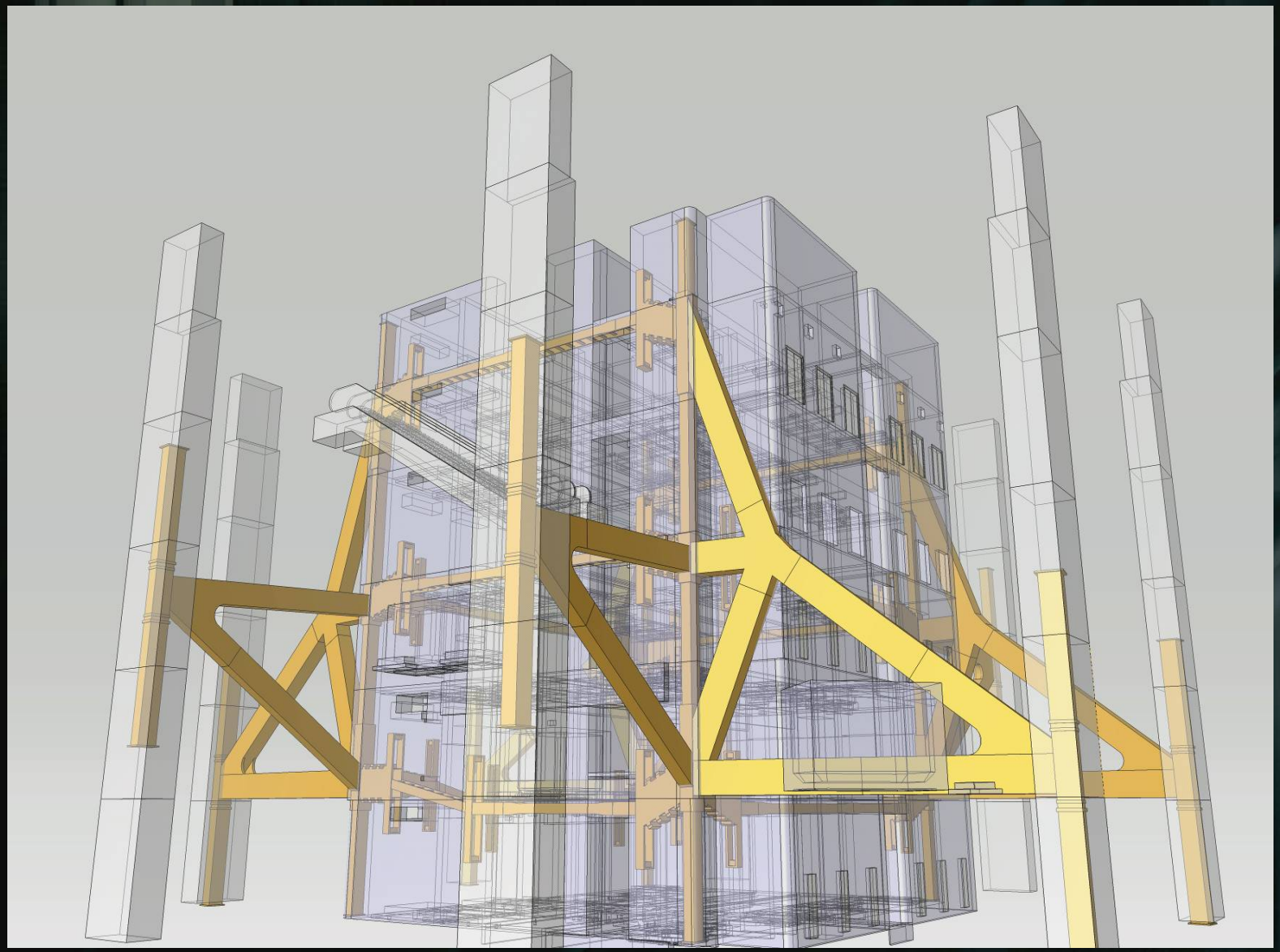
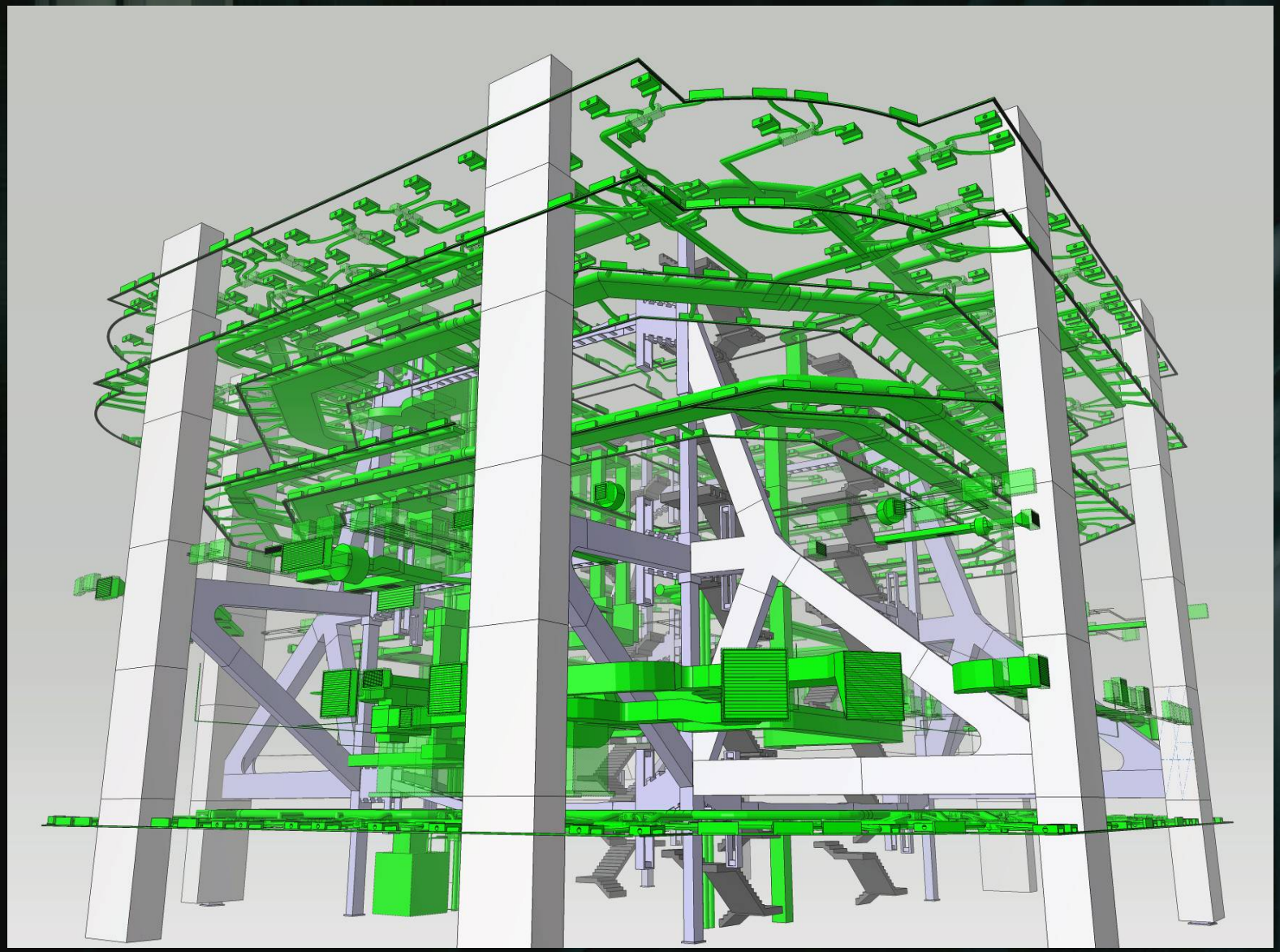
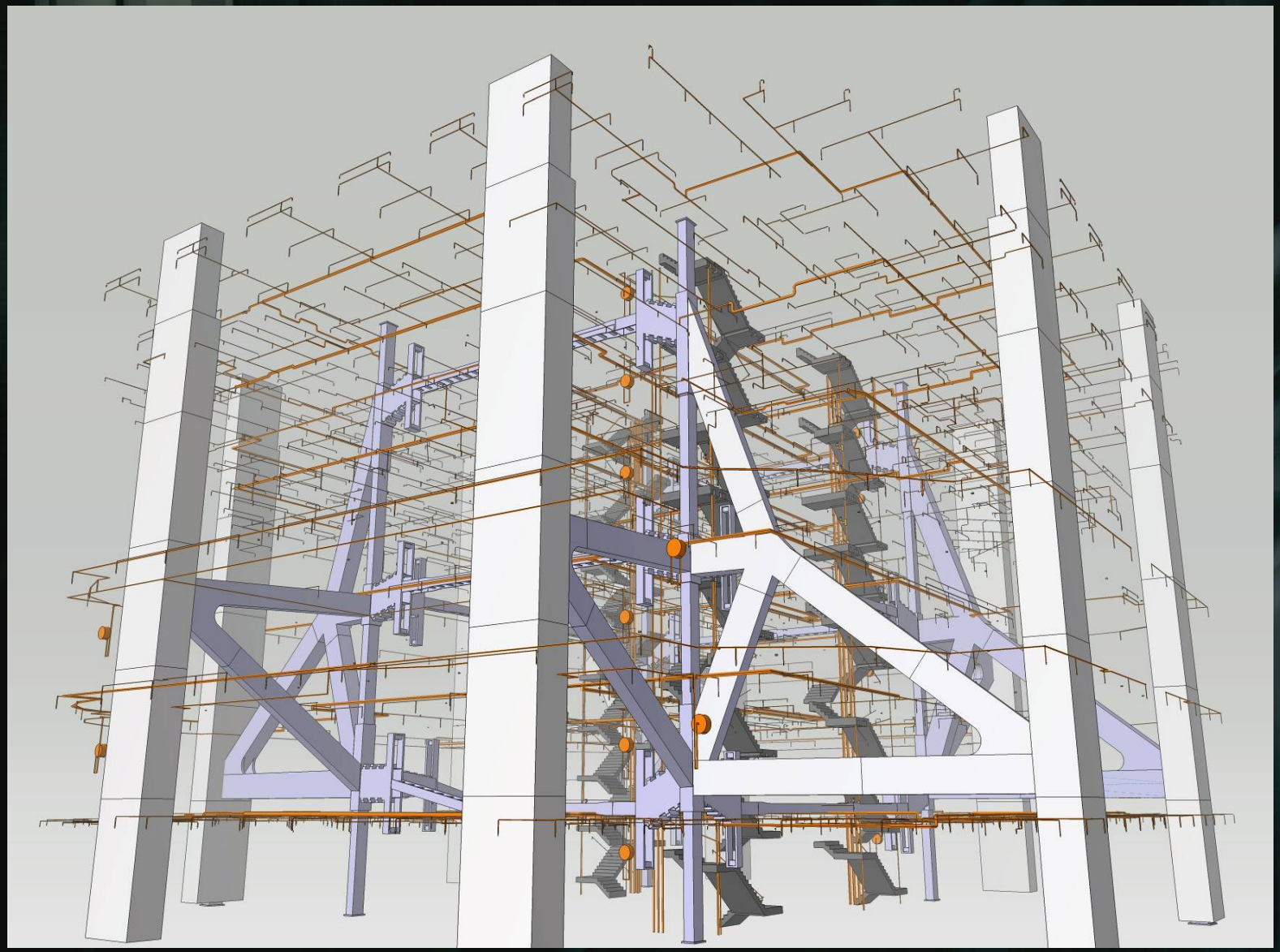


