



From Concept to Contract Documentation - Implement of BIM

David Fung Registered Architect

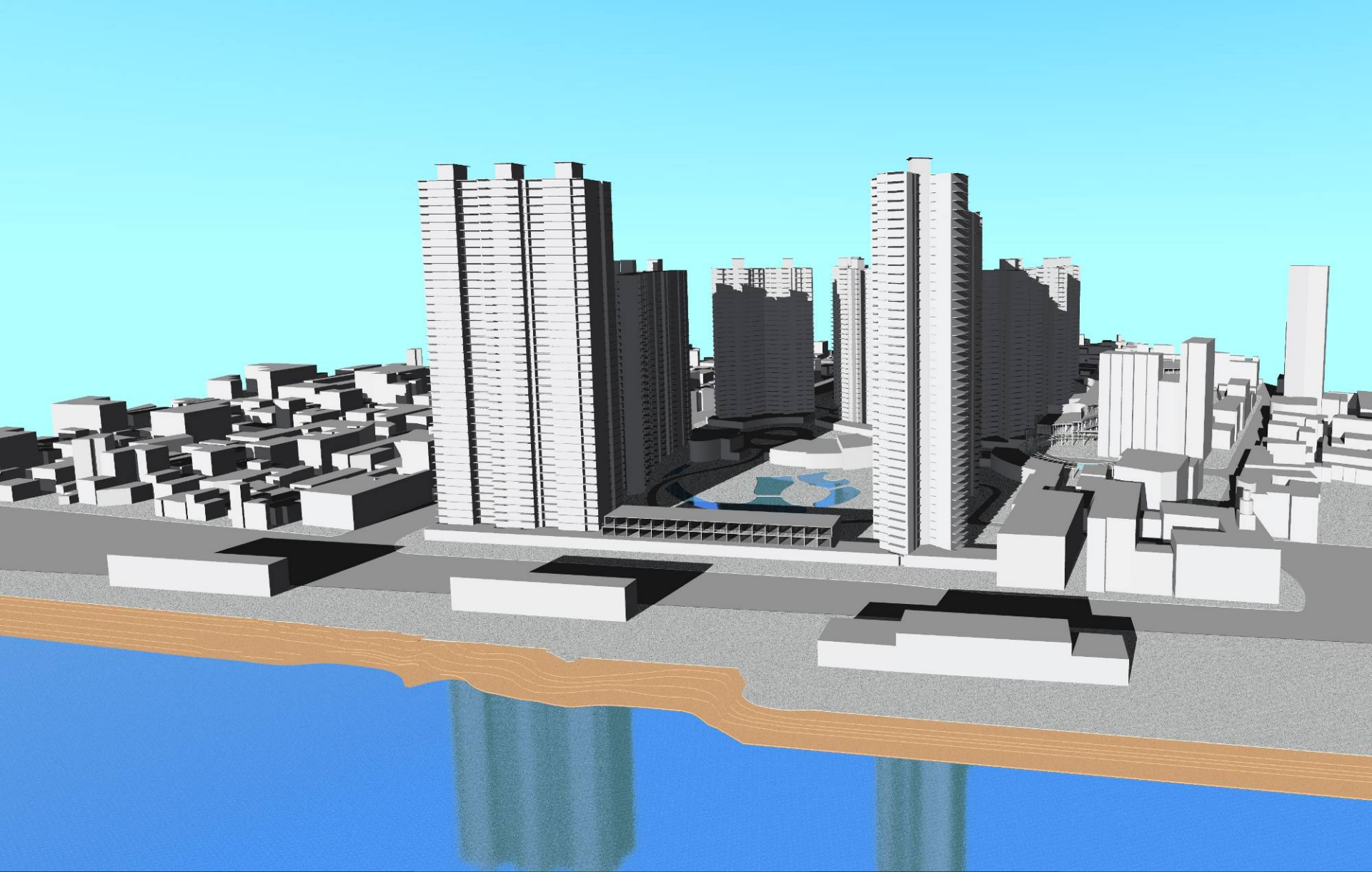
Senior Associate, BIM Division Head; Registered Architect, HKIA, AIAB

Aedas Ltd 凱達

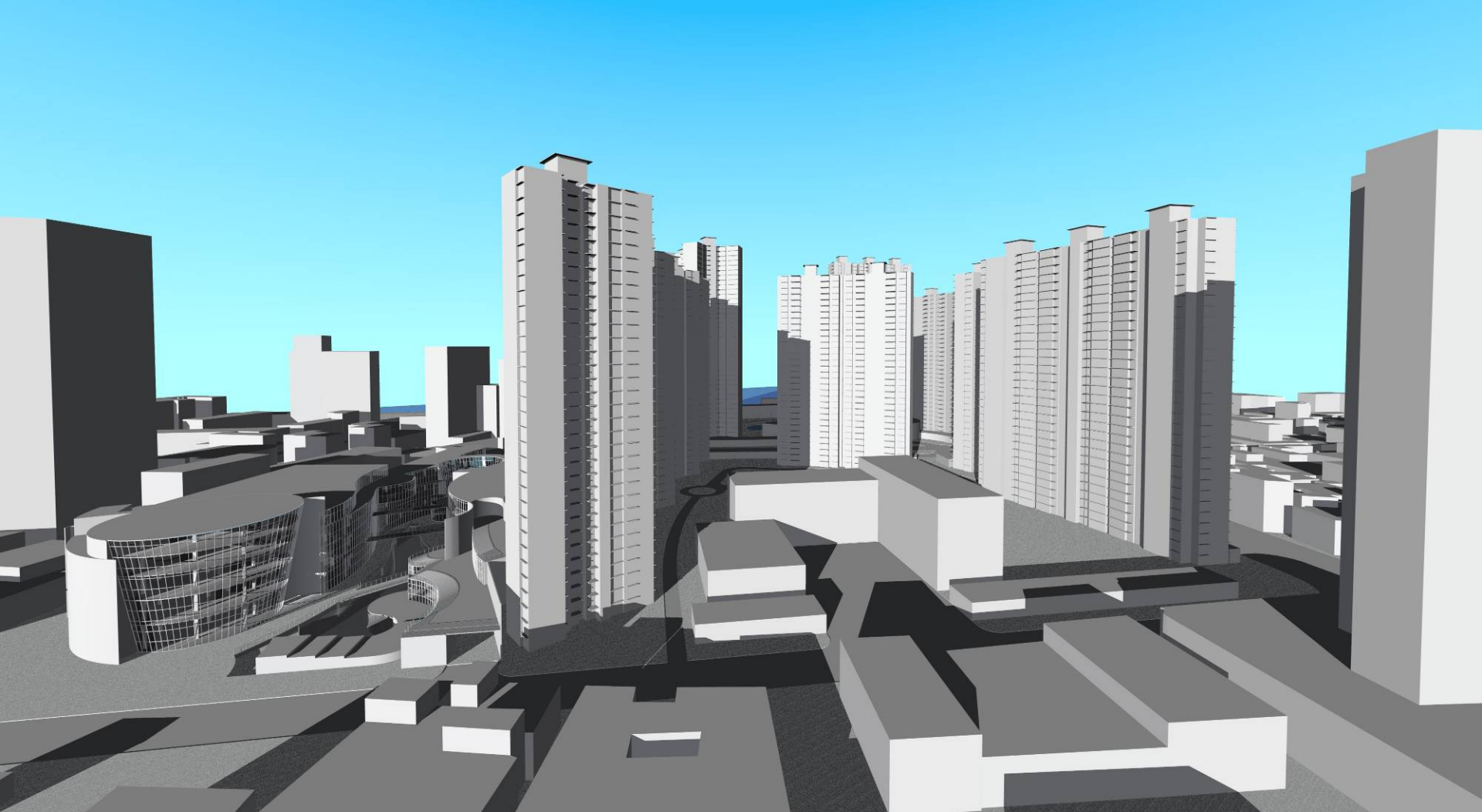
www.aedas.com



1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**



BUILDING IN CONTEXT



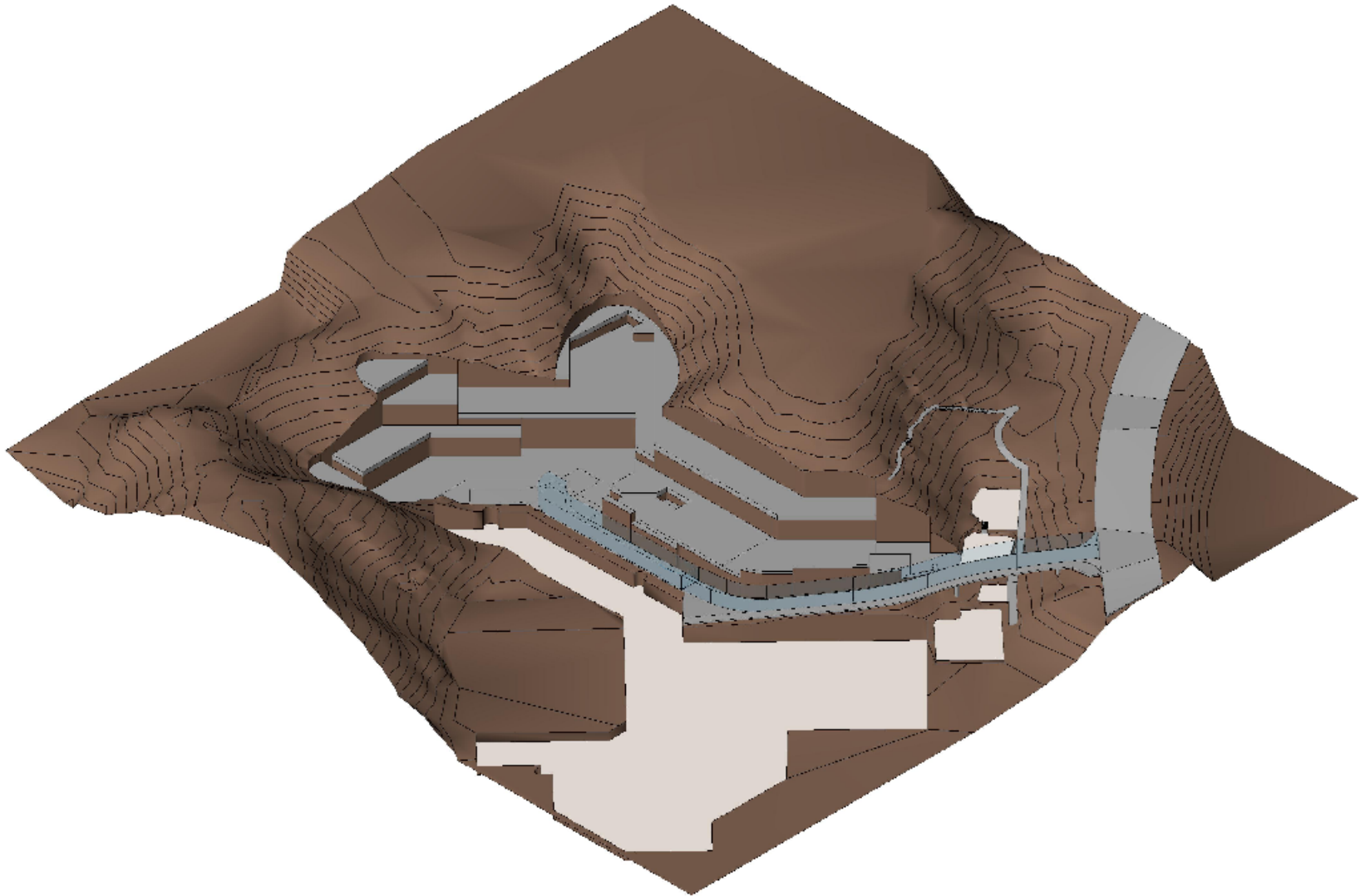
BUILDING IN CONTEXT



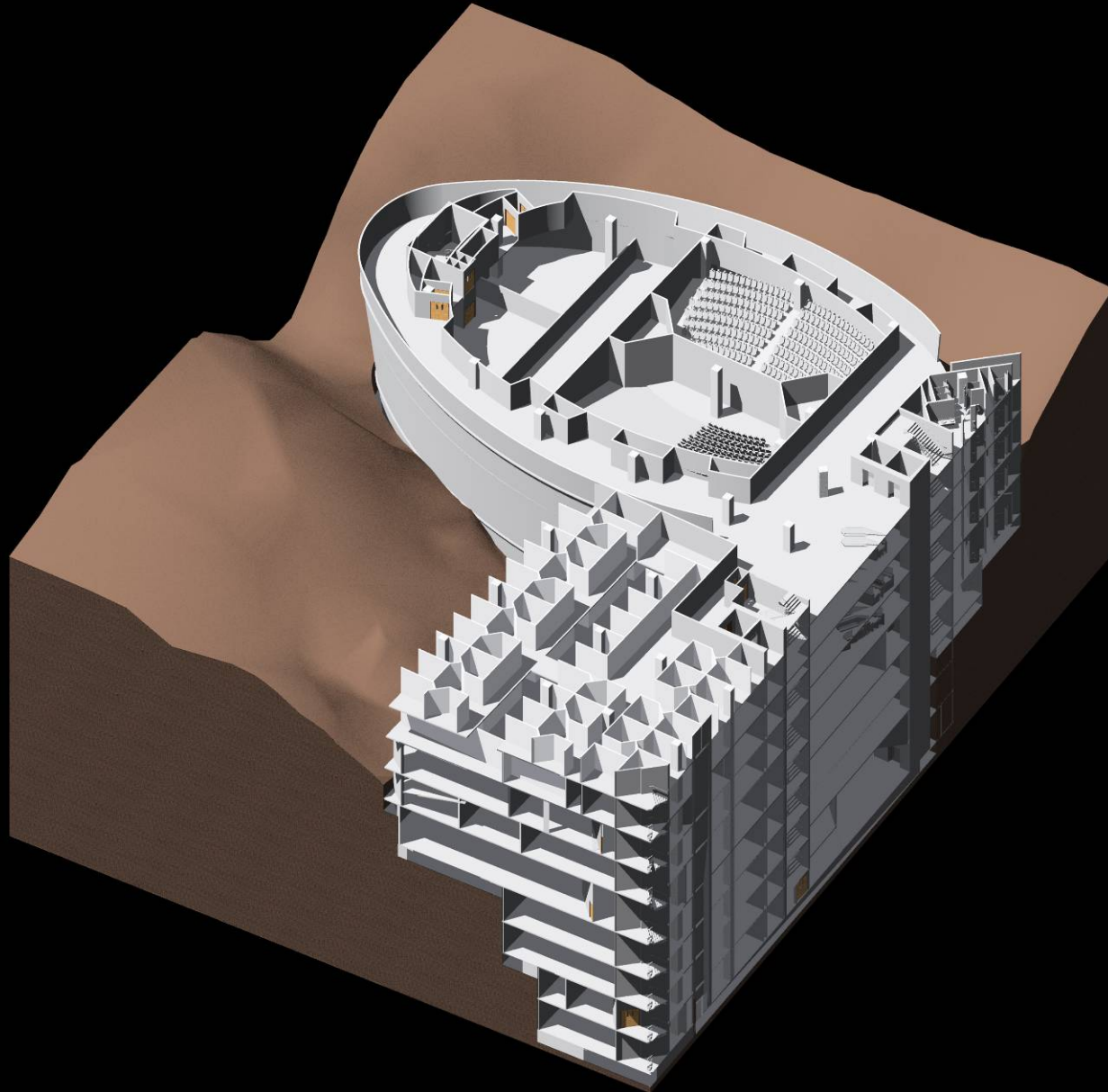
BUILDING IN GOOGLE EARTH

Aedas

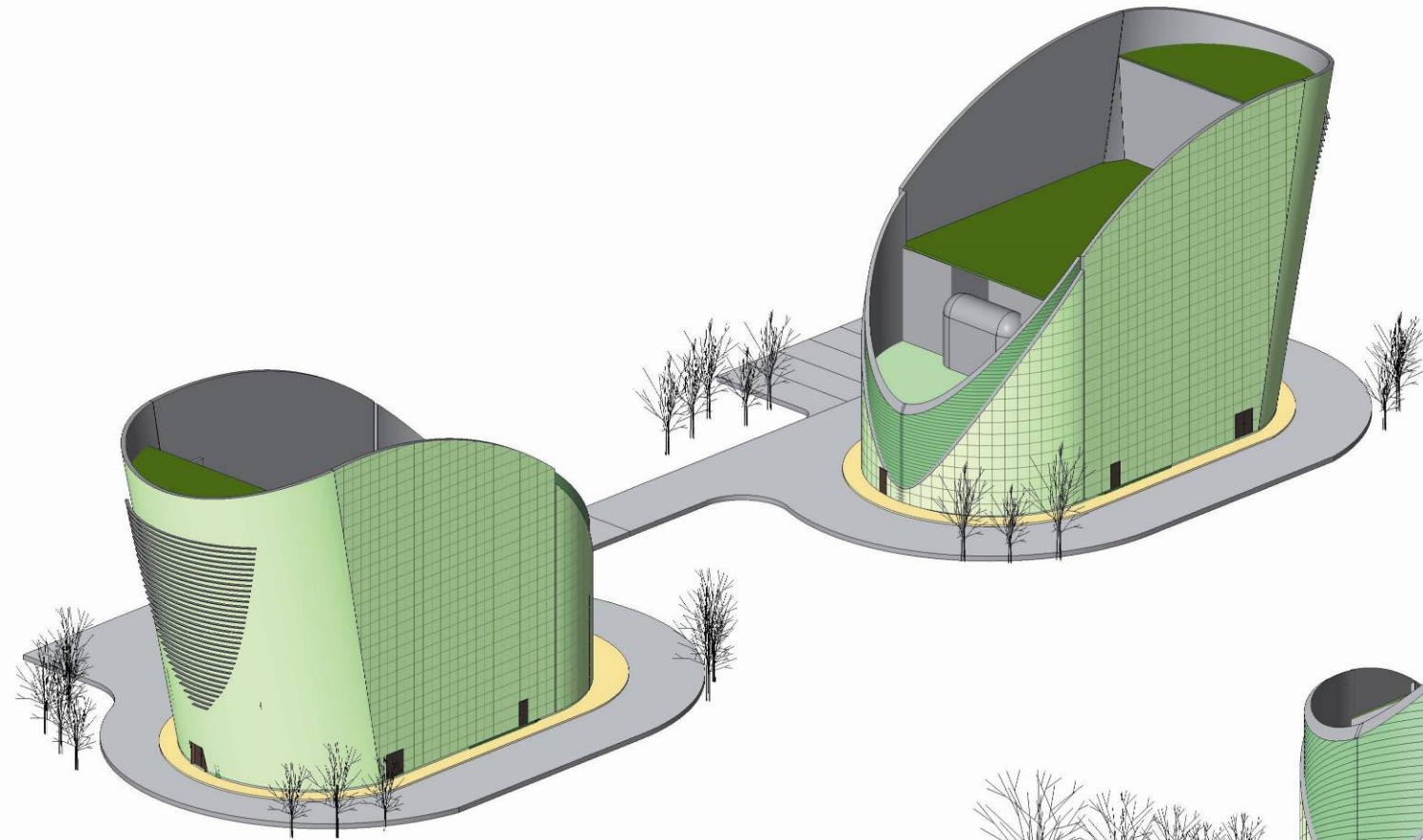




TOPOGRAPHY HANDLING

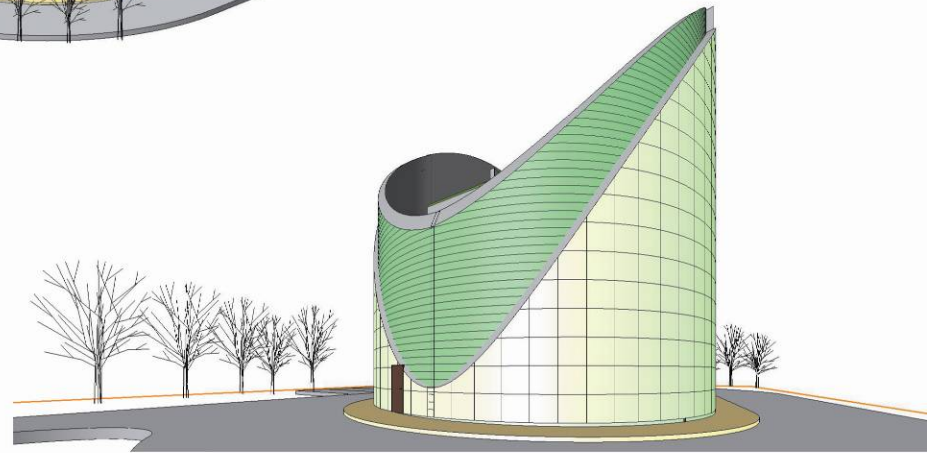


BUILDING IN SITE CONTEXT

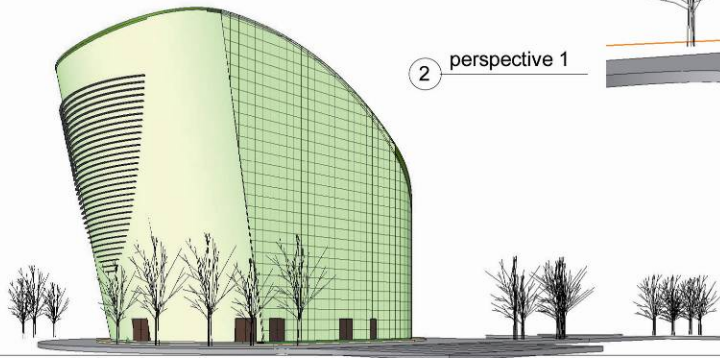


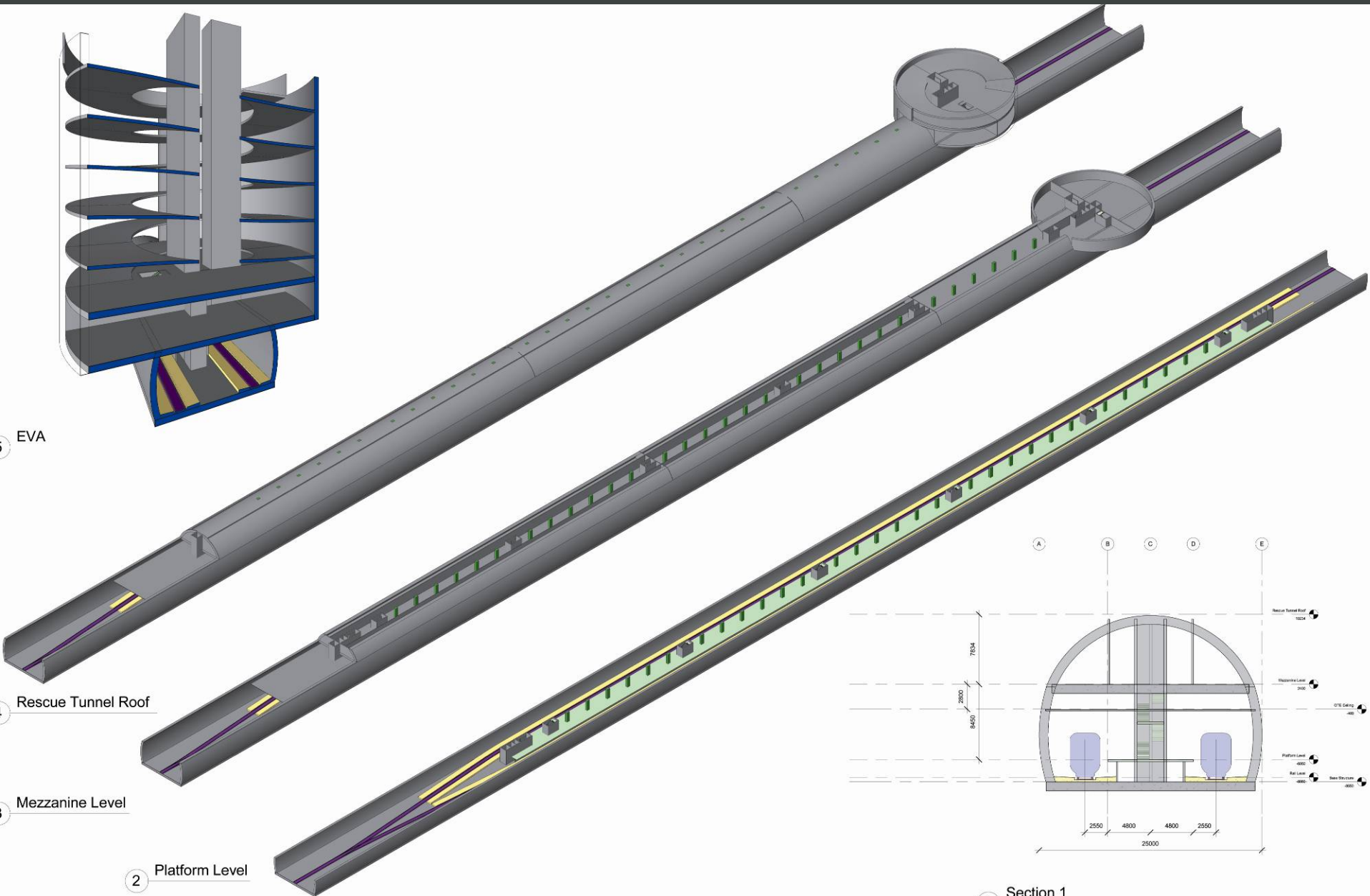
① 3D perspective

② perspective 1



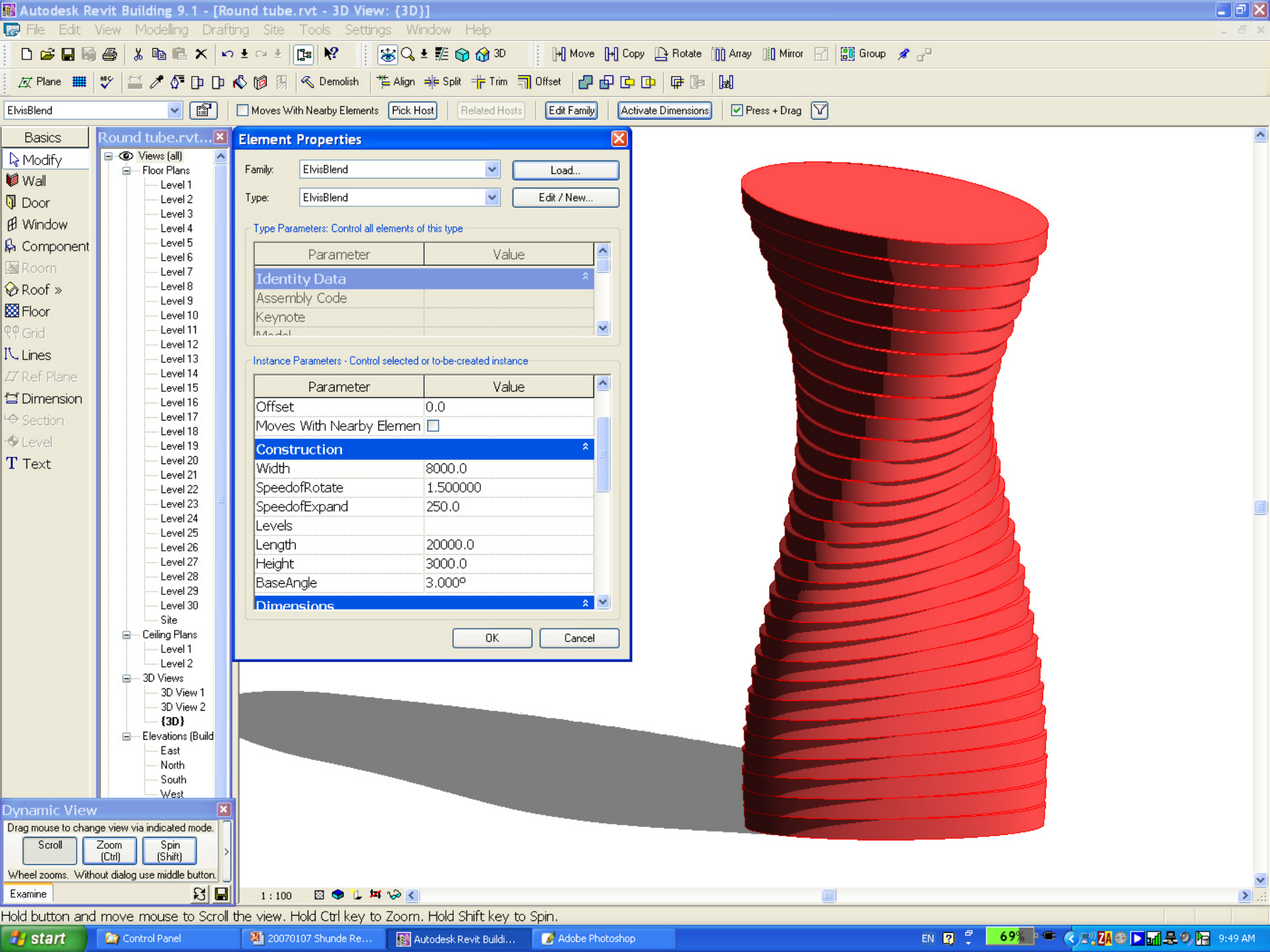
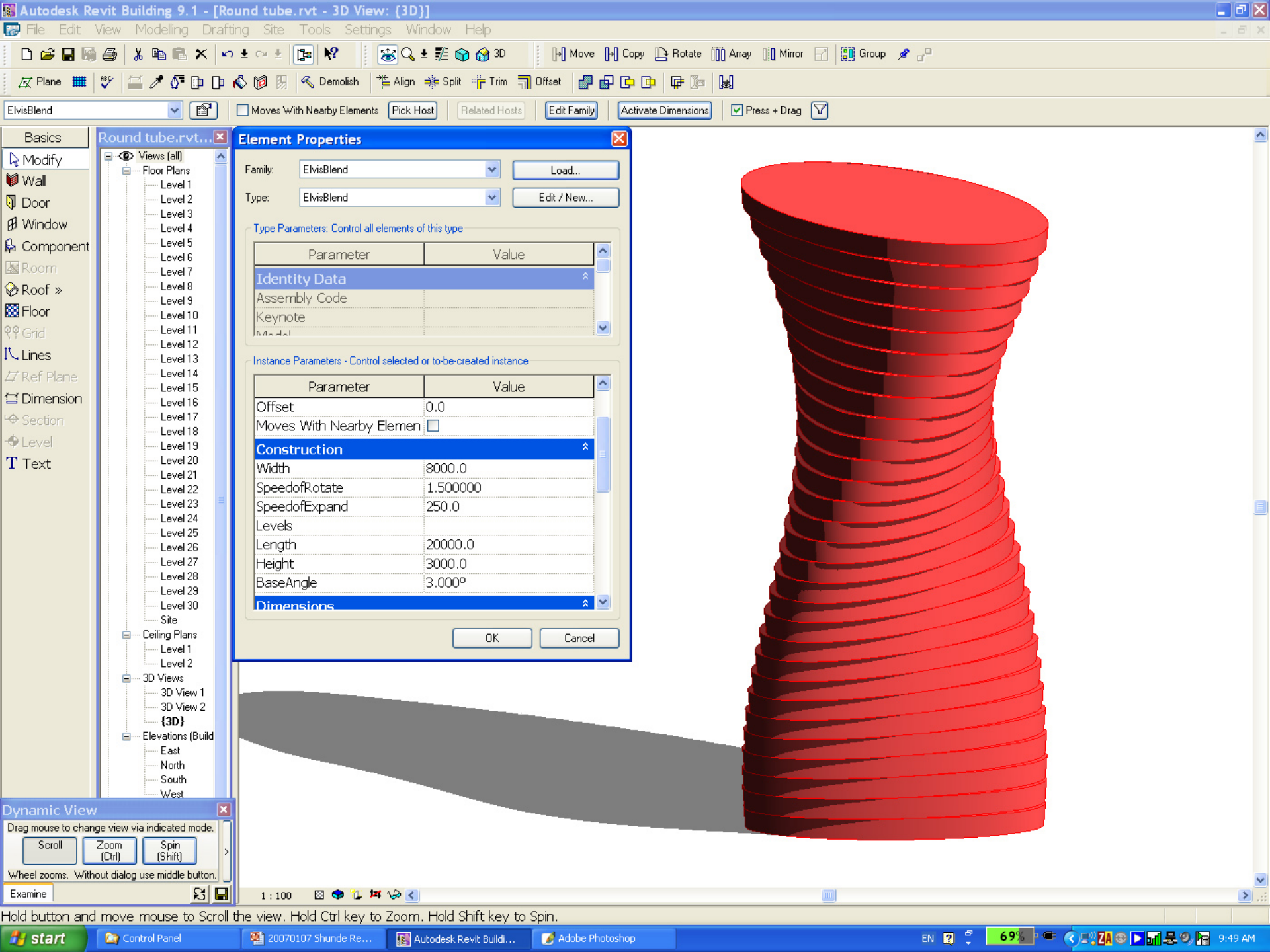
③ perspective 2

