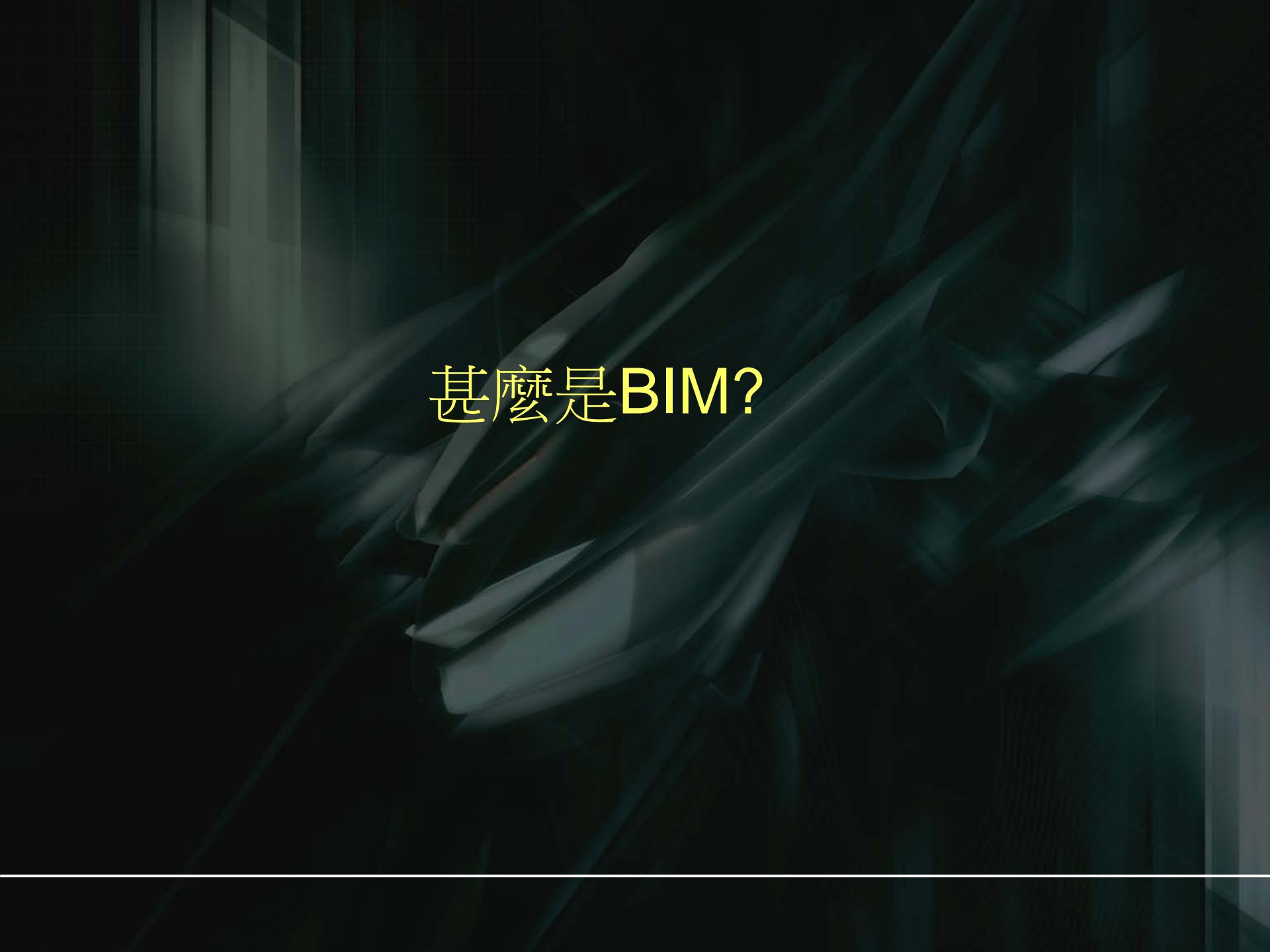


BIM为建筑界带来的冲击

冯树坚

香港建筑信息模拟学会主席 香港註冊建築師
香港大学BIM 课程讲师
A.C.I.D. 董事總經理

The background is a dark, abstract space with a grid of glowing, translucent lines that create a sense of depth and motion. The lines are primarily in shades of green, blue, and white, with some darker, shadowed areas.

甚麼是**BIM**？

B
= Building

建筑

I
= Information

资讯

M
= Modelling

模型 / 模拟

图型性资讯

Plan 平面图

Section 剖面图

Elevation 立面图

Area Diagrams 面积图

Schematic Designs 方案图

Building Plan 审批图

Structural Plans 结构图

E/M Drawings 机电图

Schematics 机电示意图

Details 大样图

Other Diagrams... 其他图

图型性资讯

Area Schedule 面积表

Finishing Schedules 装潢表

Door/Window/Louvre 门窗表

Beam/Column Schedule 梁柱表

Equipment Schedule... 机器表

Program 进度

Cost Estimate 造价表

Quantity Take Off 材料表

Bills of Quantities 物料清单

Variation Assessments 变更

建築資訊

图型性资讯

Plan 平面圖

Section 剖面圖

Elevation 面圖

Area Diagrams 面積圖

Schematic Designs 方案圖

e.g. AutoCAD,
Sizing Drawings 寬剖圖

Structural Plans 結構圖

E/M Drawings 機電圖

Schematics 機電示意圖

Details 大樣圖

Other Diagrams... 其他圖

非图型性资讯

Area Schedule 面積表

Finishing Schedules 裝潢表

Door/Window/Louvre 門窗表

Word 文書處理

Beam/Column Schedule 樑柱

Equipment Schedule... 機器表

Access (Data Base)