One Island East



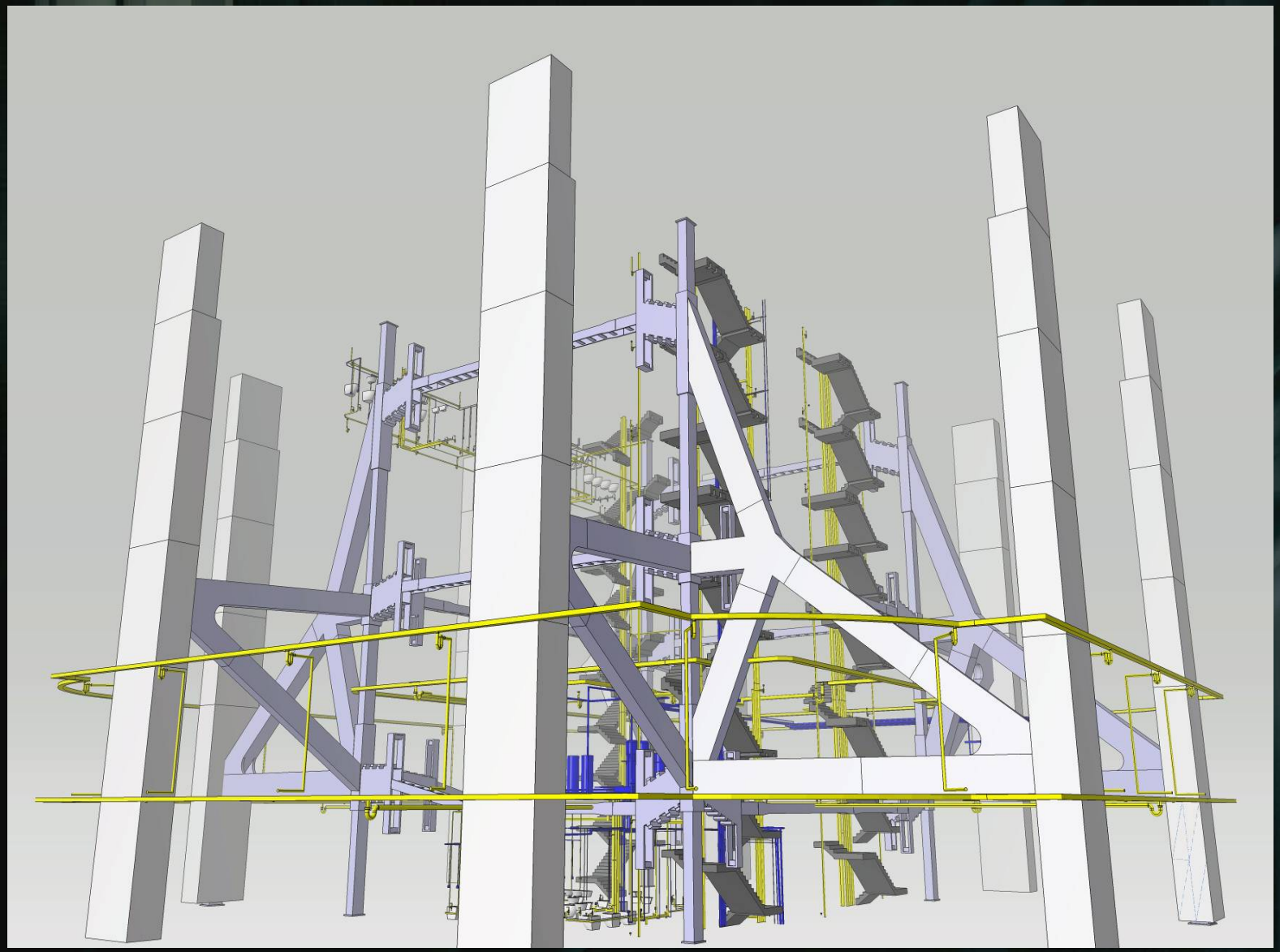
BIM HVAC Configuration

One Island East



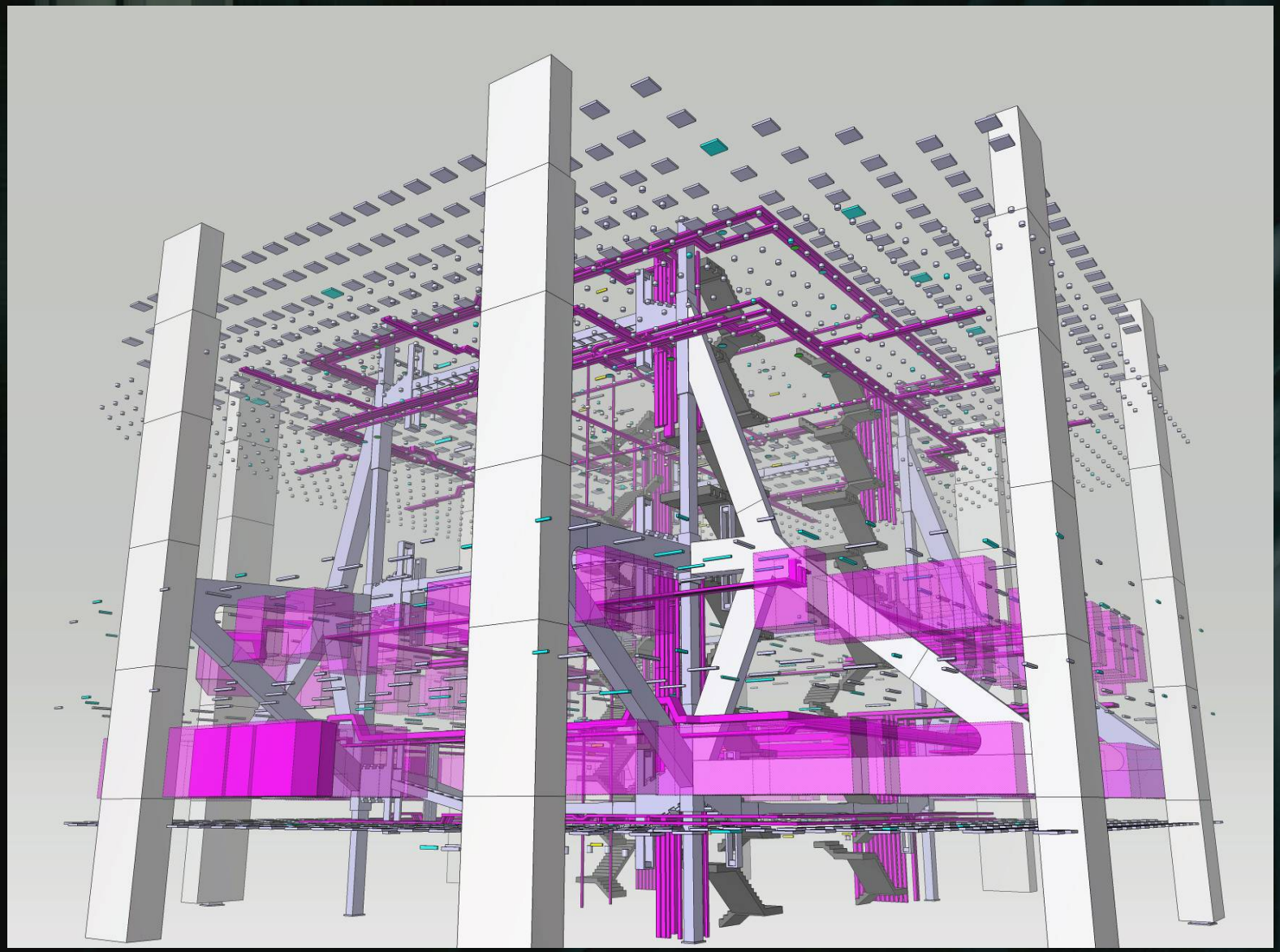
BIM FS Configuration

One Island East



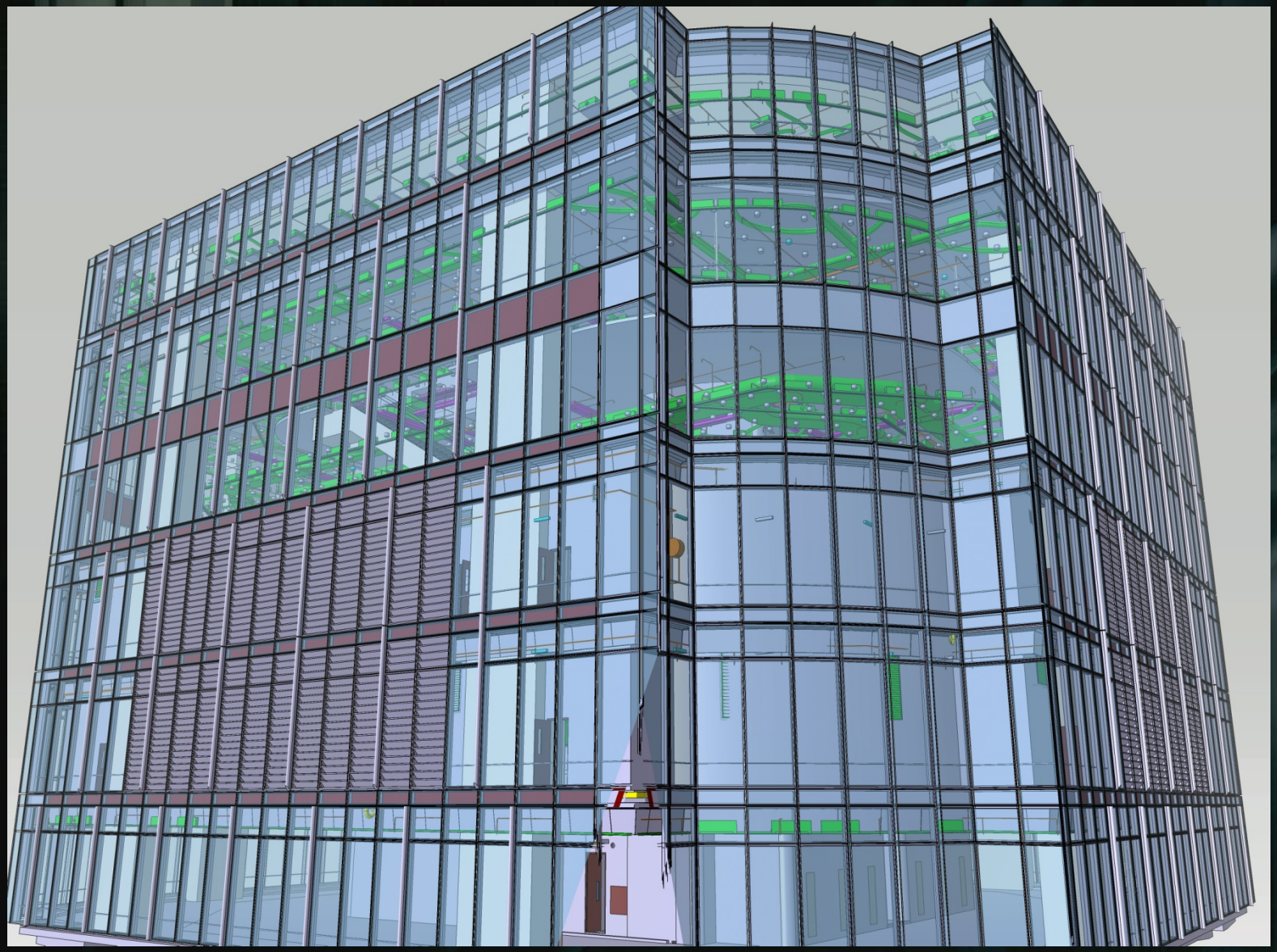
BIM Plumb & Drainage Configuration

One Island East

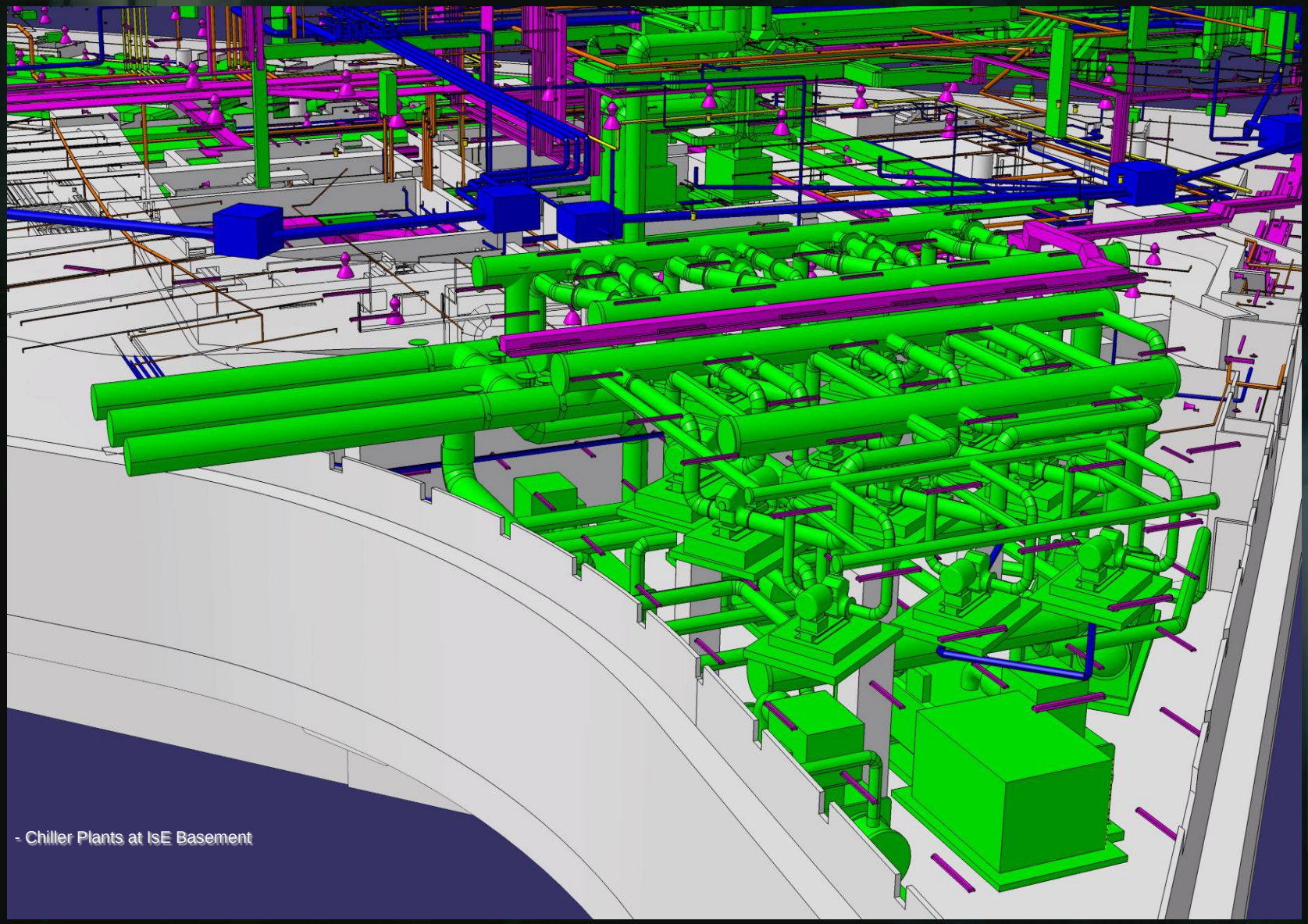


BIM ELEC Configuration

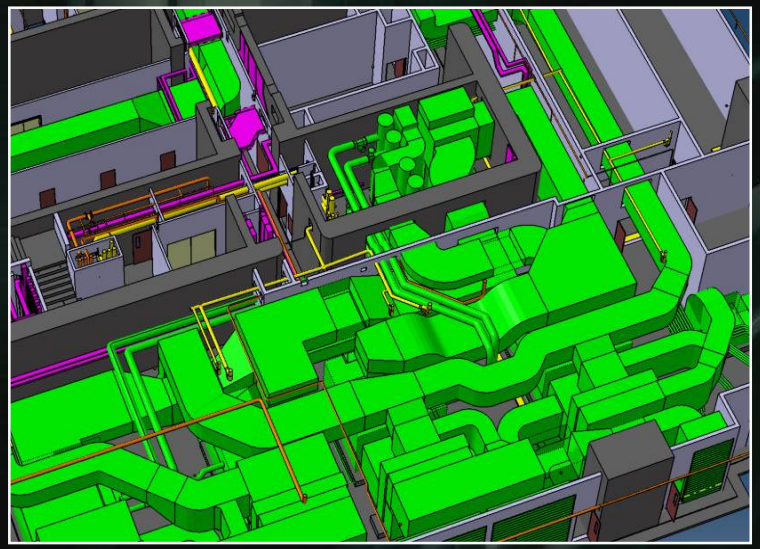
One Island East

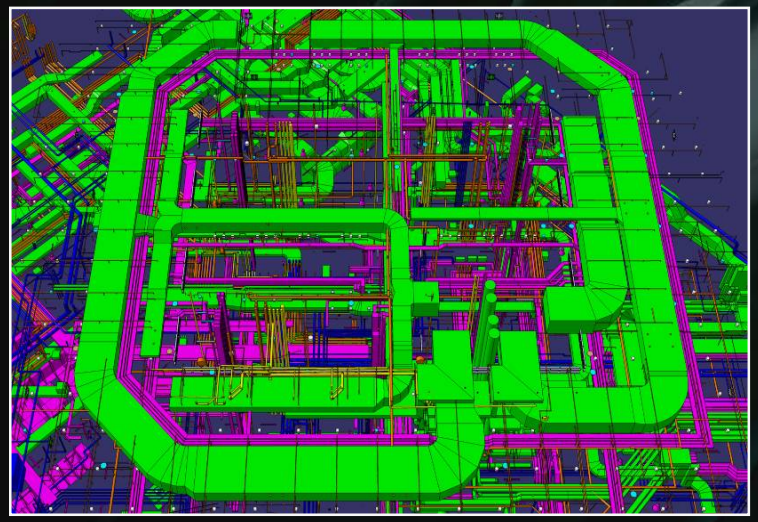


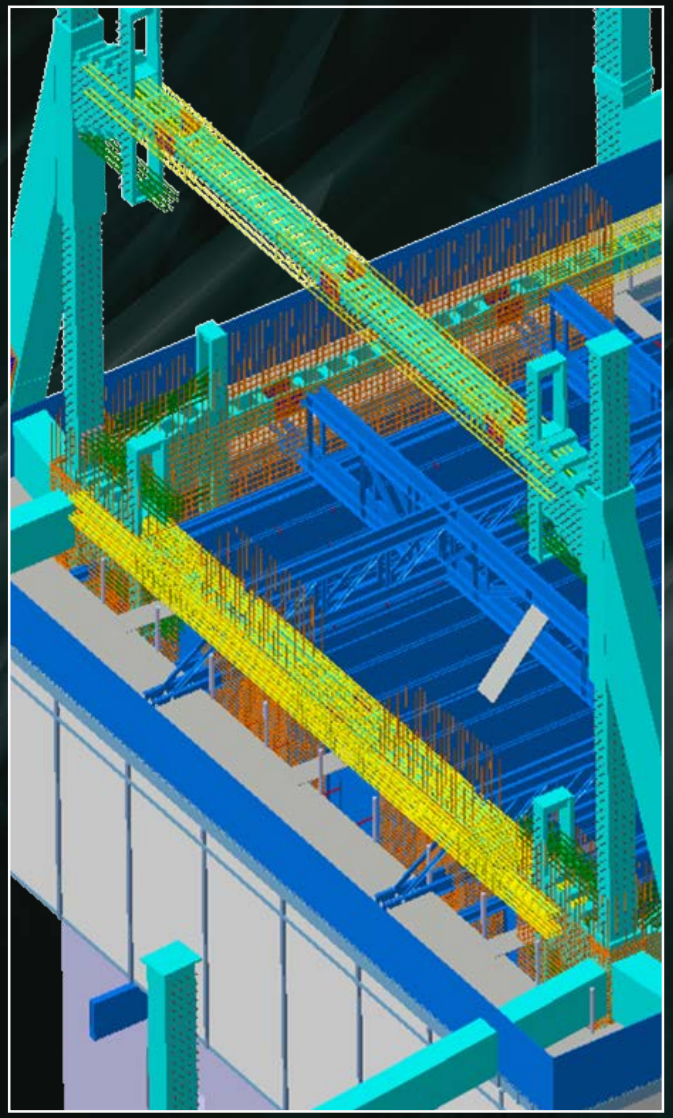
Detail Design and Coordination