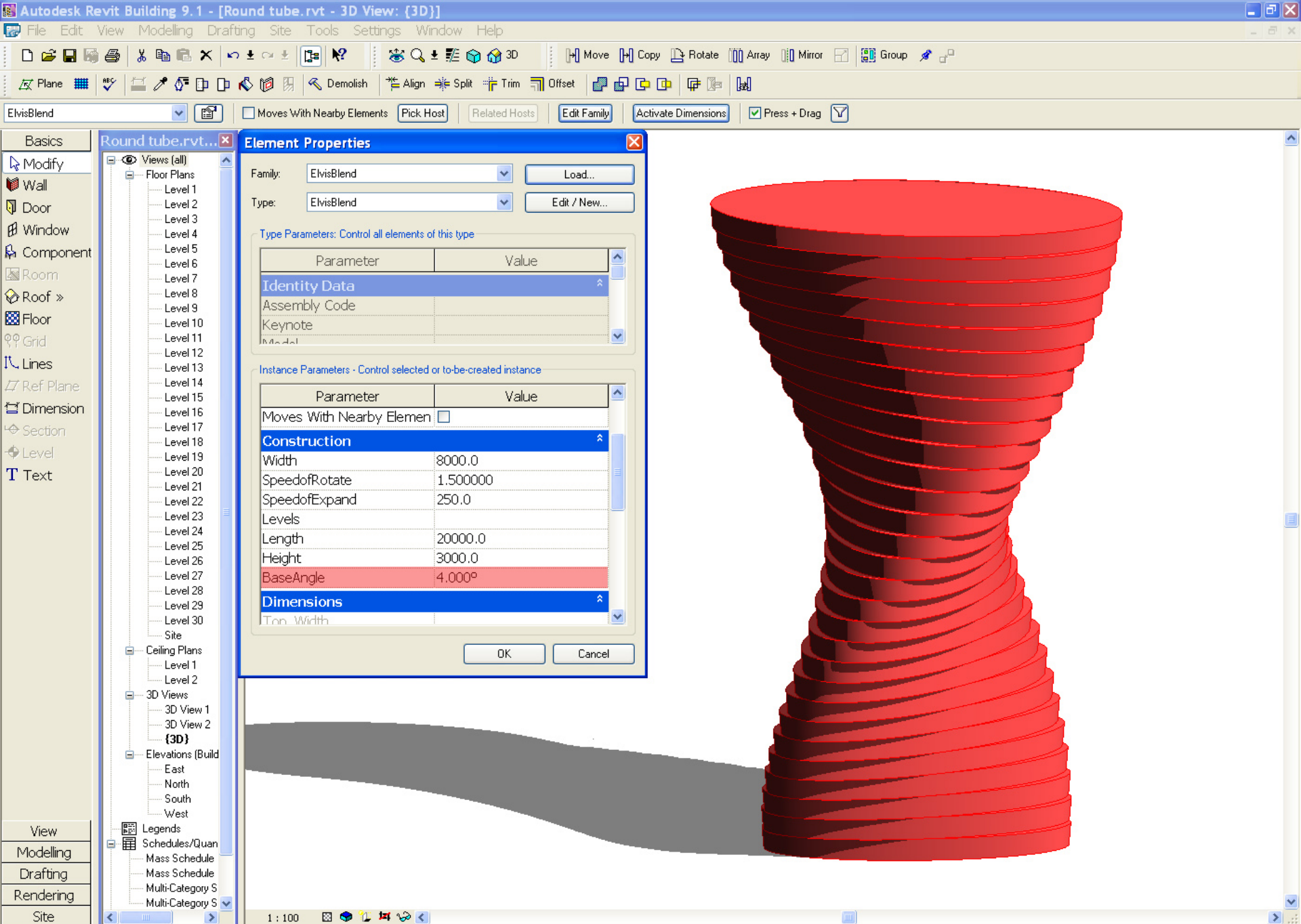




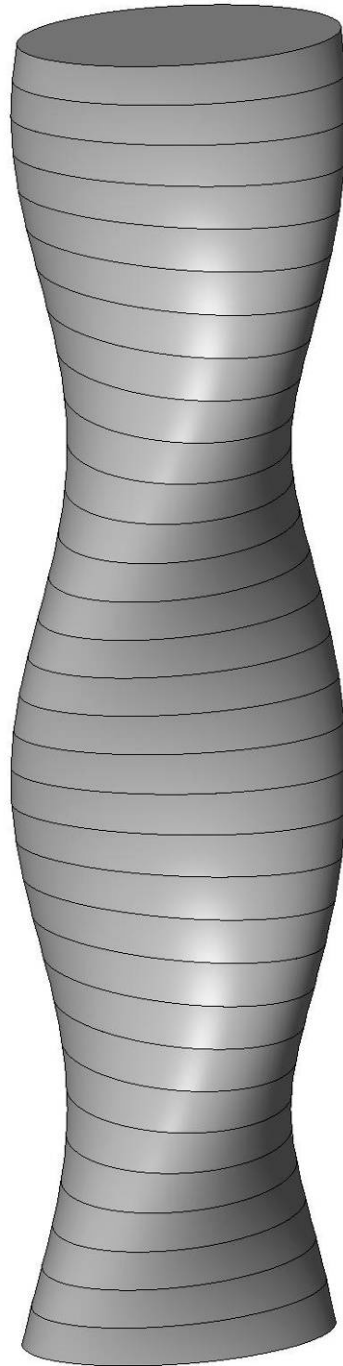


1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**





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





absoluteworld BUILDING 2

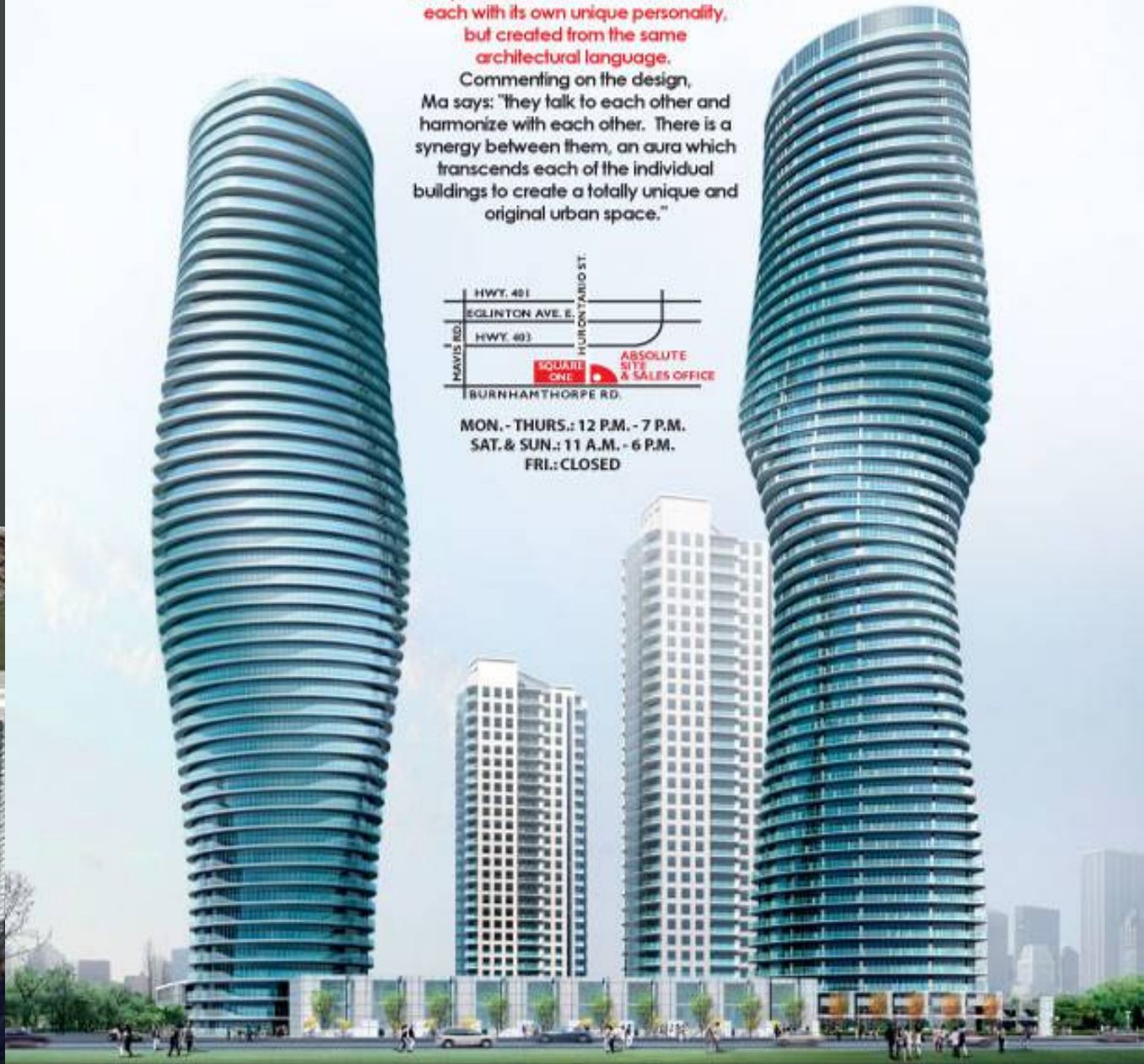
AbsoluteWorld's two buildings, as envisioned by their creator, Yansong Ma. The buildings were designed to complement and enhance each other, each with its own unique personality, but created from the same architectural language.

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



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

absoluteworld BUILDING 1

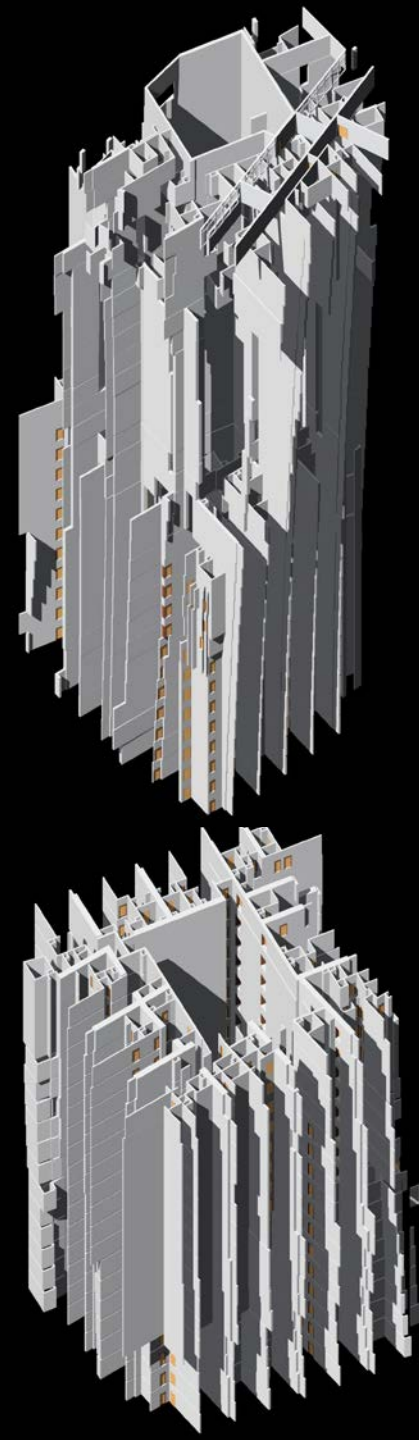




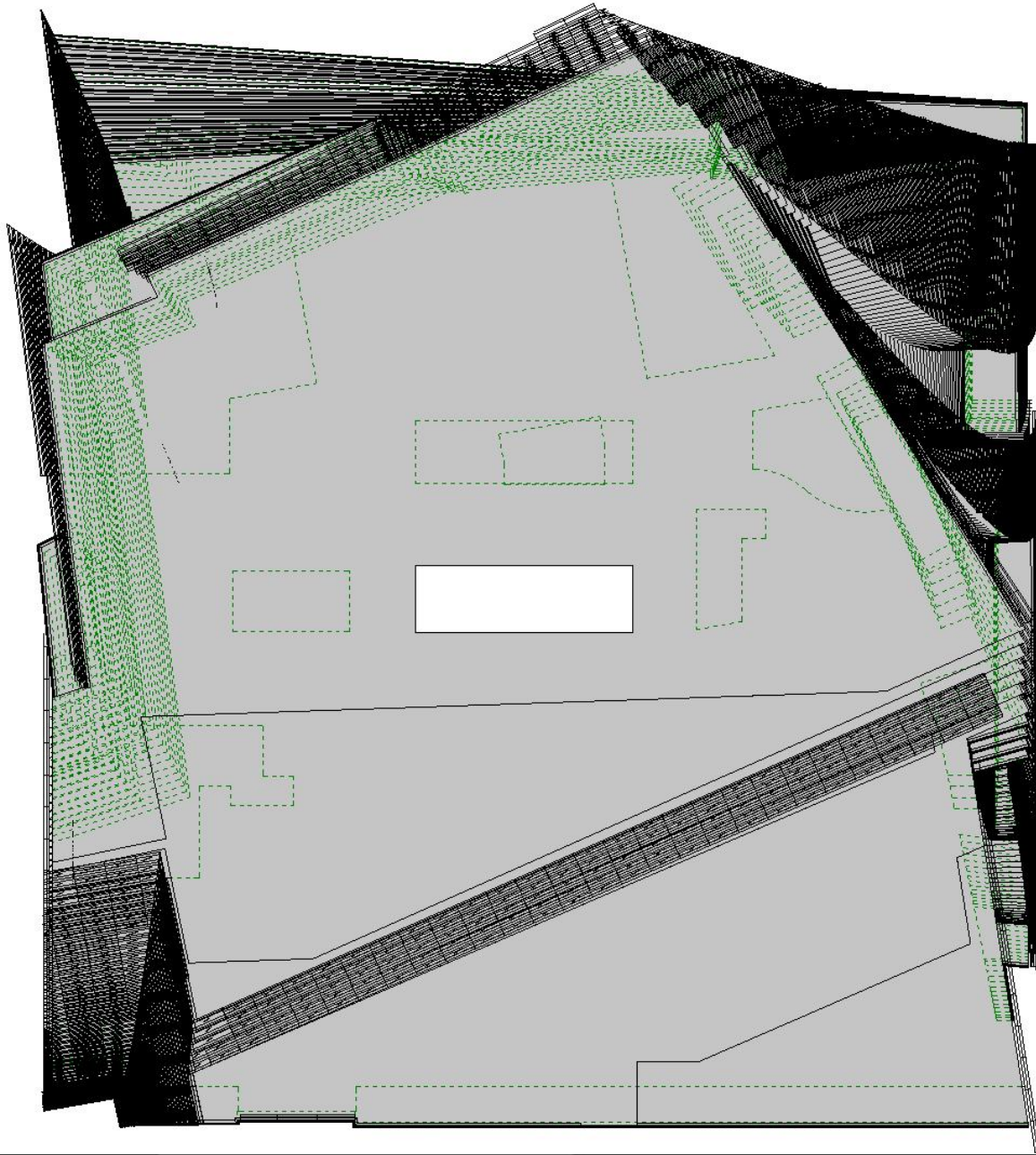
Program: Residential, Site Area: 3,746 sqm
Floor Area: 659,659 sqm | Building Height: 345 m