MS Project 進度

Cost Estimate 造價表

Quantity Take Off 材料表

Bills of Quantities 物料清單

Variation Assessments 變更

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

• Area Schedule
Finshing
Schedules

Door/Window/Louvr
Sch

Beam/Column

Schedule

Equipment

Schedule

Program

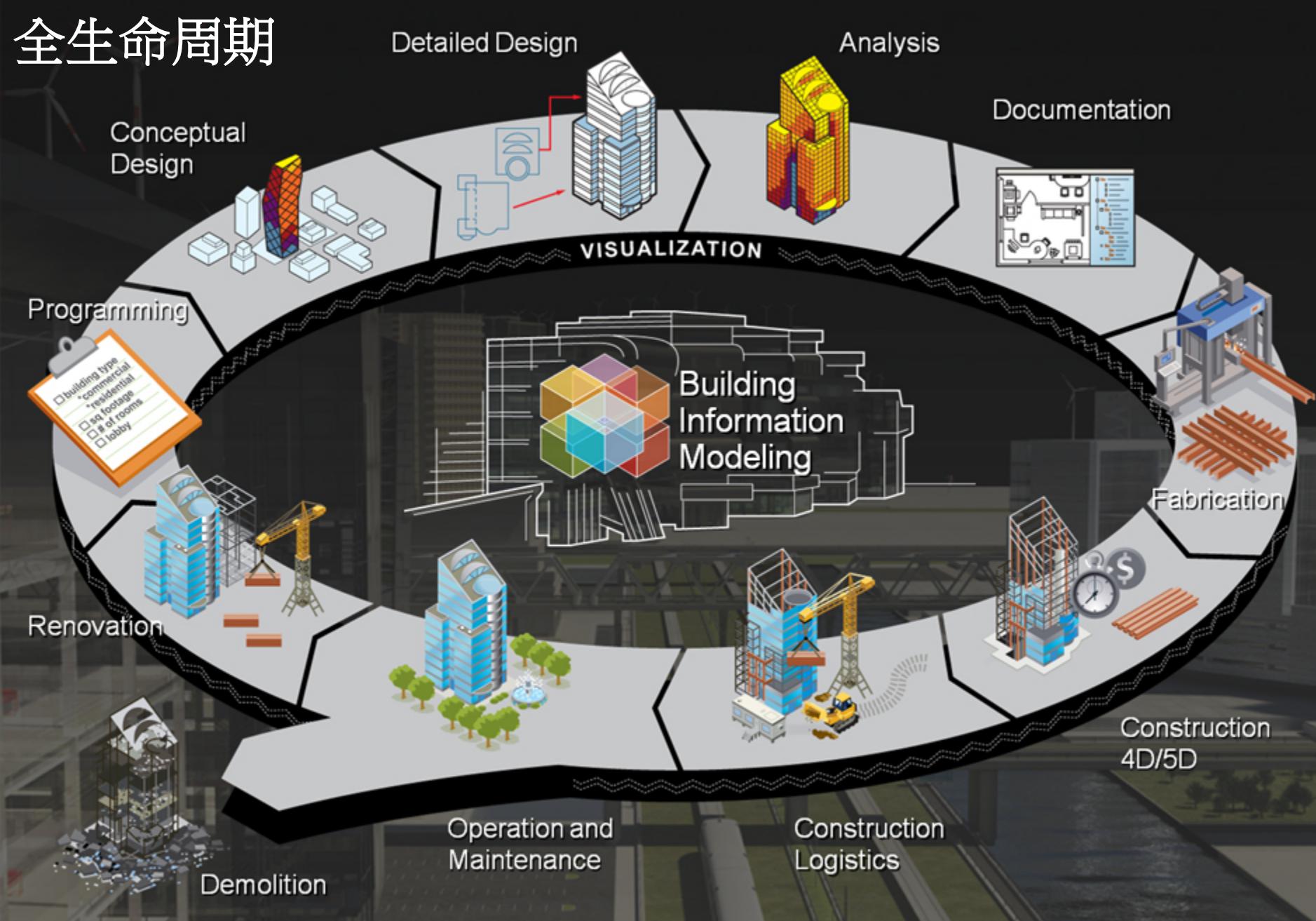
Cost Estimate

BIM

Building Information Modeling

信息化建筑模型

全生命周期

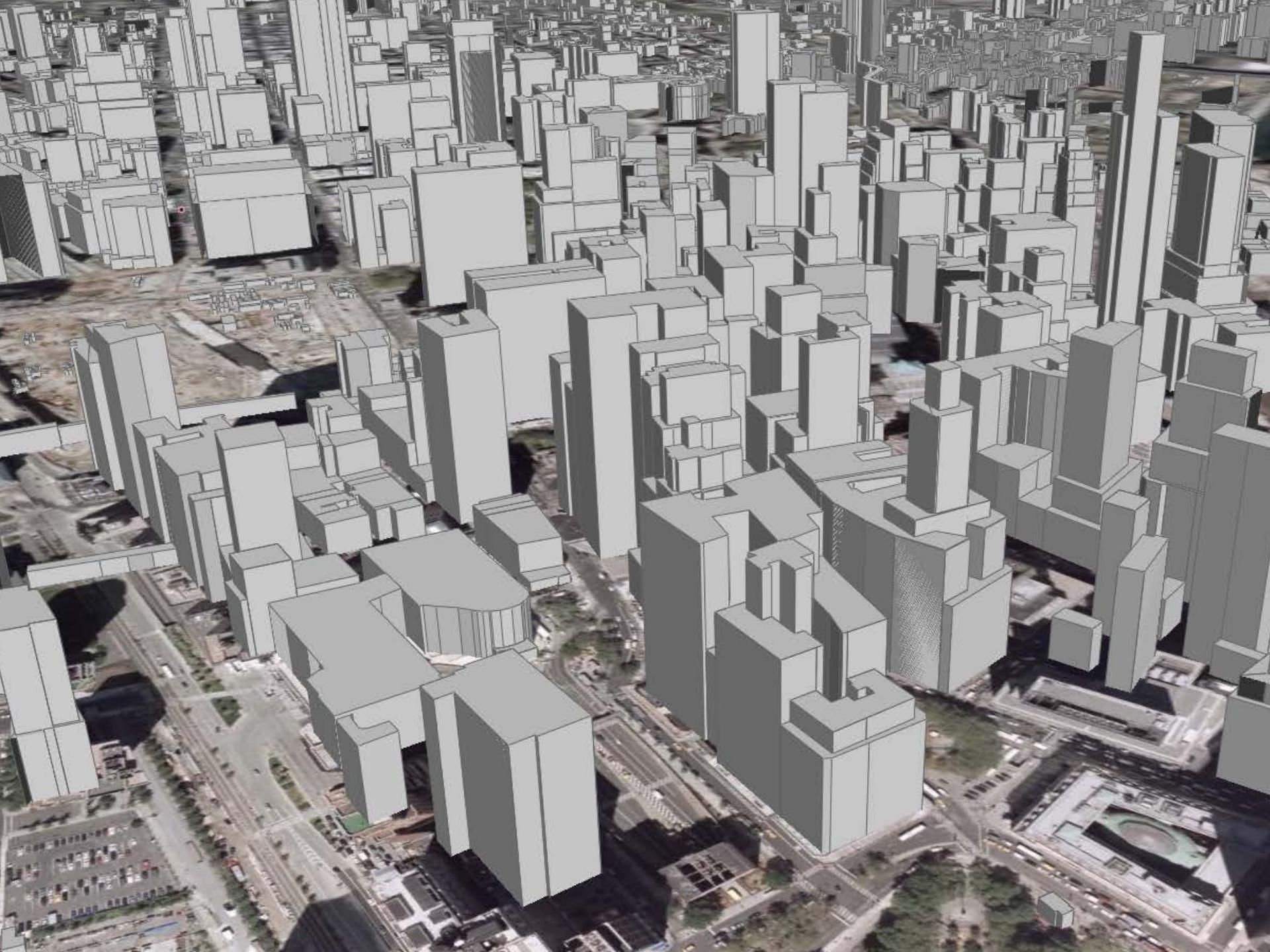


BIM为建筑界带来的冲击

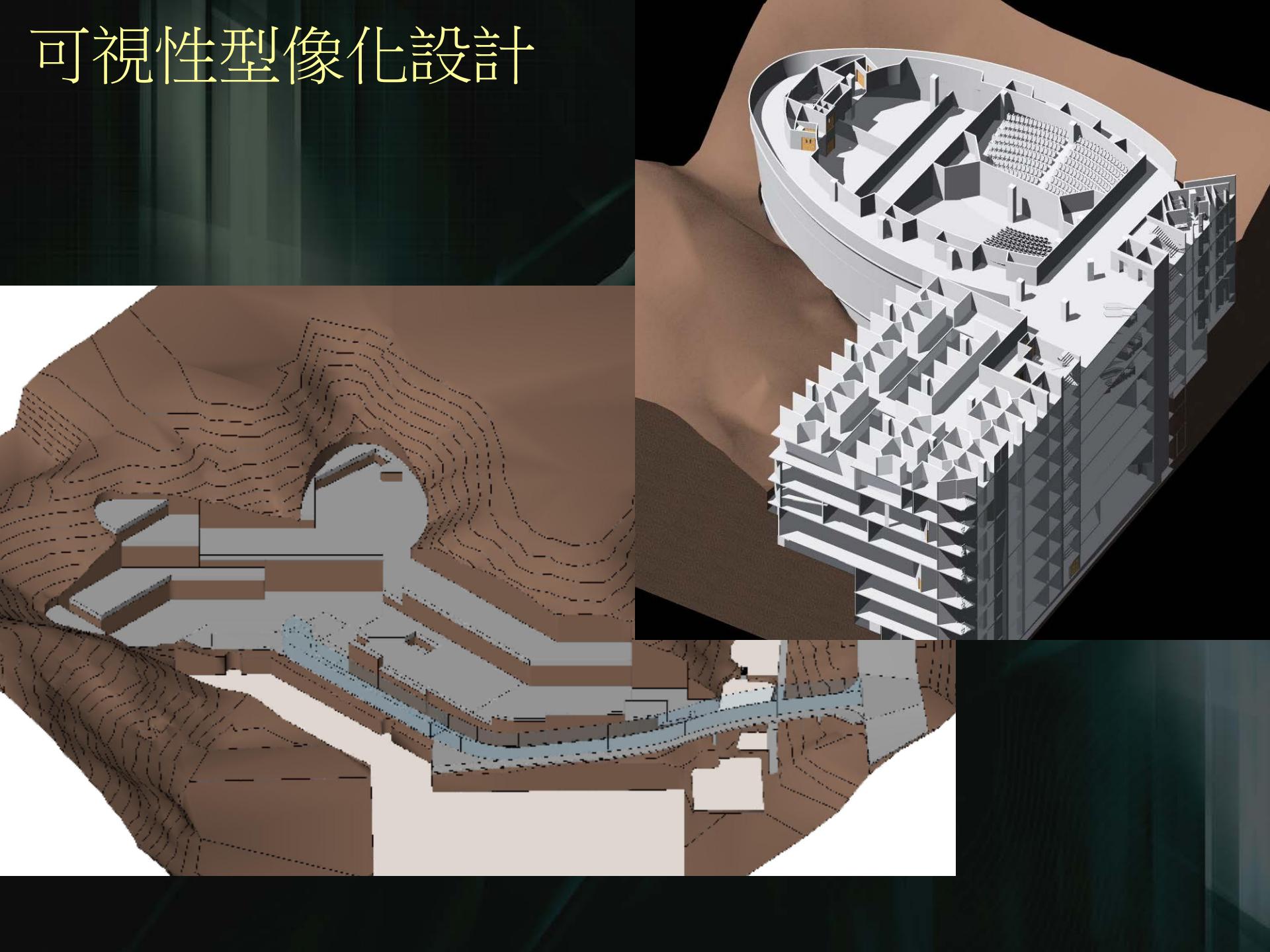
1. 可视性型像化设计
2. 图纸制作
3. 各专业协调合作
4. 物件清单及投标文件
5. 自动化送审文件
6. 科学性分析及可持续发展设计
7. 复杂几何形状建筑
8. 从建造到制造
9. 运维