Detail Design and Coordination

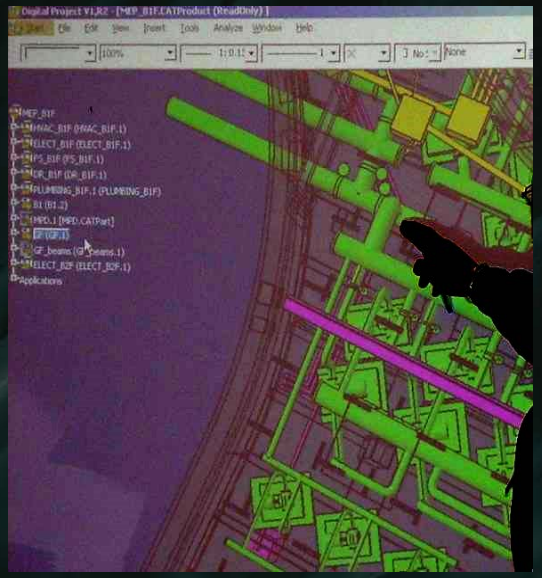






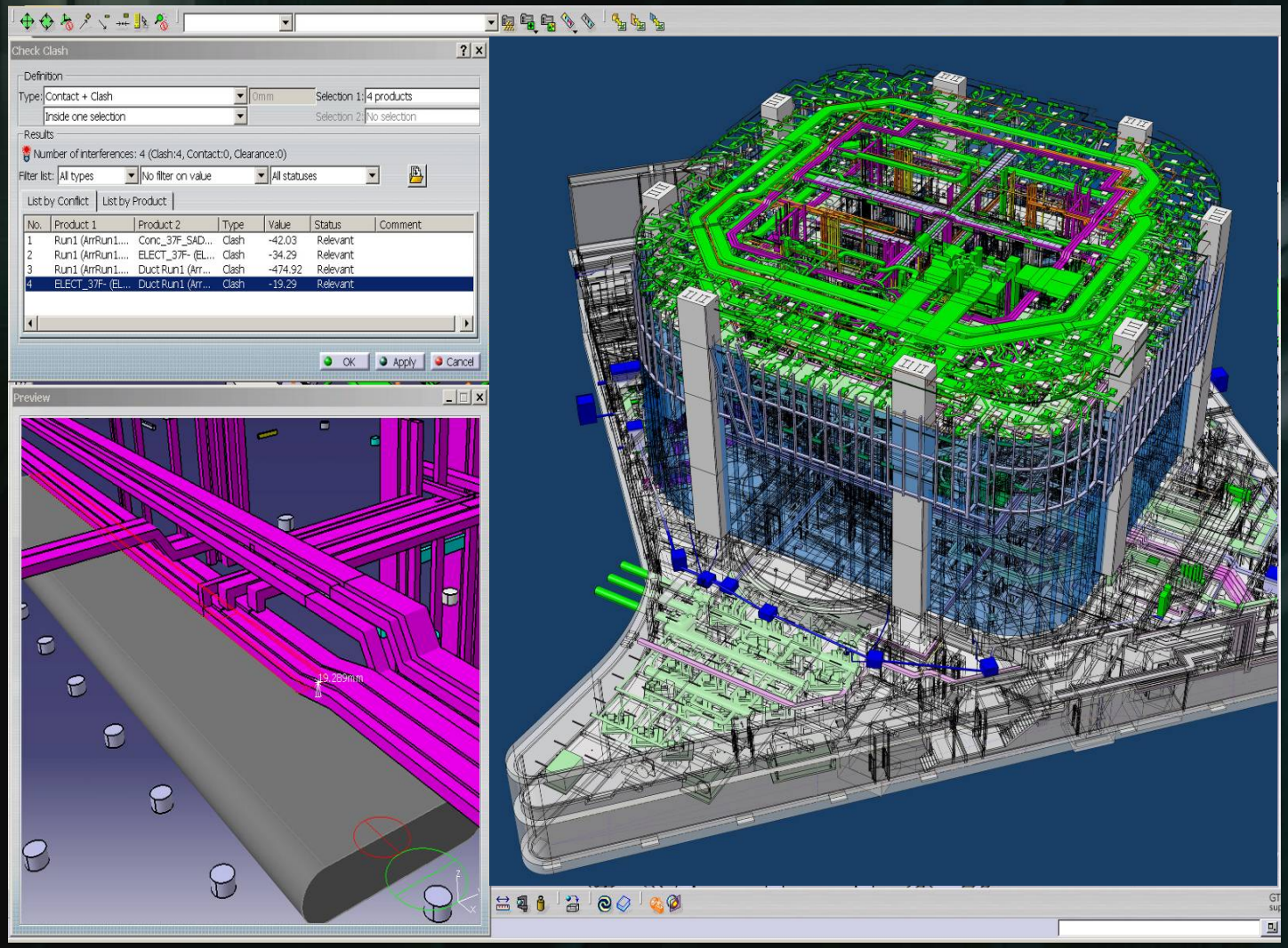
Project-wide multi-discipline design coordination

Detail Design and Coordination



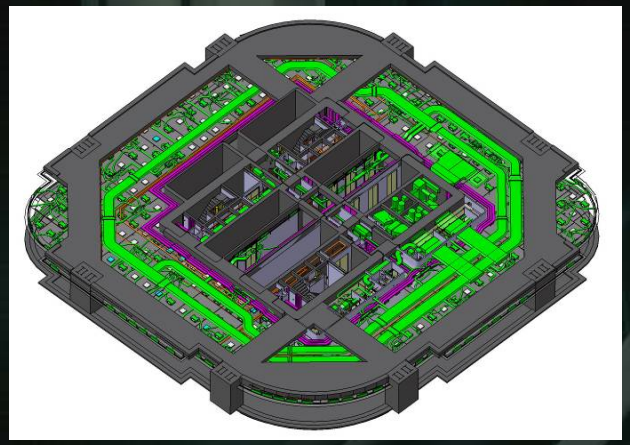
Owner, Architect, Structural, MEP, QS working in the same room on the same Contract 3D Building Information

Detail Design and Coordination

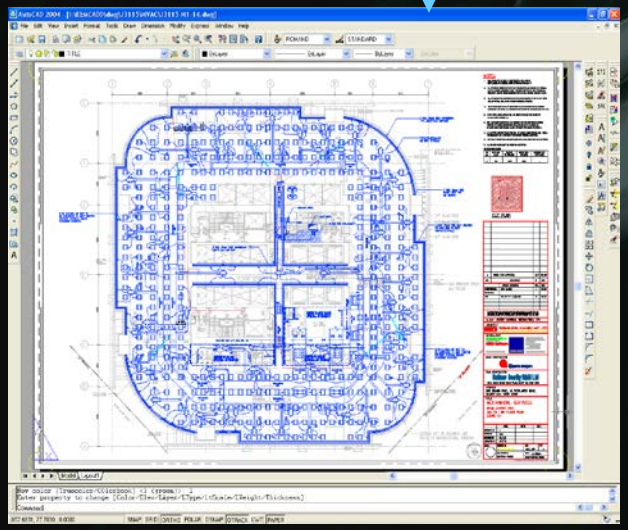


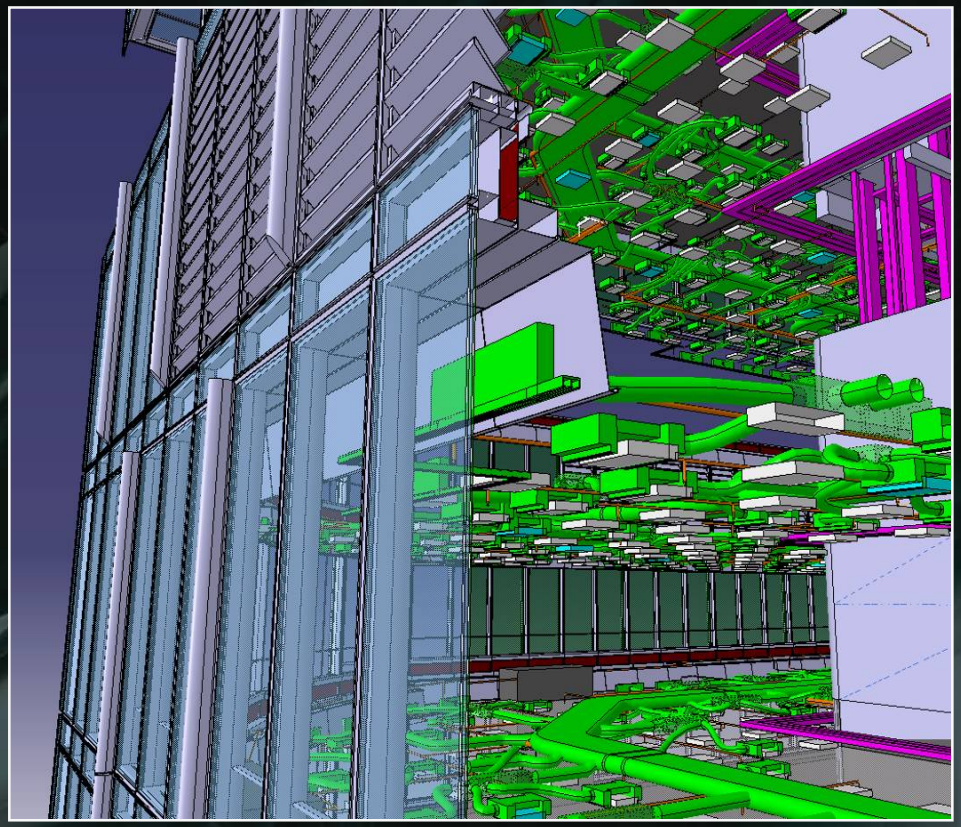
Automatic Clash Identification and Management