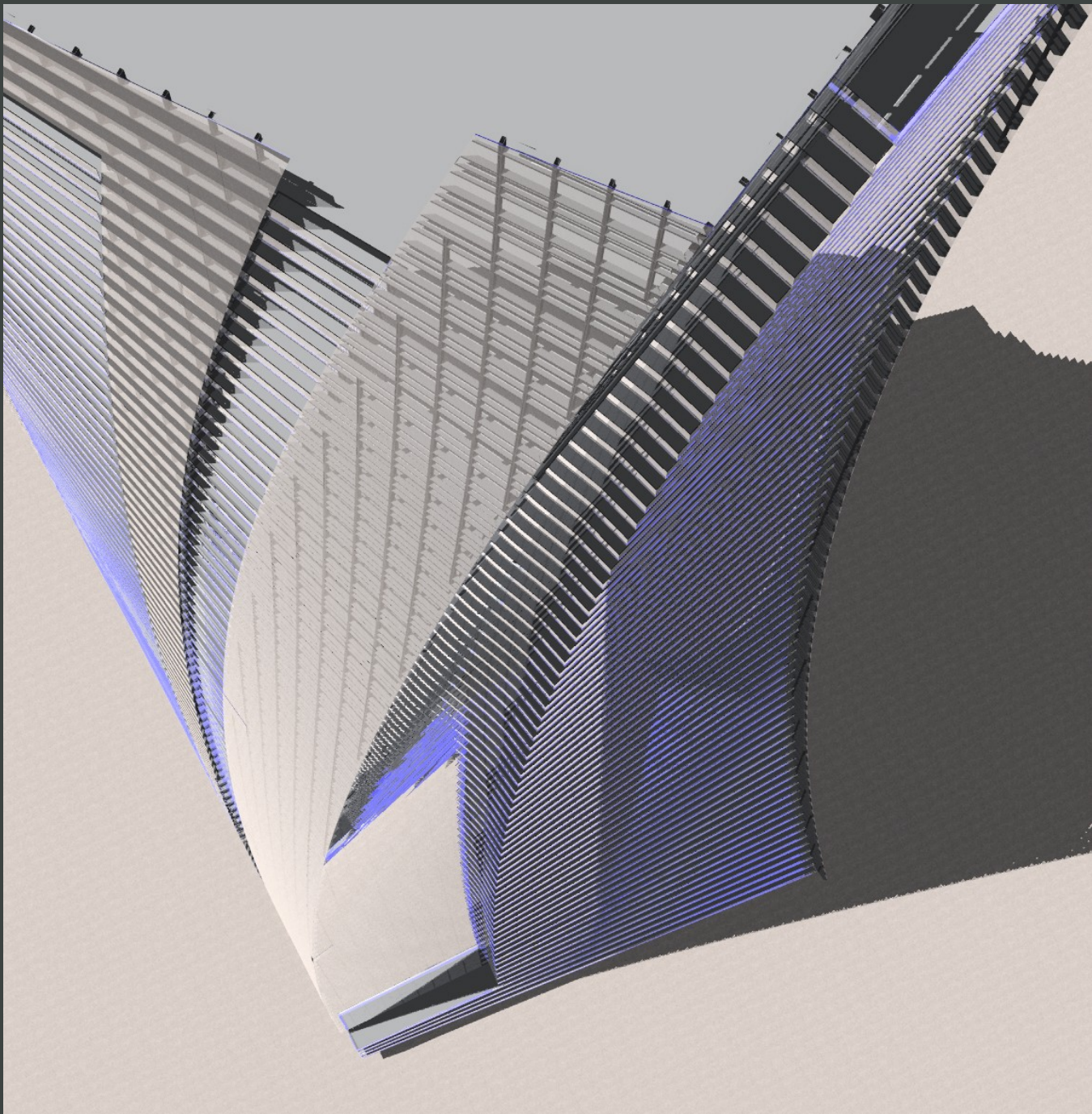


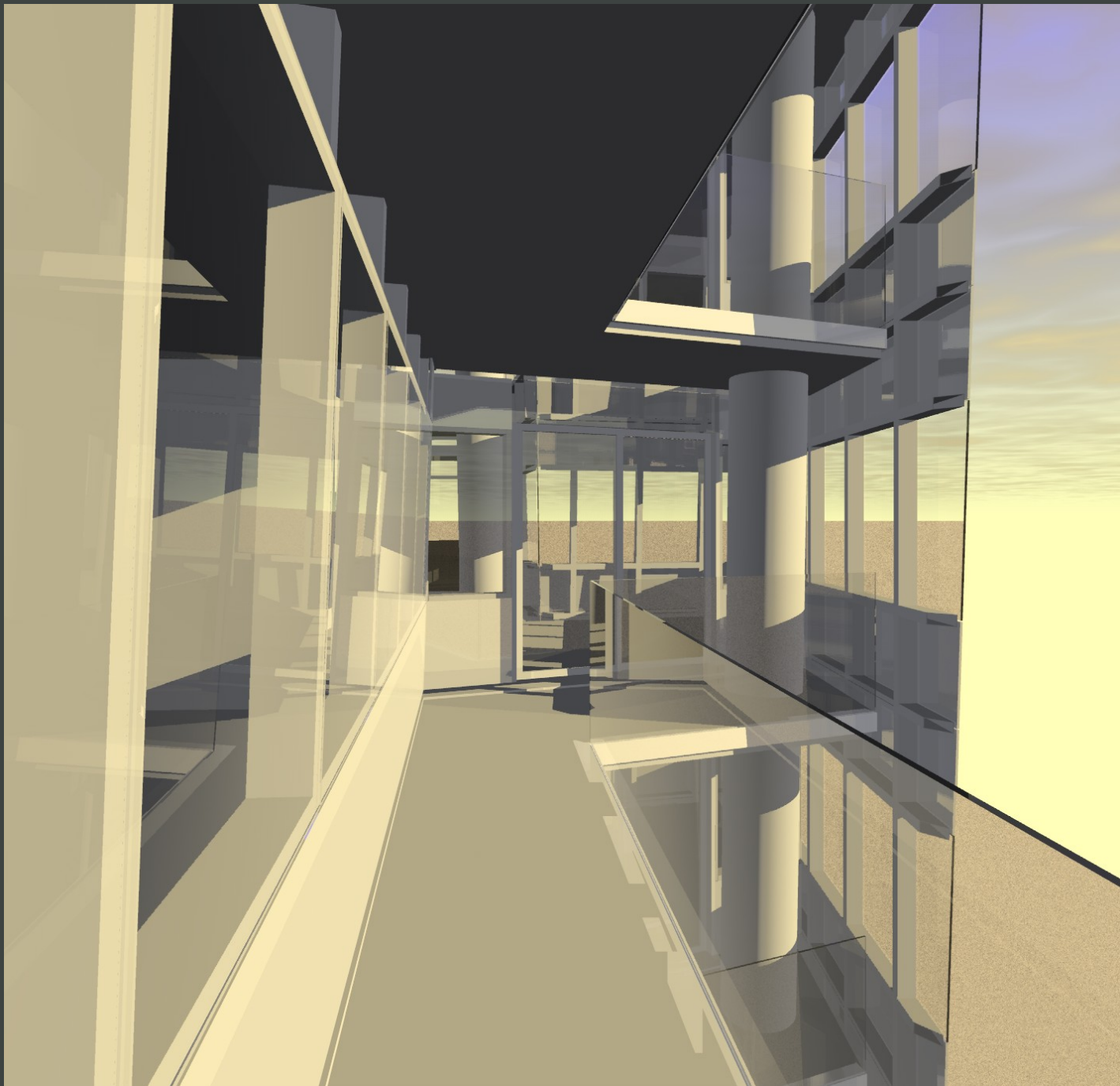
Dubai **Ocean Heights One**

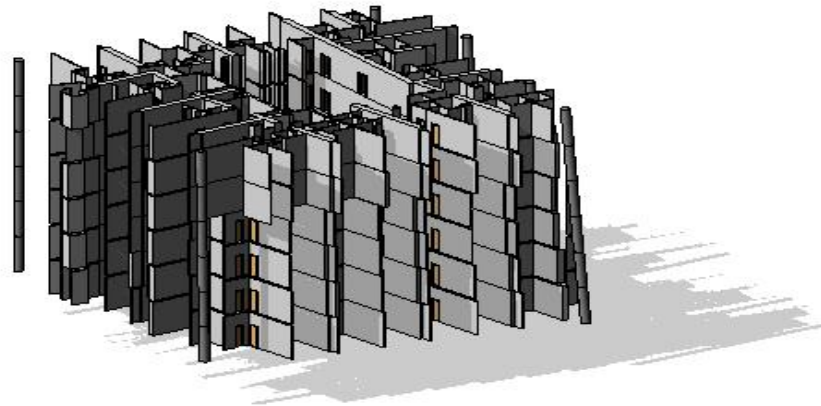


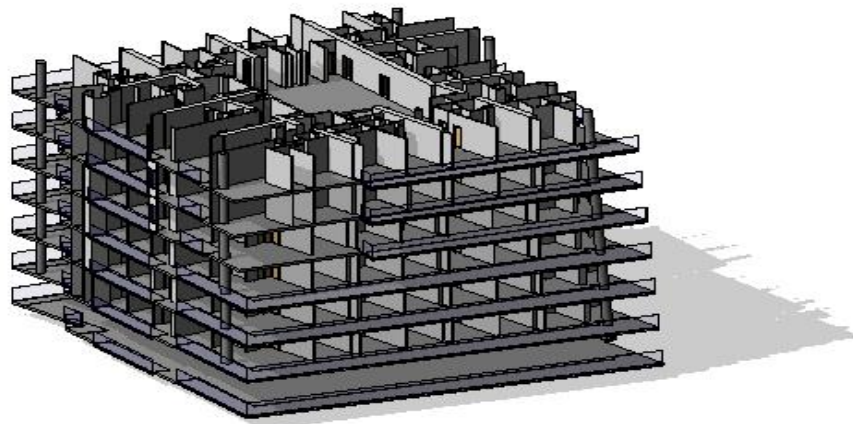
COMPLEX GEOMETRY









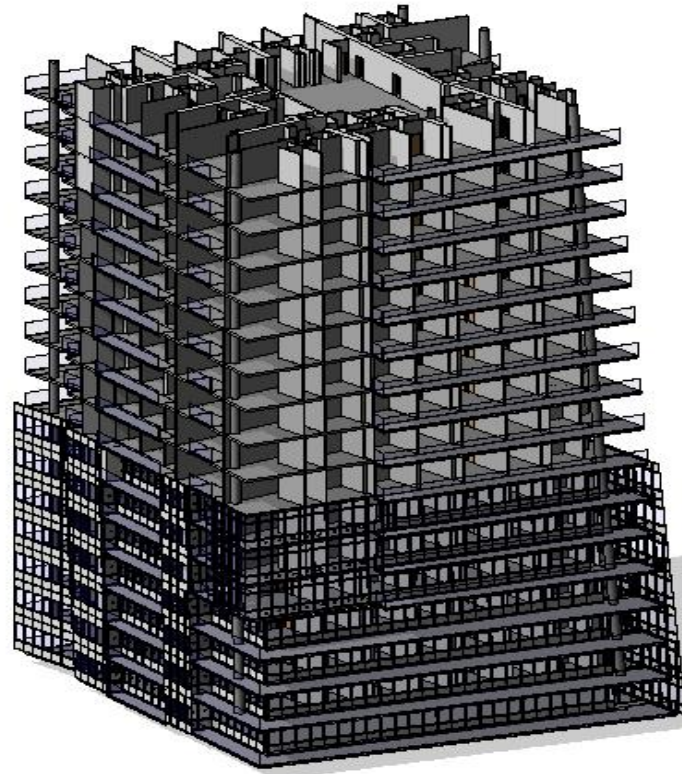


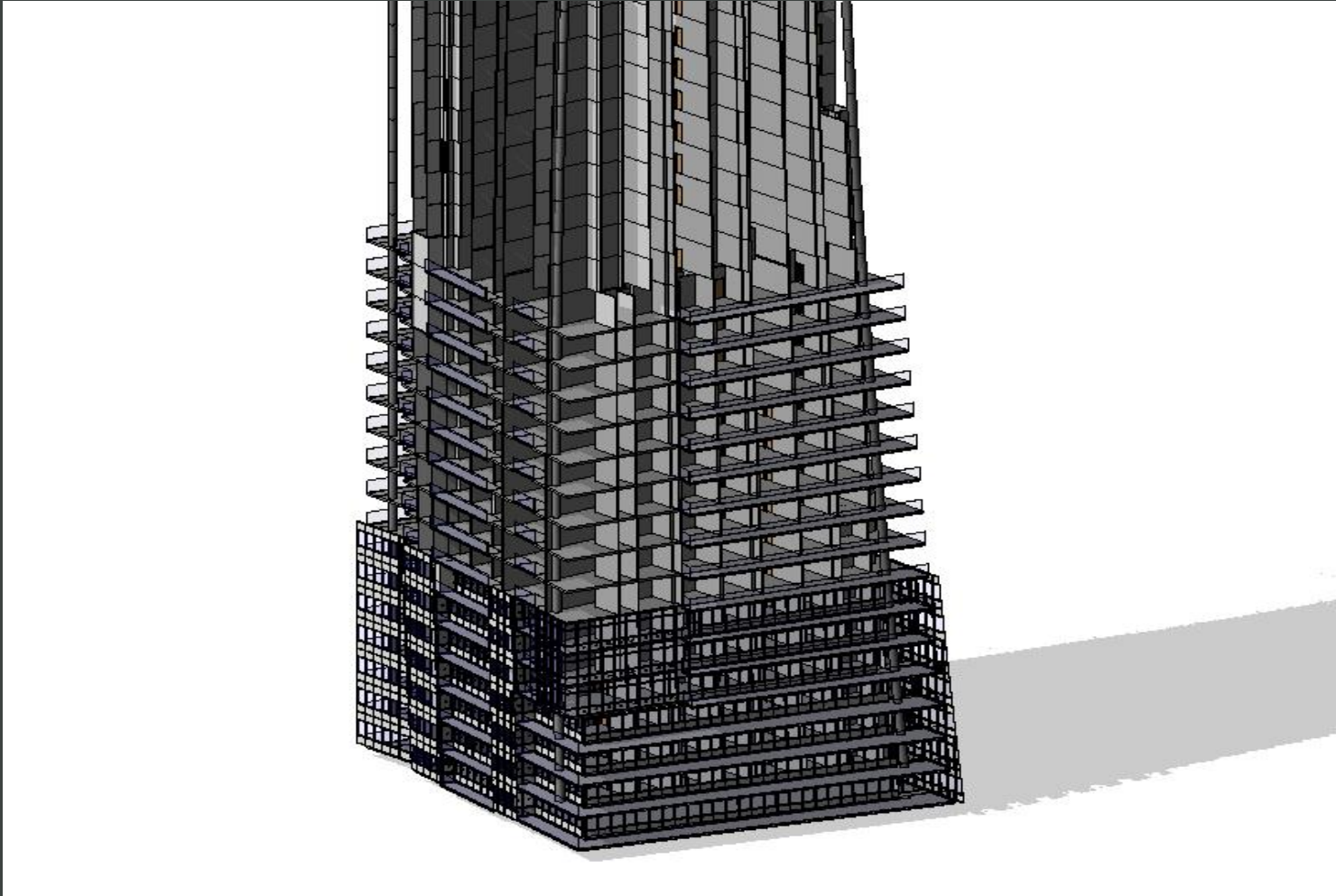








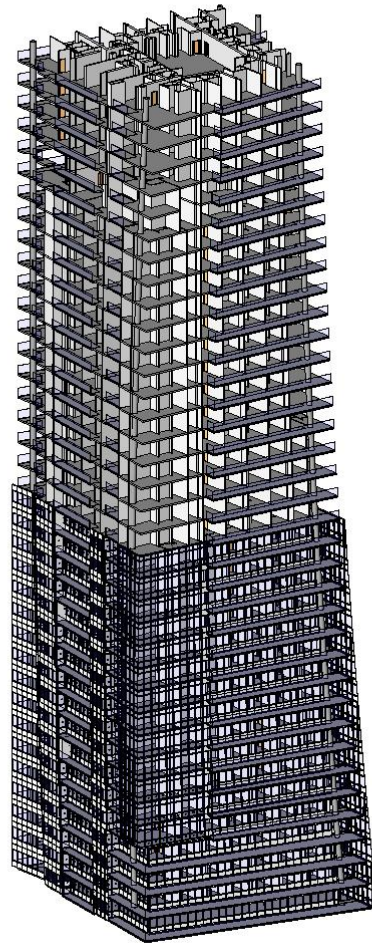


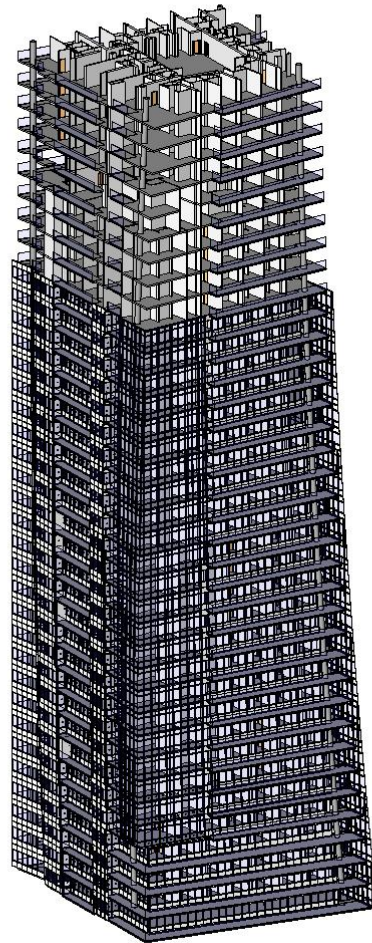


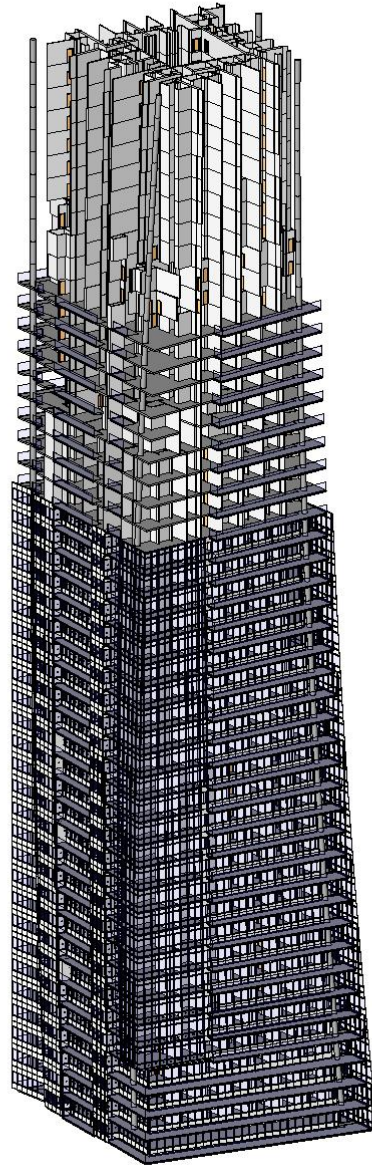


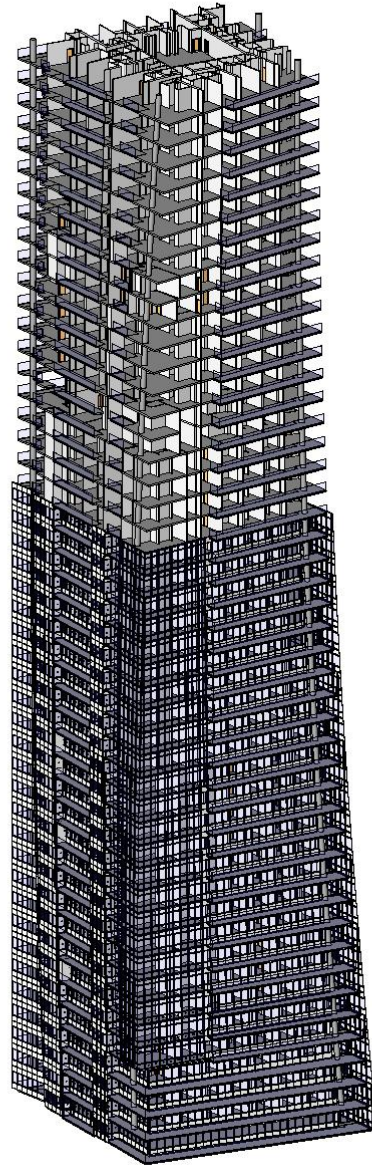


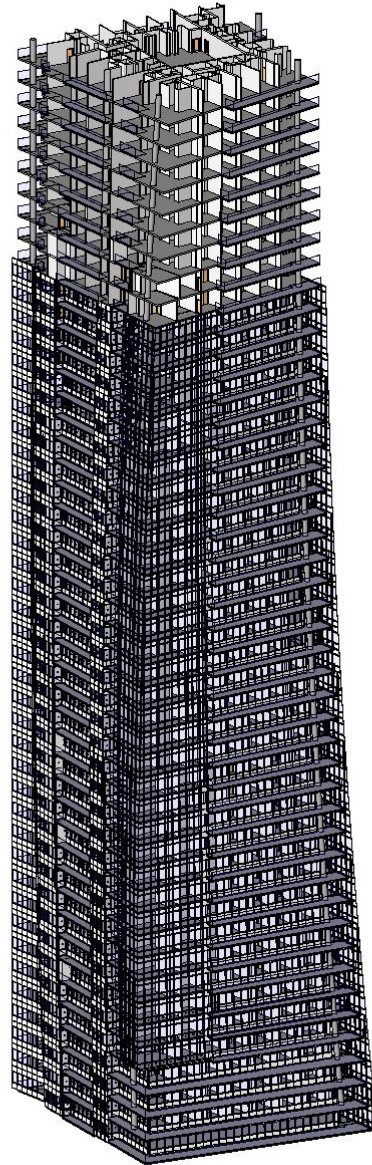


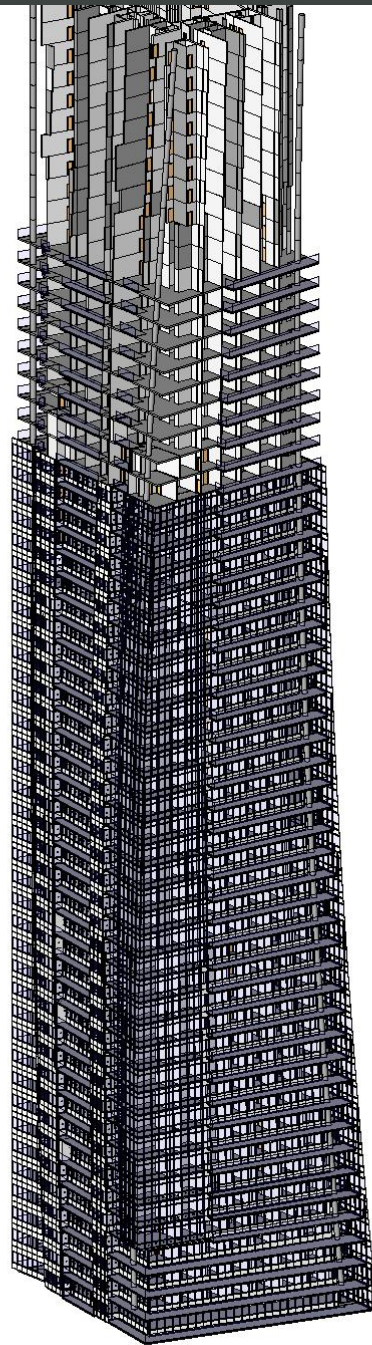


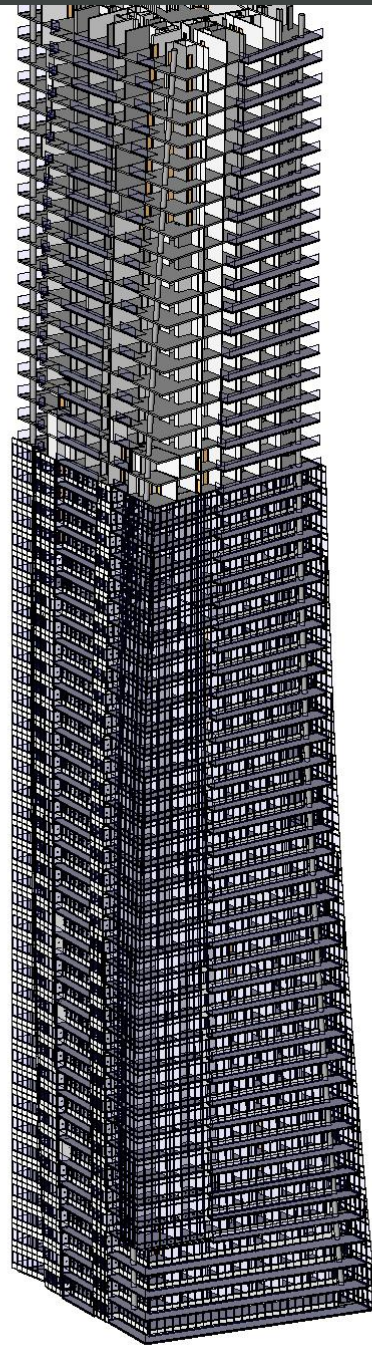


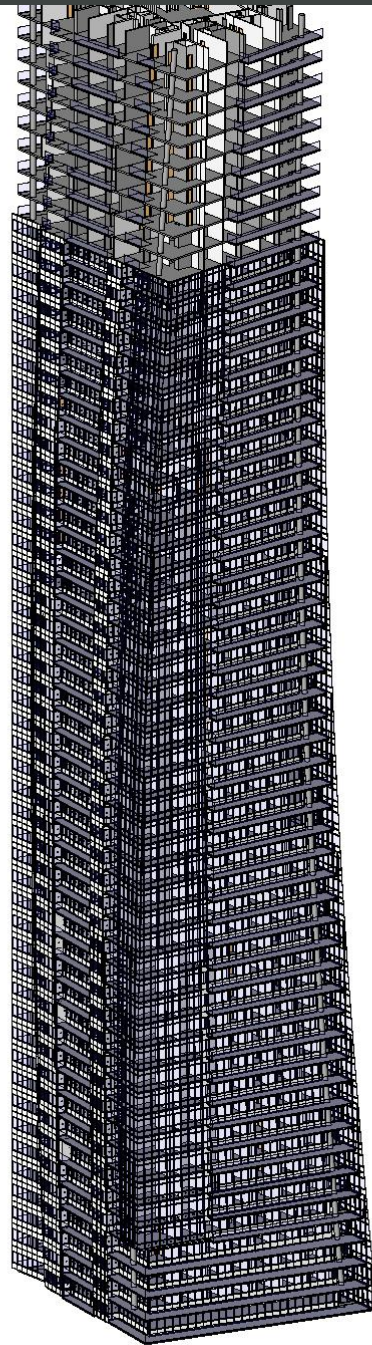
















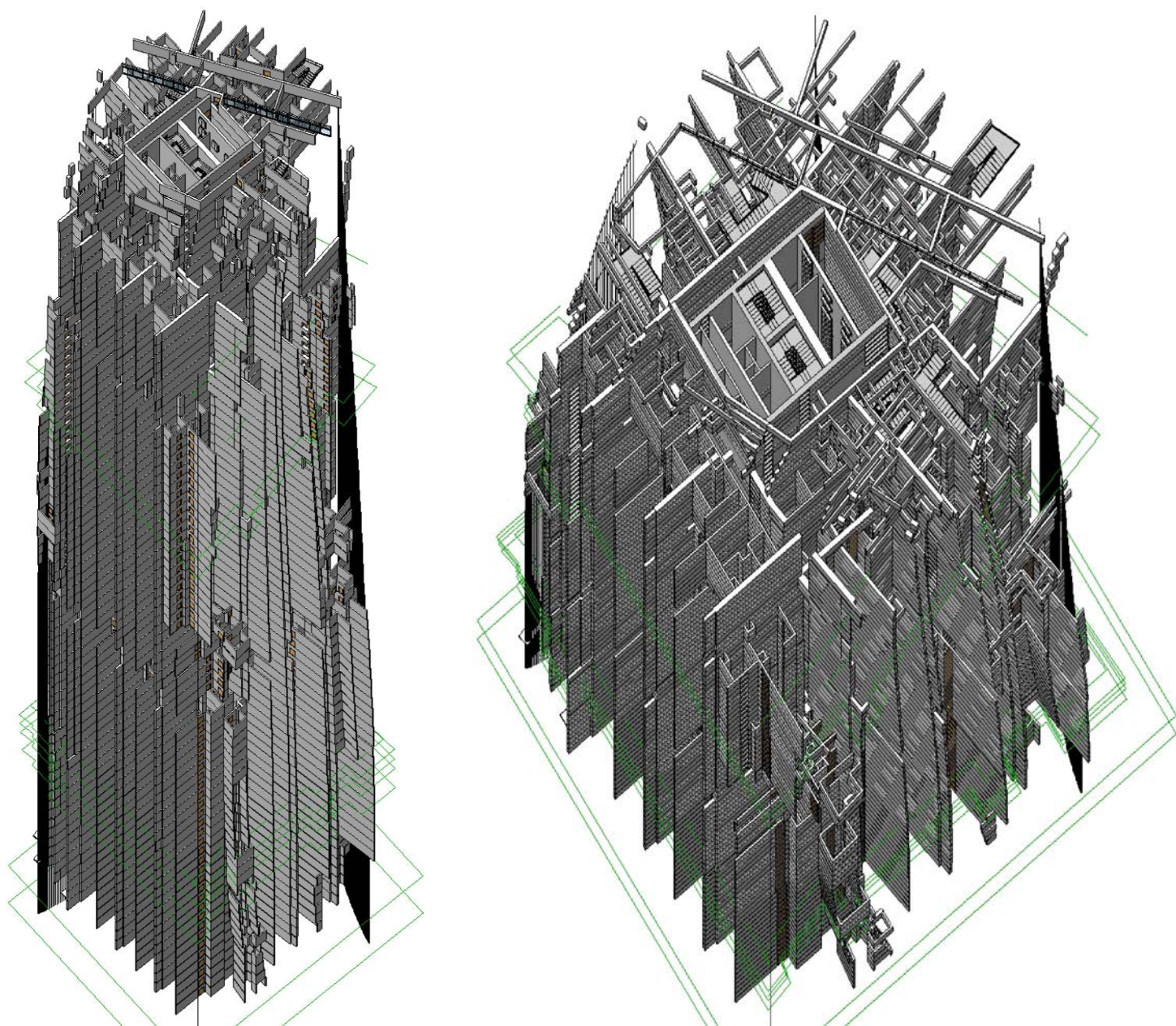




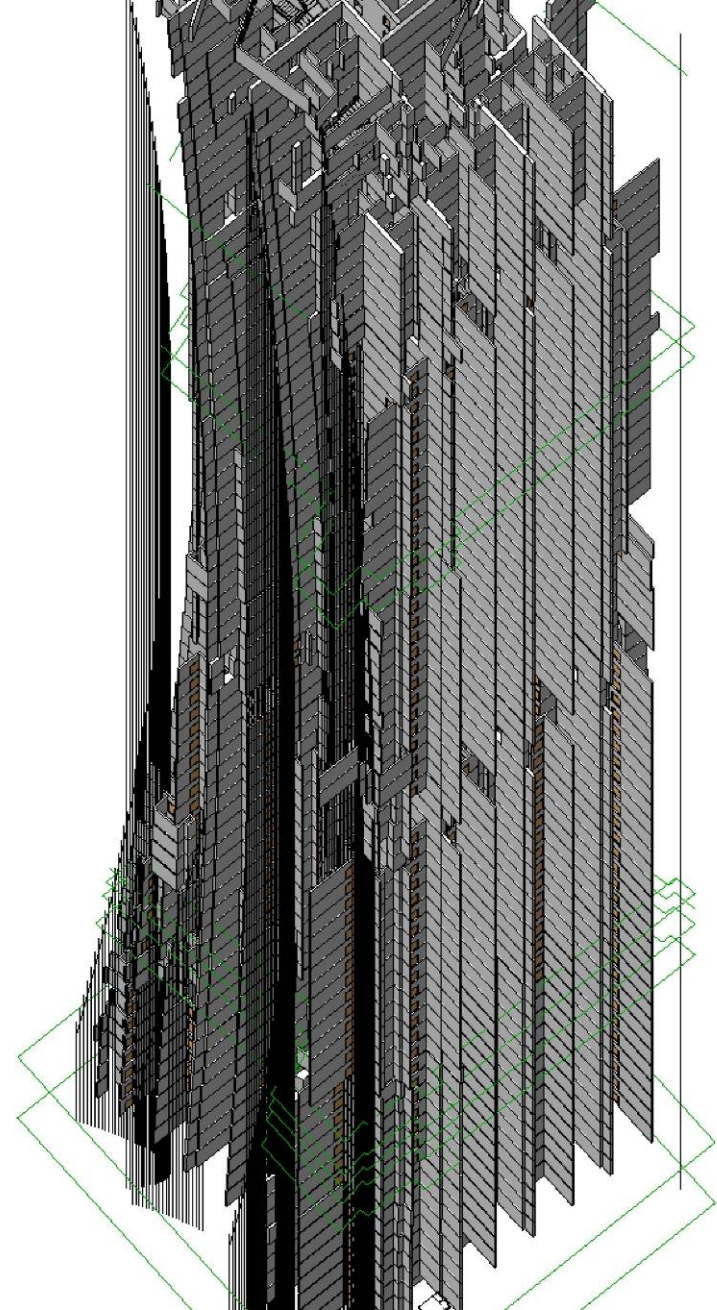
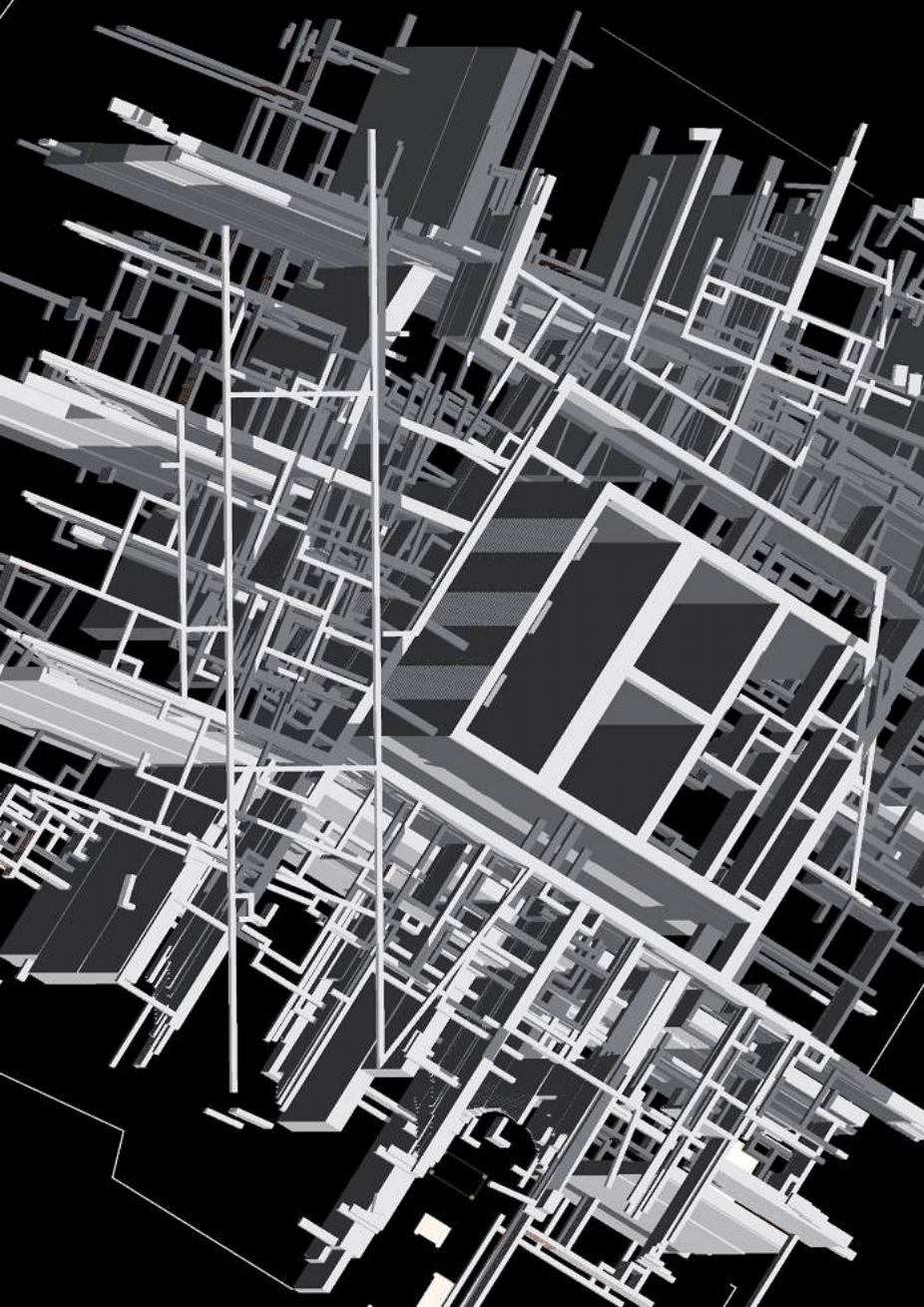




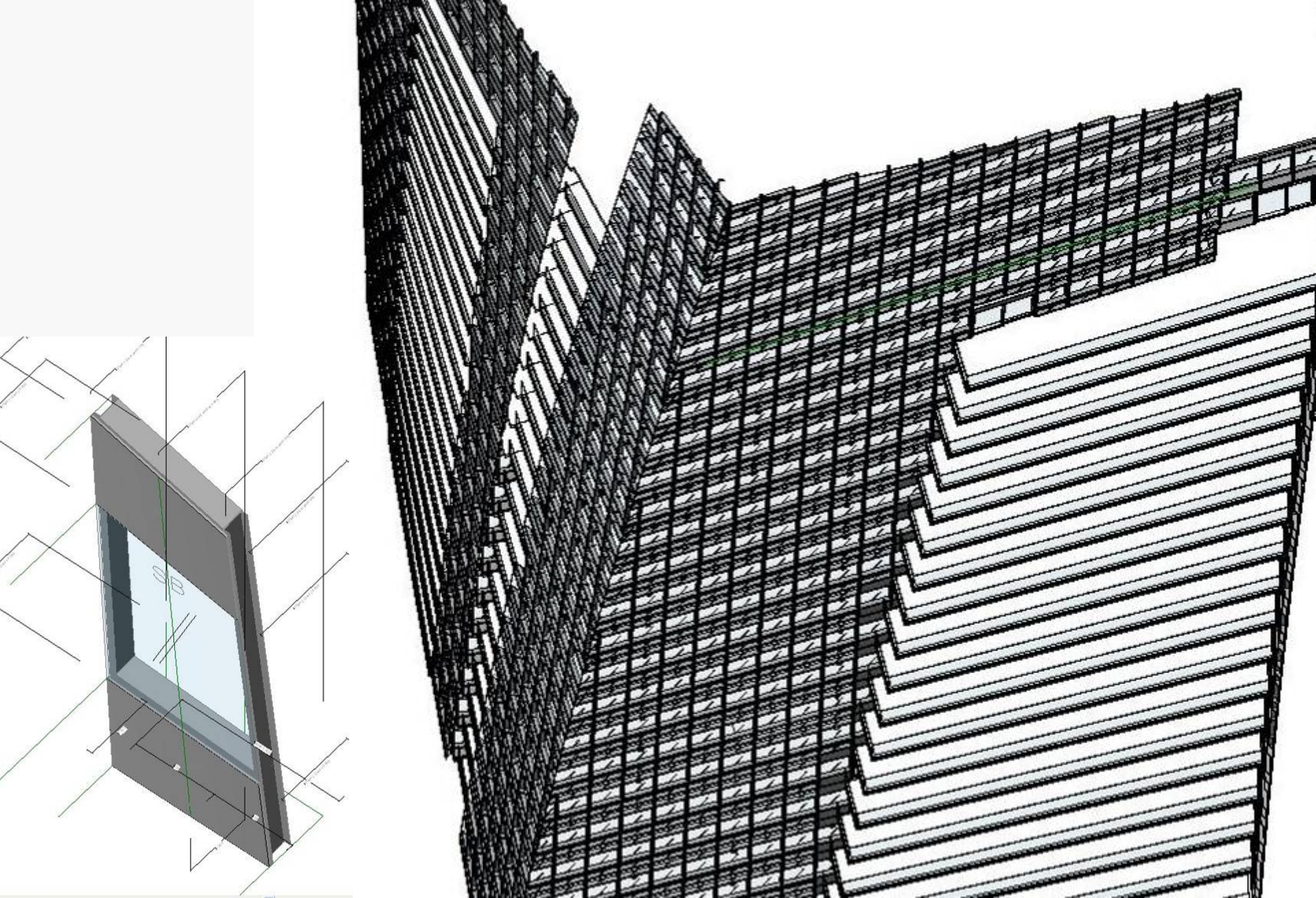




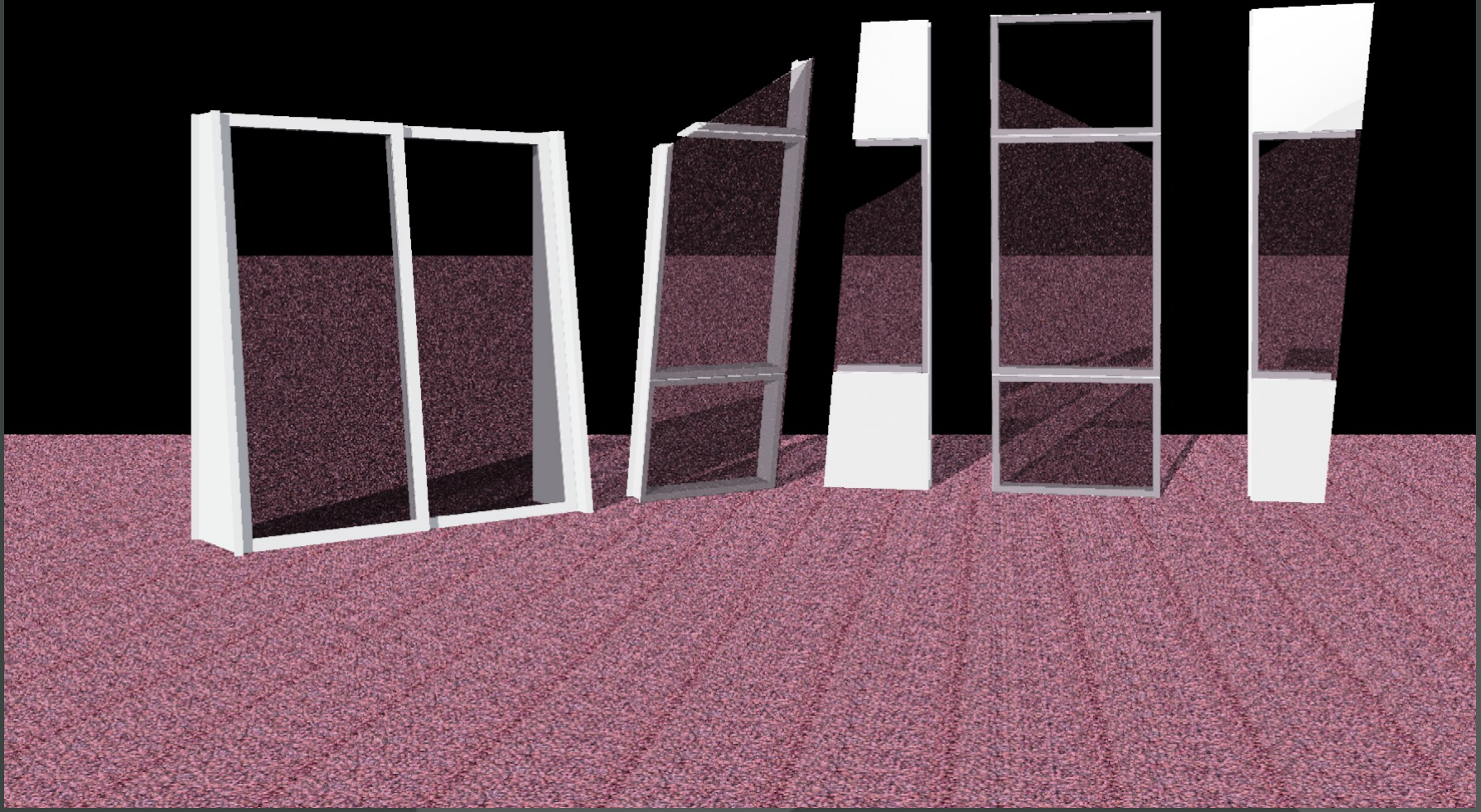
VERTICAL CO-ORDINATION



INTERNAL vs EXTERNAL



COMPLICATED CURTAIN WALL





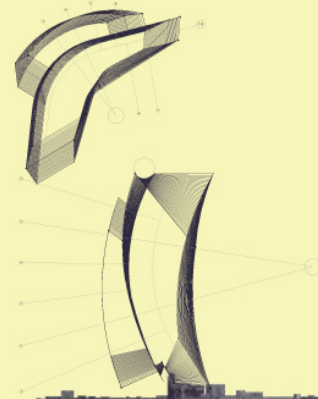
Abu Dhabi Dancing Towers

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

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

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

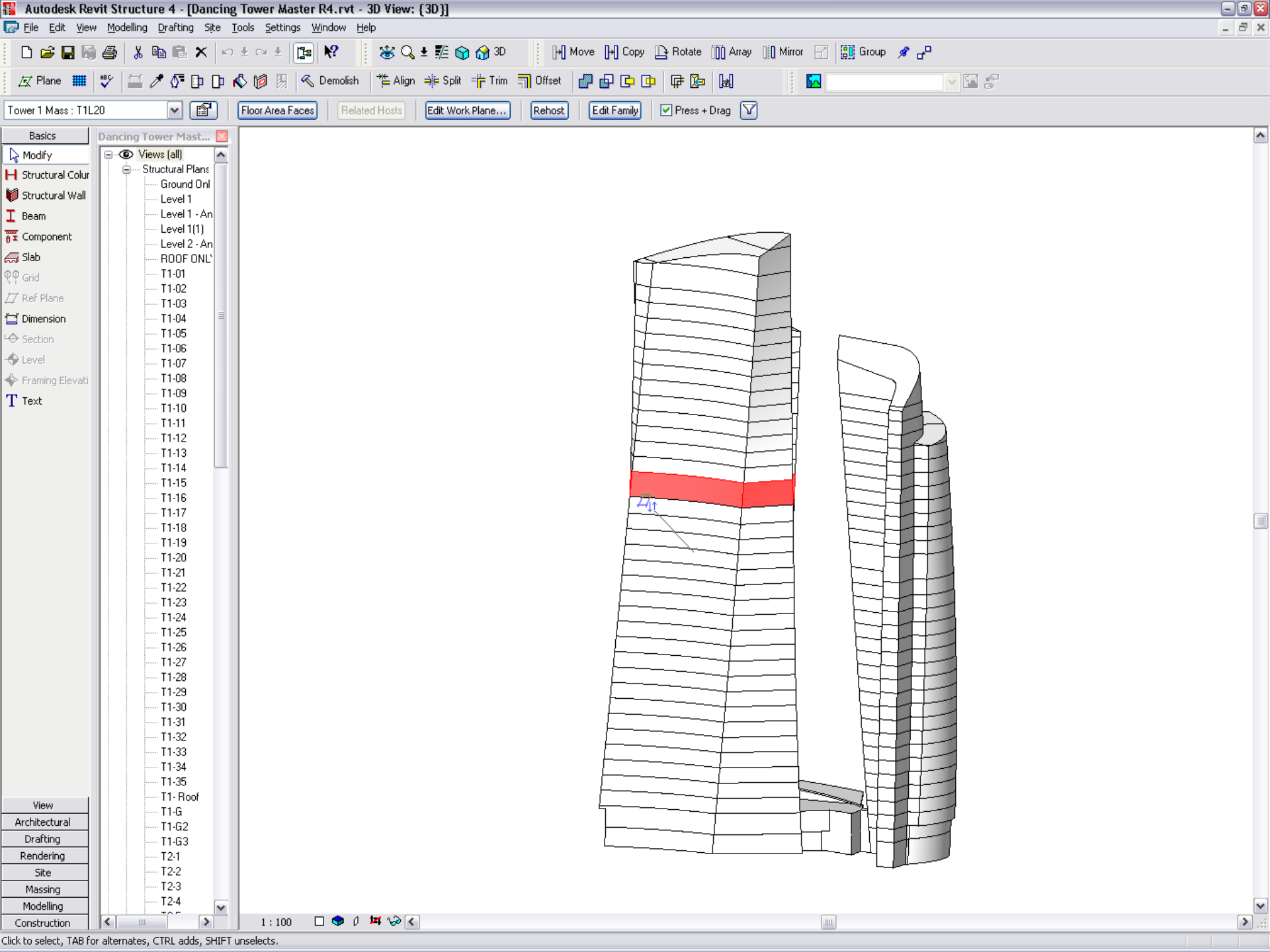
However, the two towers quickly lean, rotate, bend and warp to respond to each other, the adjacent sites and ultimately the view to the ocean at their horizon. These two figures fluidly respond to each other, dynamically engaged and flowing – and ultimately tied together in a passionate dance •

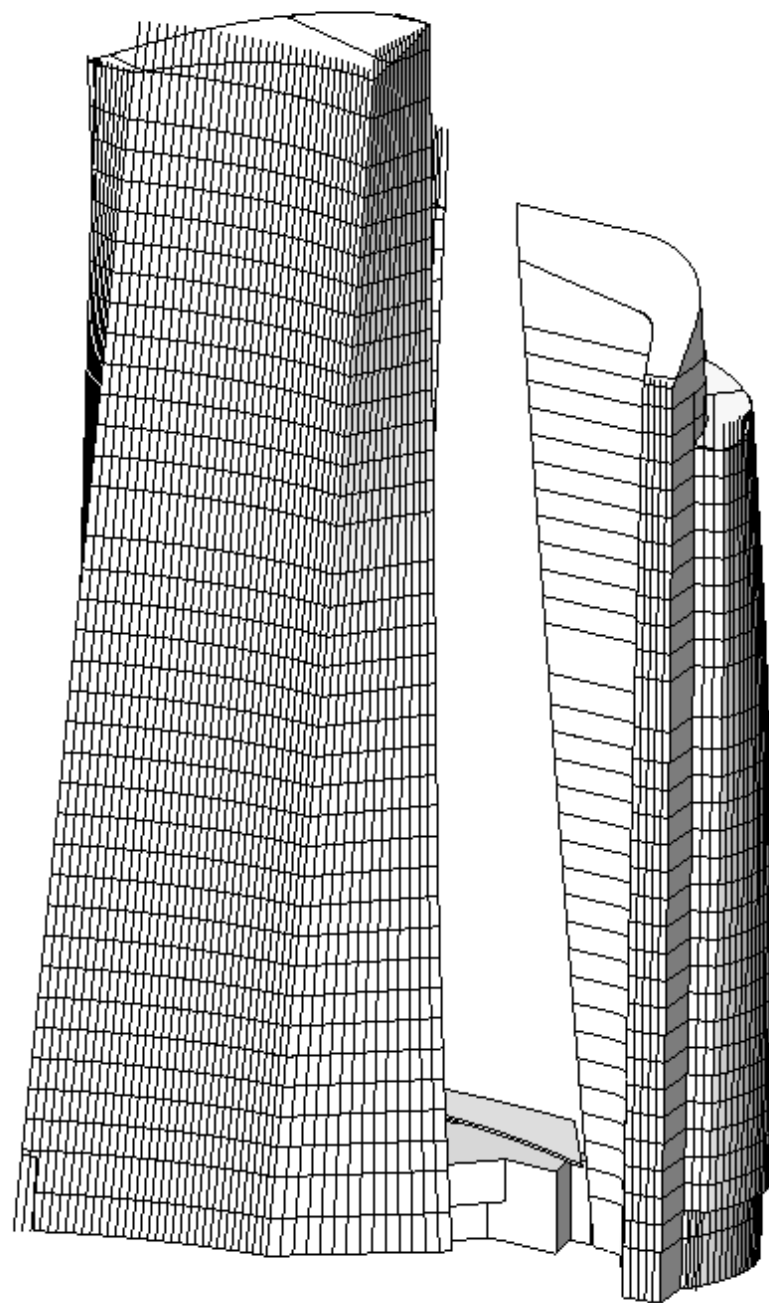


Program Mixed Use Site Area 4,160 sqm
Floor Area 44,235 sqm Building Height 160 m