BIM为建筑界带来的冲击

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可視性型像化設計







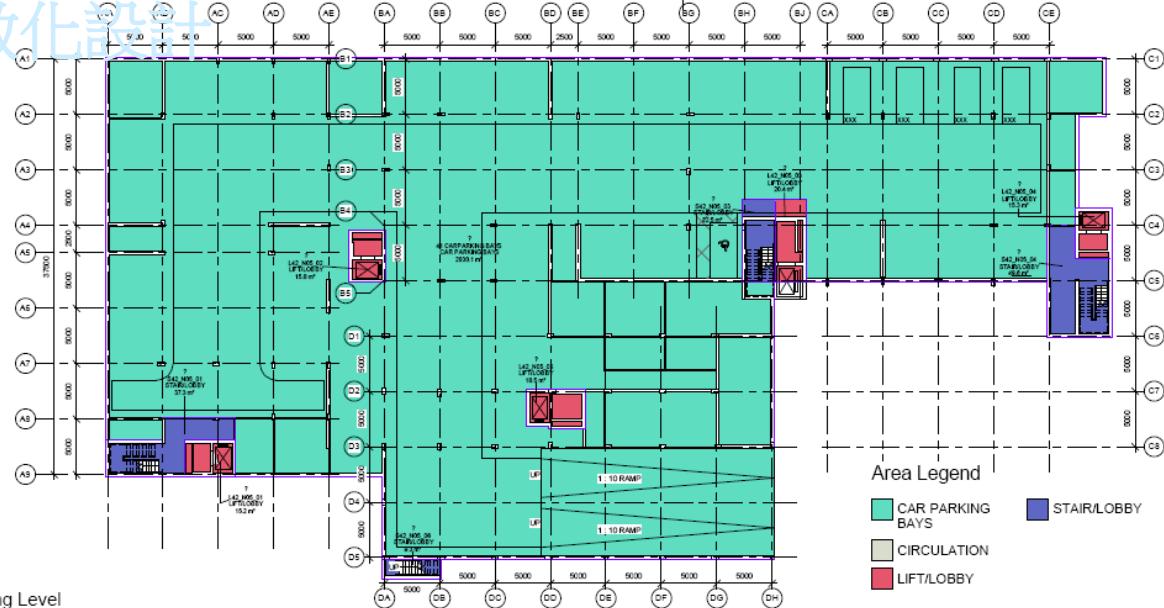
動態展示

互動展示



1 Parking Level

1:200



2 Level 1

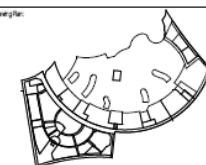
1:200



Ref Model: DESIGN SITE PLAN & MEASUREMENT (02) 1.000000 1.000000
Area of Use: No Use Area Allocated

Project: THE BLUE CITY

PHASE-1



Owner/Client: ASIT Al Sewadi Investment & Tourism Co.LLC

Developer: blue city 1 Blue City Company 1 SAOC

Project Engineer: ACE ASSOCIATED CONSULTING ENGINEERS (ACE) INTL

Design Architect/Contractor: AECO AECO Development LLC

Design Consultant: Aedas

Project Address: Section 1 - 1-4 Cty Beach Apartments

Drawing Title: NEIGHBORHOOD 05 BASEMENT & LEVEL 1 - AREA PLAN

Drawing Number: BC1-0420-PD-20A-01-000

Scale: 1:200 Date: 08/05/08 Rev: 000

Information/Revision: 07850

Designer: EL

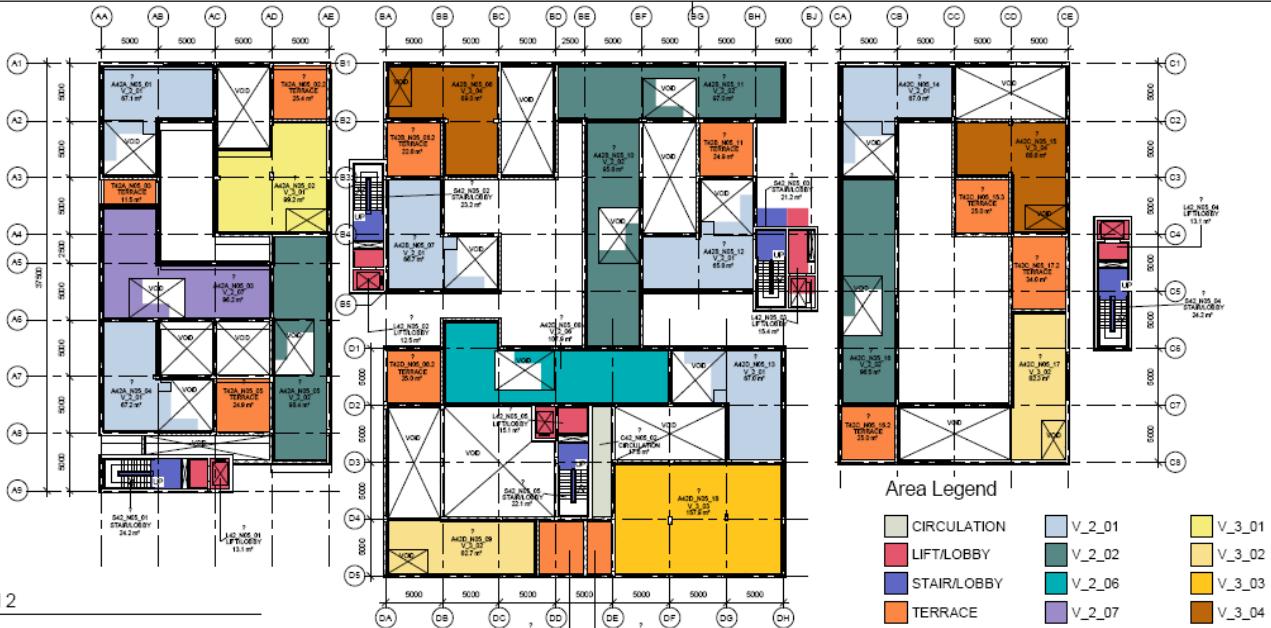
Designer: PS

Approved by AEC:

Approved by AEC:

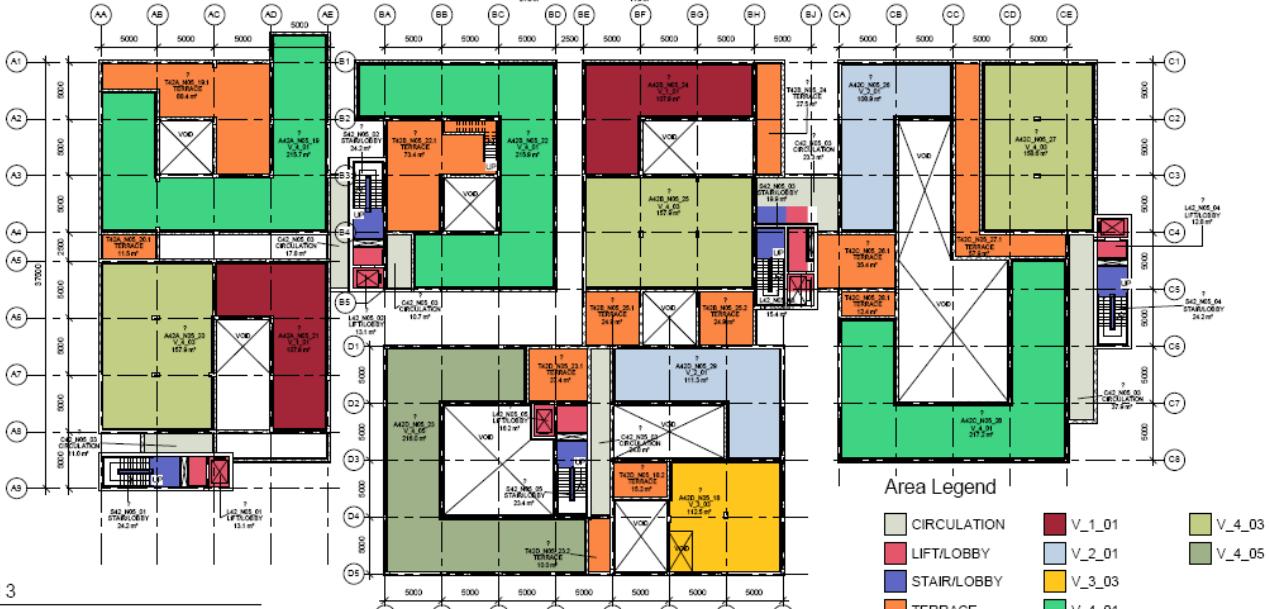
1 Level 2

1:200



2 Level 3

1:200

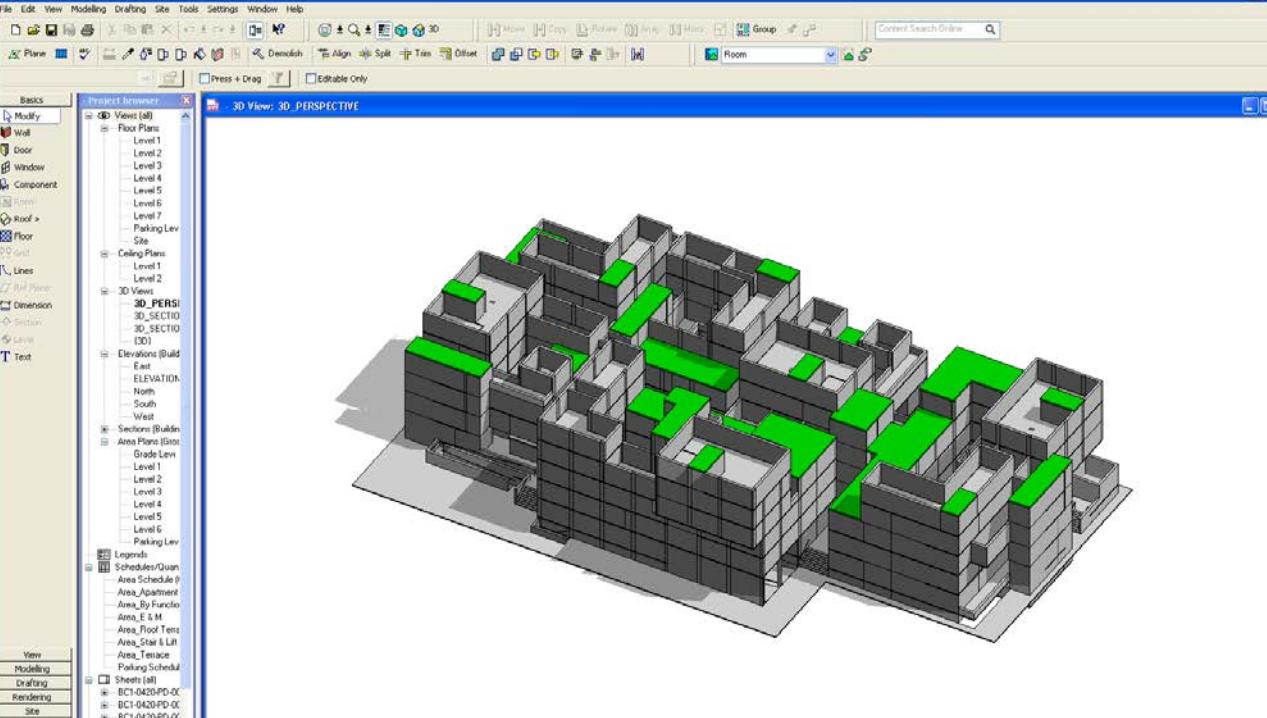


Key/Ref	
0	2
4	6
8	10
meters	
THE BLUE CITY	
PHASE-1	
Drawing No:	
REVISION (10/12/11) (10/12/11) AREA STATEMENT	
Date: 01/20/12 10:34:09	
Prepared:	
Reviewed:	
Approved:	
Accepted:	
THE BLUE CITY	
Al Sawadi Investment & Tourism Co.LLC	
Design:	
blue city 1 Blue City Company 1 SAOC	
Project Engineer:	
ACE ASSOCIATED CONSULTING ENGINEERS (ACE) INTL	
Design Architect/Contractor:	
AECO AECO Development LLC	
Design Landscape:	
Aedas	
Project Address:	
Section 1 - 1,4,2 City Beach Apartments	
Drawing No:	
NEIGHBORHOOD 05 LEVEL 2 & LEVEL 3 - AREA PLAN	
Drawing Number:	
B01-0420-PD-00A-01-051	
Scale: 1:200 Date: 08/05/08 Rev: 000	
Submitter's Project Number:	
07950	
Design By:	
Drawn By:	
Reviewed By:	
Approved By:	
Accepted By:	



RELATIVE DESIGN (1:100) PLAN MEASUREMENT
Date: 08/05/08 L. SHAMS
Drawing No: 000
Project: THE BLUE CITY
PHASE-1
Drawing Plan: THE BLUE CITY
PHASE-1
Drawing Title: THE BLUE CITY
PHASE-1
Drawing Number: BC1-0420-PD-00A-01-062
Scale: 1: 200 (45' 0" W x 0' 0" H) (0' 0" W x 0' 0" H)
Drawing Author: 07850
Designer: EL
Drawn By: PS
Approved By: RGD
Approved By: ARI