Work Document Coordination



Coordinated 3D geometries

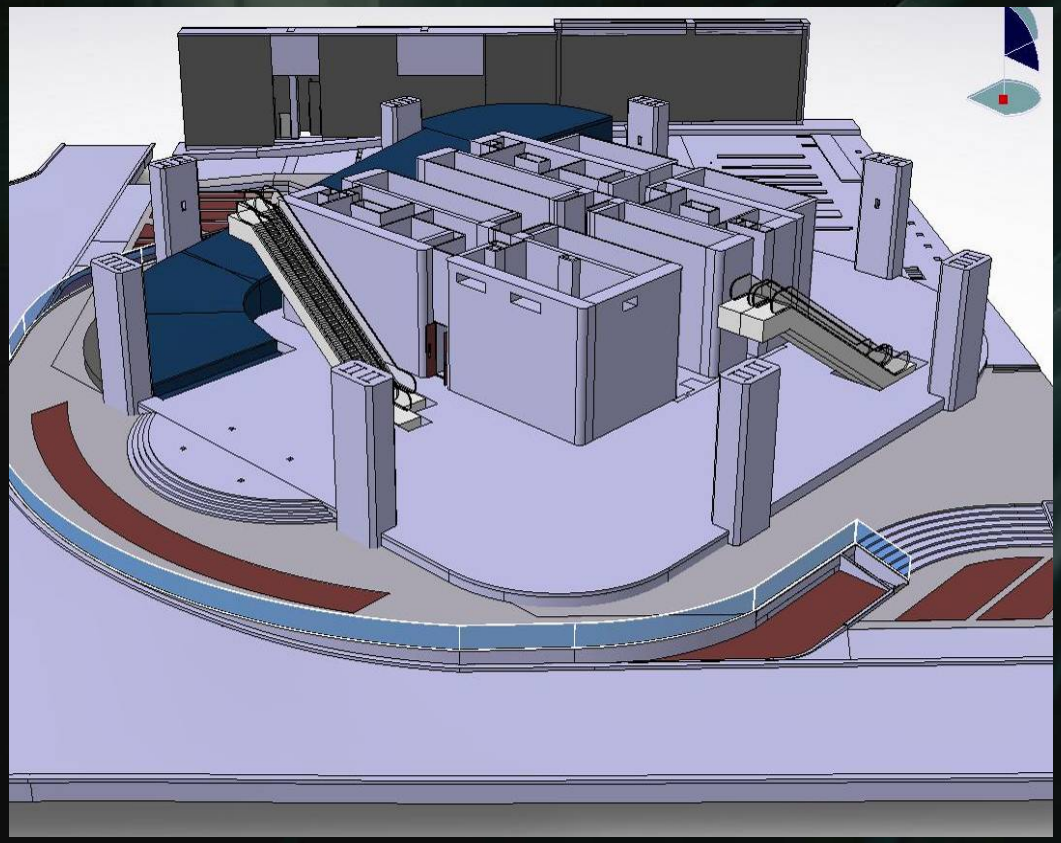


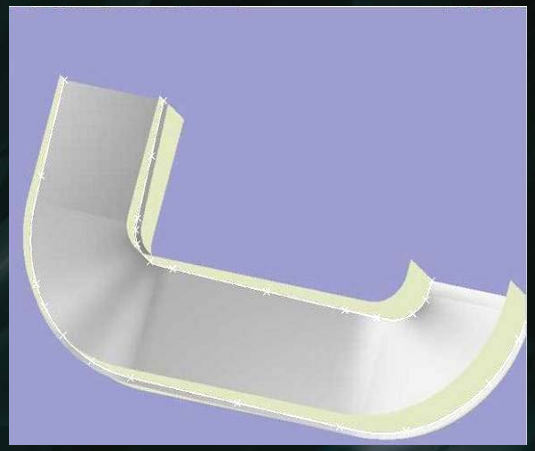


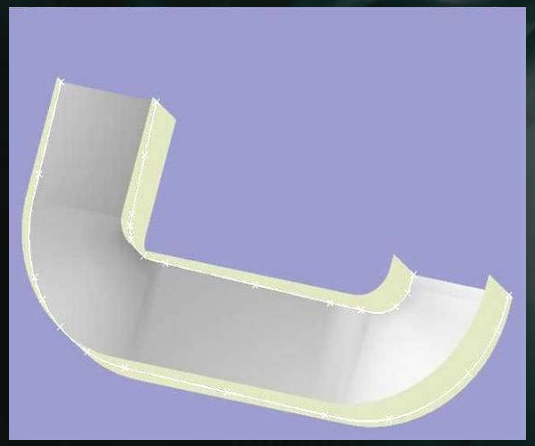
Live Sectioning

2D geometries output to ACAD for further coordination

Facilitate Design Development



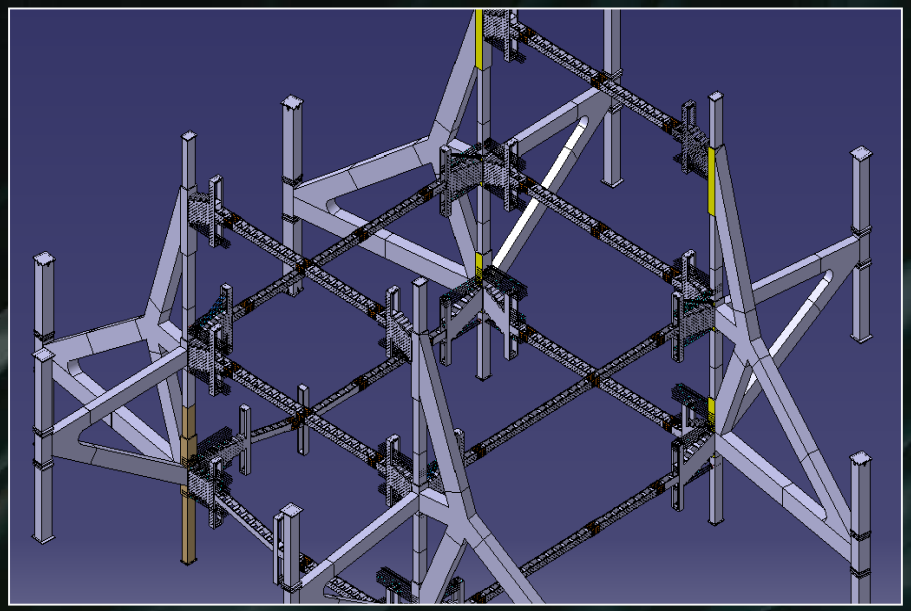


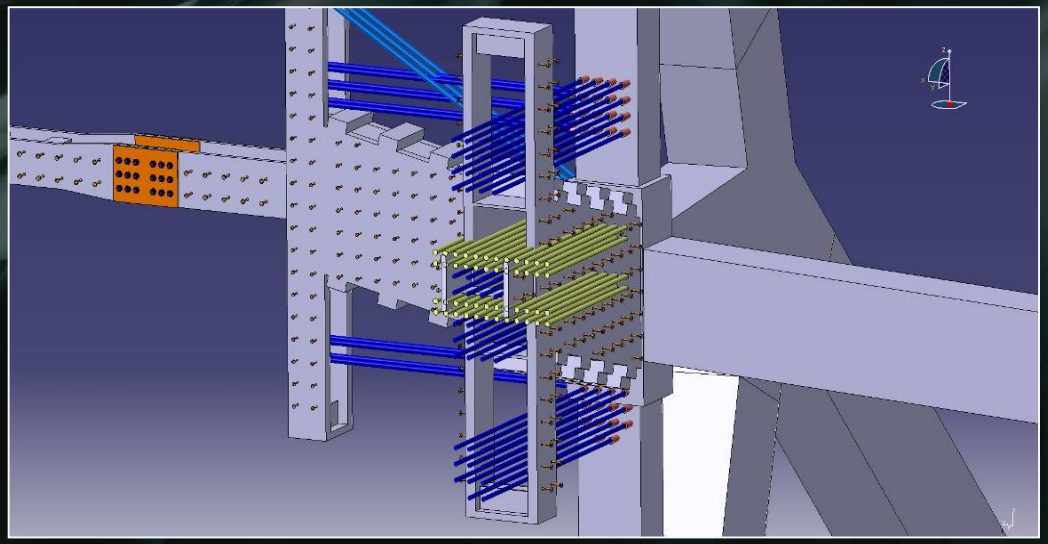


Road Curb Design Review

Car-ramp Design Review

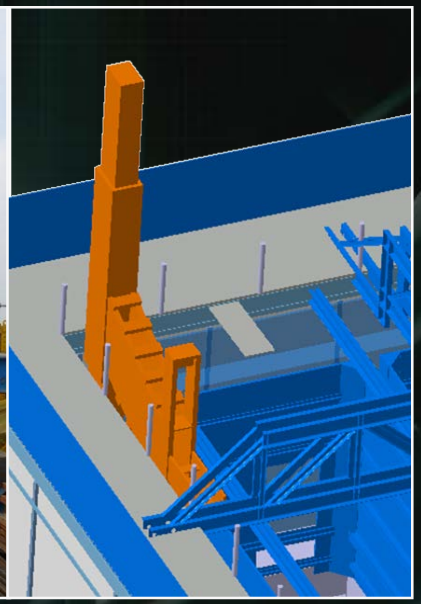
Critical Structural Detail Checking

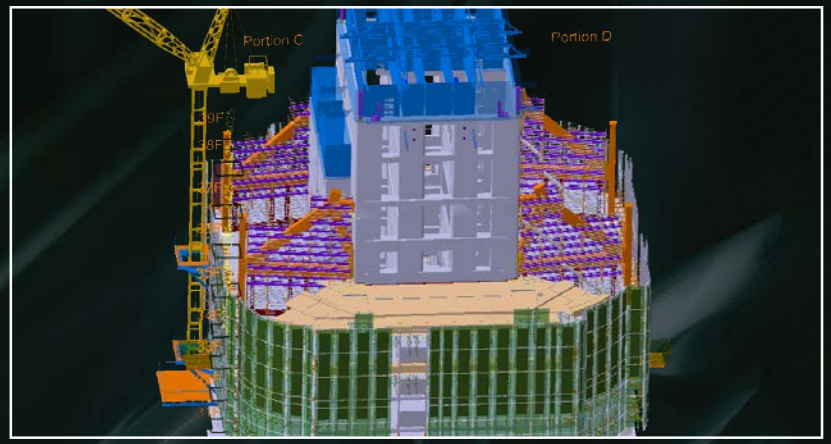


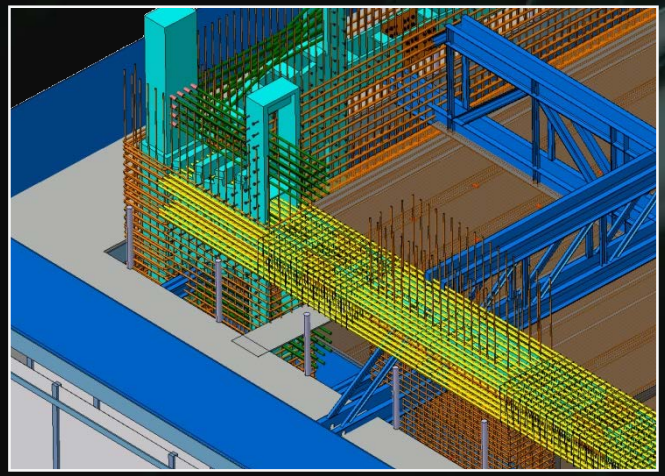


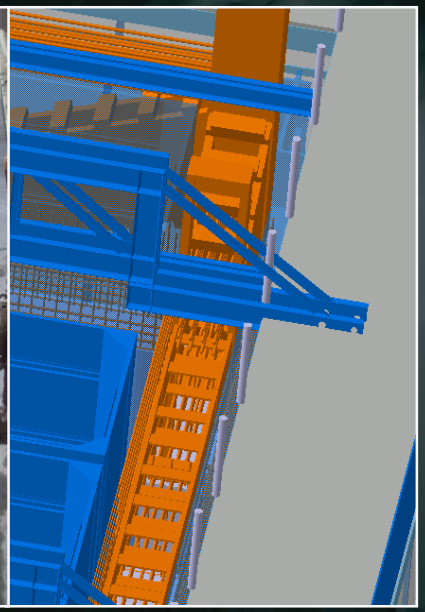
Steel Outrigger and Rebars

Critical Structural Detail Checking





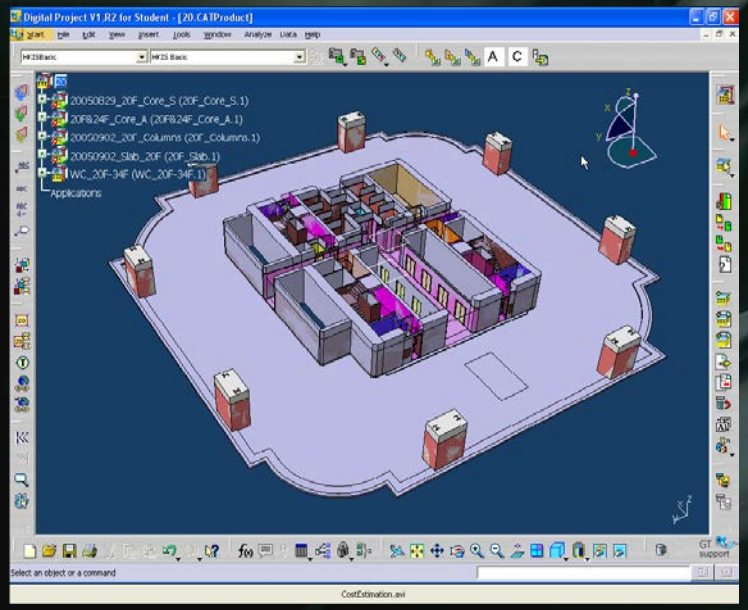


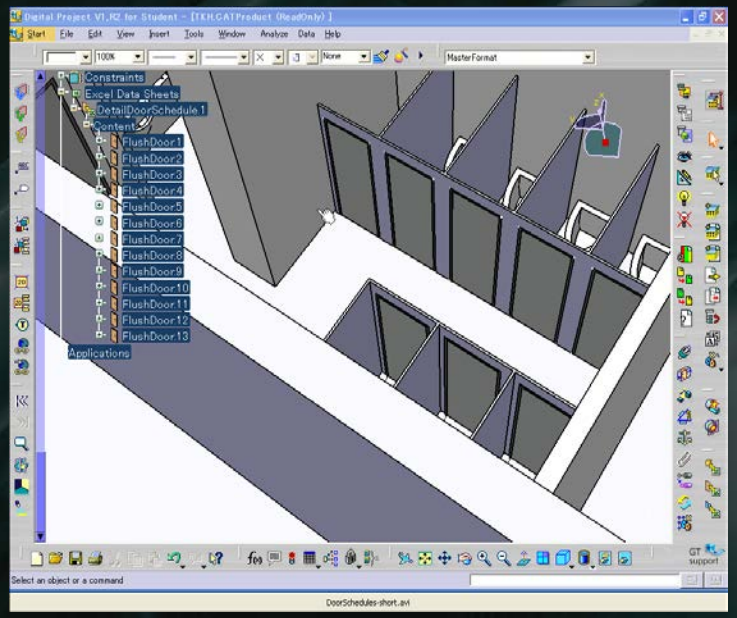


Steel Outrigger

Scheduling and Data Extraction

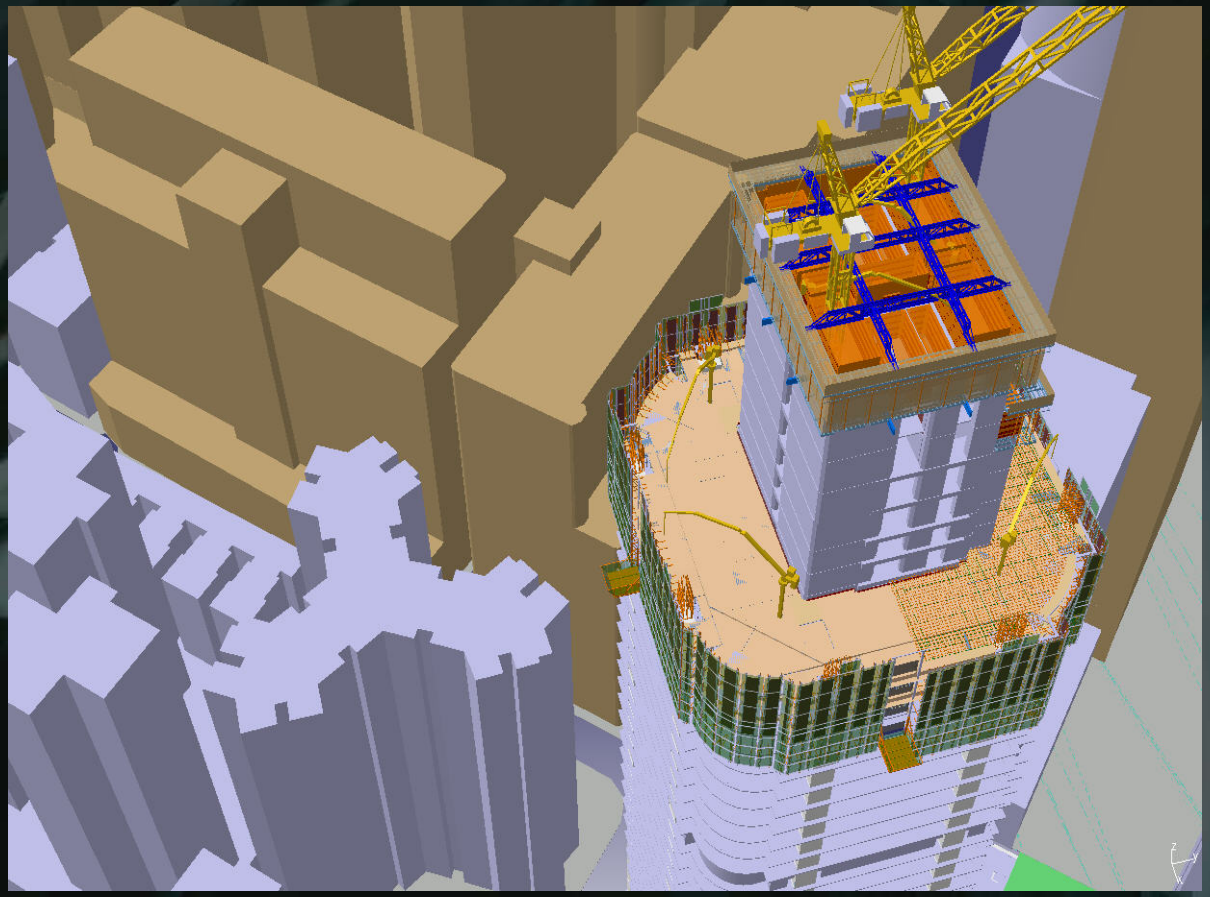
- Quantity Extraction from BIM