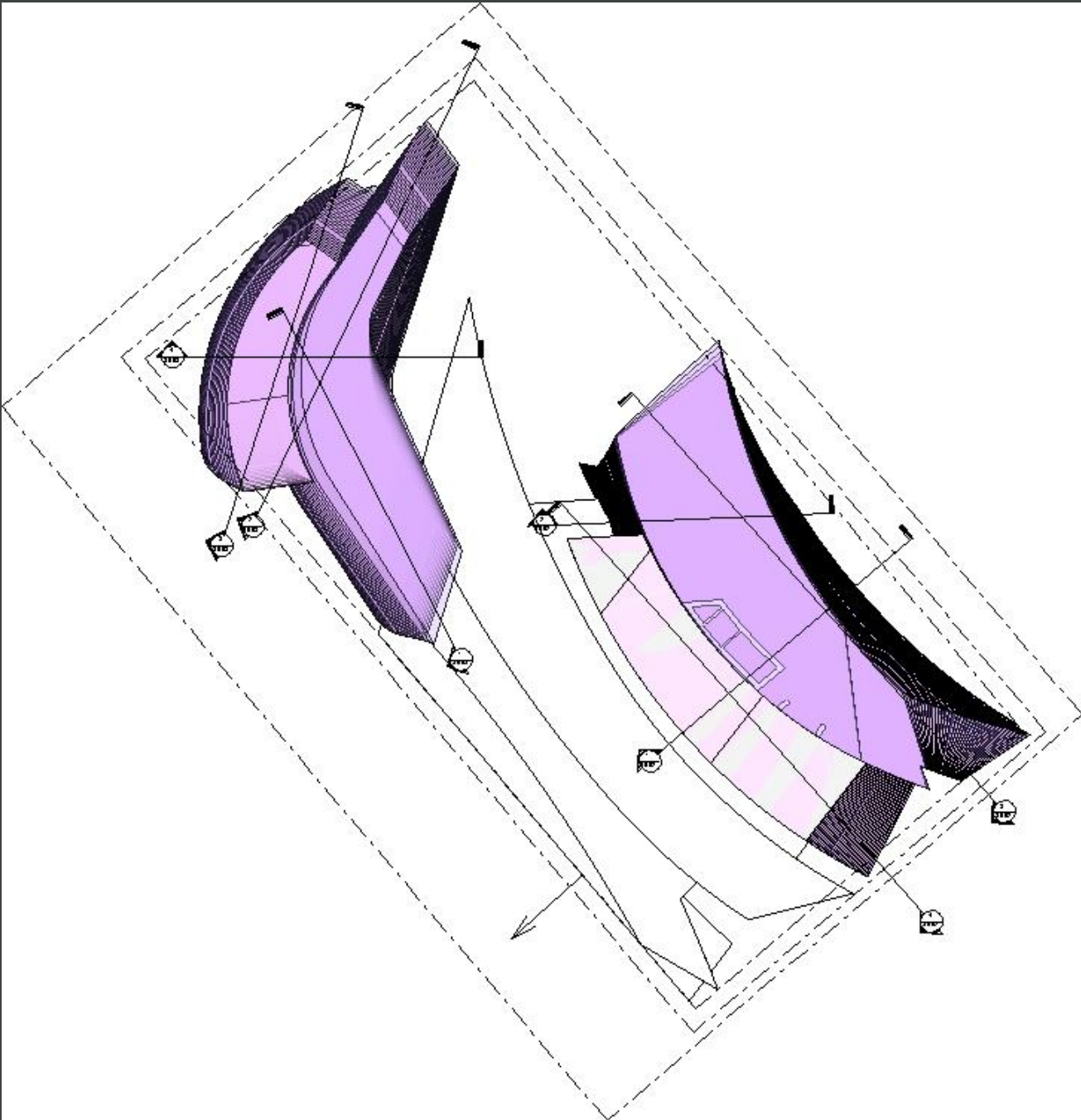


Abu Dhabi **Dancing Towers**









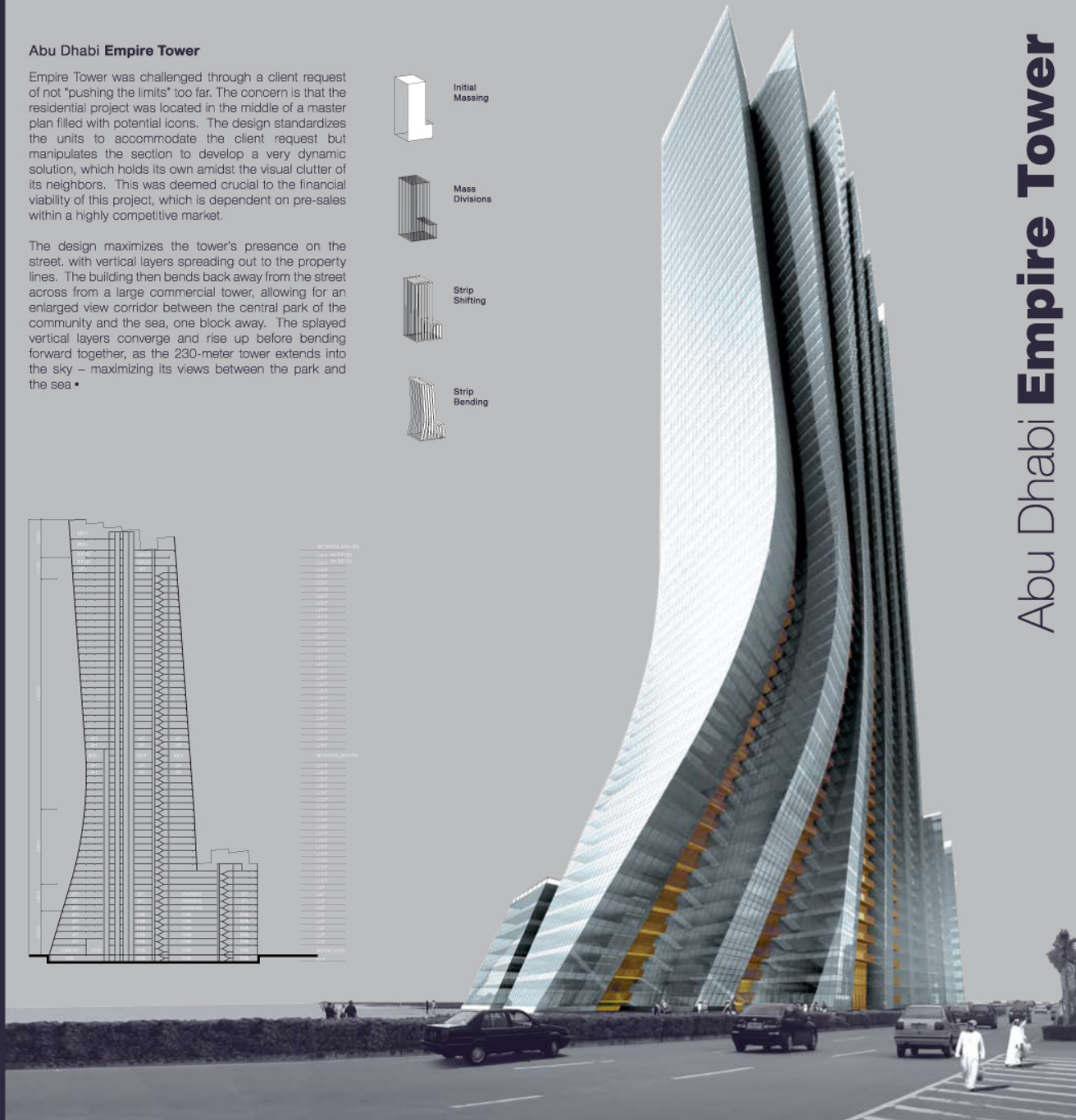
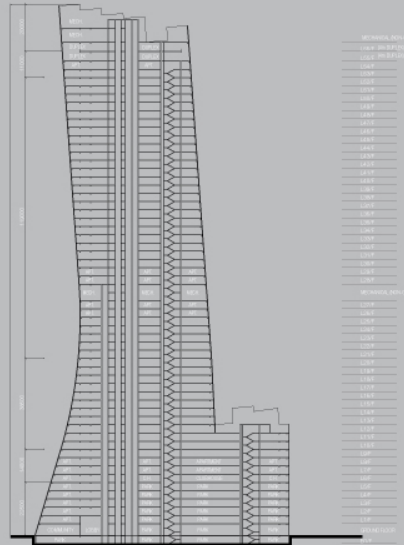


Program: Residential, Site Area 7,007 sqm
Floor Area 90,206 sqm, Building Height 225 m

Abu Dhabi Empire Tower

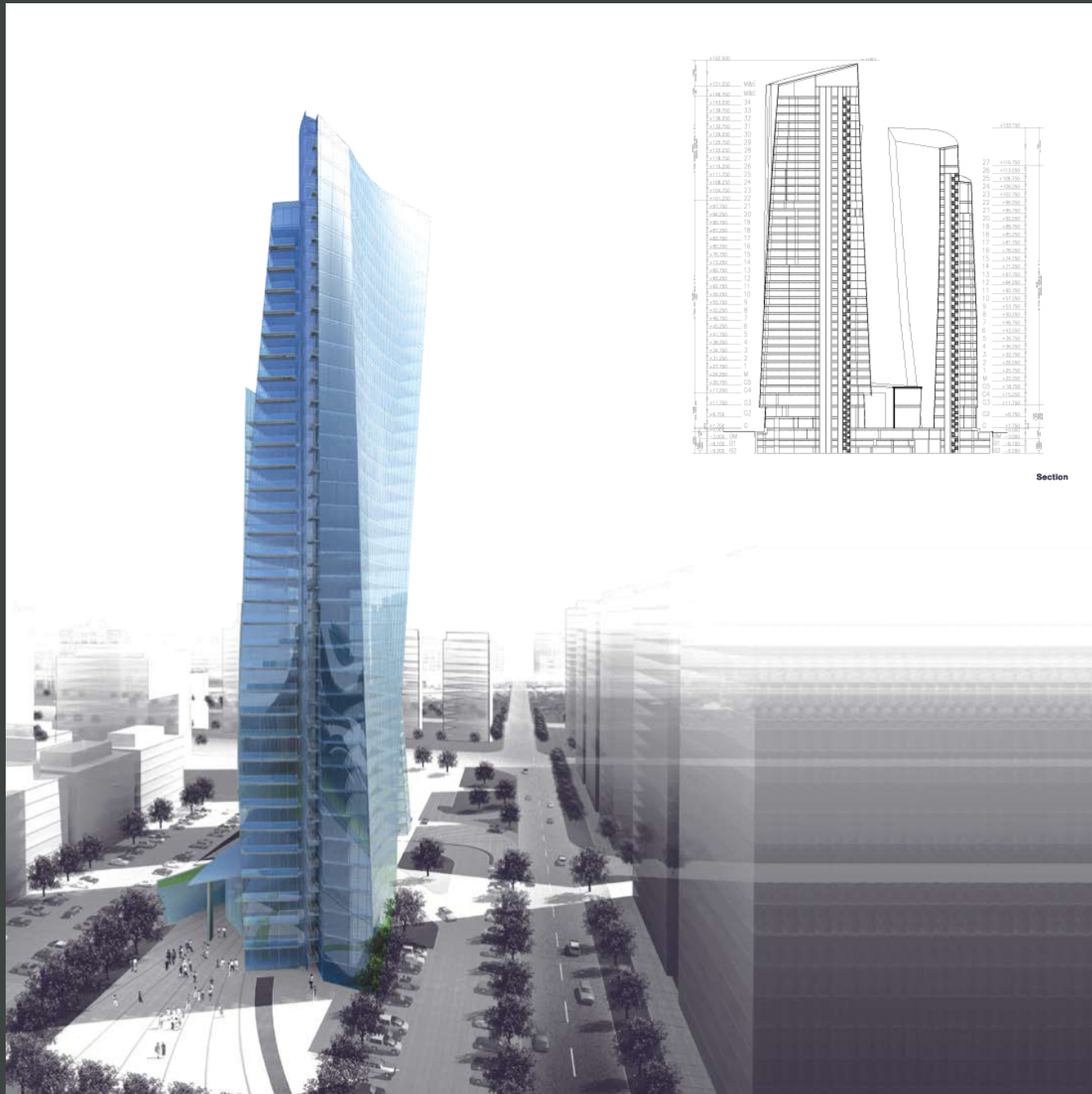
Empire Tower was challenged through a client request of not "pushing the limits" too far. The concern is that the residential project was located in the middle of a master plan filled with potential icons. The design standardizes the units to accommodate the client request but manipulates the section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

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



Abu Dhabi Empire Tower

Aedas





Dubai Ocean Heights Two

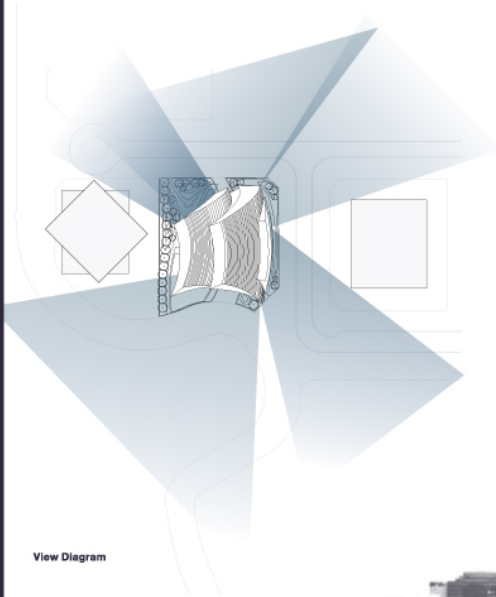
Ocean Heights Two is also located in Dubai Marina, UAE, along with its sister project, Ocean Heights One. At 460 meters in height and 105 floors, it will be the tallest tower in its vicinity. However, unlike its predecessor, the requirements for more modulated units up to the 60th floor, forced a different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



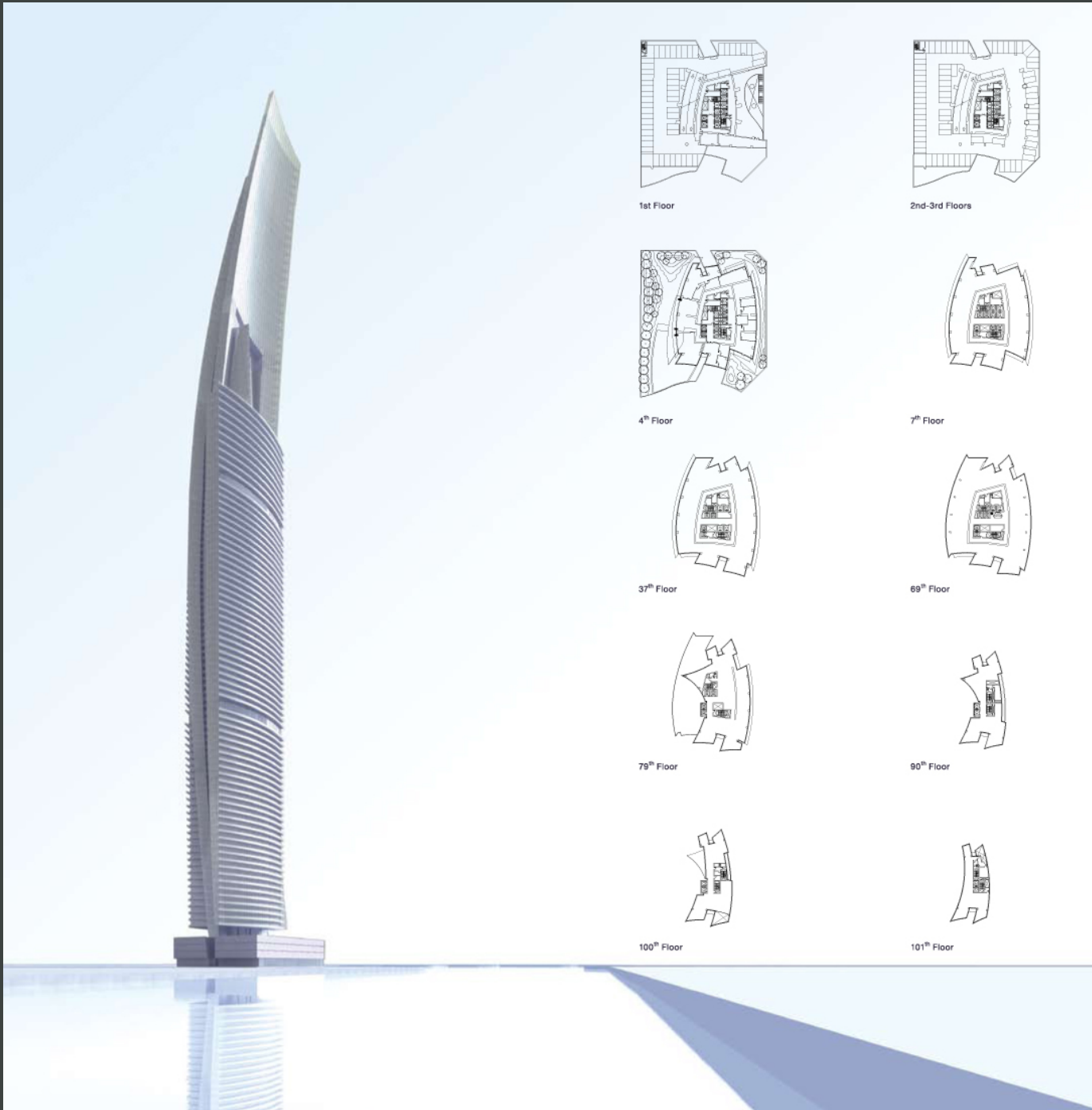
The first 60th floors of the tower are intended to be service apartments, which in order to be marketable, needed to have the majority of units standardized. The curved shape of the tower improves views past its densely located neighbors. The playfulness of this tower was concentrated into the two most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

Program Residential Site Area 3,463sqm
Floor Area 197,979 sqm Building Height 460 m

View Diagram

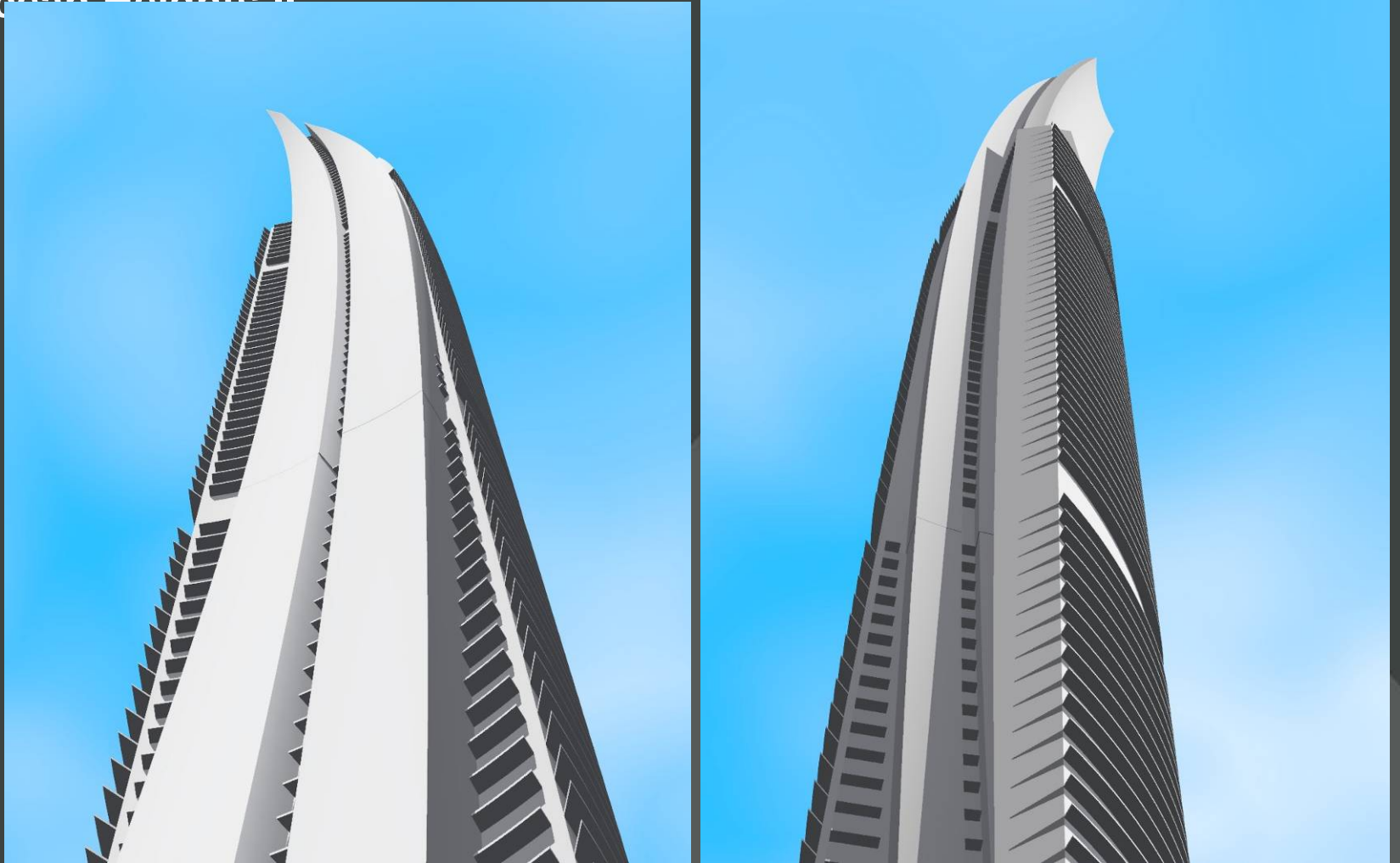


Dubai Ocean Heights Two



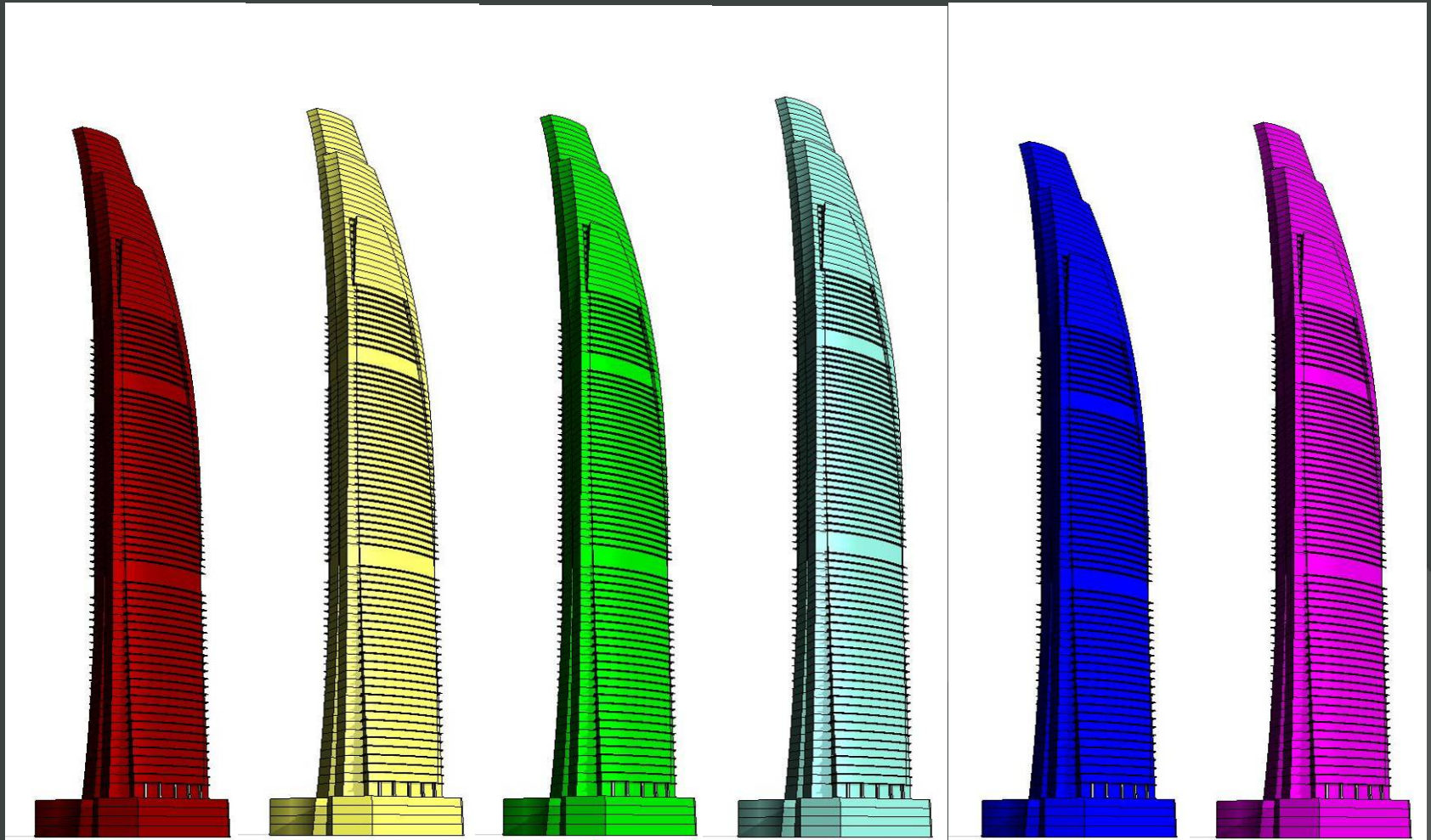


Ocean Heights II



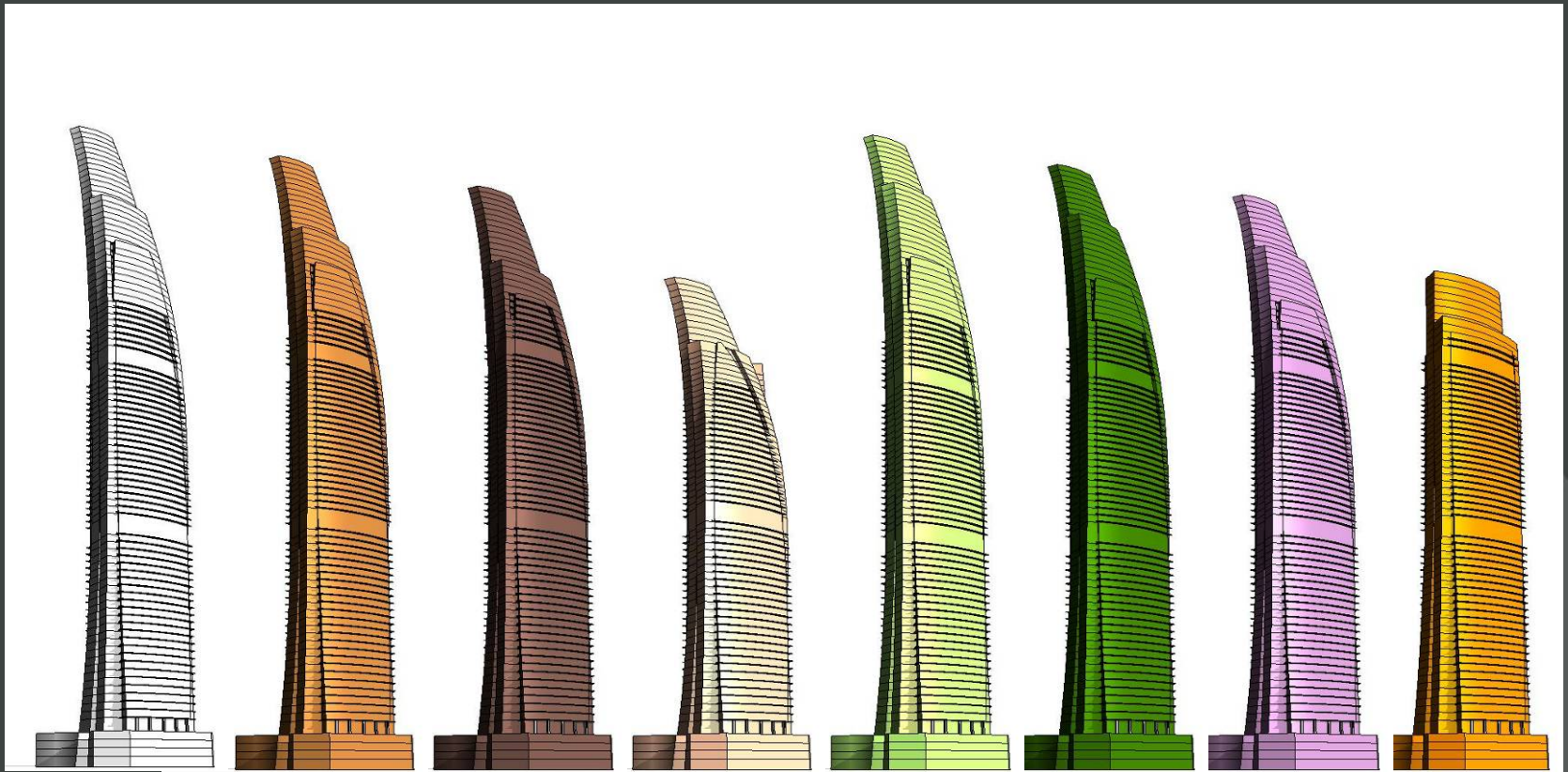


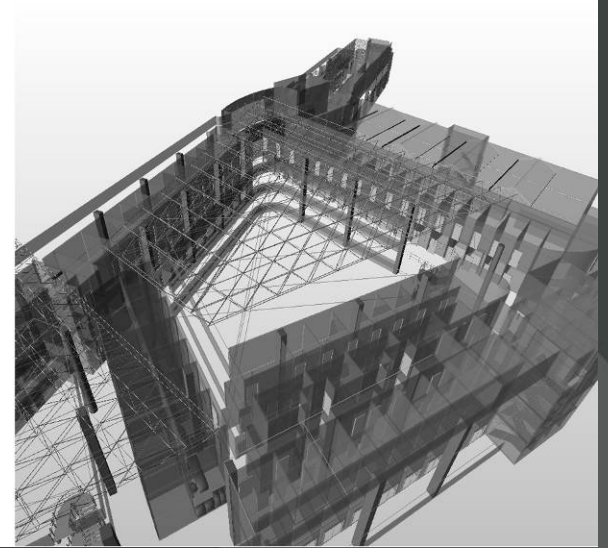
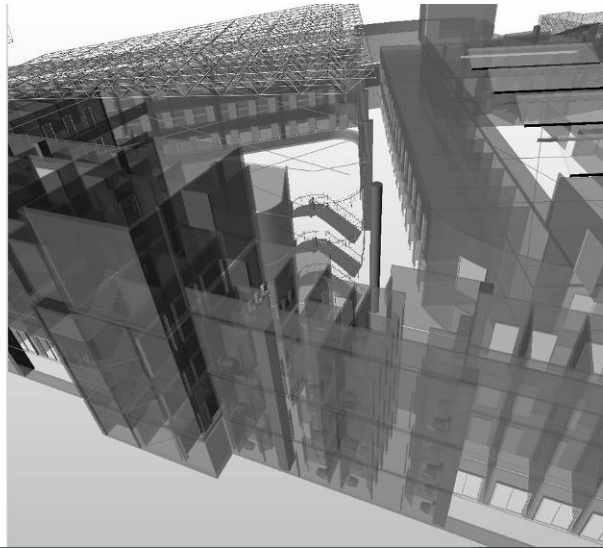
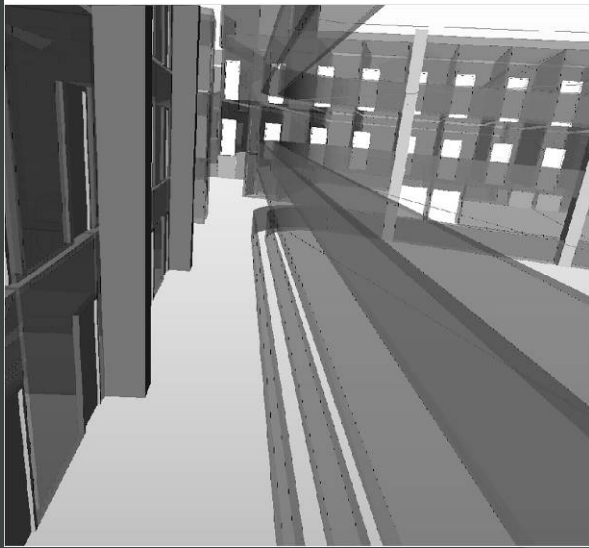
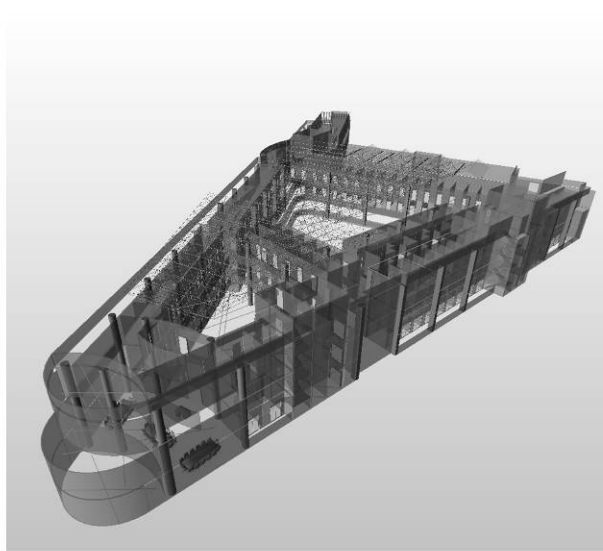
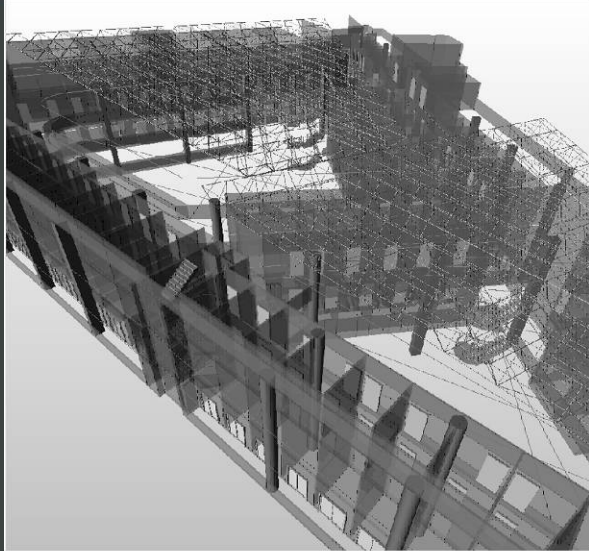
Ocean Heights II – Options