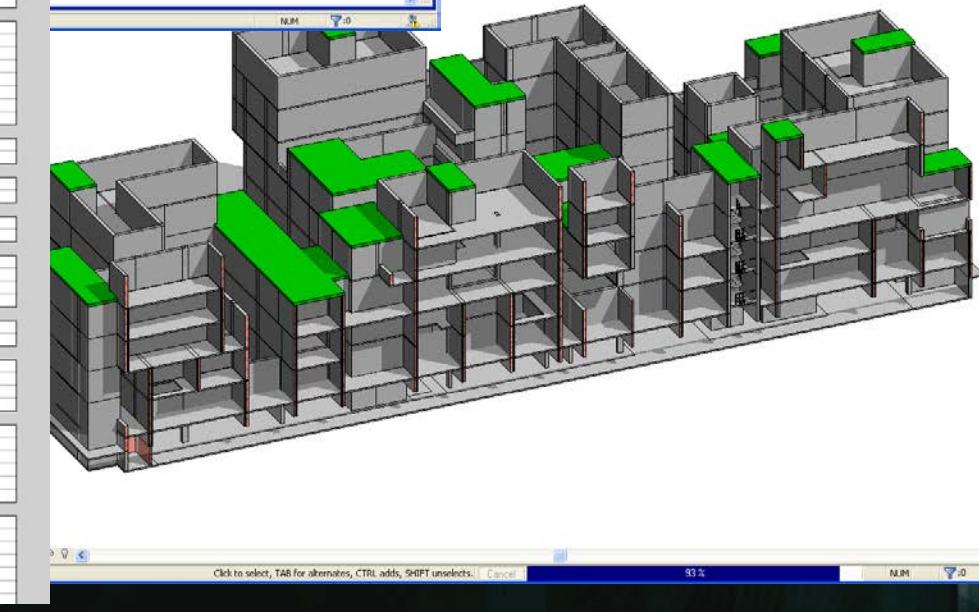


Project Browser (Bottom):

- Views (all):
- Floor Plans: Level 1, Level 2, Level 3, Level 4, Level 5, Level 6, Level 7, Parking Lev, Site.
- Ceiling Plans: Level 1, Level 2.
- 3D Views: 3D_PERSI, 3D_SECTIO, 3D_SECTIO (3D).
- Elevations (Build): East, ELEVATION, North, South, West.
- Sections (Build): Area Plans (Bos), Grade Lev, Level 1, Level 2, Level 3, Level 4, Level 5, Level 6, Parking Lev.
- Legends: Area Schedule, Area_Apartment, Area_By_Func, Area_E_M, Area_Floor_Tens, Area_Stair_Lift, Area_Terrace, Parking Schedule, Sheets (all), BCI-1420-PD-0X, BCI-1420-PD-0X, RC1-1420-PD-0X.

Area_By_Functions (Table):

Level	Number	FP Number	ABD Number	Name	Area
Level 1	A42A_N05_05		A42A_N05_05	V_2_02	79.2
Level 1	A42B_N05_10		A42B_N05_10	V_2_02	80.7
Level 1	A42B_N05_11		A42B_N05_11	V_2_02	80.7
Level 1	A42C_N05_16		A42C_N05_16	V_2_02	80.3
Level 2	A42A_N05_05		A42A_N05_05	V_2_02	88.4
Level 2	A42B_N05_10		A42B_N05_10	V_2_02	95.8
Level 2	A42B_N05_11		A42B_N05_11	V_2_02	97.0
Level 2	A42C_N05_16		A42C_N05_16	V_2_02	96.5
V_2_02_6					708.5
Level 1	A42D_N05_08		A42D_N05_08	V_2_06	81.5
Level 1	A42D_N05_08		A42D_N05_08	V_2_06	109.4
V_2_06_2					190.9
Level 1	A42A_N05_03		A42A_N05_03	V_2_07	80.2
Level 2	A42A_N05_03		A42A_N05_03	V_2_07	96.2
V_2_07_2					176.4
Level 1	A42A_N05_02		A42A_N05_02	V_3_01	159.0
Level 2	A42A_N05_02		A42A_N05_02	V_3_01	99.2
V_3_01_2					257.2
Level 1	A42C_N05_17		A42C_N05_17	V_3_02	187.3
Level 1	A42D_N05_09		A42D_N05_09	V_3_02	187.5
Level 2	A42C_N05_17		A42C_N05_17	V_3_02	82.3
Level 2	A42D_N05_09		A42D_N05_09	V_3_02	82.7
V_3_02_4					357.8
Level 2	A42D_N05_18		A42D_N05_18	V_3_03	157.9
Level 3	A42D_N05_18		A42D_N05_18	V_3_03	112.5
V_3_03_2					270.4
Level 1	A42B_N05_06		A42B_N05_06	V_3_04	157.9
Level 1	A42C_N05_15		A42C_N05_15	V_3_04	157.0
Level 2	A42B_N05_06		A42B_N05_06	V_3_04	89.0
Level 2	A42C_N05_15		A42C_N05_15	V_3_04	88.8
V_3_04_4					492.5
Level 3	A42A_N05_19		A42A_N05_19	V_4_01	215.7
Level 3	A42B_N05_22		A42B_N05_22	V_4_01	215.9
Level 3	A42C_N05_26		A42C_N05_26	V_4_01	217.2
Level 4	A42A_N05_19		A42A_N05_19	V_4_01	91.5
Level 4	A42B_N05_22		A42B_N05_22	V_4_01	92.1
Level 4	A42C_N05_26		A42C_N05_26	V_4_01	91.5
V_4_01_6					913.9
Level 3	A42A_N05_20		A42A_N05_20	V_4_03	157.9
Level 3	A42B_N05_25		A42B_N05_25	V_4_03	157.9
Level 3	A42C_N05_27		A42C_N05_27	V_4_03	158.6
Level 4	A42A_N05_20		A42A_N05_20	V_4_03	130.8
Level 4	A42B_N05_25		A42B_N05_25	V_4_03	130.8
Level 4	A42C_N05_27		A42C_N05_27	V_4_03	130.5
Level 4	A42D_N05_30		A42D_N05_30	V_4_03	159.9