- Work Scheduling utilizing BIM





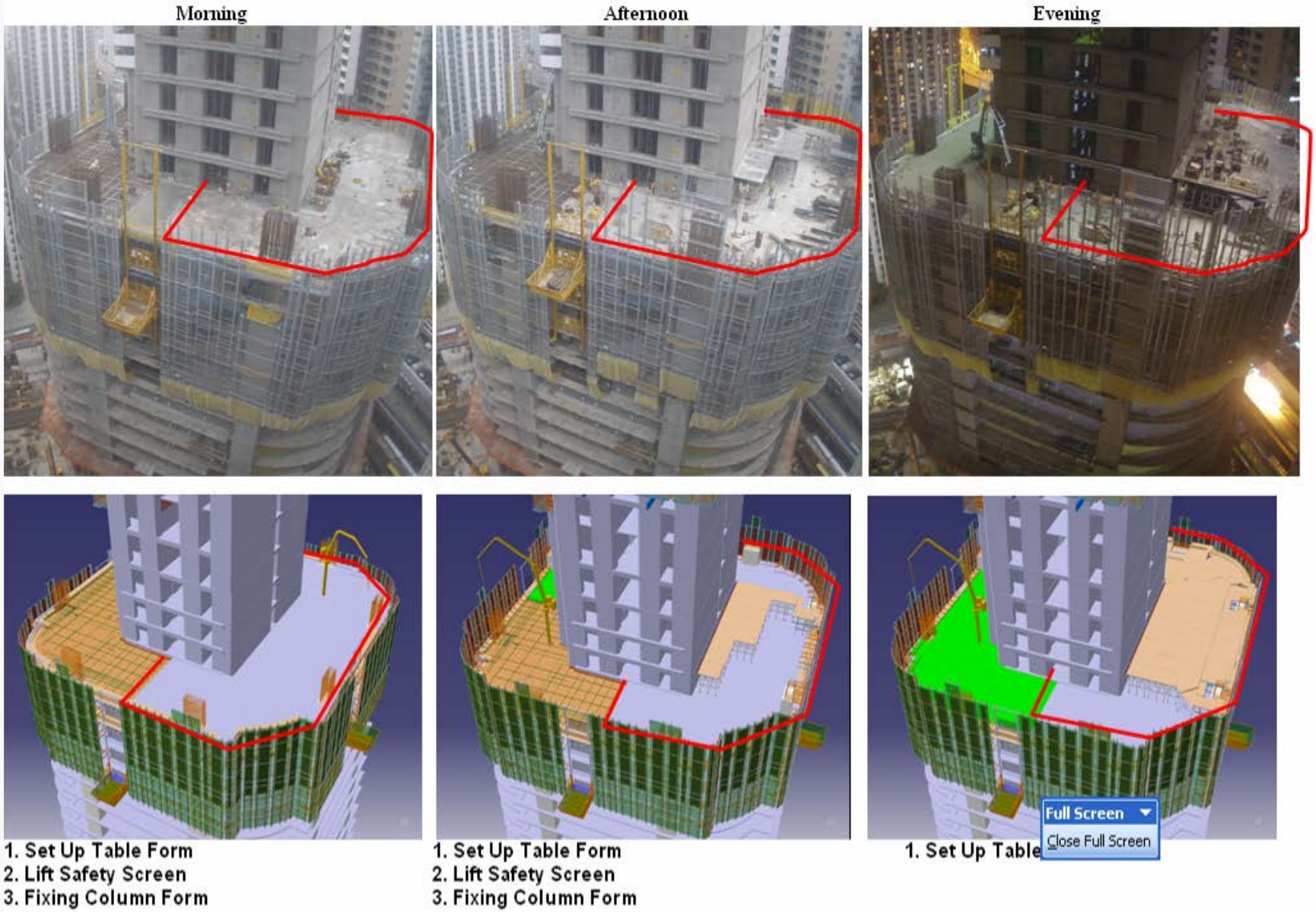
Virtual Prototyping (4D Model)

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



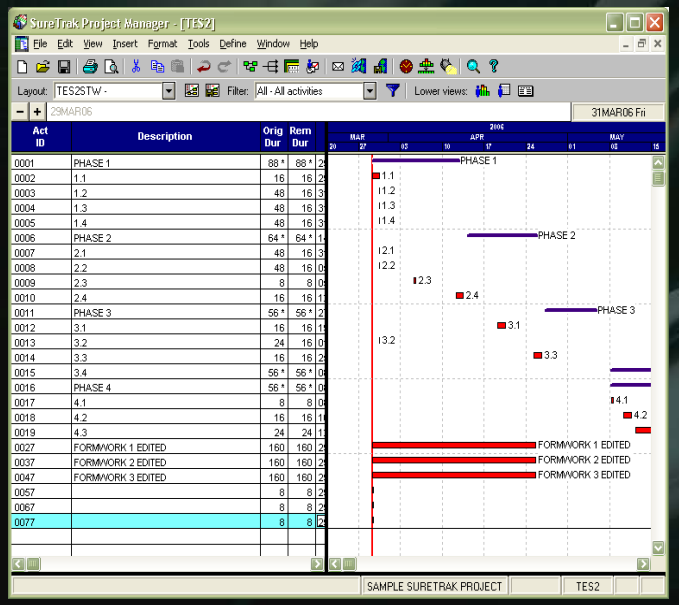
Virtual Prototyping

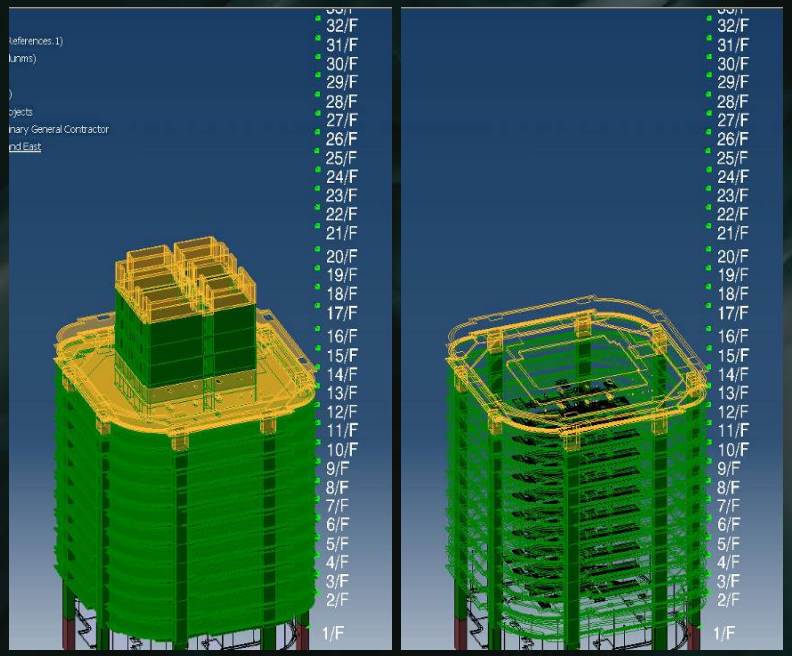
4 Day Cycle Simulation (Day 1)



Visualize Master Progress with 4D Model

Data exchanging between Primavera and Digital Project





Primavera

Digital Project

Erweiterte Realität zur Visualisierung von Planungsdaten vor Ort

The Real Estate Cash Flow-25 years

- Setting realistic expectations of BIM from the facility maintenance operation team's perspectives.

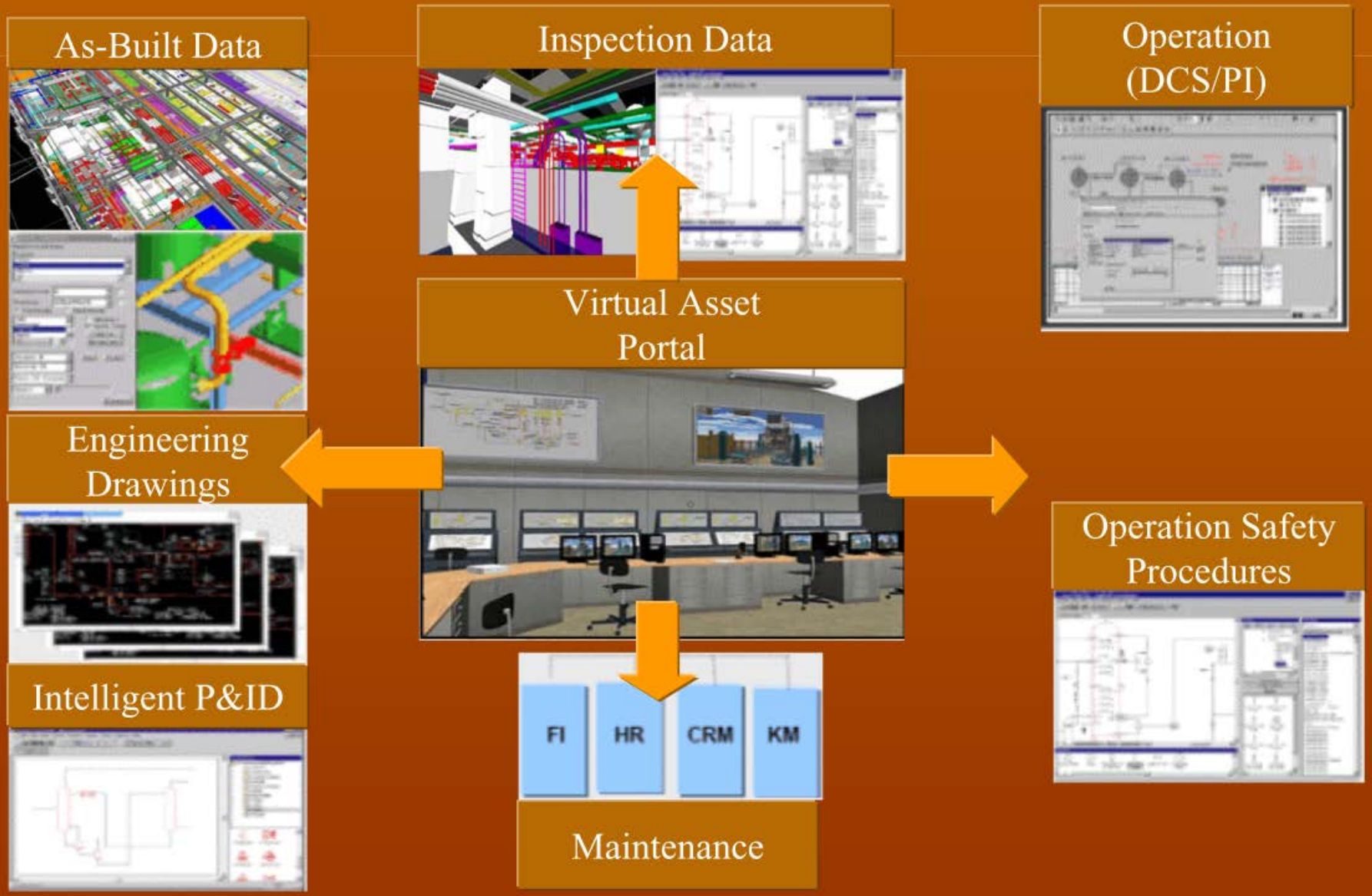
Virtual Asset

Physical Asset

Physical Asset

Virtual Asset

As-built BIM Field Checking


As-Built Data
Inspection Data
Operation (DCS/PI)
Virtual Asset Portal
Engineering Drawings
Operation Safety Procedures
Intelligent P&ID
FI
HR
CRM
KM
Maintenance