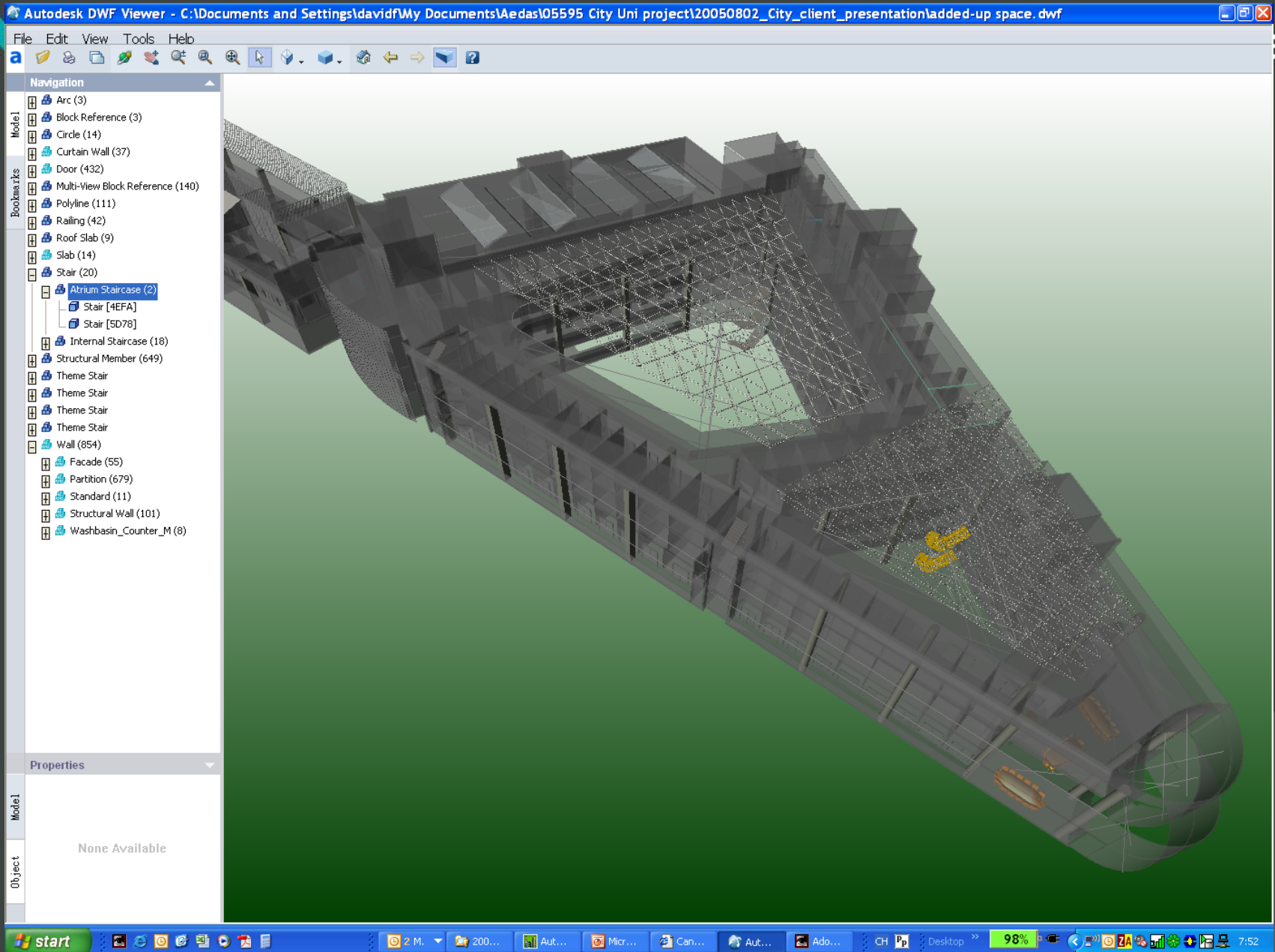


Ocean Heights II – Options





INTERACTIVE COMMUNICATION – DWF



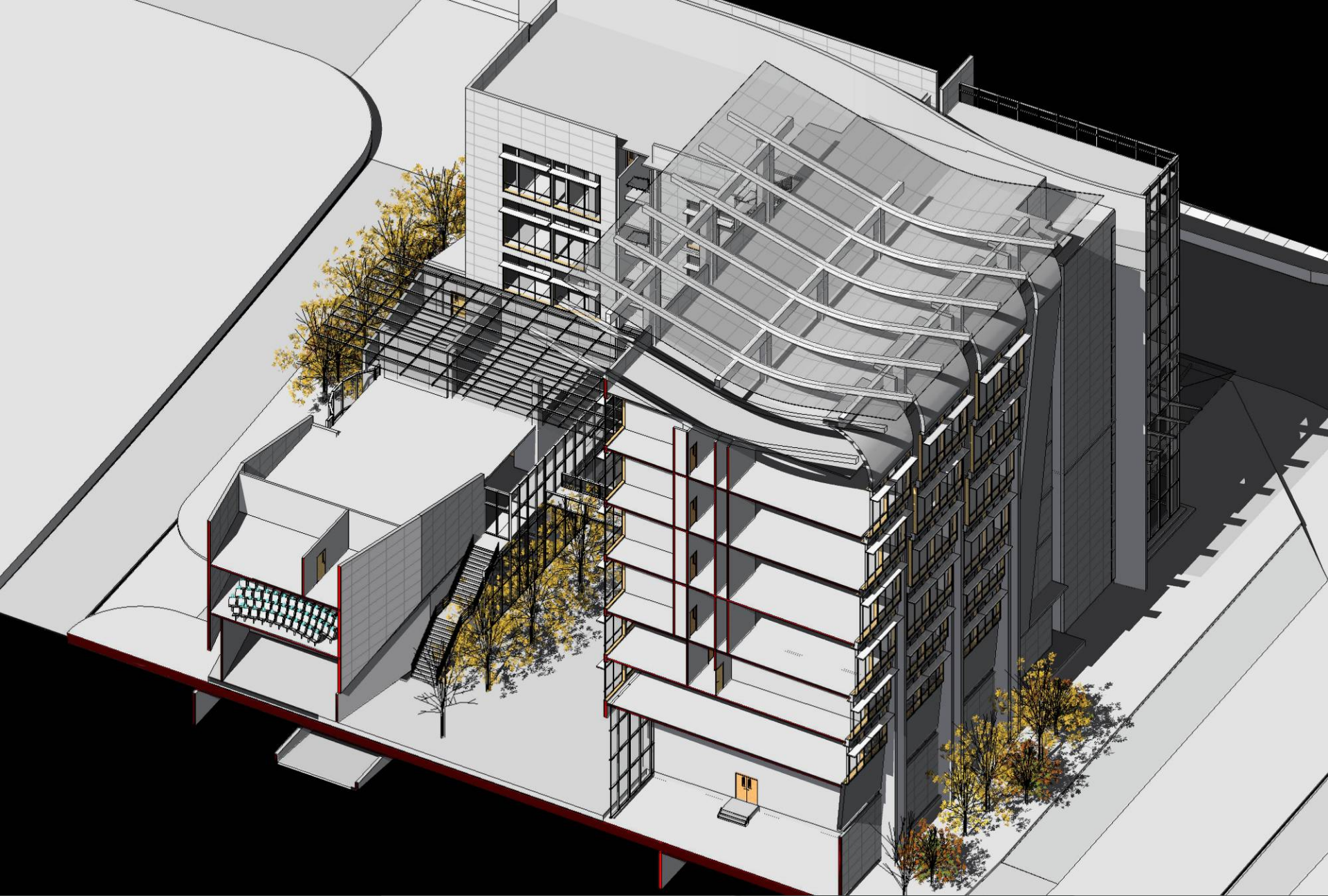
INTERACTIVE COMMUNICATION – DWF



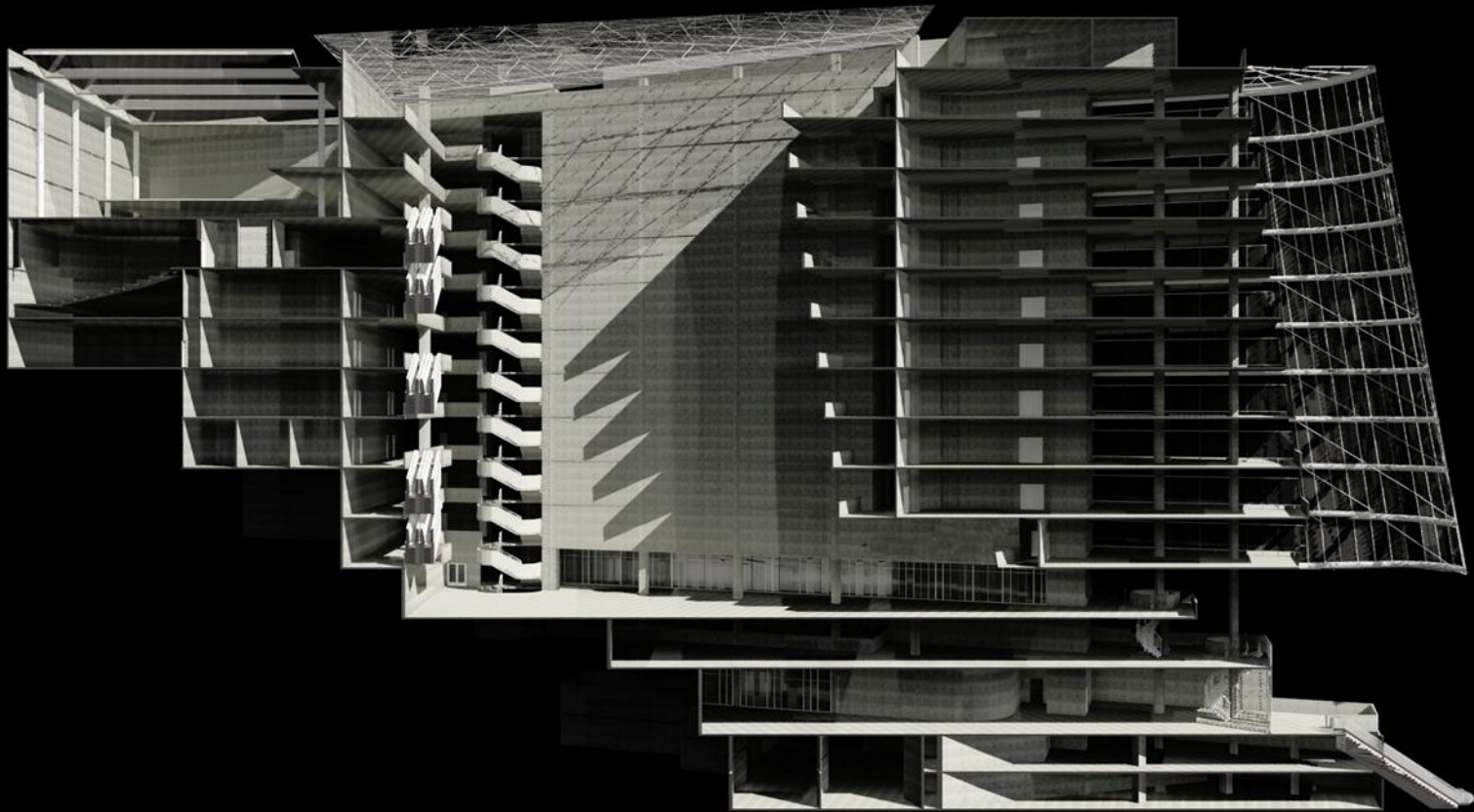
1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**