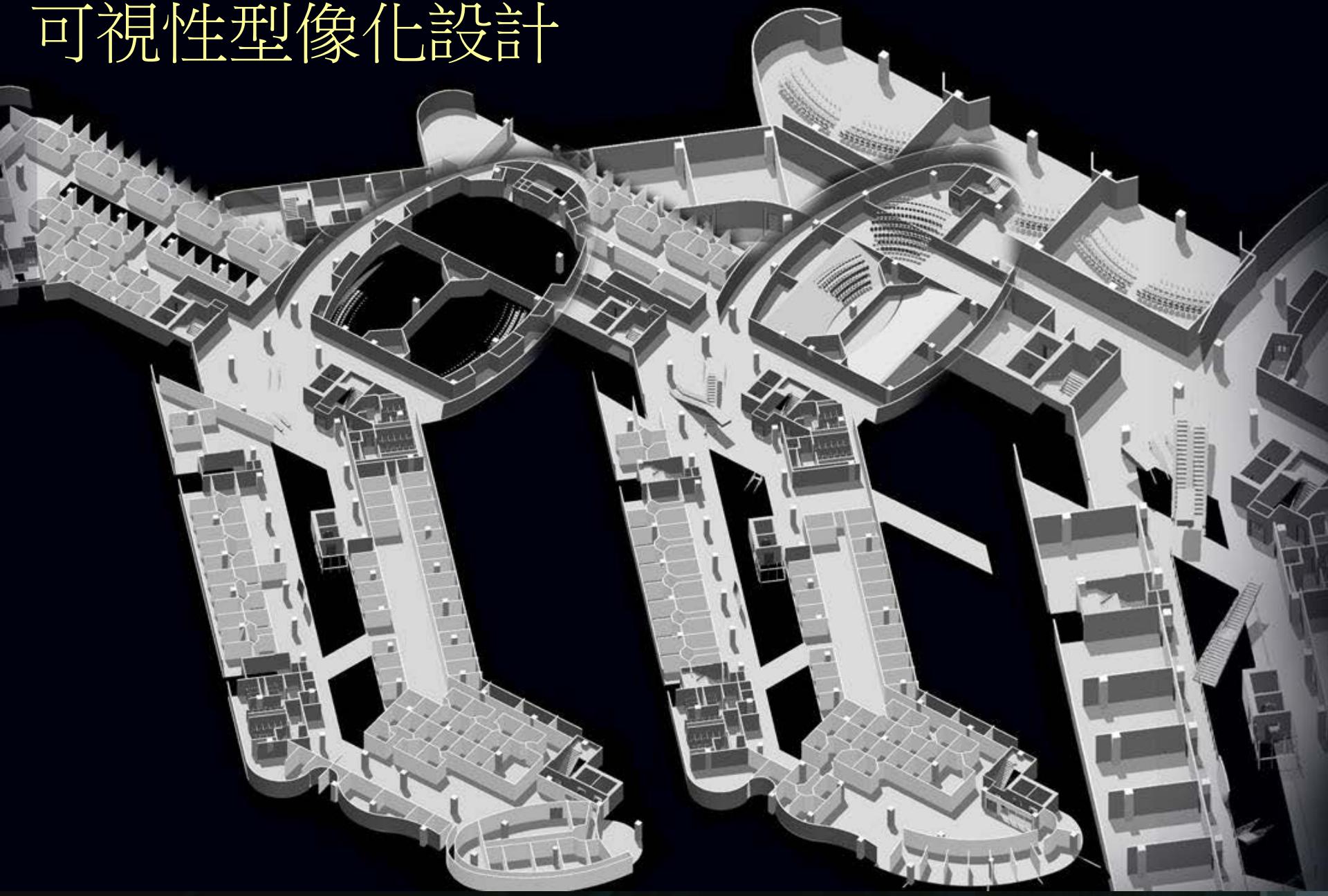


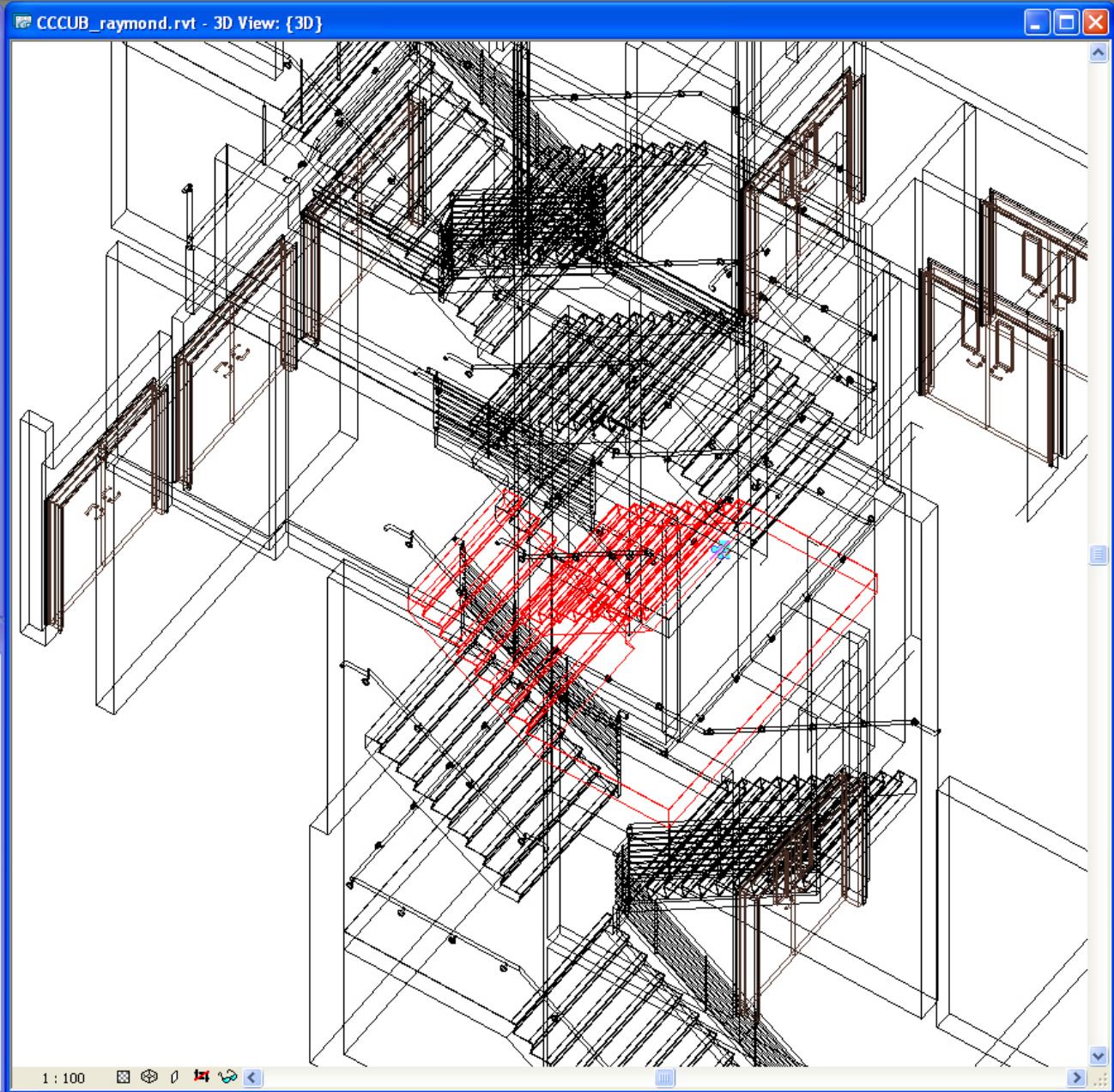
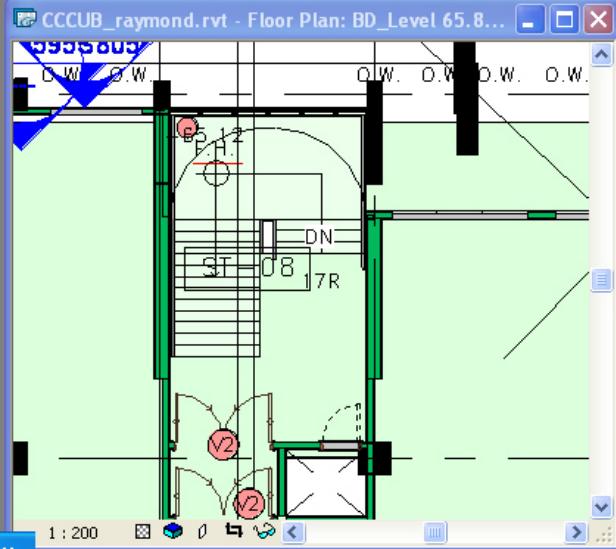
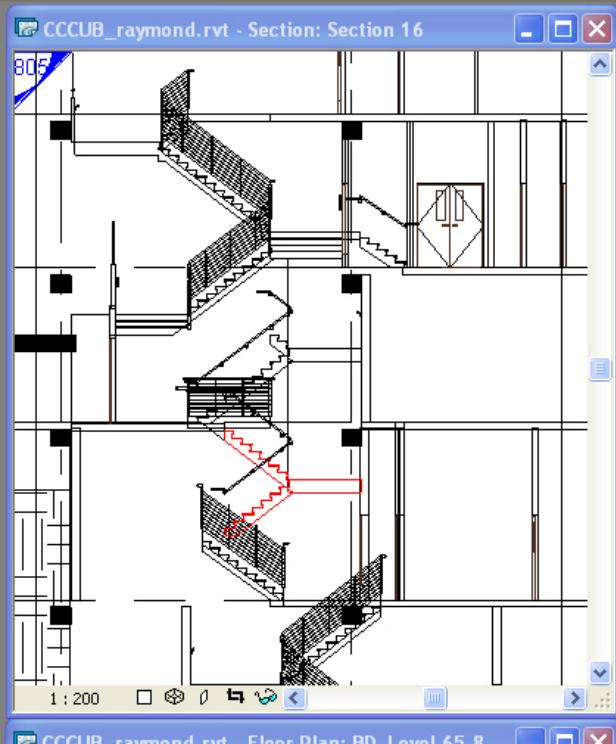
可視性型像化設計