Microsoft Access - [Singapore BIM competition : Database (Access 2000 file format)]

File Edit View Insert Tools Window Help

Type a question for help

Open Design New

Objects
- Tables
- Queries
- Forms
- Reports
- Pages
- Macros
- Modules

Groups
- Favorites

Create table in Design view
Create table by using wizard
Create table by entering data
AirTerminals
AirTerminalTypes
AreaLoads
Areas
AreaSchemes
Assemblies
AssemblyCodes
AssemblyTypes
BuildingTypeSettings
CableTrayFittings
CableTrayFittingType
CableTrays
CableTrayTypes
Casework
CaseworkTypes
Ceilings
CeilingTypes
Columns
ColumnTypes
CommunicationDevices
CommunicationDeviceTypes
ConduitFittings
ConduitFittingType
Conduits
ConduitTypes
Constructions
ConstructionTypes
CurtainPanels
CurtainPanelTypes
CurtainSystems
CurtainSystemTypes
CurtainWallMullions
CurtainWallMullionTypes
DataDevices
DataDeviceTypes
DemandFactors
DemandFactorTypes
DesignOptions
DesignOptionSets
DistributionSystem
DistributionSystems
Doors
DoorTypes
DuctAccessories
DuctAccessoryTypes
DuctFittings
DuctFittingTypes
DuctPlaceholders
Ducts
DuctSystems
DuctSystemTypes
DuctTypes
DuctTypes1
ElectricalCircuits
ElectricalDemandFactorDefinitions
ElectricalEquipment
ElectricalEquipmentTypes
ElectricalFixtures
ElectricalFixtureTypes
ElectricalLoadClassificationParameterElement
ElectricalLoadClassifications
Fascias
FasciaTypes
FireAlarmDevices
FireAlarmDeviceTypes
FlexDucts
FlexDuctTypes
FlexPipes
FlexPipeTypes
Floors
FloorTypes
Fluids
FluidTypes
Furniture
FurnitureSystems
FurnitureSystemTypes
FurnitureTypes
GenericModels
GenericModelTypes
Gutters
GutterTypes
HVACLoadSchedules
HVACZones
InternalAreaLoads
InternalLineLoads
InternalPointLoads
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LevelTypes
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LightingDeviceTypes
LightingFixtures
LightingFixtureTypes
LineLoads
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MassExteriorWall
MassFloor
MassGlazing
MassInteriorWall
MassOpening
MassRoof
MassSkylight
MassTypes
MaterialQuantities
Materials
MechanicalEquipment
MechanicalEquipmentTypes
NurseCallDevices
NurseCallDeviceTypes
OmniClassNumbers
PanelScheduleTemplates-BranchPanel
PanelScheduleTemplates-DataPanel
PanelScheduleTemplates-Switchboard
Parking
ParkingTypes
Phases
PipeAccessories
PipeAccessoryTypes
PipeConnections
PipeConnectionTypes
PipeFittings
PipeFittingTypes
PipeMaterials
PipeMaterialTypes
PipePlaceholders
Pipes
PipeSchedules
PipeScheduleTypes
PipeTypes
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PipingSystemTypes
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PropertyLineTypes
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SecurityDeviceTypes
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SlabEdgeTypes
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SpaceTypeSettings
SpecialtyEquipment
SpecialtyEquipmentTypes
Sprinklers
SprinklerTypes
Stairs
StairTypes
StructuralColumns
StructuralColumnTypes
StructuralFoundations
StructuralFoundationTypes
StructuralFraming
StructuralFramingTypes
StructuralRebar
StructuralRebarTypes
StructuralStiffeners
Stru
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Volt
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Wall
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Ready

NUM

Microsoft Access

File Edit View Insert Tools Window Help

Type a question for help

Singapore BIM competition : Database (Access 2000 file format)

Open Design New

Objects
- Tables
- Queries
- Forms
- Reports
- Pages
- Macros
- Modules

Groups
- Favorites

Create query in Design view
Create query by using wizard

Query1 : Select Query

Mass
- *
- **Id**
- TypeId
- PhaseCreated
- PhaseDemolished
- DesignOption
- GrossVolume
- GrossSurfaceArea
- GrossFloorArea
- Comments
- BaseLevel
- Mark

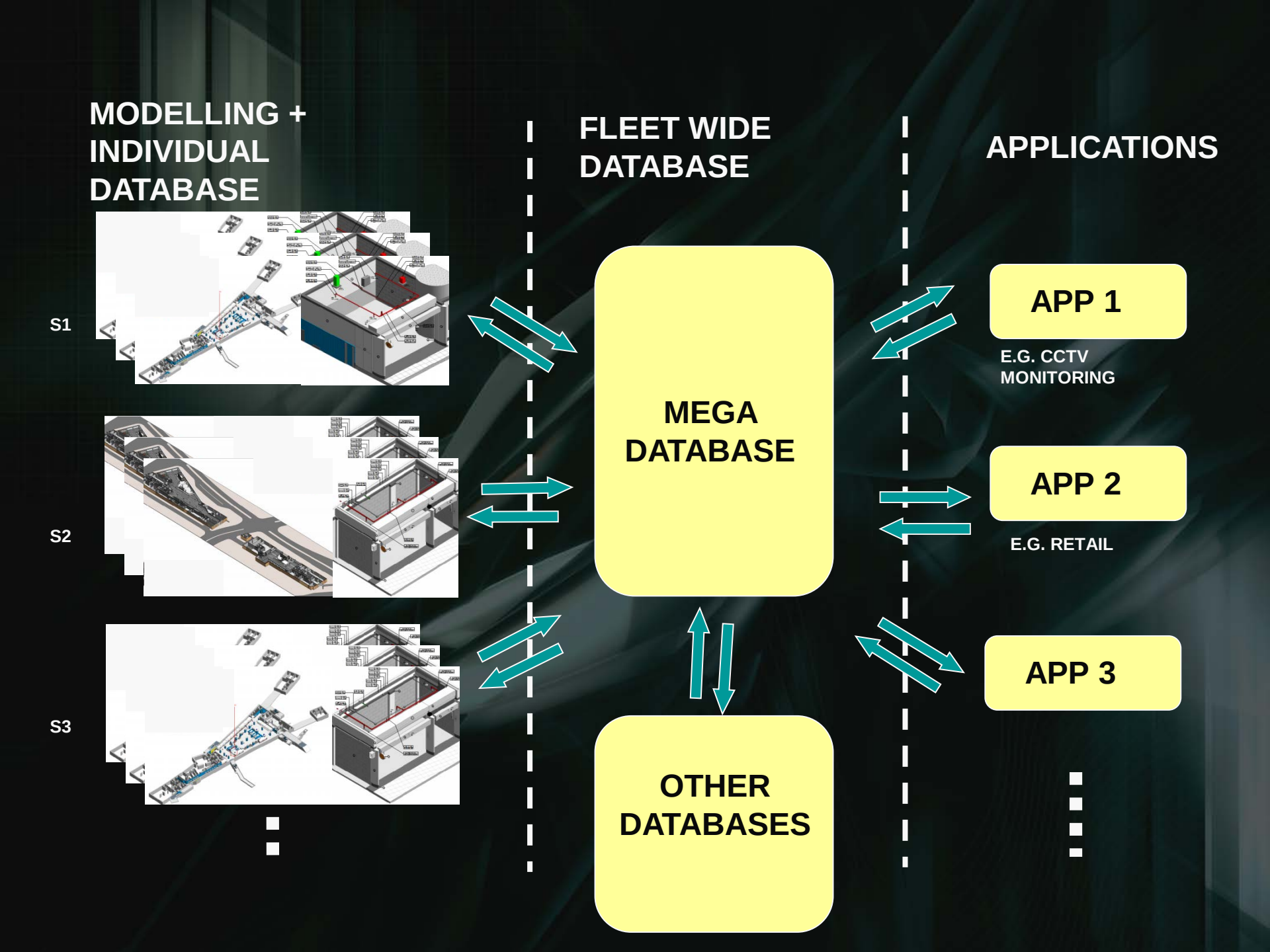
∞ — 1

MassTypes
- *
- **Id**
- Keynote
- Model
- Manufacturer
- TypeComments
- URL
- Description
- OmniClassNumber
- AssemblyCode
- FamilyName
- TypeName
- TypeMark
- Cost

Field:	FamilyName	TypeName	TypeMark				
Table:	MassTypes	MassTypes	MassTypes				
Sort:							
Show:	☑	☑	☑	☐	☐	☐	☐
Criteria:							
or:							

204944 189968 86961 0.0988485594523319 10.063383270263

Ready NUM


MODELLING + INDIVIDUAL DATABASE
FLEET WIDE DATABASE
APPLICATIONS
S1
S2
S3
MEGA DATABASE
OTHER DATABASES
APP 1
E.G. CCTV MONITORING
APP 2
E.G. RETAIL
APP 3

Query1 : Select Query

FamilyName	TypeName
SAT Tower Mullion	SAT Tower Mullion
SAT Tower Surface Ref	SAT Tower Surface Ref
Tower Panel	S01-P001
Tower Panel	S01-P002
Tower Panel	S01-P003
Tower Panel	S01-P004
Tower Panel	S01-P005
Tower Panel	S01-P006
Tower Panel	S01-P007
Tower Panel	S01-P008
Tower Panel	S01-P009
Tower Panel	S01-P010
Tower Panel	S01-P011
Tower Panel	S01-P012
Tower Panel	S01-P013
Tower Panel	S01-P014
Tower Panel	S01-P015
Tower Panel	S01-P016
Tower Panel	S01-P017
Tower Panel	S01-P018
Tower Panel	S01-P019
Tower Panel	S01-P020
Tower Panel	S01-P021
Tower Panel	S01-P022
Tower Panel	S01-P023
Tower Panel	S01-P024
Tower Panel	S01-P025
Tower Panel	S01-P026
Tower Panel	S01-P027
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Tower Panel	S01-P029
Tower Panel	S01-P030
Tower Panel	S01-P031
Tower Panel	S01-P032
Tower Panel	S01-P033
Tower Panel	S01-P034
Tower Panel	S01-P035
Tower Panel	S01-P036
Tower Panel	S01-P037
Tower Panel	S01-P038
Tower Panel	S01-P039
Tower Panel	S01-P040

Record: 1 of 2503


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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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Knowledge Exchange

HKUSPACE Community College 香港大學附屬學院

香港中文大學
The Chinese University of Hong Kong

CUSCS
香港中文大學專業進修學院
School of Continuing and Professional Studies
The Chinese University of Hong Kong

珠海學院
CHU HAI COLLEGE
OF HIGHER EDUCATION

IVE

THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

School of Professional Education
and Executive Development
專業進修學院

SPEED

HK BIM Awards

AECOM

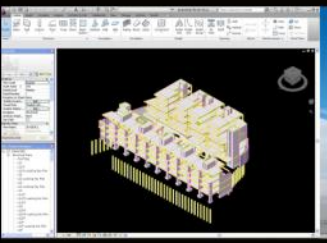
恒基兆業地產有限公司
HENDERSON LAND DEVELOPMENT COMPANY LIMITED

hok

Hong Kong Housing Authority

MTR

瑞安建築有限公司
SHUI ON CONSTRUCTION COMPANY LIMITED



AECOM

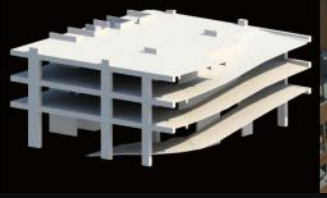
Projects:
- Proposed Commercial Development at No. 135-137, Hoi Bun Road
- Proposed Residential Development at 55-57 Bisney Road, Pokfulam

Location:
- Kwun Tong
- Pokfulam

Types:
- Commercial Development
- Residential Redevelopment

Scheduled Time of Completion:
- Hoi Bun Road – March 2013
- Bisney Road – September 2013

"The concept took around two months to develop, compared to perhaps three to six months with the traditional approach," says Ir. Alan Yuen, Principal Engineer, Building Engineering (Structural), AECOM. "And we completed the structural design in under two months – when we would usually expect this to take three to four months for a building like this."



Henderson Land Development Co Ltd.

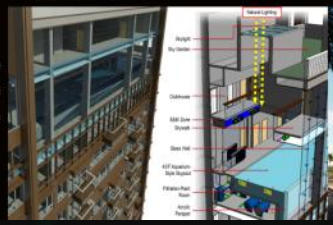
Projects:
- The Gloucester
- A Luxurious Boutique Hotel at 388 Jaffe Road

Location:
- 212 Gloucester Road, Wanchai
- 388 Jaffe Road, Wanchai

Types:
- Residential Development
- Hotel

Scheduled Time of Completion:
- 2012

"BIM is a catalyst for project innovation and a tool for speedier design development," says Kevin Ng, Deputy General Manager, Project Management (2) Department, Henderson Land. "We couldn't effectively and efficiently visualize 2D combined services drawings, for complicated projects, but with BIM we can realistically appraise problems and opportunities."



HOK International (Asia/Pacific) Ltd.

Project: Bengaluru International Airport Terminal 1 Expansion

Location: Bangalore, India

Type: Airport

Scheduled Time of Completion: 2013 & 2015

"The client can get a better understanding of the design via Revit's inherent 3D environment, and therefore become more engaged with the design process," says Mr. Benjamin Thomas, Senior Design Architect, Associate with HOK.

"The BIM model was a massive help in the design process," says Ir. Andrew Mole, Associate Director of Arup. "There is only so much information you can show in 2D drawings, since they must be interpreted to understand the full spatial information. 3D models communicate better. The BIM model allowed creation of multiple views of the airport design, with minimum additional effort."

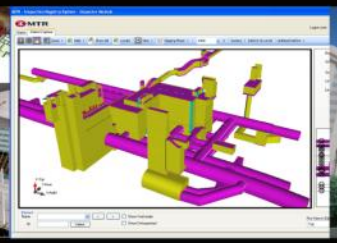
Hong Kong Housing Authority

Projects:
- Tai Pak Tin Street Public Housing Development
- Redevelopment of Lower Ngau Tau Kok Estate
- Redevelopment of So Uk Estate

Location:
- Tai Pak Tin Street
- Lower Ngau Tau Kok Estate
- So Uk Estate

Type:
- Public Housing

Having worked on projects with BIM used in standard ways – such as reducing clashes during construction, Hong Kong Housing Authority has recently progressed to helping accelerate a construction project in Tai Pak Tin Street, and even demolished old buildings using BIM in Lower Ngau Tau Kok and So Uk.