PERSPECTIVE



CUT AWAY PERSPECTIVE



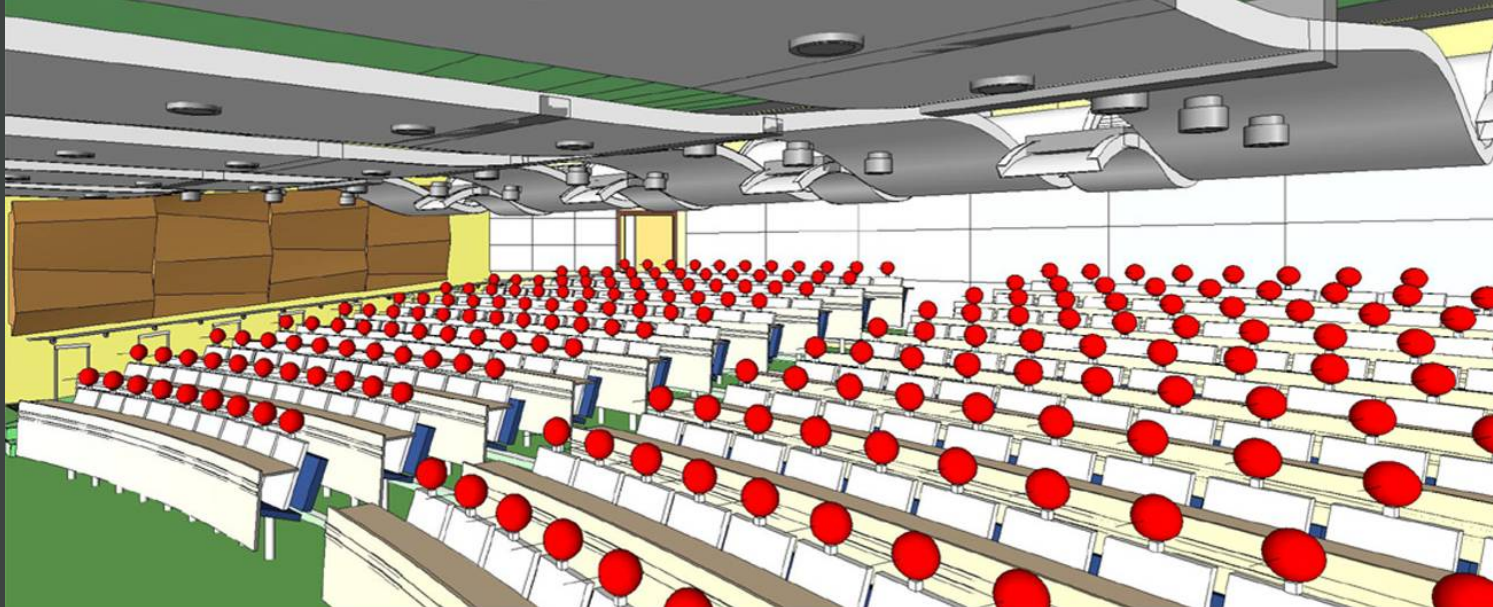




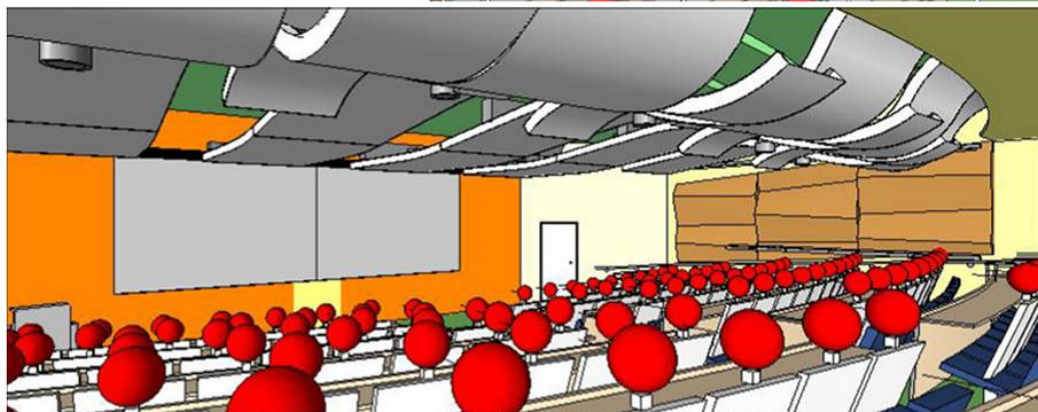


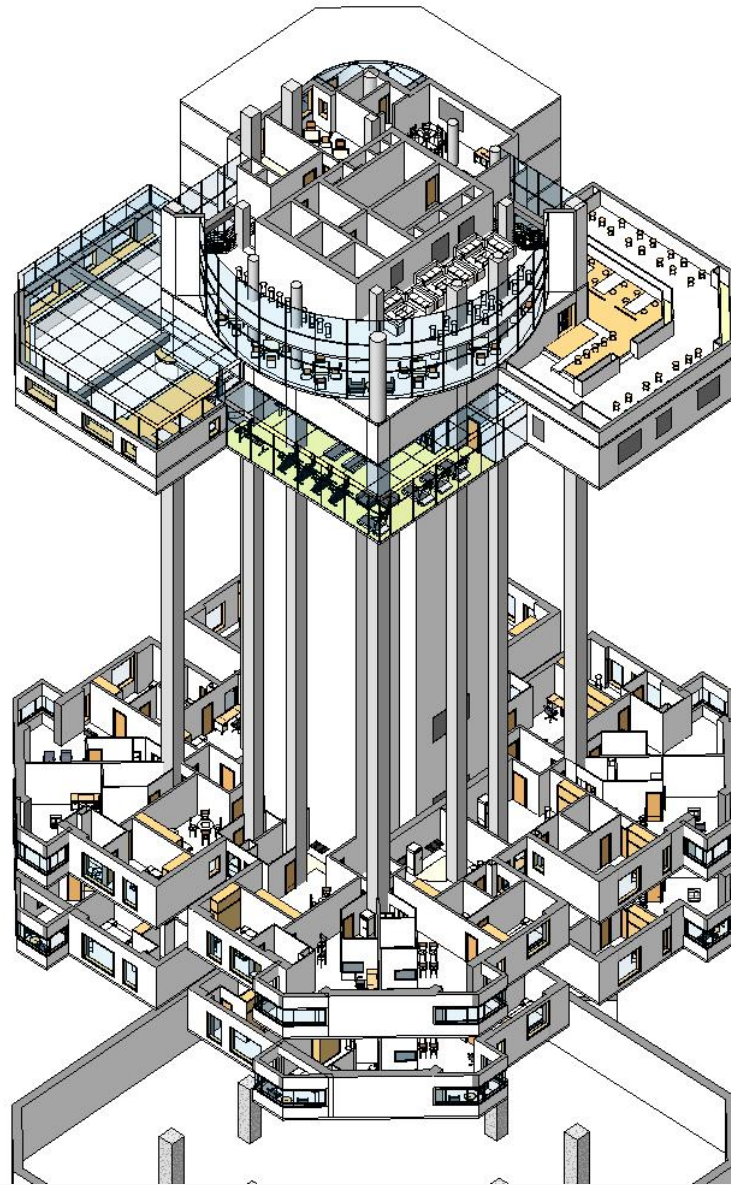


VISUALIZATION

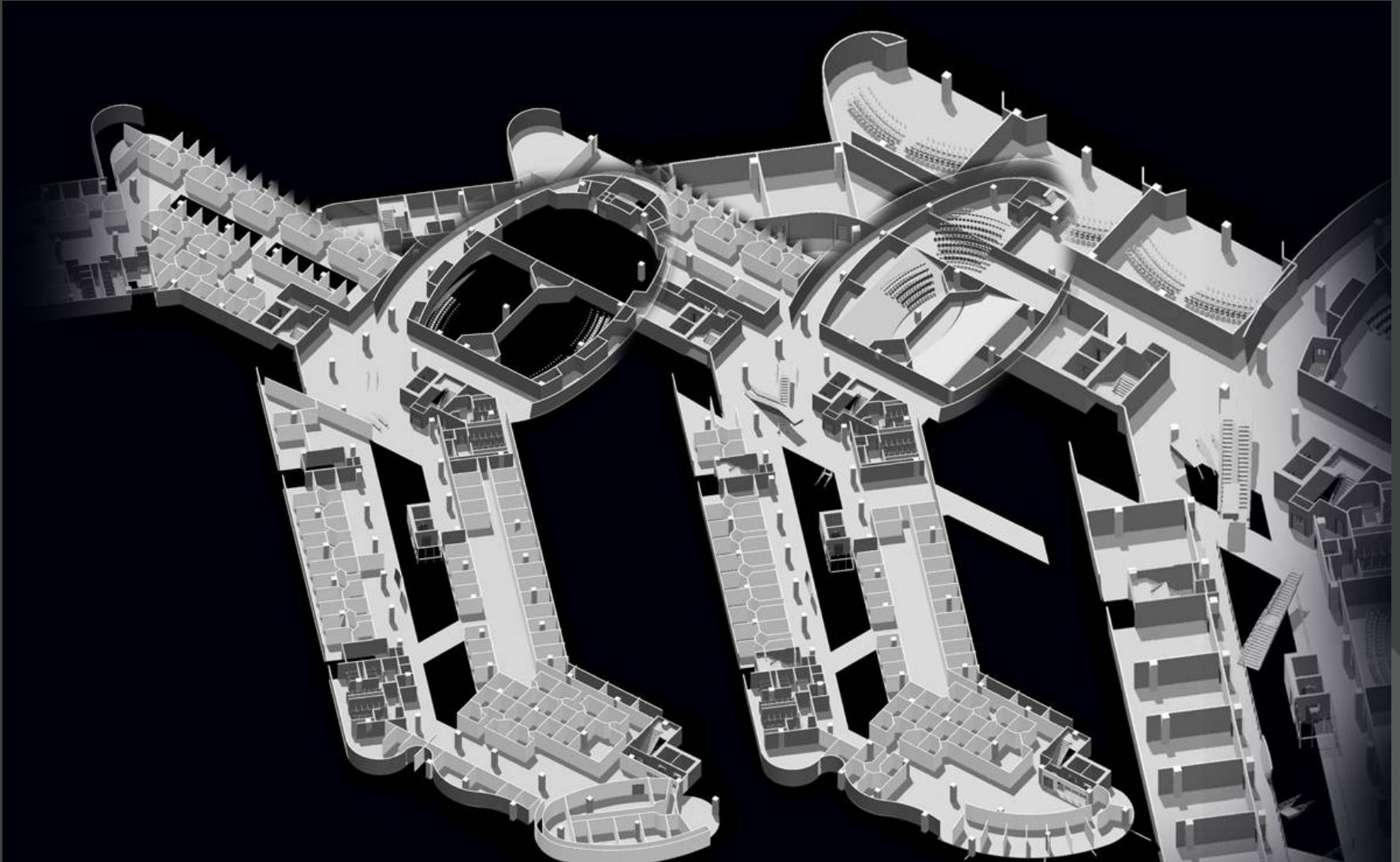


Acoustical curved metal ceiling





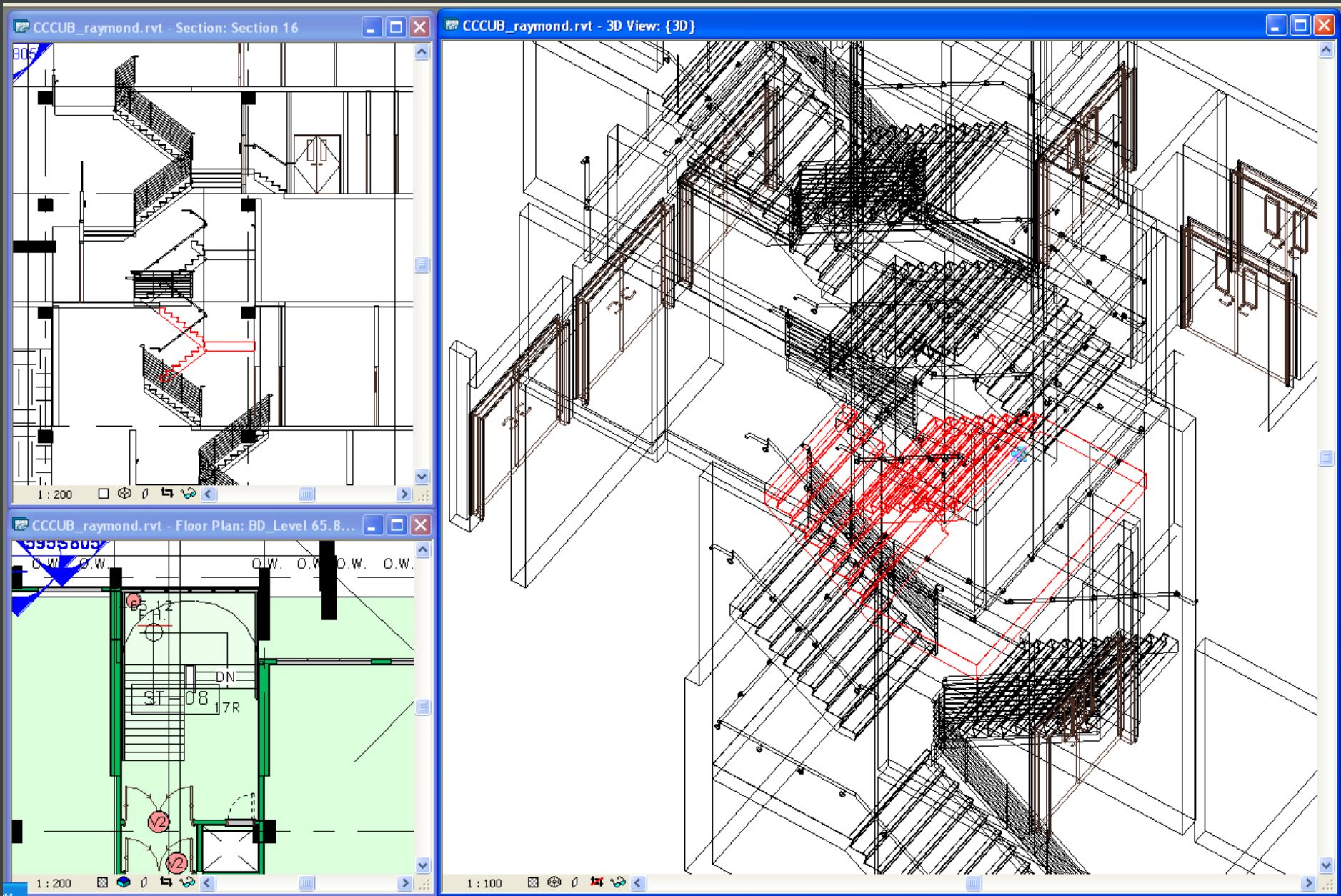
VERTICAL CO-ORDINATION



VERTICAL CO-ORDINATION



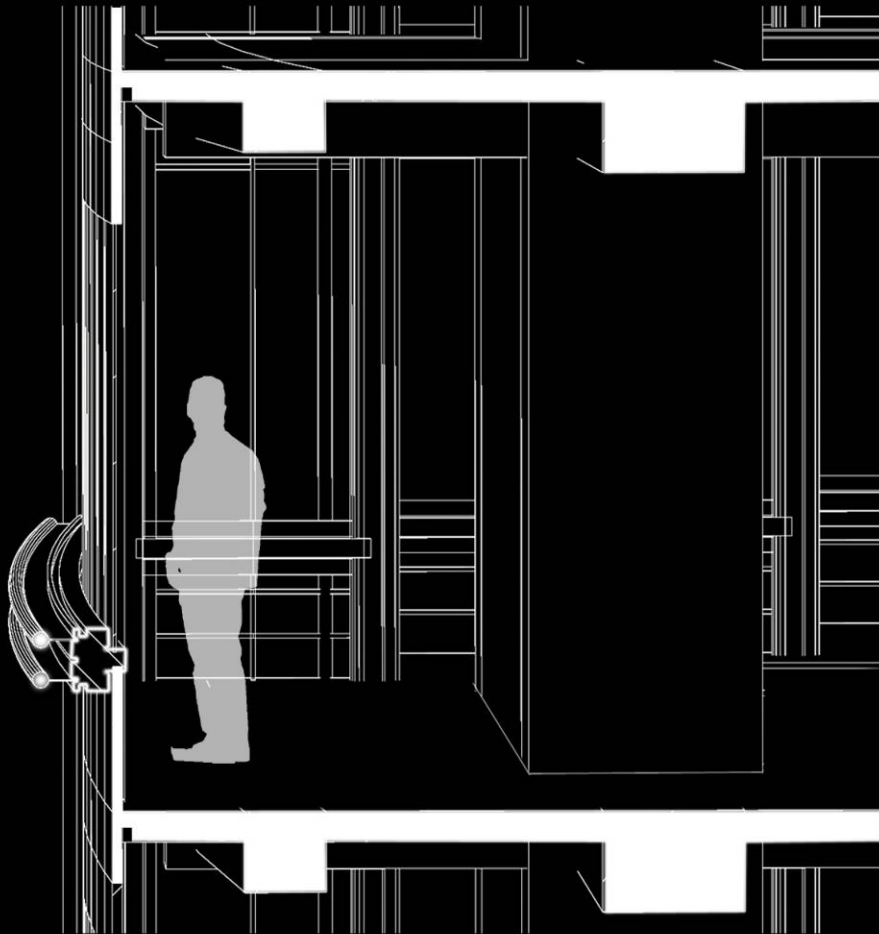
FAÇADE PANEL DESIGN



VERTICAL CO-ORDINATION



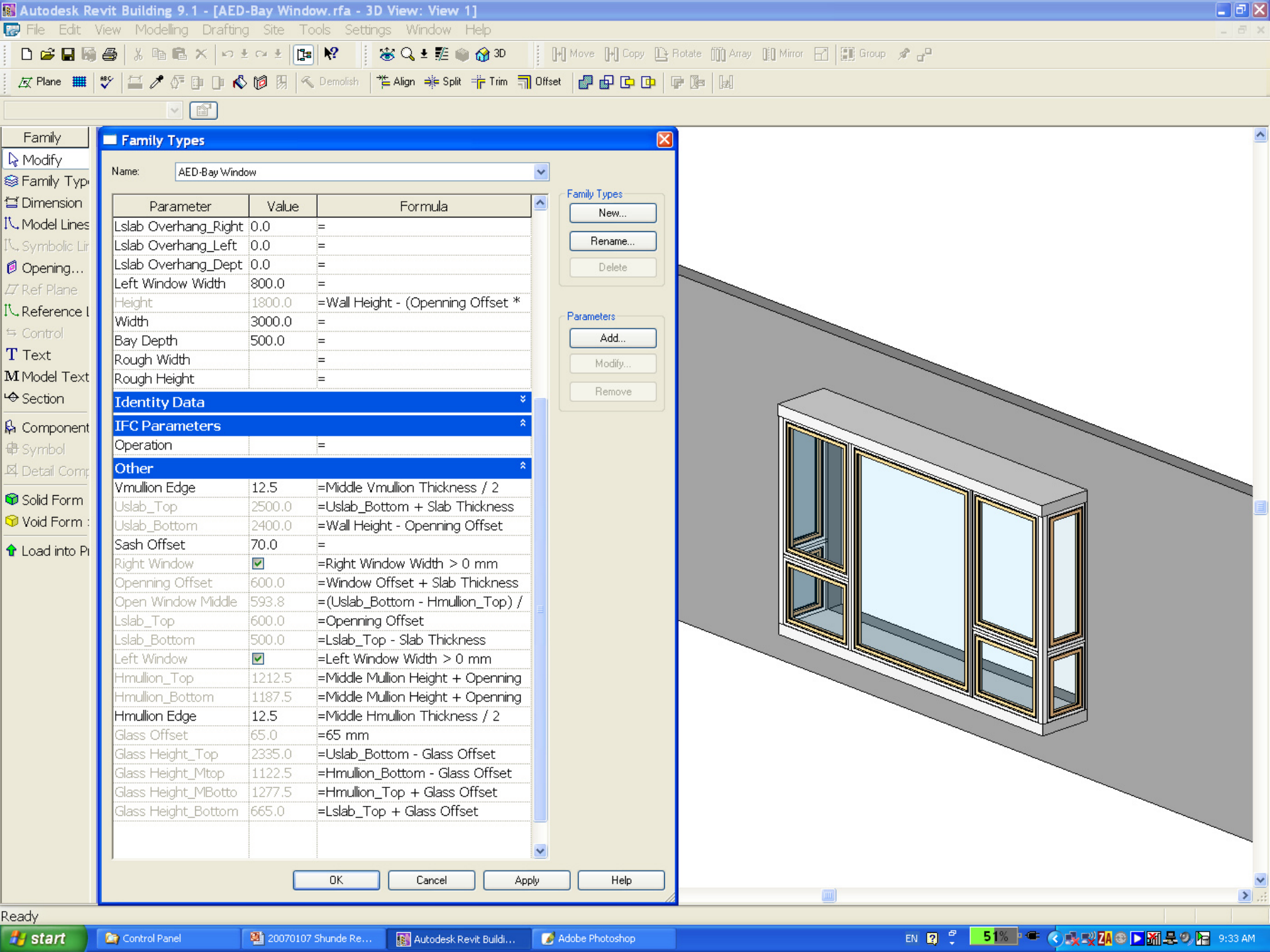
FAÇADE DESIGN and CO-ORDINATION



FAÇADE DESIGN and CO-ORDINATION



REPETITIONS vs VARIATIONS

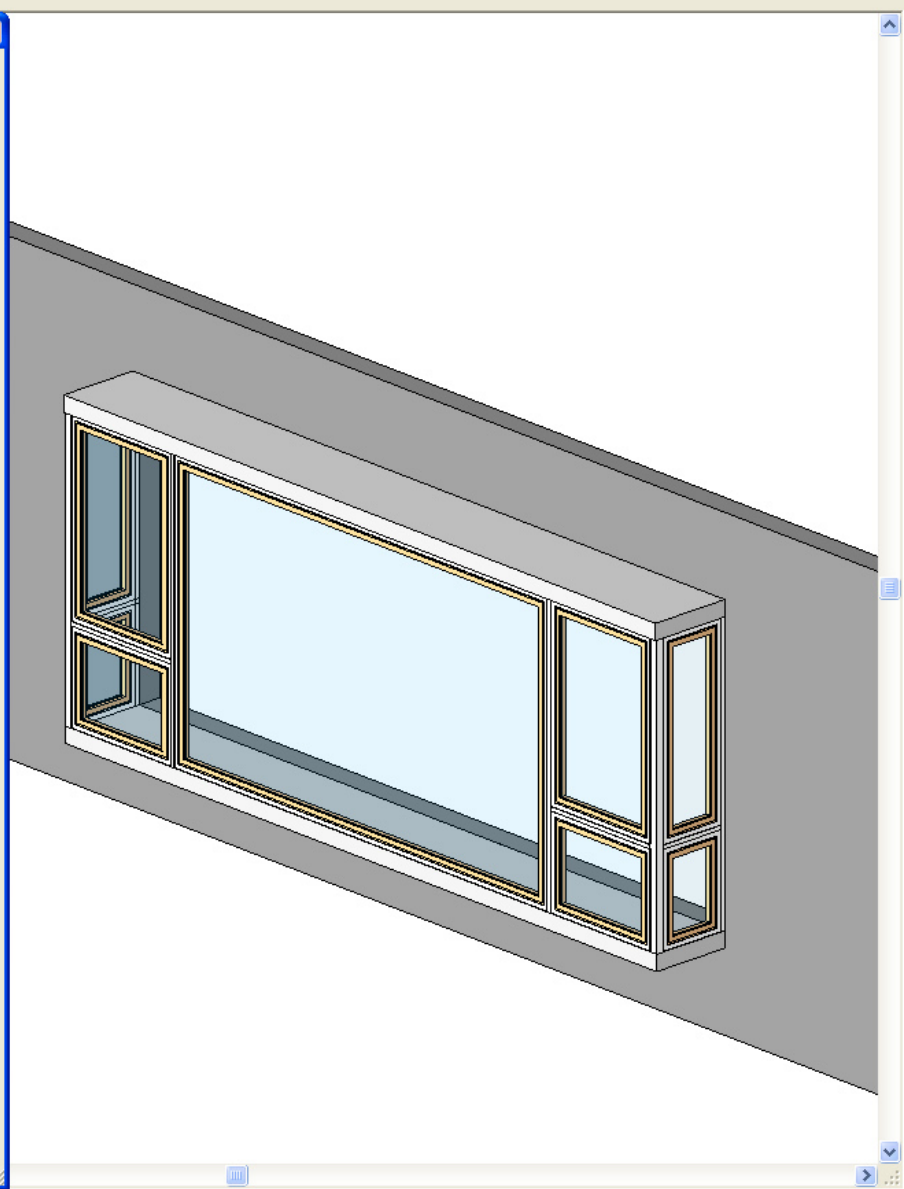


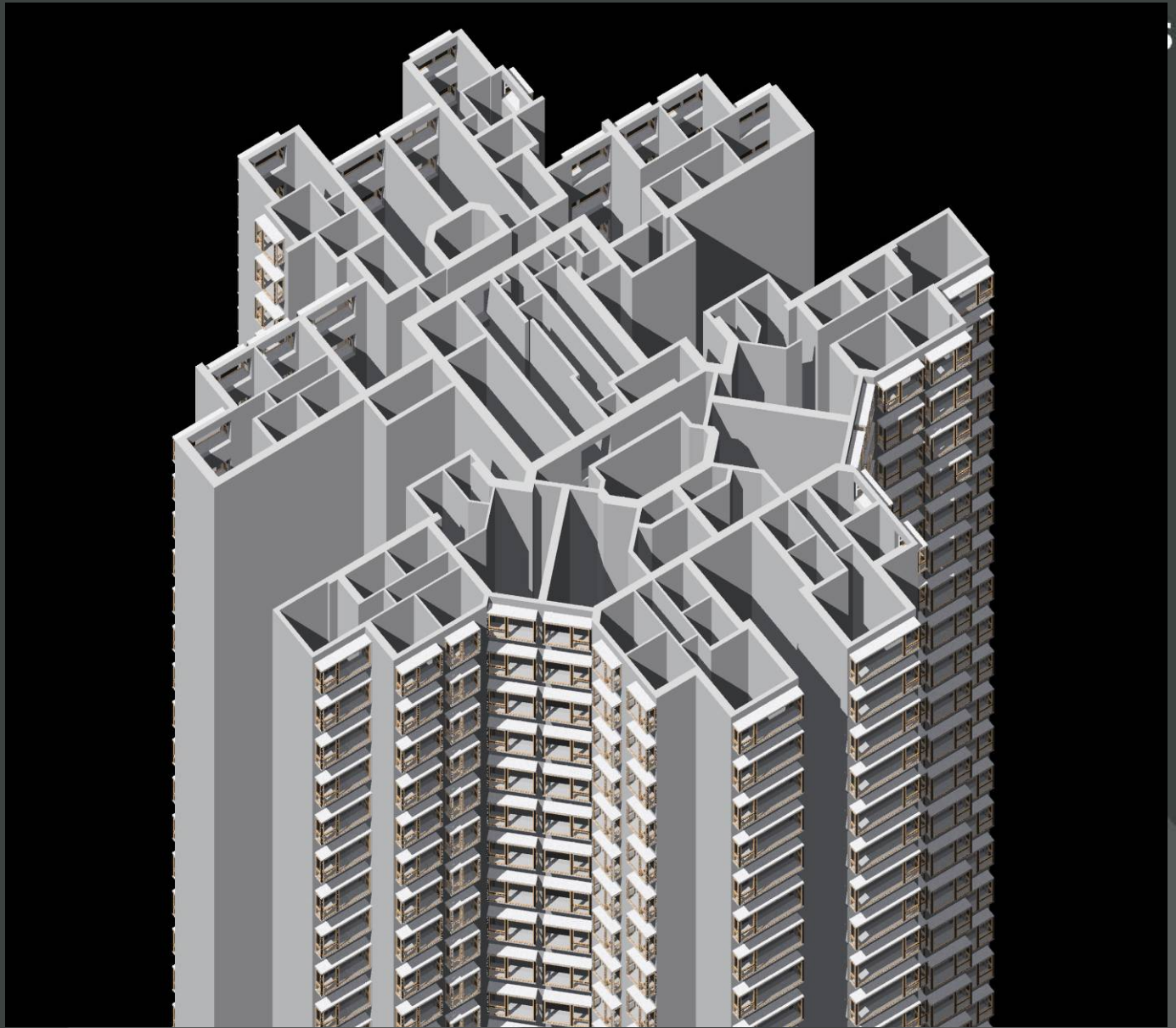
Family Types

Name: AED-Bay Window

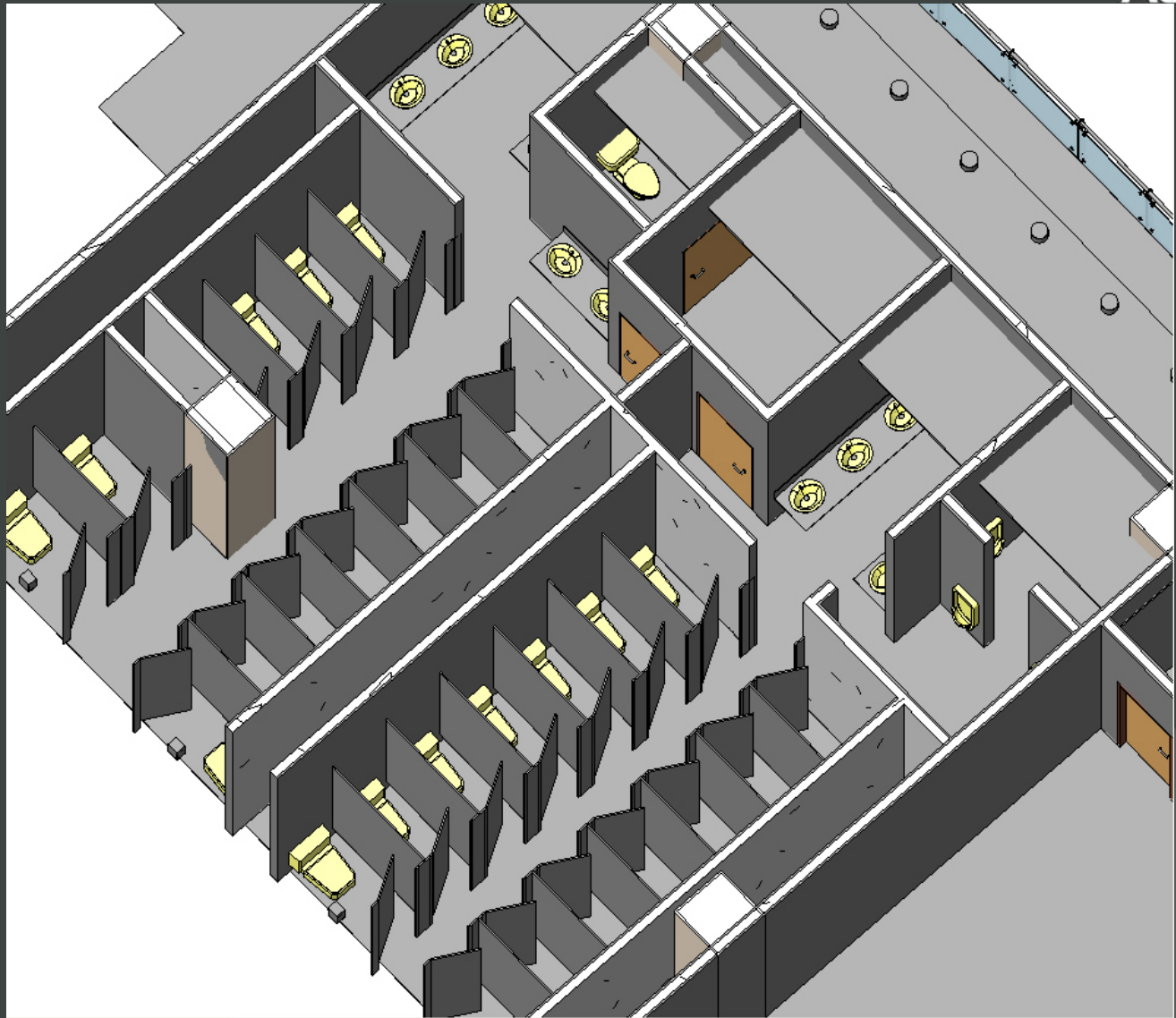
Parameter	Value	Formula
Lslab Overhang_Right	0.0	=
Lslab Overhang_Left	0.0	=
Lslab Overhang_Dept	0.0	=
Left Window Width	800.0	=
Height	1800.0	=Wall Height - (Opening Offset *
Width	4500.0	=
Bay Depth	500.0	=
Rough Width		=
Rough Height		=
Identity Data		
IFC Parameters		
Operation		=
Other		
Vmullion Edge	12.5	=Middle Vmullion Thickness / 2
Uslab_Top	2500.0	=Uslab_Bottom + Slab Thickness
Uslab_Bottom	2400.0	=Wall Height - Opening Offset
Sash Offset	70.0	=
Right Window	☒	=Right Window Width > 0 mm
Opening Offset	600.0	=Window Offset + Slab Thickness
Open Window Middle	593.8	=(Uslab_Bottom - Hmullion_Top) /
Lslab_Top	600.0	=Opening Offset
Lslab_Bottom	500.0	=Lslab_Top - Slab Thickness
Left Window	☒	=Left Window Width > 0 mm
Hmullion_Top	1212.5	=Middle Mullion Height + Opening
Hmullion_Bottom	1187.5	=Middle Mullion Height + Opening
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

OK Cancel Apply Help

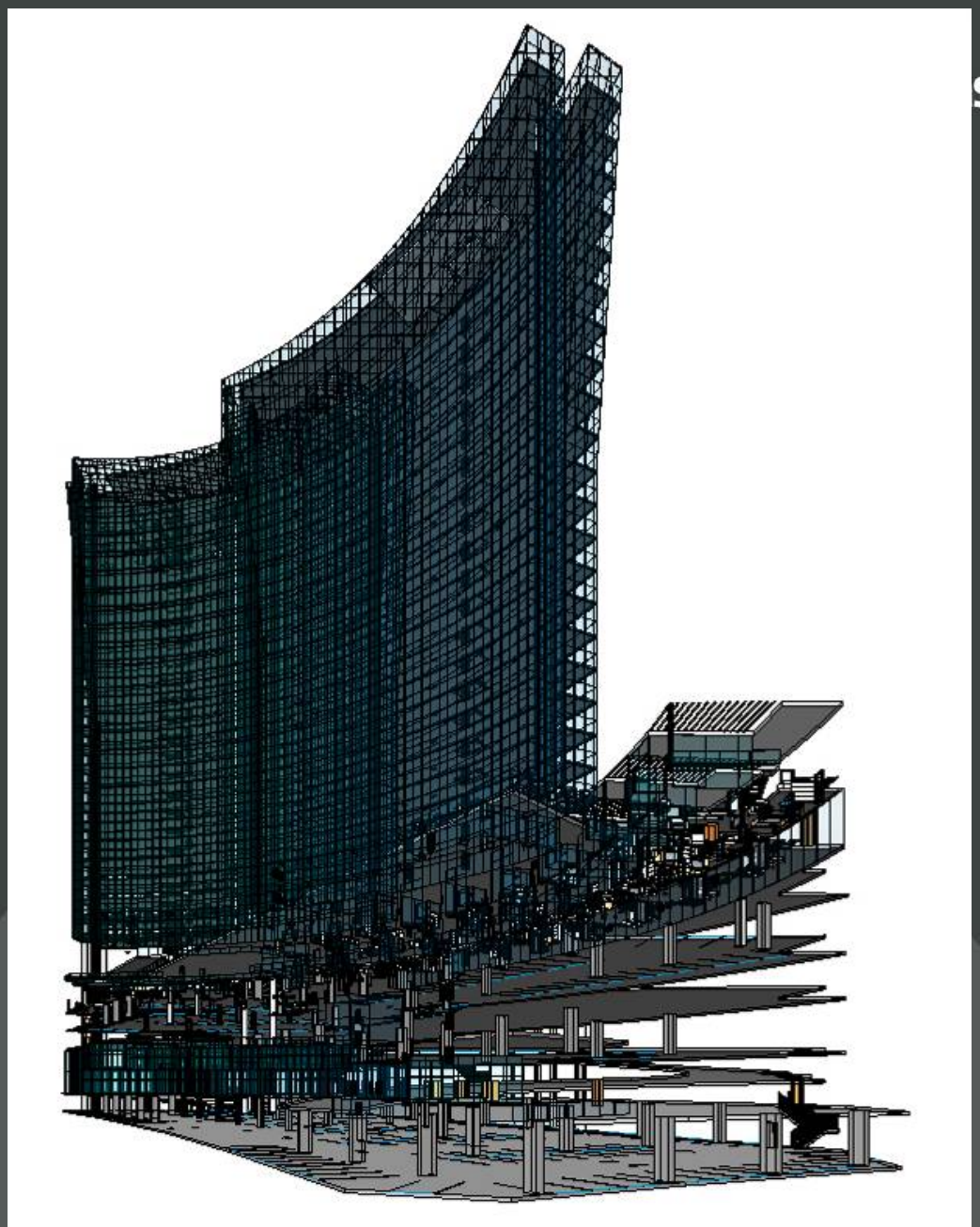




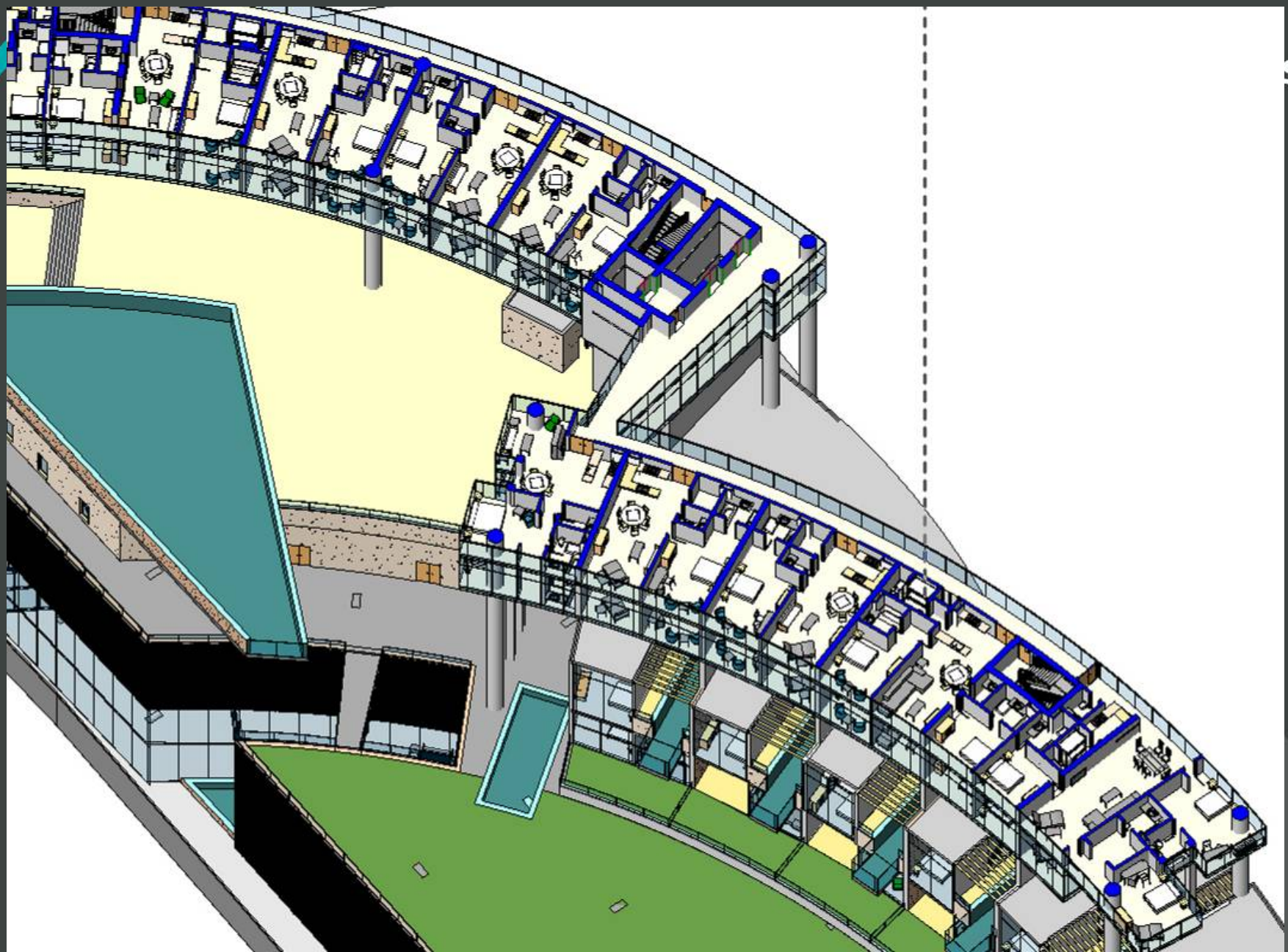
REPETITIONS vs VARIATIONS



CREATIVE TOOLS



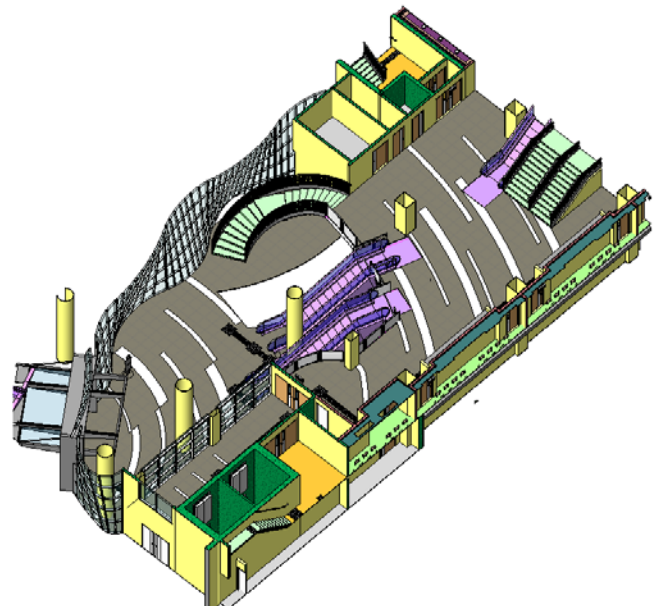
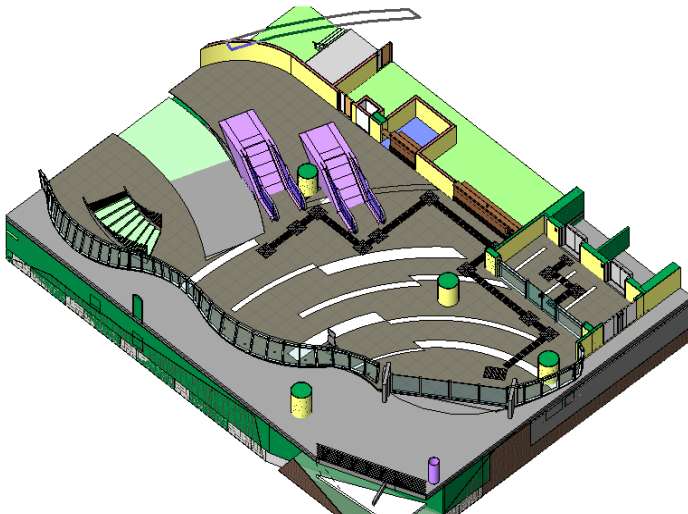
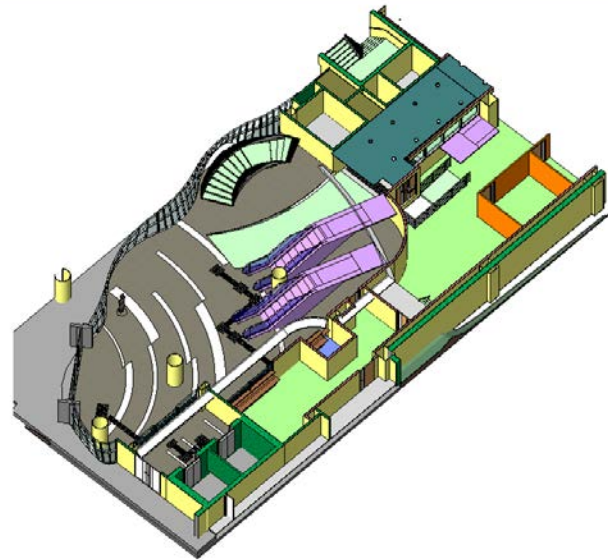
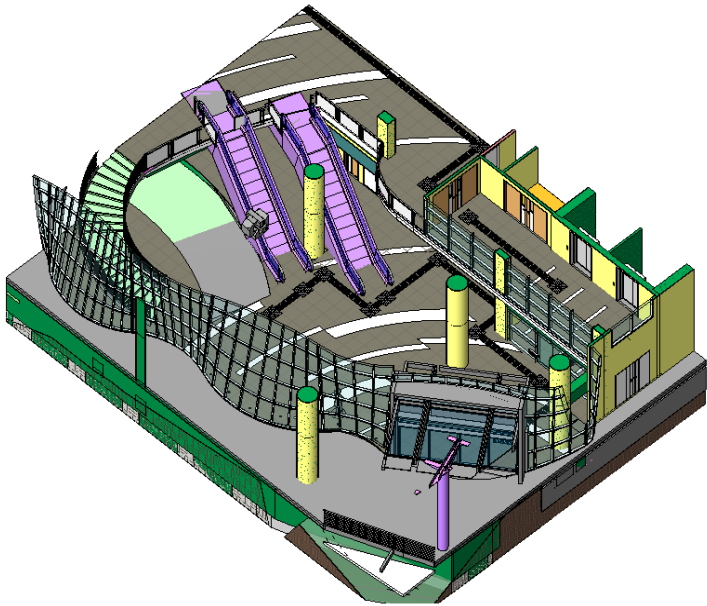
HORIZONTAL REPETITION / MODULARIZATION

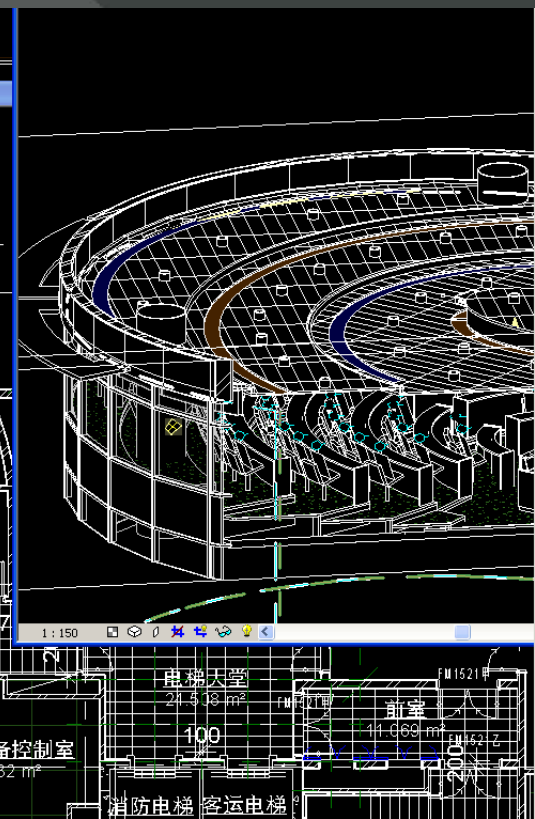


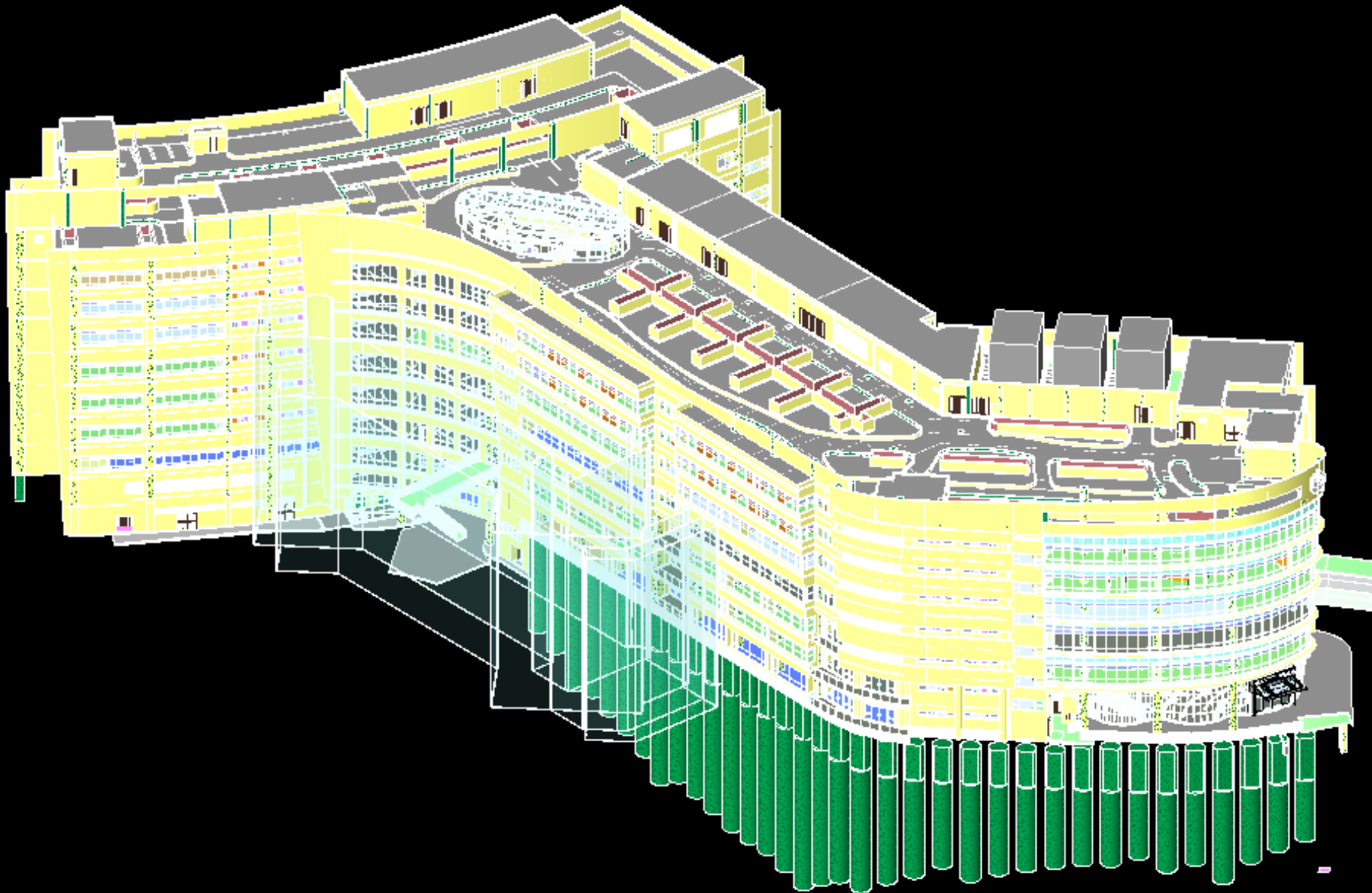
MODULAR DESIGN

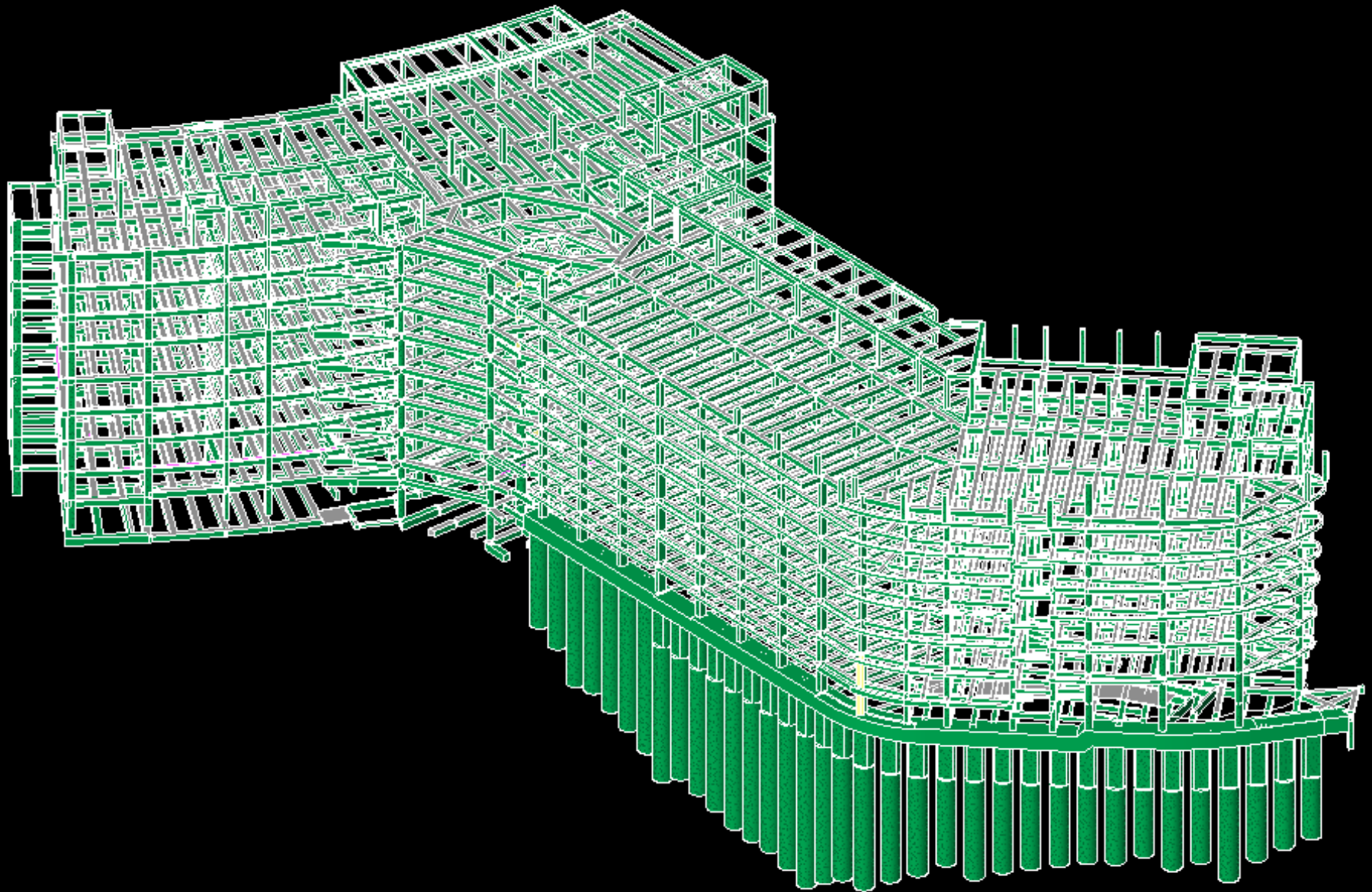


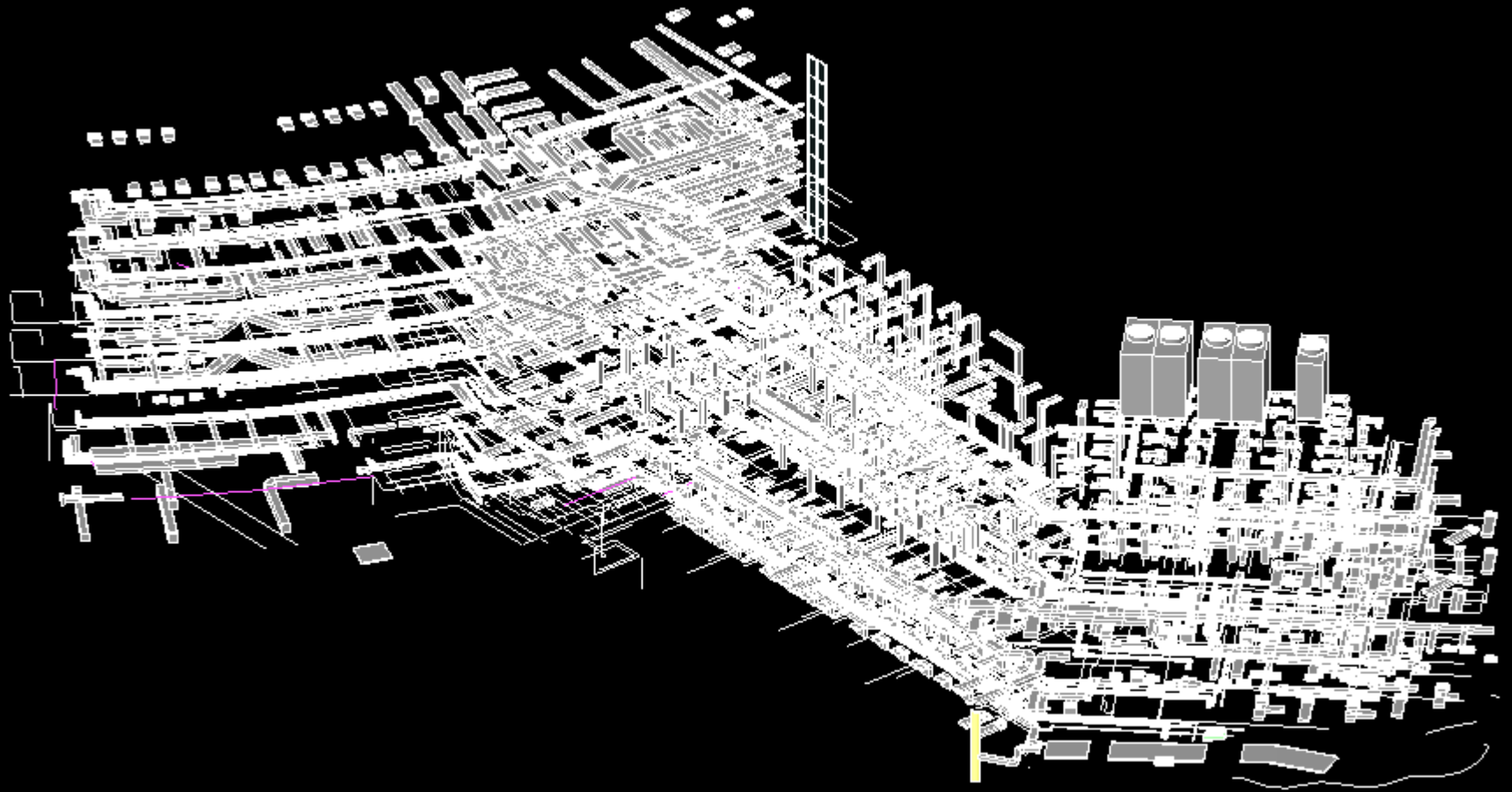
1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**