MTR Corporation Limited

Project: Re-Development of Inspection Registry System

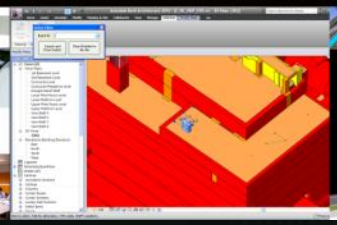
Location: Hong Kong

Type: System Development

Scheduled Time of Completion: 2011

"One BIM model is for all, so inspectors can work efficiently," notes Ms Dorian Leung, Structural Inspection and Investigation Manager, MTR Corporation.

"I think BIM will become more popular in the long term," says Mr. Dickson Luk, System Analyst, MTR Corporation. "Now, it is mainly used by BIM professionals. In future, inspectors, engineers and managers will gain more and more access to BIM models – which will enhance our expertise in managing the Corporation's railway assets."



Shui On Construction Co. Ltd.

Project: The Innovation Tower, The School of Design

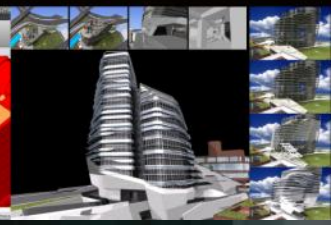
Location: The Hong Kong Polytechnic University, Hung Hom

Type: Academic Building

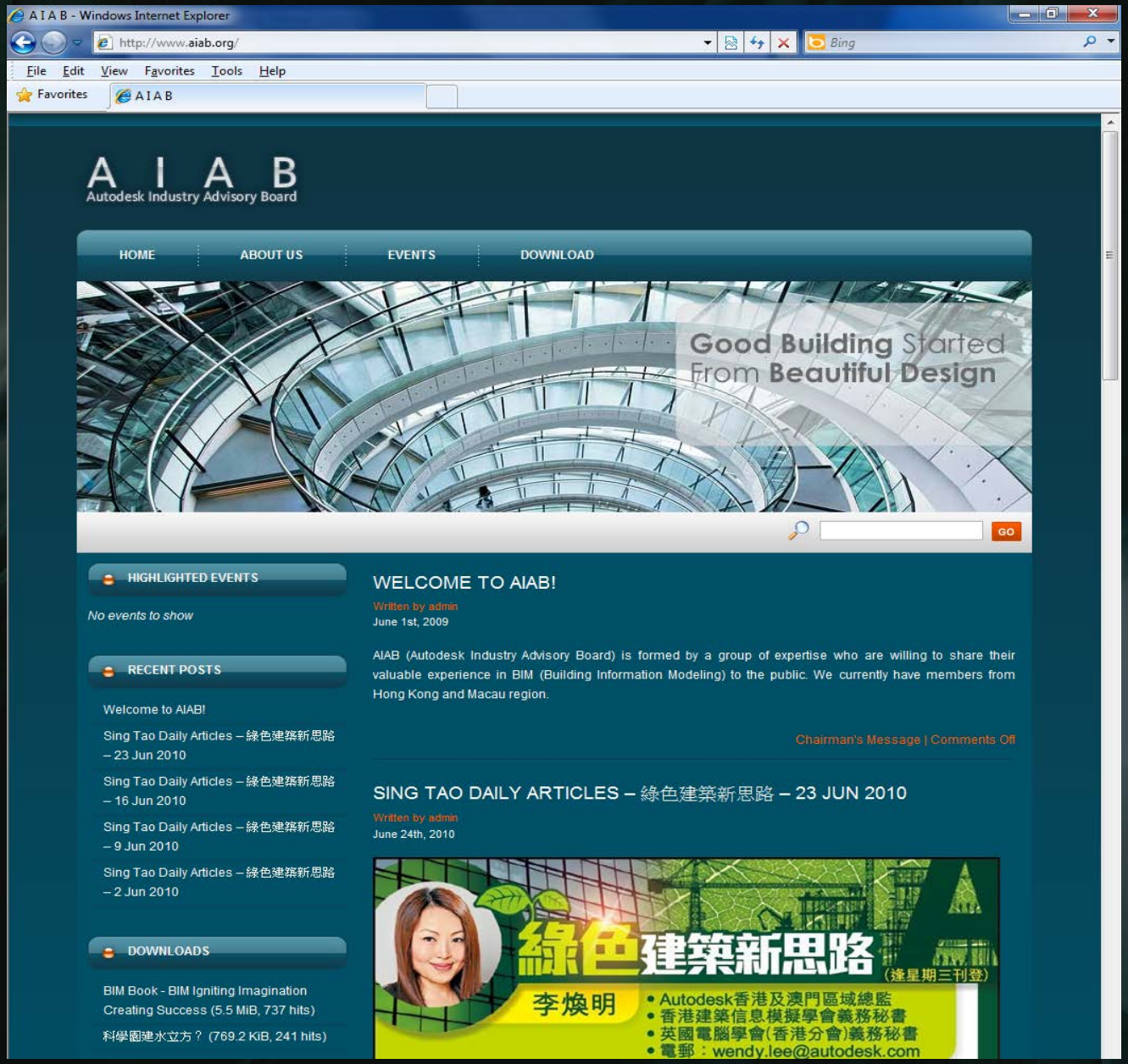
Scheduled Time of Completion: 2012

With BIM, correlations between various disciplines would be far clearer than with 2D drawings and sections, and Shui On could construct Innovation Tower as envisaged by the architect.

Mr. Chan Tsang Shing, Senior Engineer of Shui On Construction Co. Ltd. says Shui On is now training staff to use BIM, and they find that Revit helps them easily visualise construction projects in 3D. "Most colleagues find it very useful, and know there's a trend to use BIM," he adds.



BIM USER GROUPS



Link: www.aiab.org

BIM RESOURCES

Link: www.revit.com.hk

BIM RESOURCES

RevitCity.com - Windows Internet Explorer

http://www.revitcity.com/index.php

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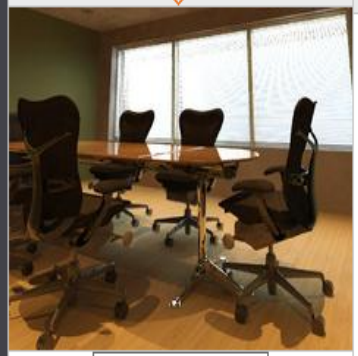

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RevitCity.com News

2010-03-02 **Sorry to the Users**
I, Jeremy Jacobs appologize to all the users of RevitCity.com I made a mistake with the server on Monday morning, knocking out the server for about 34 hours. Everything should be back up and runnin . . .

2009-07-08 **Upgrade Complete**
We've moved the site over to newer hardware. In case you're curious about the new hardware, here it is:
2 - 2.53 Ghz Quad Core Nehalem Xeon processors
8 GB of RAM
4 - Intel X25-E . . .

2009-07-02 **Coming Upgrades**
We're in the process of setting up a new server over the next couple of days. Please bear with us if you notice glitches as we make the tranistion over to some faster hardware.

2009-02-24 **PLEASE READ: Note To Members About RevitCity**
Hi Everybody,
Thank you all for making RevitCity what it is. For those of you who don't know RevitCity is a part-time volunteer effort by my brother, me, and our fantastic moderators (c . . .

Industry News

2009-11-09 Latest AUGI Edge is now available.
2009-07-07 Update 1 for Autodesk Revit Architecture 2010 is now available
2009-04-07 Revit Technology Conference 2009
2009-03-13 Autodesk publishes Revit 2010 User Interface Tour to YouTube
2007-05-24 Revit, AutoCAD Architecture Get Full IFC 2x3 Certification

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Members:	155306
Objects:	9799
Forum Posts:	78343
Job Listings:	3

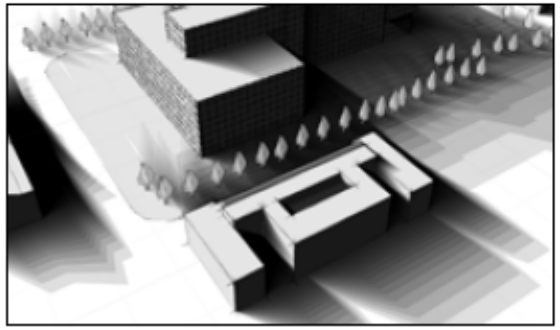
Revit® Content

Link: www.revitcity.com

BIM DEVELOPMENTS – STANABILITY DESIGN

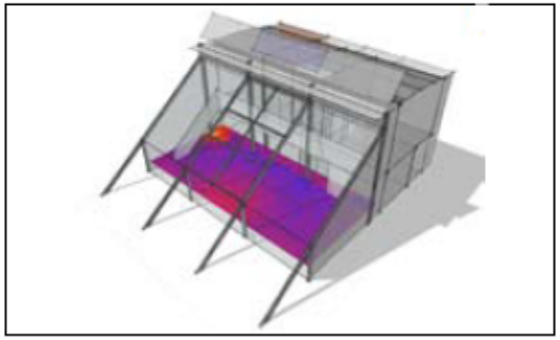
Shadows and Reflections

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.



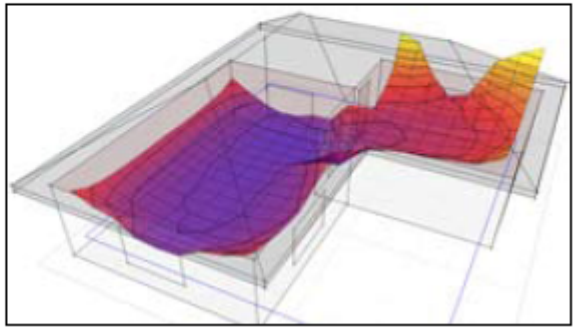
Daylighting

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.



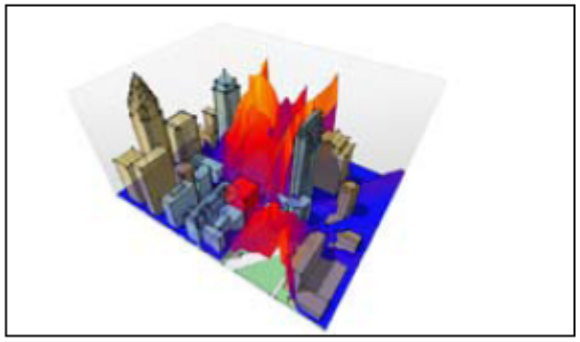
Thermal Performance

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.