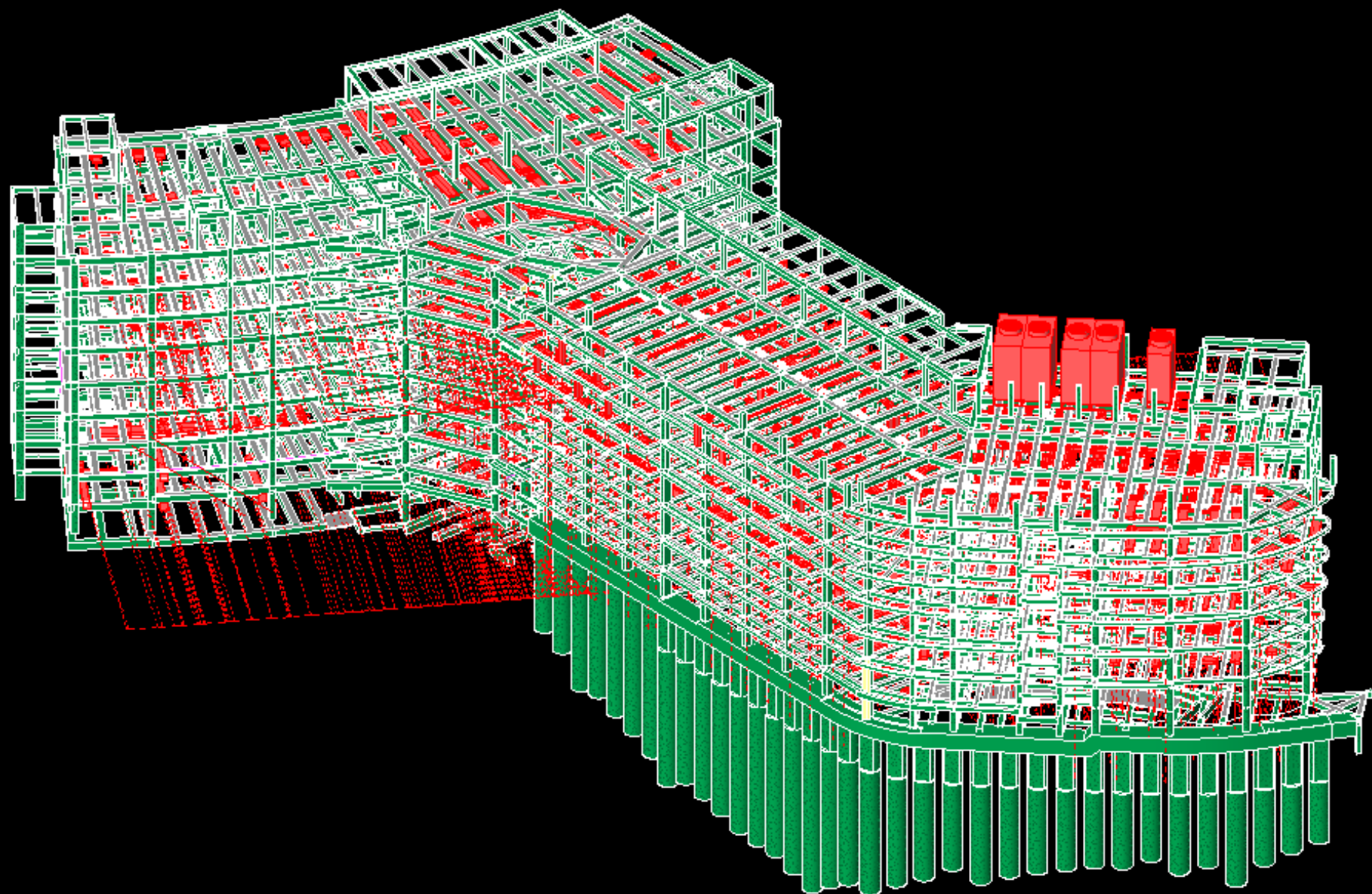










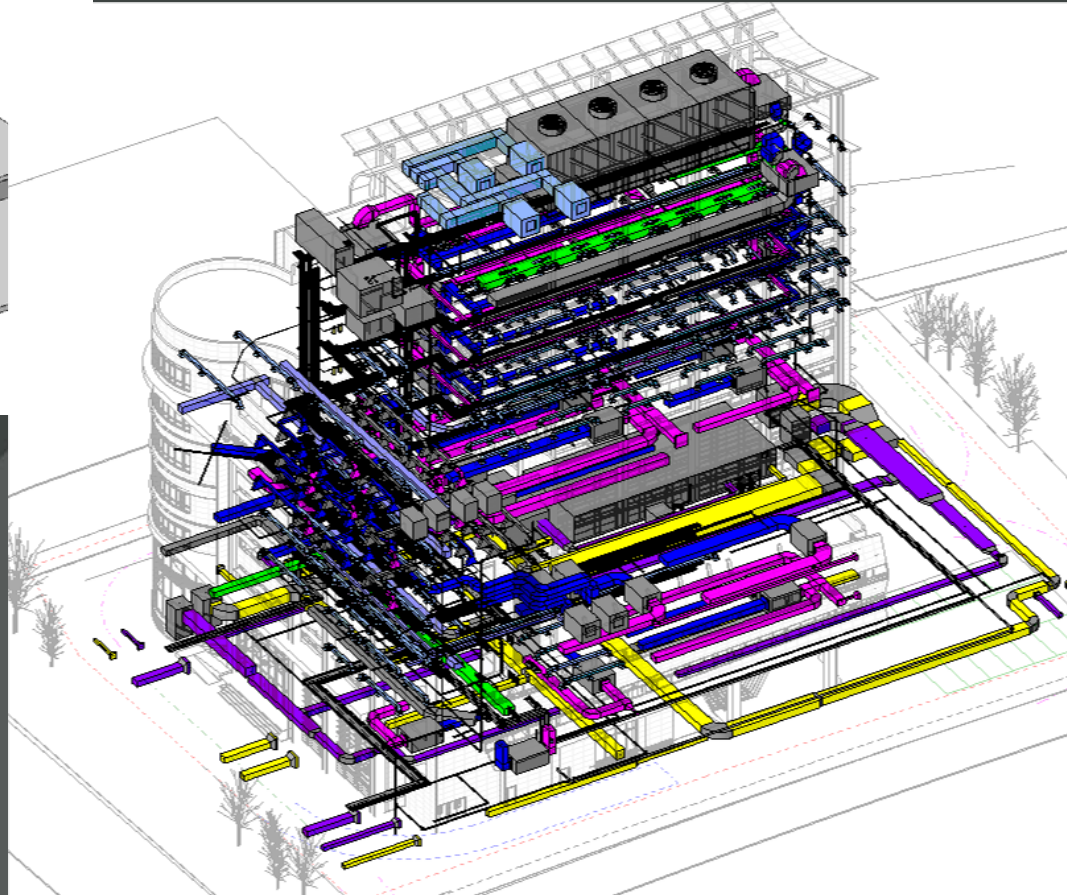
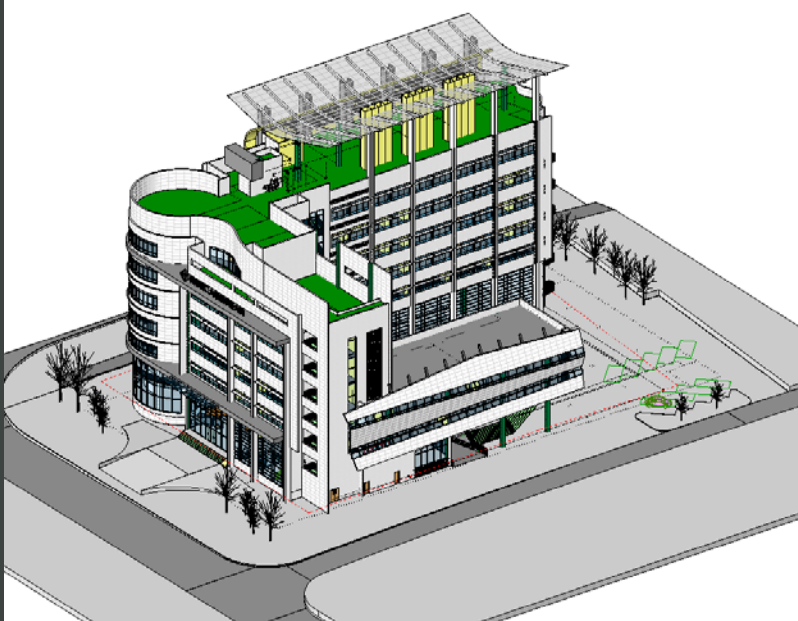




CO-ORDINATION / COLLABORATION

Work Flow – Establish BIM Models

Aedas

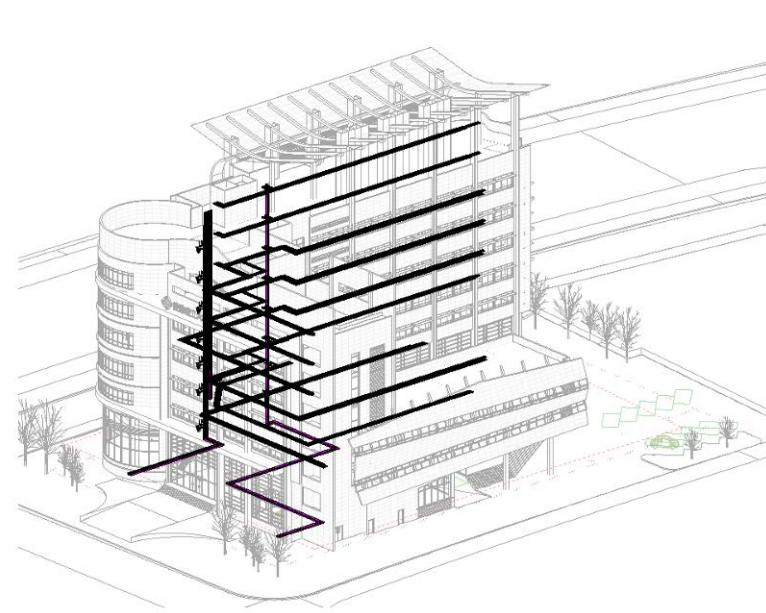
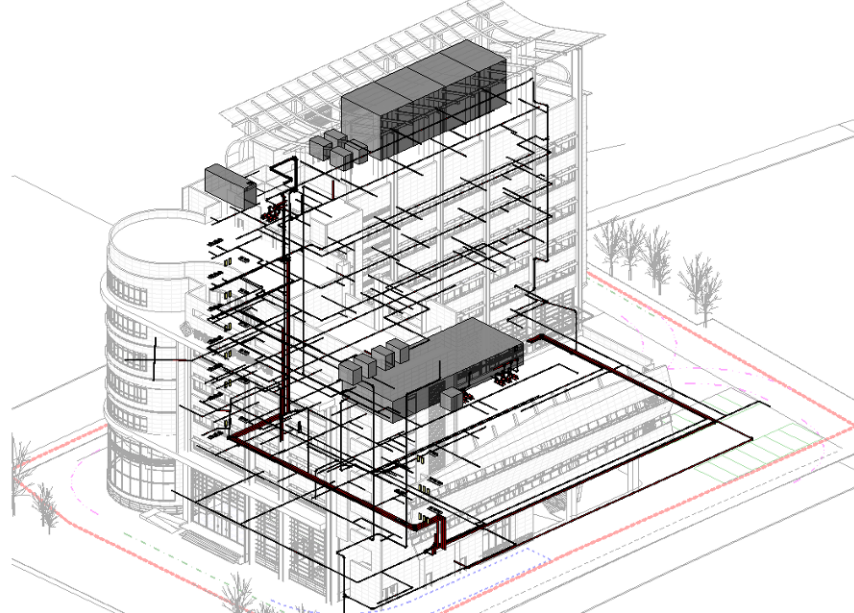
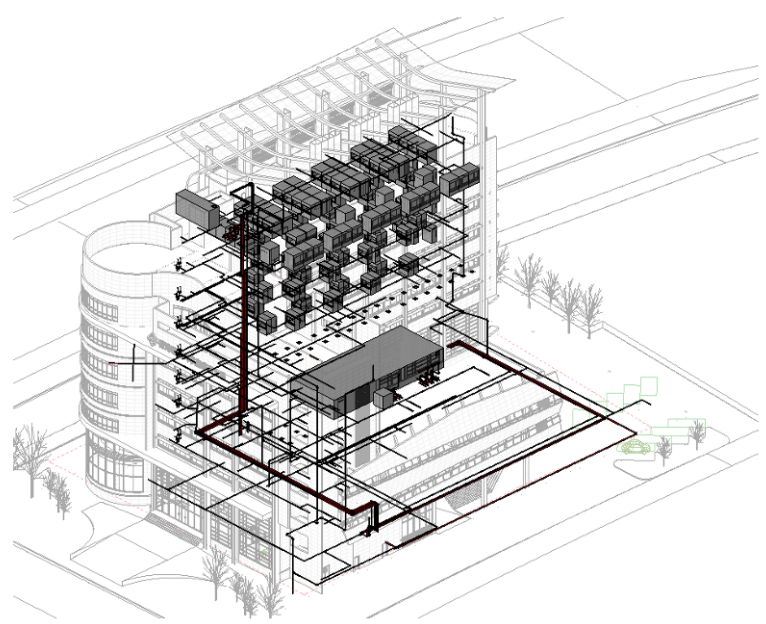
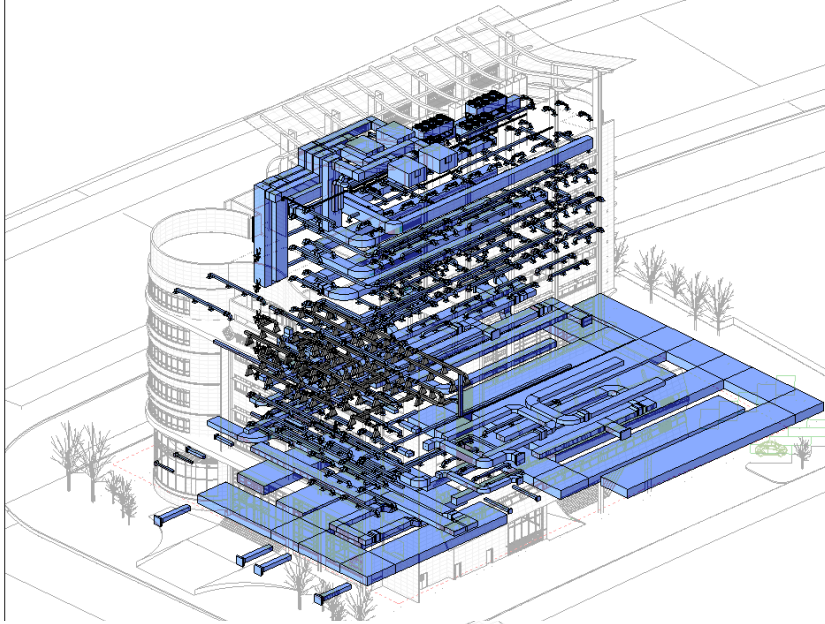




HVAC Installation

Fire Services Installation

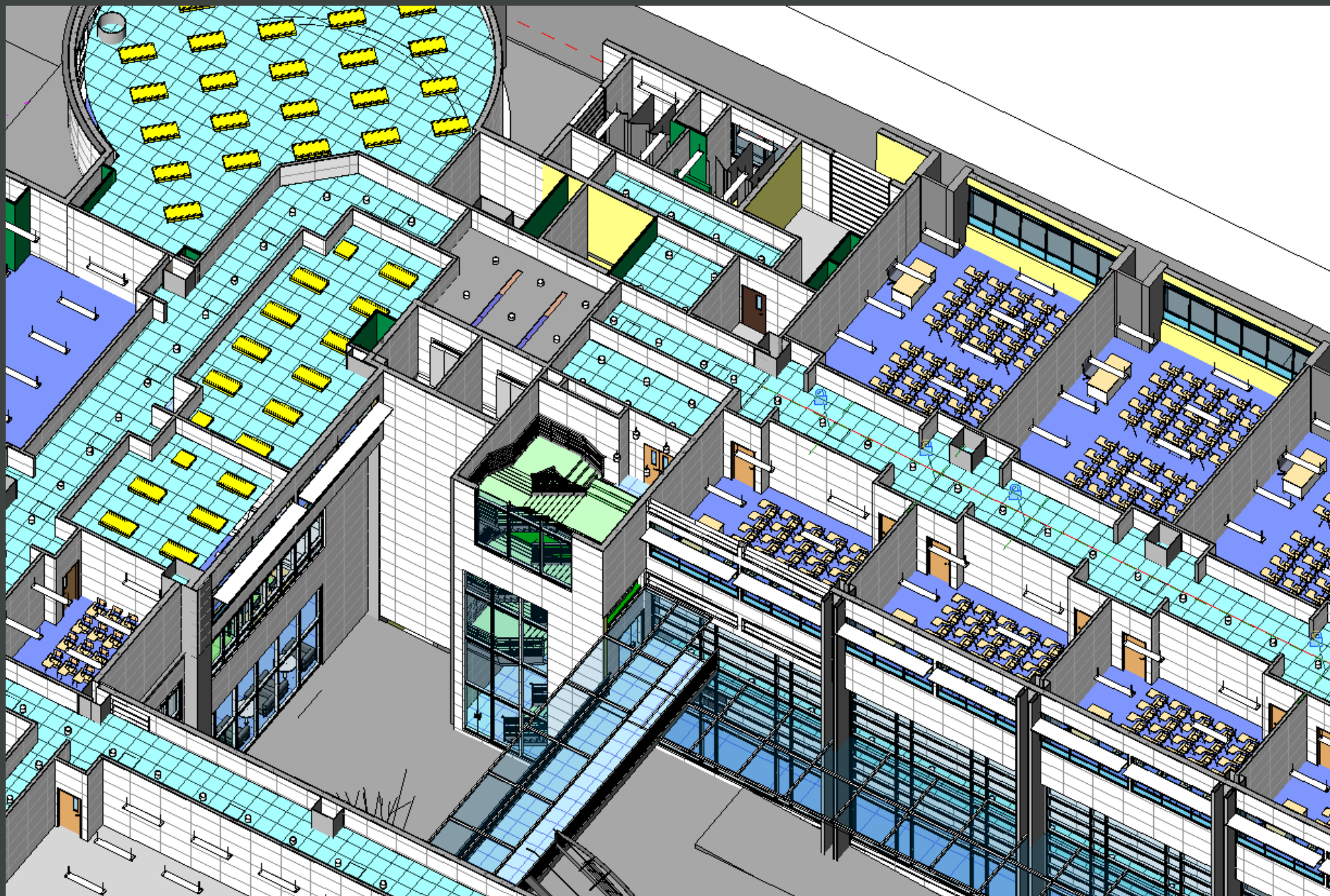
Aedas



P/D Installation

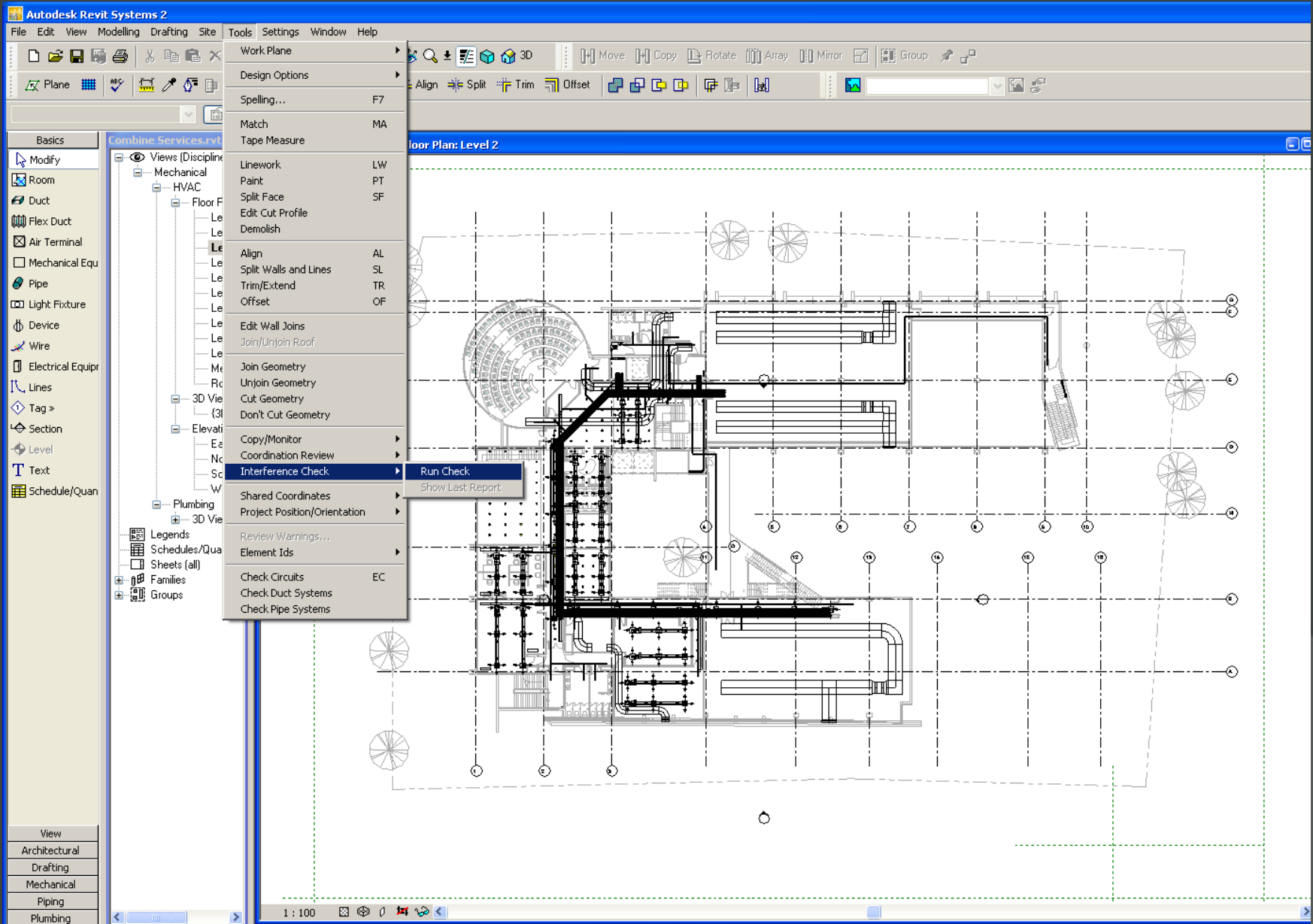
Electricity Installation





Work Flow – Clashes Report

Aedas



Run Interference Check on the current project, a selection, or a linked project.

Work Flow – Clashes Report

Aedas

The screenshot displays the Autodesk Revit Systems 2 software interface. The main window shows a 3D model of a building's mechanical system, specifically a fan coil unit (M_Fan Coil Unit) with a horizontal basic concealed plenum (M_02). The model is rendered in blue and white, showing various pipes, ducts, and structural elements. A red line highlights a specific pipe in the model.

An "Interference Report" dialog box is open in the foreground. It contains the following information:

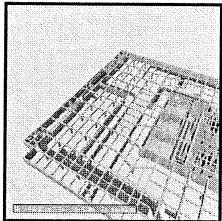
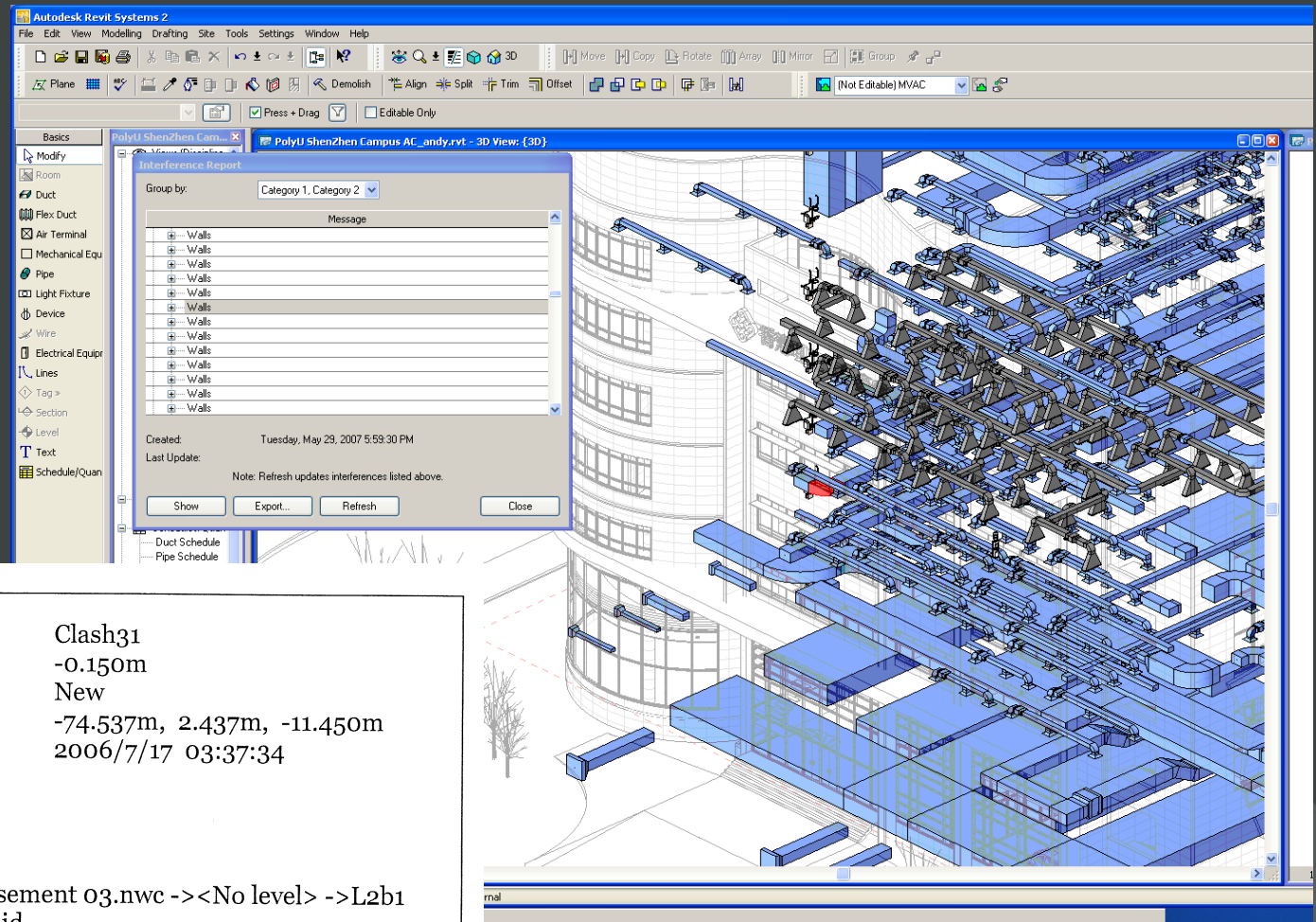
- Group by:** Category 1, Category 2
- Message:** A list of 12 items, all labeled "Pipes".
- Created:** Tuesday, May 29, 2007 6:13:54 PM
- Last Update:** (blank)
- Note:** Refresh updates interferences listed above.
- Buttons:** Show, Export..., Refresh, Close

The left sidebar shows the "Basics" tab selected, with a list of categories including Room, Duct, Flex Duct, Air Terminal, Mechanical Equ, Pipe, Light Fixture, Device, Wire, Electrical Equip, Lines, Tag, Section, Level, Text, and Schedule/Quan. The "View" tab is also visible, showing a list of views including Architectural, Drafting, Mechanical, Piping, and Plumbing.

The status bar at the bottom indicates the current view is "3D View: {3D}" and the scale is "1:150". The page number is "Page 4", and the section is "Sec 1". The current location is "4/4" at "At 3.1cm Ln 2 Col 2". The software is running in "REC TRK EXT OVR" mode, and the language is "English (U.S)".

Work Flow – Clashes Report

Aedas



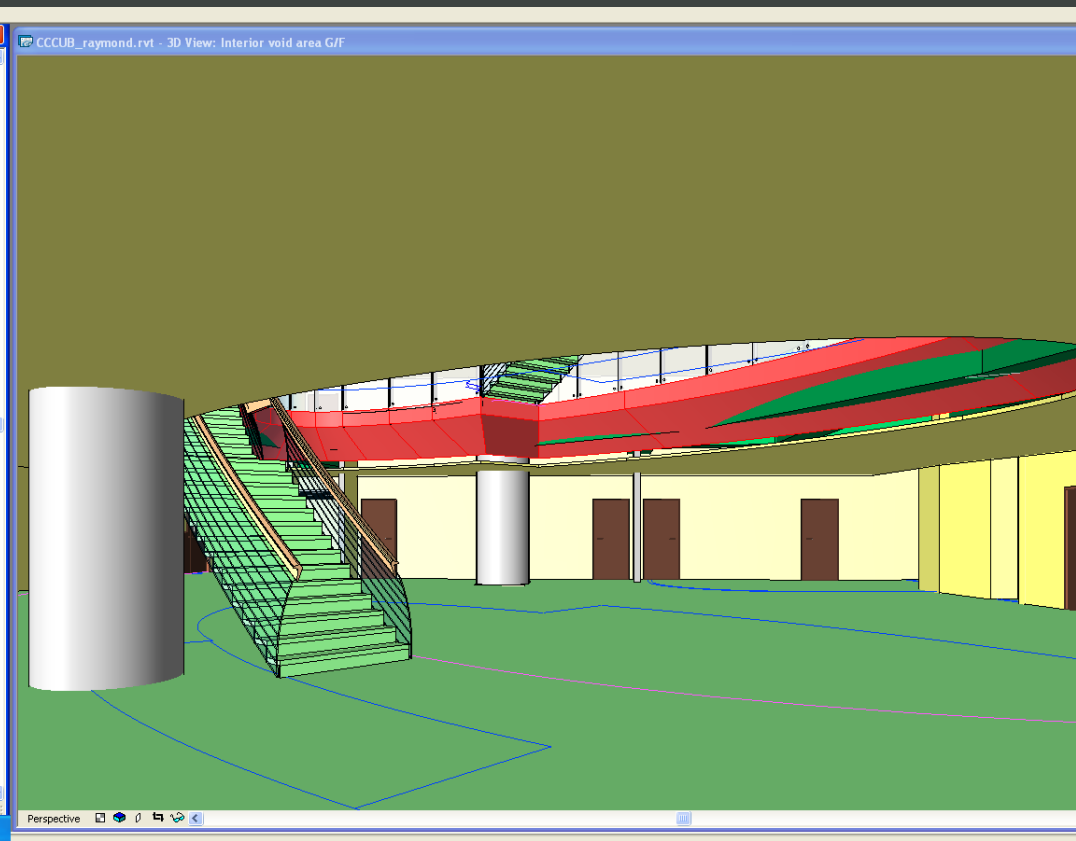
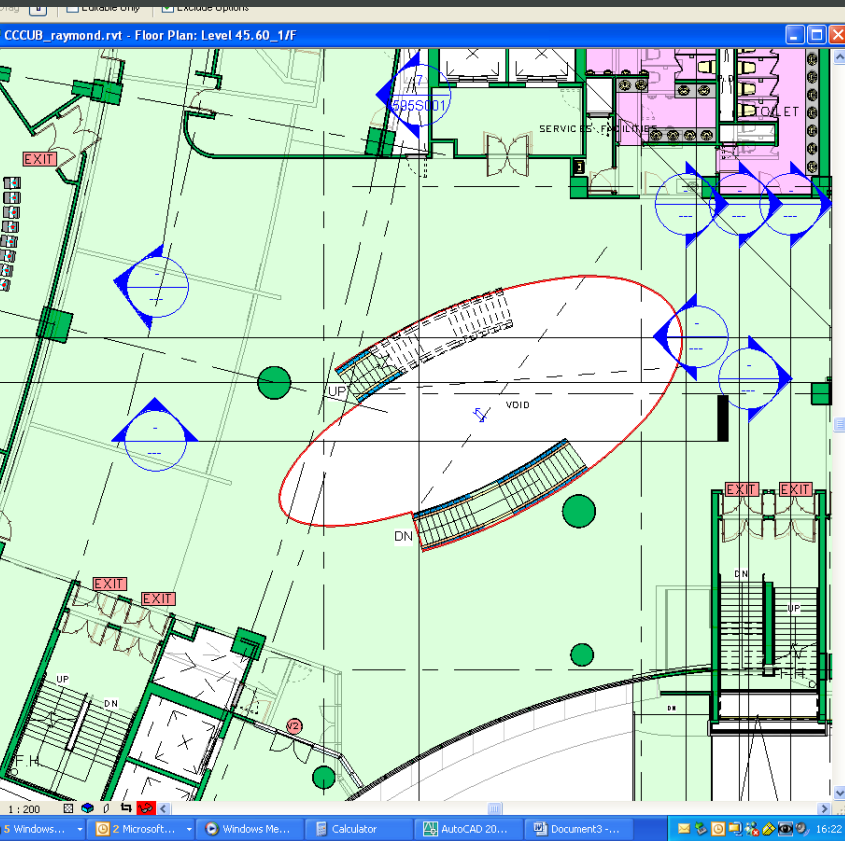
Name Clash31
Distance -0.150m
Status New
Clash Point -74.537m, 2.437m, -11.450m
Date Created 2006/7/17 03:37:34
Approved By

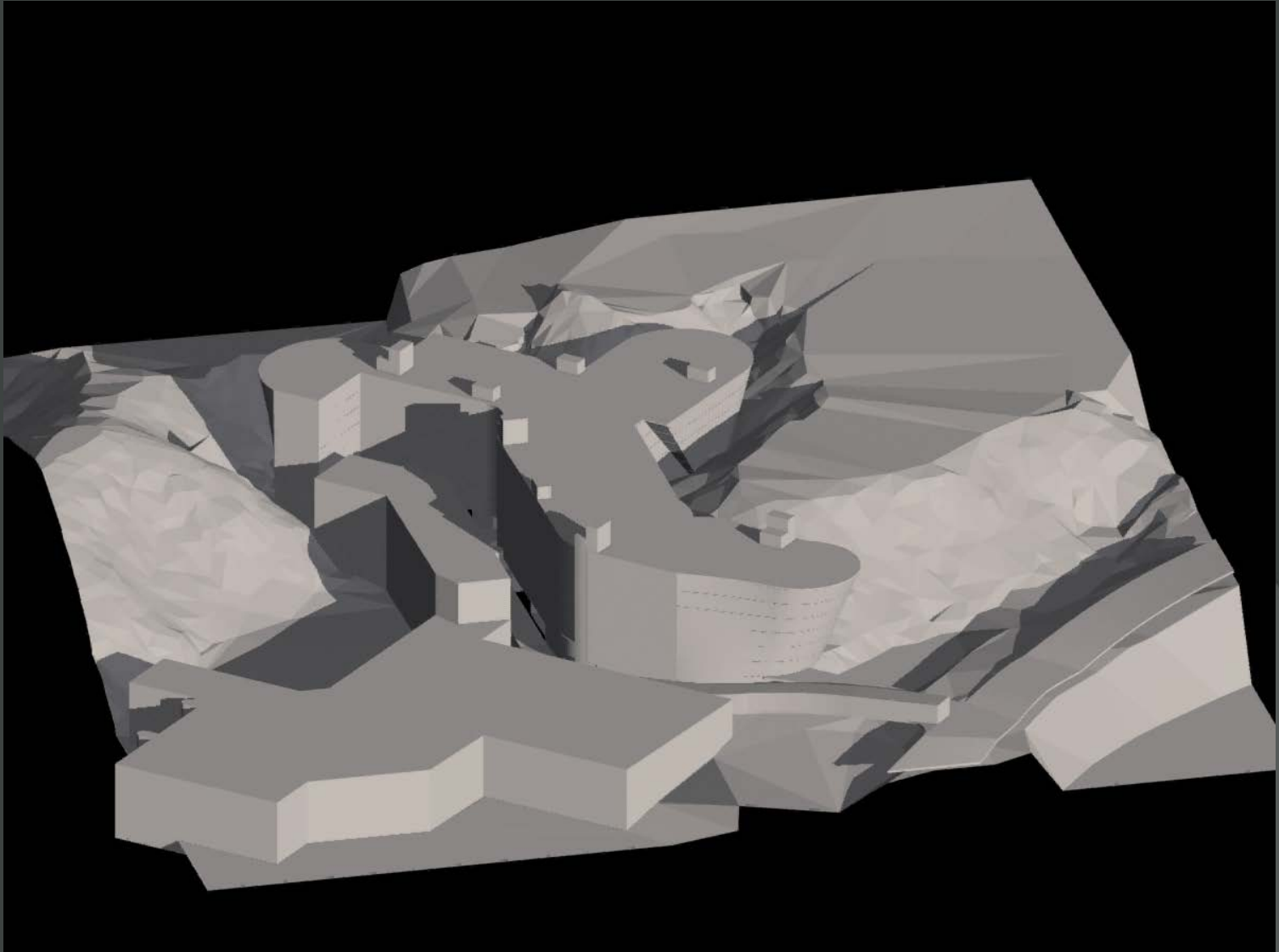
Item 1

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

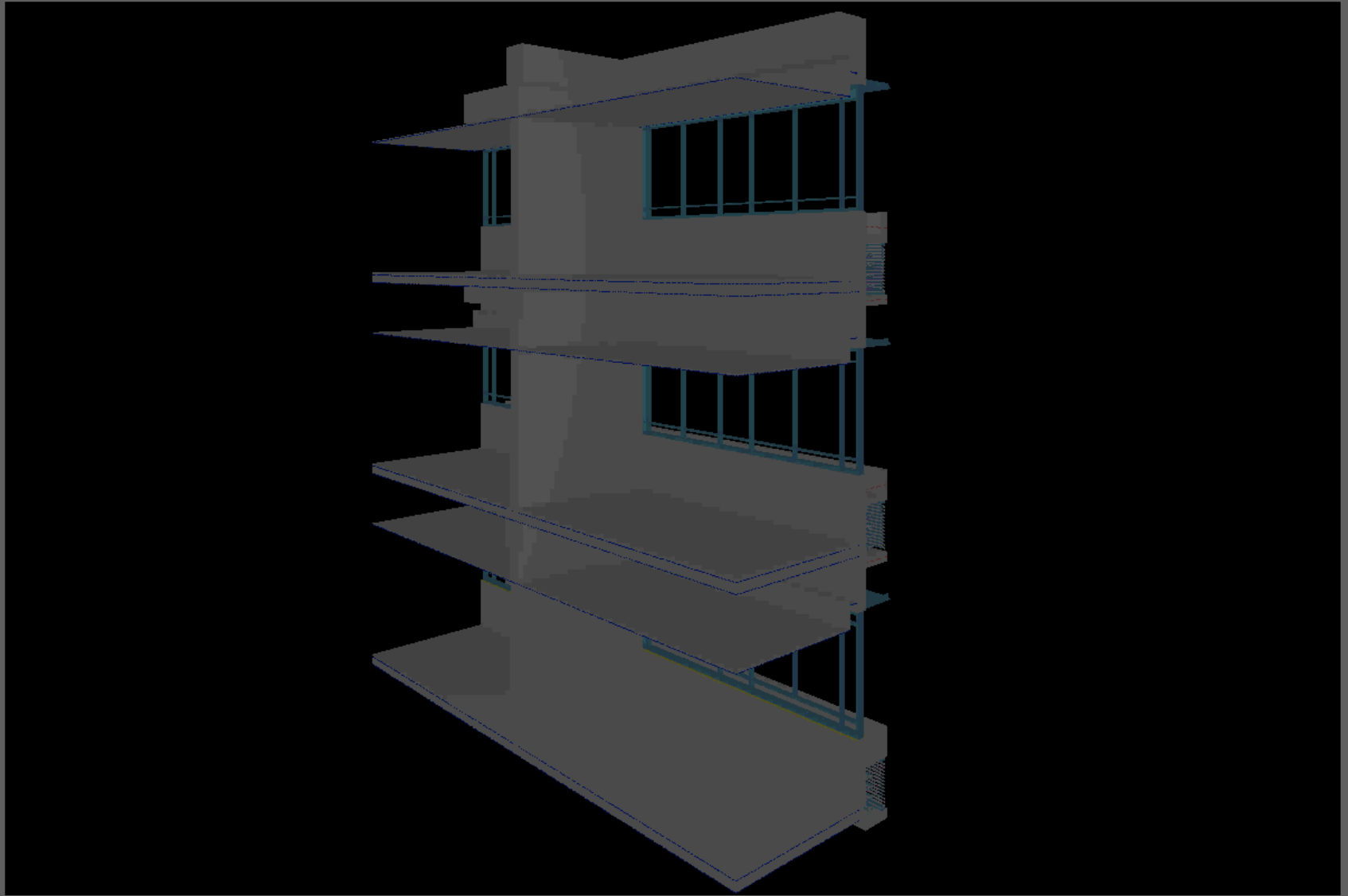
Item 2

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

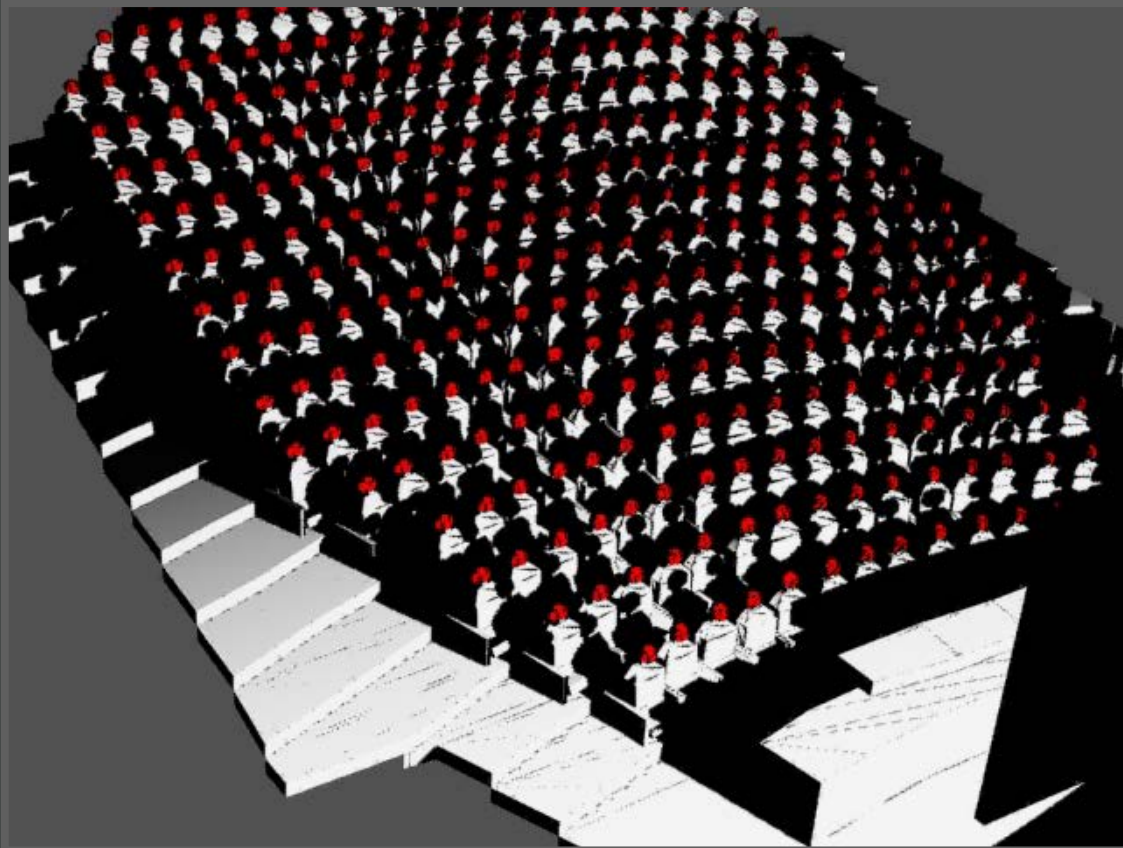




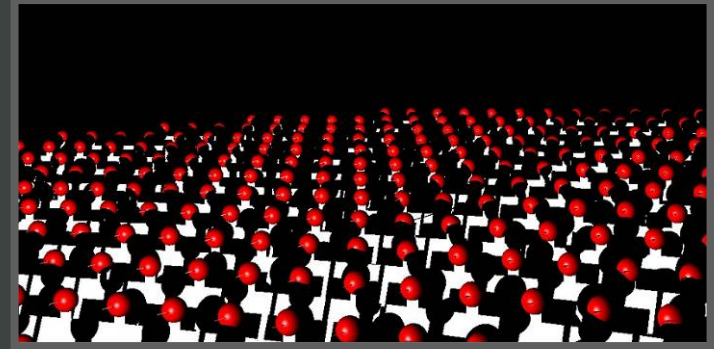
SUN STUDY



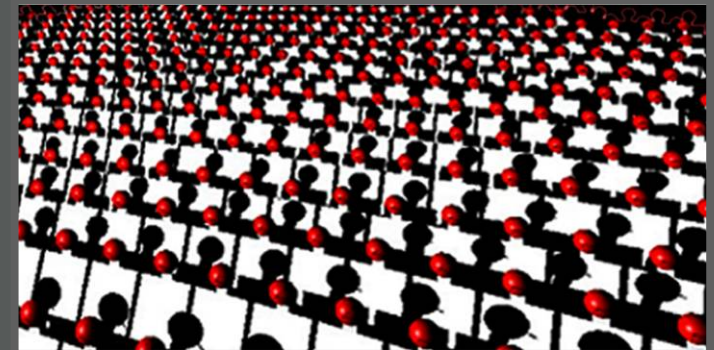
FAÇADE SOLAR STUDY
21/12/2007 7:00am – 6:00pm



Radiating Light Method



Unsatisfactory sightlines



Satisfactory sightlines



1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**

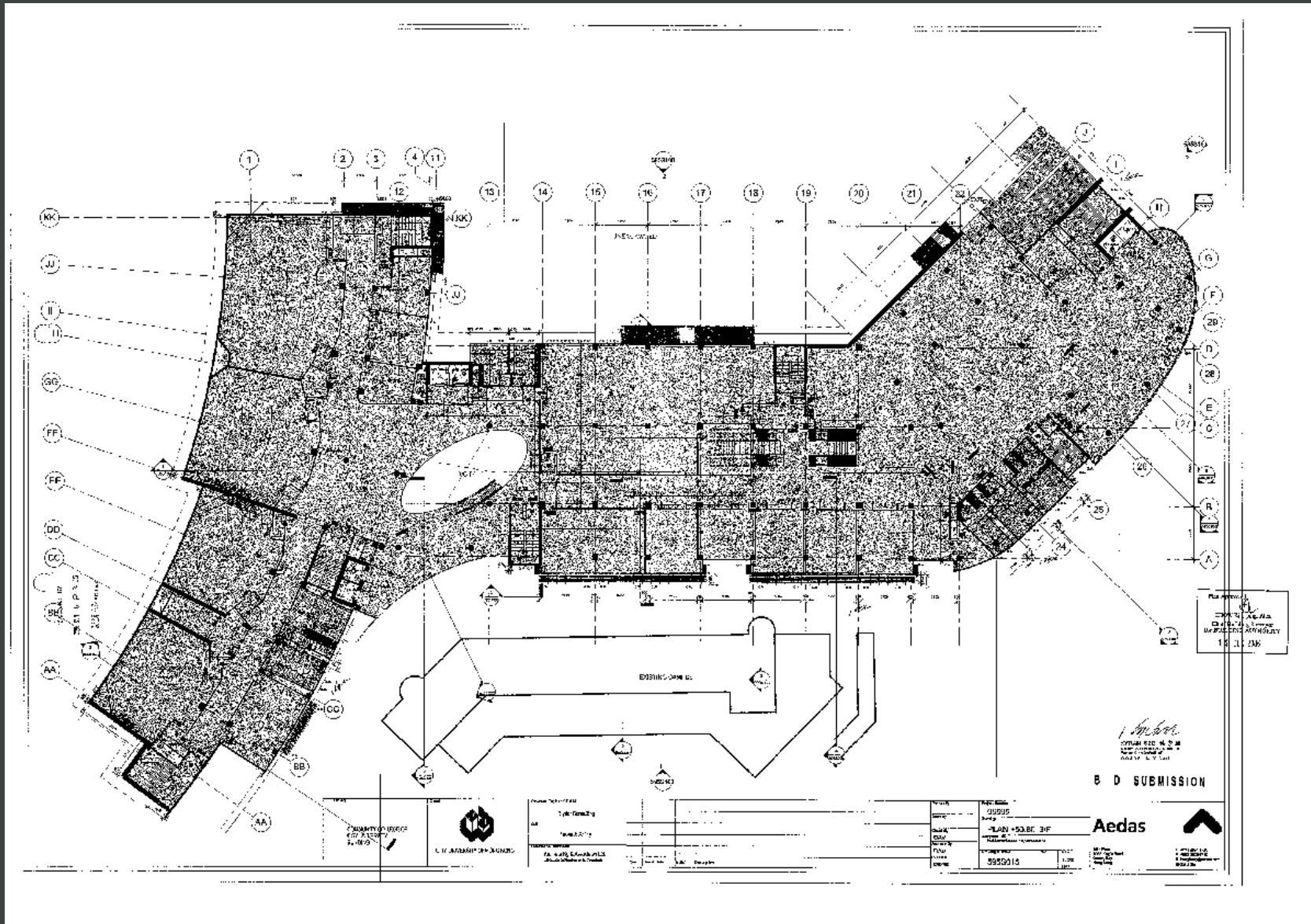


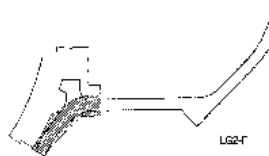
1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**



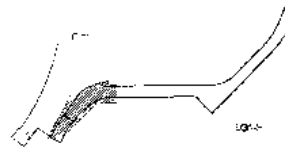
STATUTORY SUBMISSION

Aedas

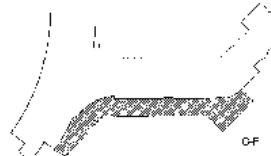




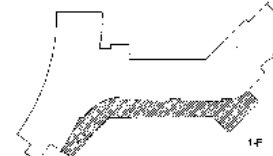
① EVA of Level 34.00_LG2/F
1:1000



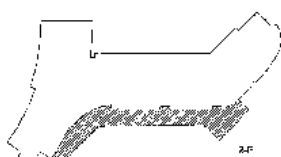
② EVA of Level 37.80, LG1/F
1:1000



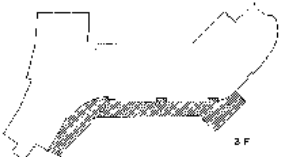
③ $\frac{\text{EVA of Level 41.60_GIF}}{1:1000}$



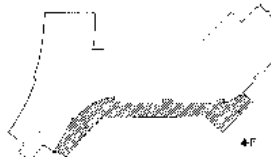
④ EVA of Level 45.60 1/F
1:1000



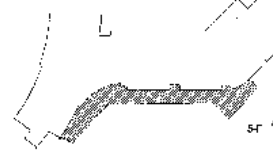
⑤ EVA of Level 49.80 2rF
1:1300



⑥ EVA of Level 53.80_3/F
1:1000

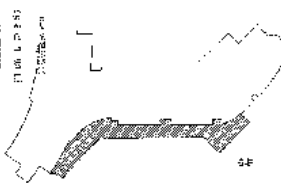


7 EVA of Level 5B.2D_4/F
1:1000



⑧ EVA of Level 62.00 5/F

B D SUBMISSION



⑨ $\frac{\text{EVA of Level 65.80}_6/\text{F}}{1:1000}$

*Hatch area represents the total length of the building facade served by the EVA

CALCULATION OF TOTAL LENGTH OF BUILDING FACADE TO BE SERVED BY EVA AND HENGCHEN FIRE OF SUCH LENGTH OVER THE TOTAL LENGTH OF ALL THE PERIMETER WALLS OF THE BUILDING

www.marine-weather.com																	
Date	Time	Lat		Long		Alt		Speed		Heading		Course		Status		Remarks	
2010-01-01	00:00	37.50	122.50	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	
2010-01-01	00:01	37.51	122.51	10.01	10.01	10.01	10.01	10.01	10.01	10.01	10.01	10.01	10.01	10.01	10.01	10.01	
2010-01-01	00:02	37.52	122.52	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	
2010-01-01	00:03	37.53	122.53	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	
2010-01-01	00:04	37.54	122.54	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	10.04	
2010-01-01	00:05	37.55	122.55	10.05	10.05	10.05	10.05	10.05	10.05	10.05	10.05	10.05	10.05	10.05	10.05	10.05	
2010-01-01	00:06	37.56	122.56	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	
2010-01-01	00:07	37.57	122.57	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	
2010-01-01	00:08	37.58	122.58	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	10.08	
2010-01-01	00:09	37.59	122.59	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	
2010-01-01	00:10	37.60	122.60	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	
2010-01-01	00:11	37.61	122.61	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	
2010-01-01	00:12	37.62	122.62	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	
2010-01-01	00:13	37.63	122.63	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	
2010-01-01	00:14	37.64	122.64	10.14	10.14	10.14	10.14	10.14	10.14	10.14	10.14	10.14	10.14	10.14	10.14	10.14	
2010-01-01	00:15	37.65	122.65	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	
2010-01-01	00:16	37.66	122.66	10.16	10.16	10.16	10.16	10.16	10.16	10.16	10.16	10.16	10.16	10.16	10.16	10.16	
2010-01-01	00:17	37.67	122.67	10.17	10.17	10.17	10.17	10.17	10.17	10.17	10.17	10.17	10.17	10.17	10.17	10.17	
2010-01-01	00:18	37.68	122.68	10.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	
2010-01-01	00:19	37.69	122.69	10.19	10.19	10.19	10.19	10.19	10.19	10.19	10.19	10.19	10.19	10.19	10.19	10.19	

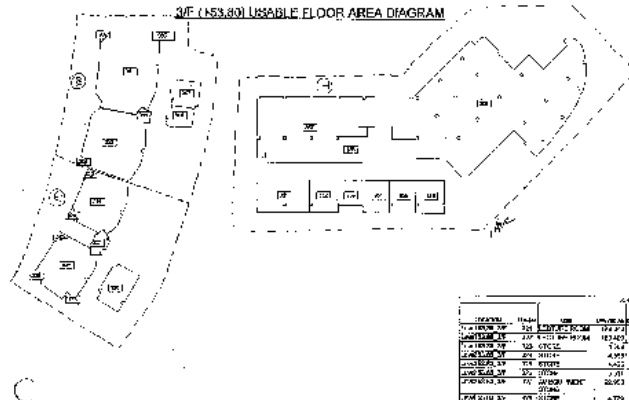
姓名	性别	出生年月	民族	籍贯	文化程度	政治面貌	工作单位	职务	备注
王德胜	男	1945.12.15	汉族	山东烟台	高中	中共党员	烟台大学	教授	
李国强	男	1952.08.22	汉族	河南郑州	大学	中共党员	河南省委	处长	
张为民	男	1958.03.10	汉族	江苏苏州	大学	中共党员	苏州大学	教授	
赵子龙	男	1965.07.05	汉族	四川成都	大学	中共党员	成都军区	团长	
陈永年	男	1970.11.18	汉族	广东广州	大学	中共党员	广东省政府	处长	
周建民	男	1975.05.01	汉族	浙江杭州	大学	中共党员	浙江大学	教授	
吴晓峰	男	1980.09.12	汉族	湖北武汉	大学	中共党员	武汉市公安局	科长	
孙志远	男	1985.02.28	汉族	湖南长沙	大学	中共党员	长沙理工大学	教授	
郑为民	男	1990.06.15	汉族	福建厦门	大学	中共党员	厦门市公安局	科长	
刘国栋	男	1995.10.03	汉族	广西桂林	大学	中共党员	桂林电子科技大学	教授	
黄永年	男	1998.04.20	汉族	江西九江	大学	中共党员	九江学院	教授	

[illegible]

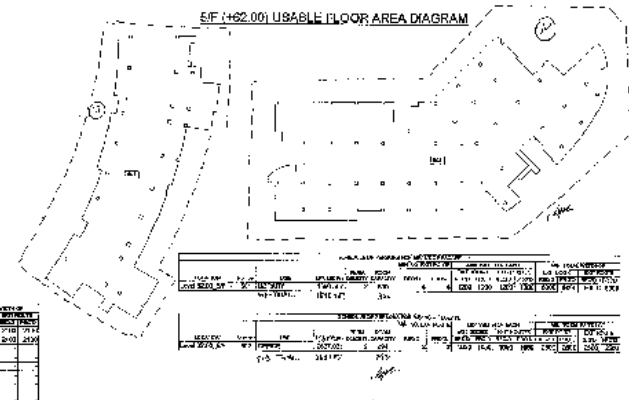
Vice President
 Chief Building Surveyor
 for B.L. O'NEILL & SONS
 1100 N. 10th St.

[illegible]

3/F (153.80) USABLE FLOOR AREA DIAGRAM

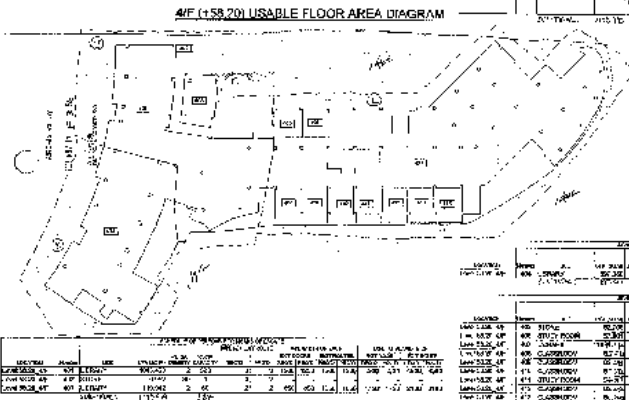
[illegible]

5/F (+62.00) USABLE FLOOR AREA DIAGRAM

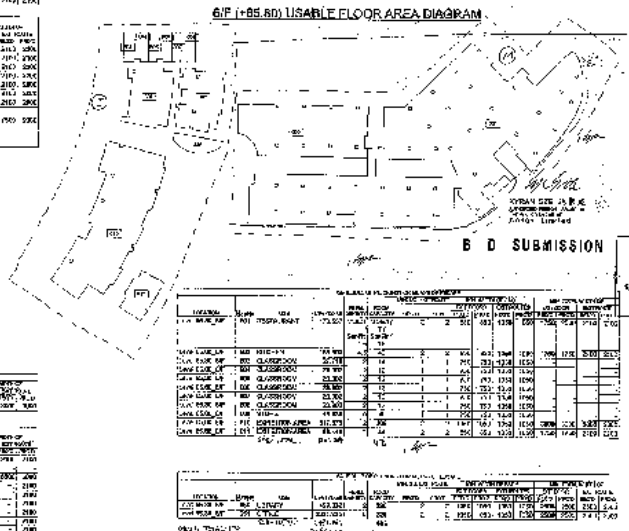


NAME		DATE		TIME		LOCATION		REMARKS	
1	JOHN DOE	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
2	JANE SMITH	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
3	JOHN DOE	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
4	JANE SMITH	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
5	JOHN DOE	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
6	JANE SMITH	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
7	JOHN DOE	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
8	JANE SMITH	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
9	JOHN DOE	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30
10	JANE SMITH	10/10/2020	10:00	10:15	10:30	10:45	11:00	11:15	11:30

4/F (+58.20) USABLE FLOOR AREA DIAGRAM

[illegible]

6/F (+85.80) USABLE FLOOR AREA DIAGRAM

[illegible]

B D SUBMISSION

70 DEC 2015

DOI: 10.1002/for
 0950-0804/01/010000-17
 © 2001 Blackwell Publishers Ltd.



UNIVERSITY OF ALABAMA

1. **Hydrocarbon**
 2. **Leakage**
 3. **Leakage**
 4. **Leakage**
 5. **Leakage**
 6. **Leakage**
 7. **Leakage**
 8. **Leakage**
 9. **Leakage**
 10. **Leakage**
 11. **Leakage**
 12. **Leakage**
 13. **Leakage**
 14. **Leakage**
 15. **Leakage**
 16. **Leakage**
 17. **Leakage**
 18. **Leakage**
 19. **Leakage**
 20. **Leakage**
 21. **Leakage**
 22. **Leakage**
 23. **Leakage**
 24. **Leakage**
 25. **Leakage**
 26. **Leakage**
 27. **Leakage**
 28. **Leakage**
 29. **Leakage**
 30. **Leakage**
 31. **Leakage**
 32. **Leakage**
 33. **Leakage**
 34. **Leakage**
 35. **Leakage**
 36. **Leakage**
 37. **Leakage**
 38. **Leakage**
 39. **Leakage**
 40. **Leakage**
 41. **Leakage**
 42. **Leakage**
 43. **Leakage**
 44. **Leakage**
 45. **Leakage**
 46. **Leakage**
 47. **Leakage**
 48. **Leakage**
 49. **Leakage**
 50. **Leakage**
 51. **Leakage**
 52. **Leakage**
 53. **Leakage**
 54. **Leakage**
 55. **Leakage**
 56. **Leakage**
 57. **Leakage**
 58. **Leakage**
 59. **Leakage**
 60. **Leakage**
 61. **Leakage**
 62. **Leakage**
 63. **Leakage**
 64. **Leakage**
 65. **Leakage**
 66. **Leakage**
 67. **Leakage**
 68. **Leakage**
 69. **Leakage**
 70. **Leakage**
 71. **Leakage**
 72. **Leakage**
 73. **Leakage**
 74. **Leakage**
 75. **Leakage**
 76. **Leakage**
 77. **Leakage**
 78. **Leakage**
 79. **Leakage**
 80. **Leakage**
 81. **Leakage**
 82. **Leakage**
 83. **Leakage**
 84. **Leakage**
 85. **Leakage**
 86. **Leakage**
 87. **Leakage**
 88. **Leakage**
 89. **Leakage**
 90. **Leakage**
 91. **Leakage**
 92. **Leakage**
 93. **Leakage**
 94. **Leakage**
 95. **Leakage**
 96. **Leakage**
 97. **Leakage**
 98. **Leakage**
 99. **Leakage**
 100. **Leakage**

Aedas



1 500 x 100 mm
P 441-50 mm
C 100 x 100 mm



1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**

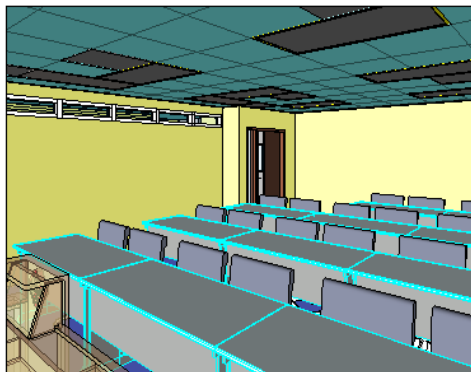


Wall Schedule							Aedas
Family	Family and Type	Length	Width	Count	Area	Volume	
Basic Wall: AED-Concrete - 50mm + Render One sides							
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.548 m2	0.027 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.548 m2	0.027 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.548 m2	0.027 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.548 m2	0.027 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.548 m2	0.027 m3	
0.548 m2: 5		1000		5	2.738 m2	0.137 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.578 m2	0.029 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.578 m2	0.029 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.578 m2	0.029 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.578 m2	0.029 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.578 m2	0.029 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.578 m2	0.029 m3	
0.578 m2: 6		1200		6	3.465 m2	0.173 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.608 m2	0.030 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.608 m2	0.030 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.608 m2	0.030 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.608 m2	0.030 m3	
0.608 m2: 4		800		4	2.430 m2	0.122 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.638 m2	0.032 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.638 m2	0.032 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	200	50	1	0.638 m2	0.032 m3	
0.638 m2: 3		600		3	1.913 m2	0.096 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	250	50	1	0.730 m2	0.037 m3	
Basic Wall	Basic Wall: AED-Concrete - 50mm + Render One sides	250	50	1	0.730 m2	0.037 m3	
0.730 m2: 2		500		2	1.460 m2	0.073 m3	

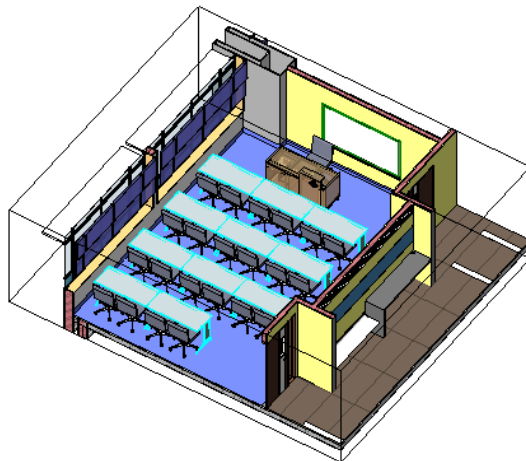
DISCIPLINES COLLABORATION



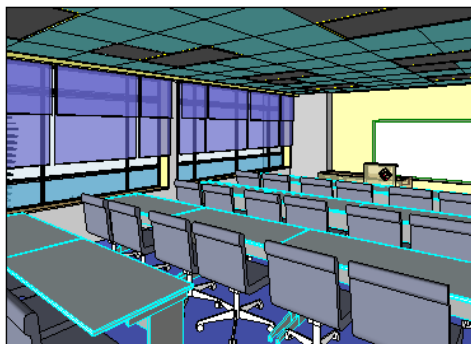
1. **Concept / Preliminary**
 - Design visualization and Presentation
 - Complex Geometry
2. **Detail Design**
 - Services Co-ordination
 - Analysis
3. **Statutory Submission**
4. **Contract Documentation**
 - Drawing Production
 - Tender Documentation
5. **Project Administration**
 - Manufacturing & Production
6. **Facility Management**



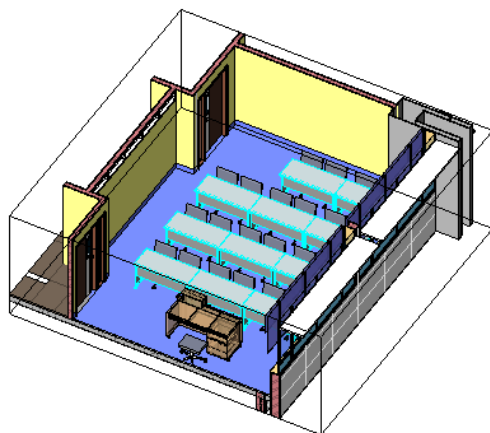
6 行政人员培训室立体示意图2



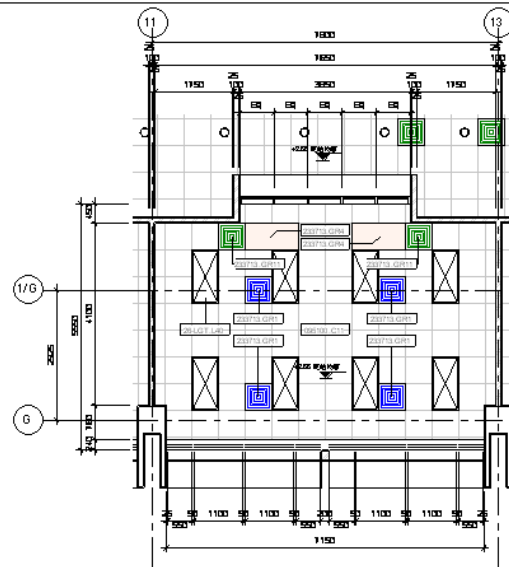
4 行政人员培训室立体剖面示意图2



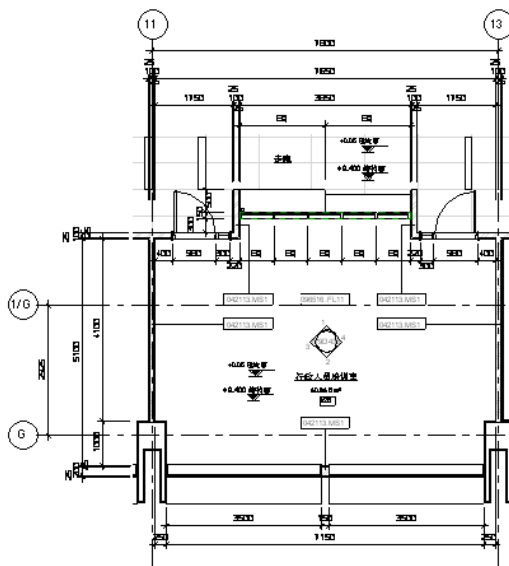
5 行政人员培训室立体示意图1



3 行政人员培训室立体剖面示意图1

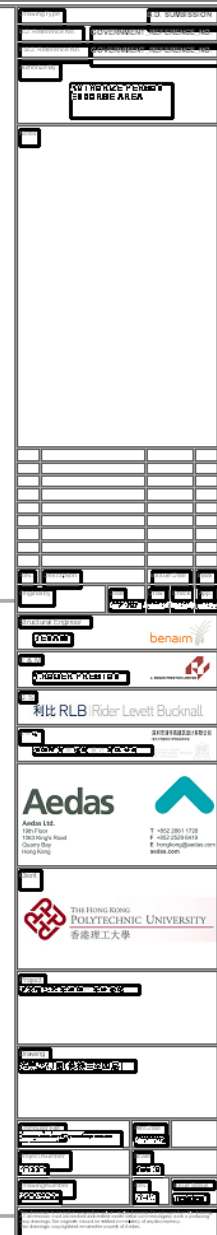
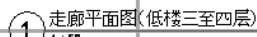
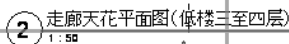
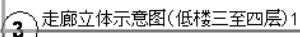


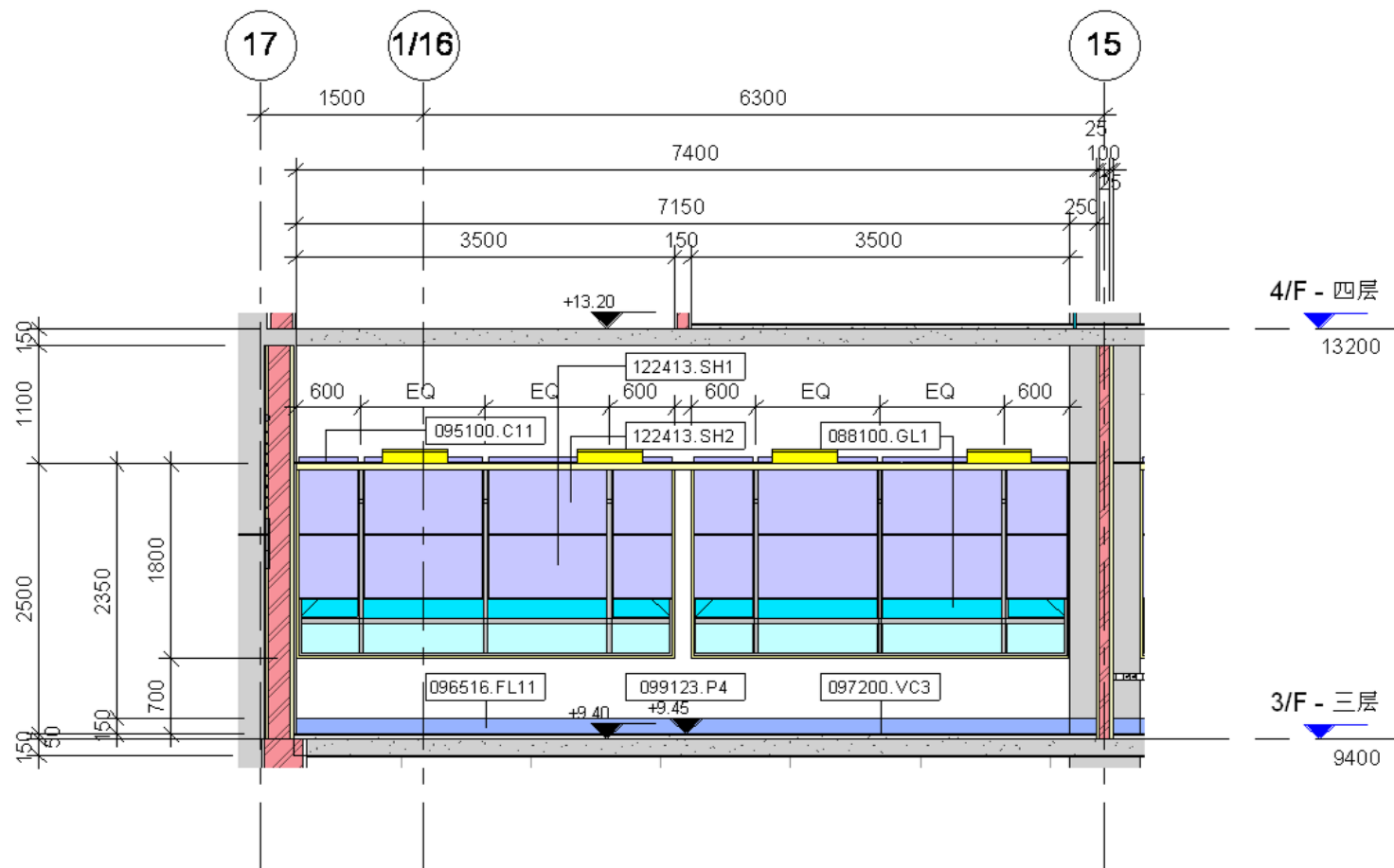
2 行政人员培训室天花平面图(高楼三层)1
1 : 50



1 行政人员培训室平面图(高楼三层)1
1 : 50

Drawing Type		S.D. SUBMISSION	
S.D. Submission No.		GOVERNMENT REFERENCE NO.	
1-2-2 Submission No.		GOVERNMENT REFERENCE NO.	
Author's Office		AUTHORIZE PERMITS EN SUBMIT AREA	
Notes			





2

行政人员培训室立面图(高楼三层)6

1:50



謝謝...