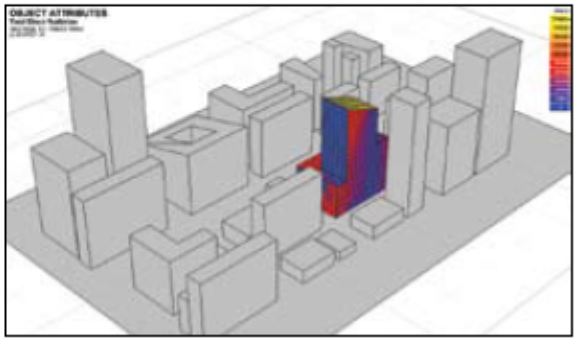
Visual Impact

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



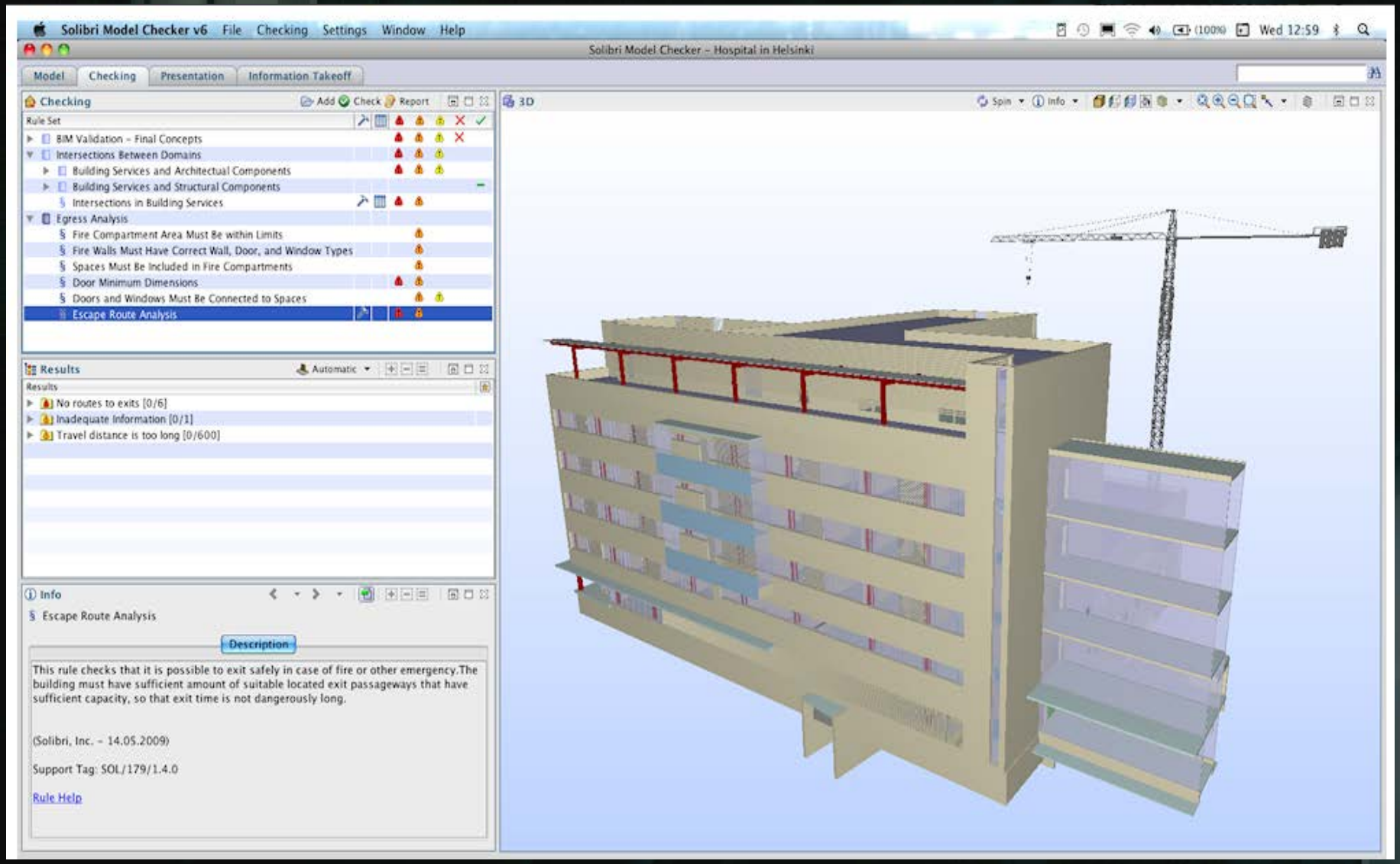
Solar Radiation

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



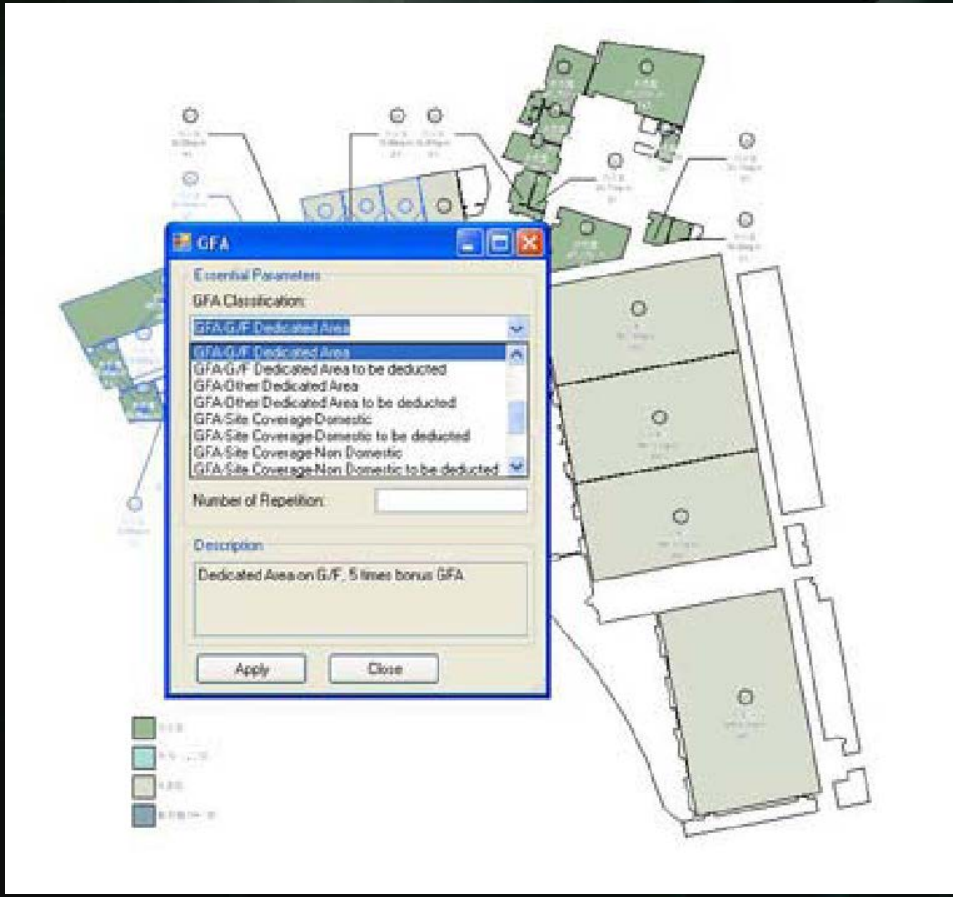
www.autodesk.com

BIM DEVELOPMENTS – STATUTORY CHECKING



www.solibri.com

BIM DEVELOPMENTS
STATUTORY SUBMISSIONS



Link: www. bit-world.com

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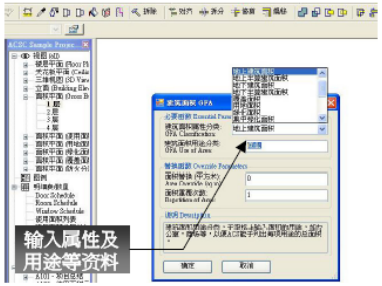
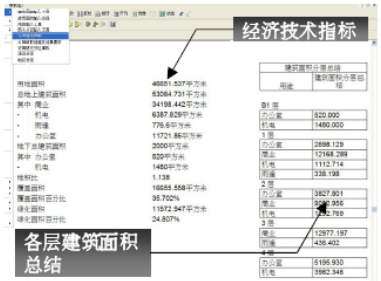


支援各类建筑面积运算、经济技术指标、使用面积人数换算、疏散走道要求、洁具要求、及防火分区面积结算。

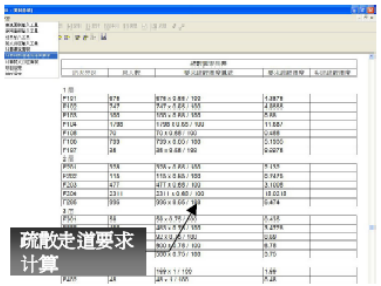


1. 经济技术指标运算包括:

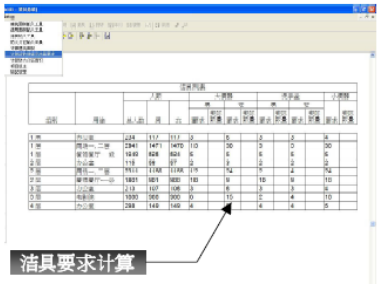
- 用地面积
- 地上，地下及不同功能性质的建筑面积结算及容积率
- 绿地总面积及绿地率
- 建筑密度

2. 使用面积运算包括:

- 跟据使用面积用途计算人数

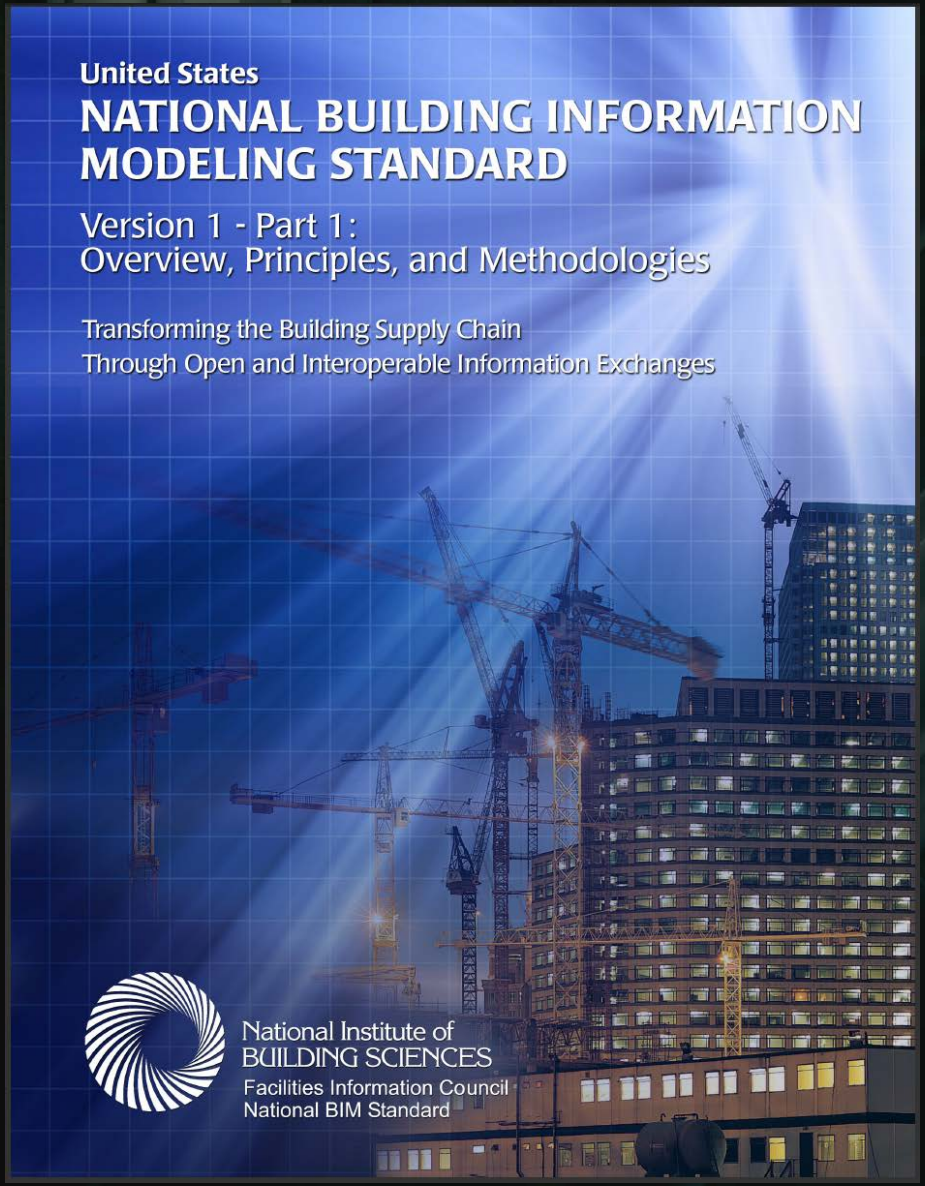


- 跟据不同楼层或防火分区的总人数及其建筑物功能性质计算疏散走道要求

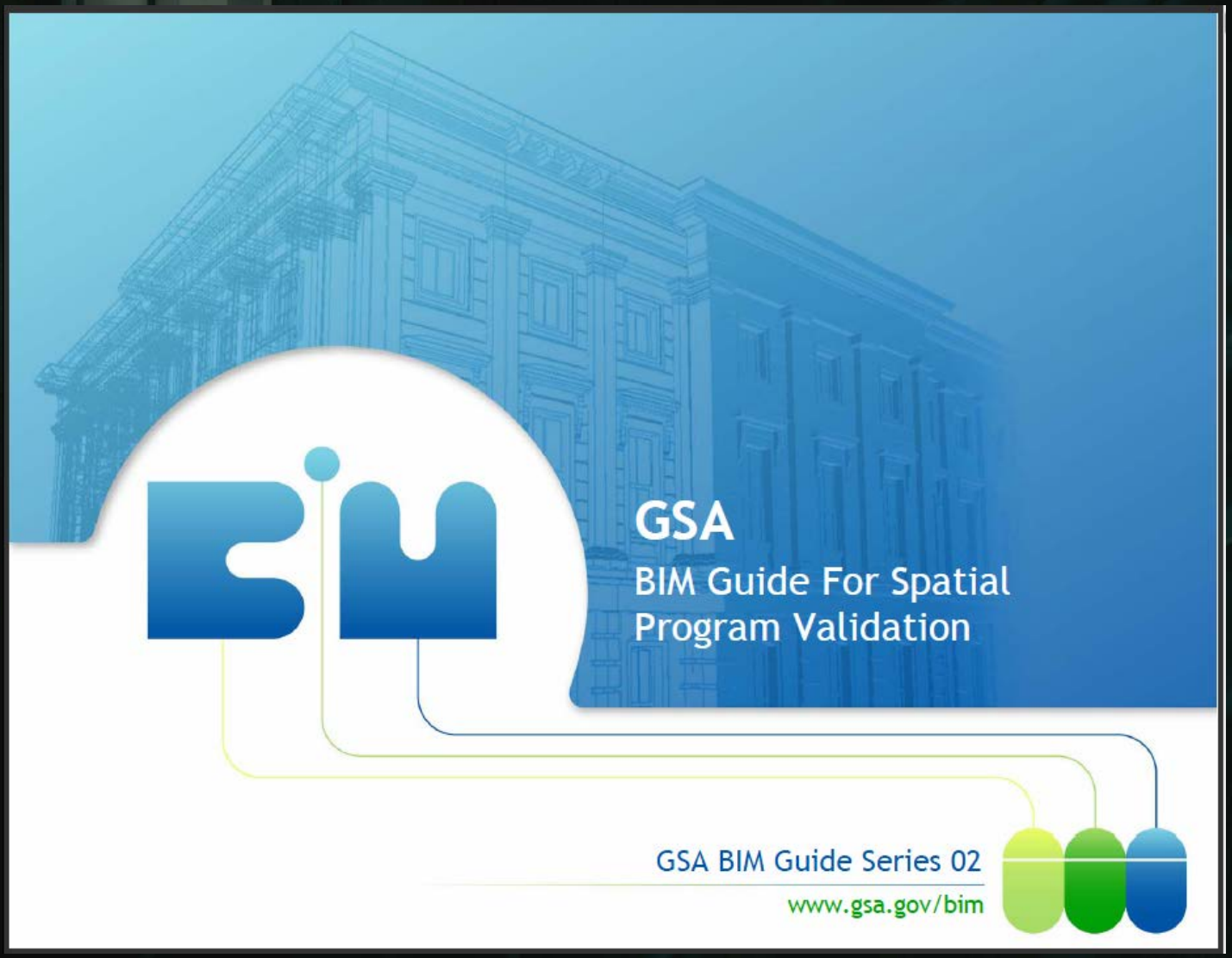


- 跟据不同楼层或区域的总人数及其用途，计算男女人数分布，及

BIM STANDARD -US



BIM STANDARD - US



BIM STANDARD - UK

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 COMPLIANT

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.

Version 1.0 April 2010 First Issue

HK BIM STANDARDS –HKIBIM, MTRC, HA

Hong Kong Institute of
Building Information Modelling

BIM Project Specification

hong kong

HKIBIM Specification (Rev 1.0)

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MTR
Building Information Modelling
(BIM) Standard

Autodesk Revit

Version 1.0 09/2010

Building Information Modelling (BIM)
Standards Manual
for
Development and Construction Division
of
Hong Kong Housing Authority

(Version 1.0)
November 2009

Prepared by Business Information Technology Unit
Development & Construction Division
Housing Department

Singapore BCA visit to HK

TARGET

Singapore Construction Industry to Use BIM Widely by 2015

PHASED MANDATORY BIM E-SUBMISSION

2013	Mandatory Architecture BIM e-Submissions for all new building projects > 20,000 m^2
2014	Mandatory Engineering BIM e-Submissions for all new building projects > 20,000 m^2
2015	Mandatory Architecture & Engineering BIM e-Submissions for all new building projects > 5,000 m^2

** will be calibrated in a gradual manner by taking into consideration the readiness of the industry practitioners and technology

“十二五”建筑业信息化发展纲要

（一）总体目标

“十二五”期间，基本实现建筑企业信息系统的普及应用，加快建筑信息模型（**BIM**）、基于网络的协同工作等新技术在工程中的应用，推动信息化标准建设，促进具有自主知识产权软件的产业化，形成一批信息技术应用达到国际先进水平的建筑企业。

住房和城乡建设部 **10/5/2011**

http://www.c-bm.com/news/2011/5-19/B16543600.shtml