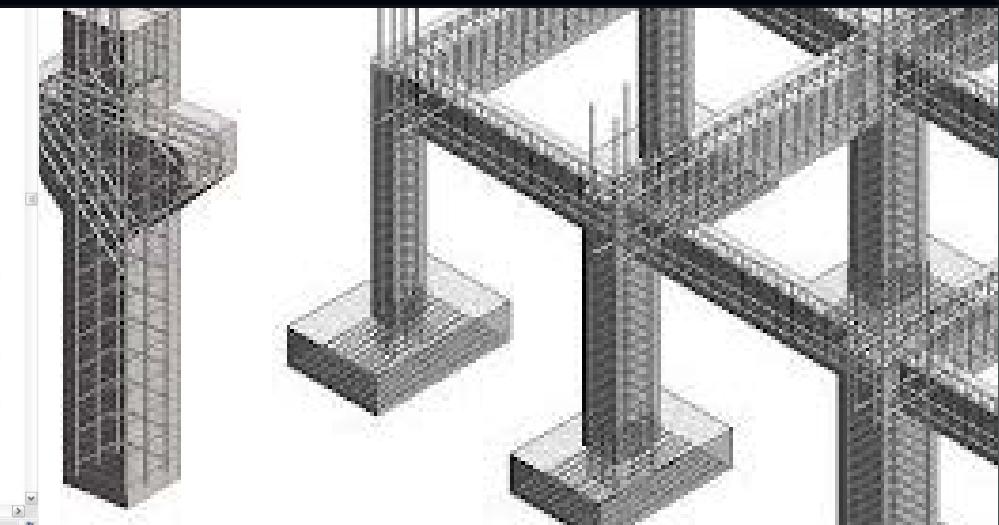
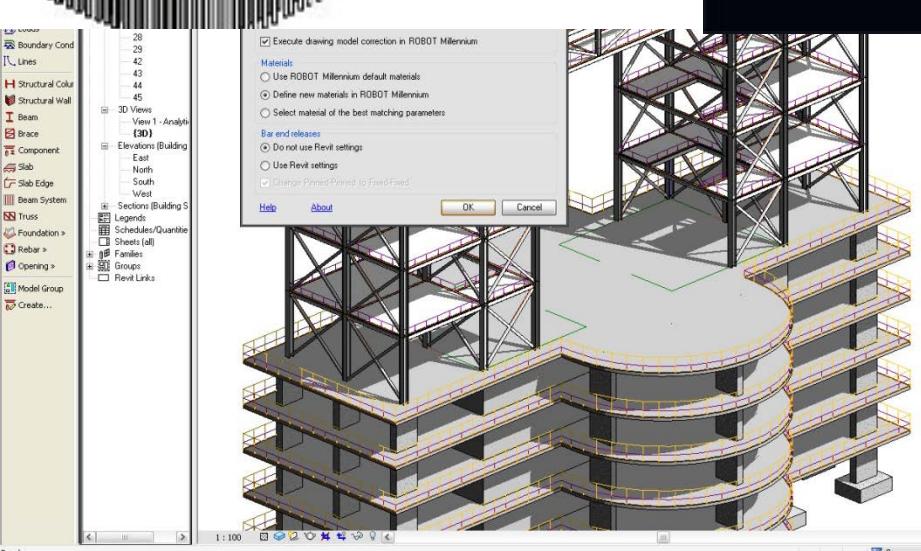
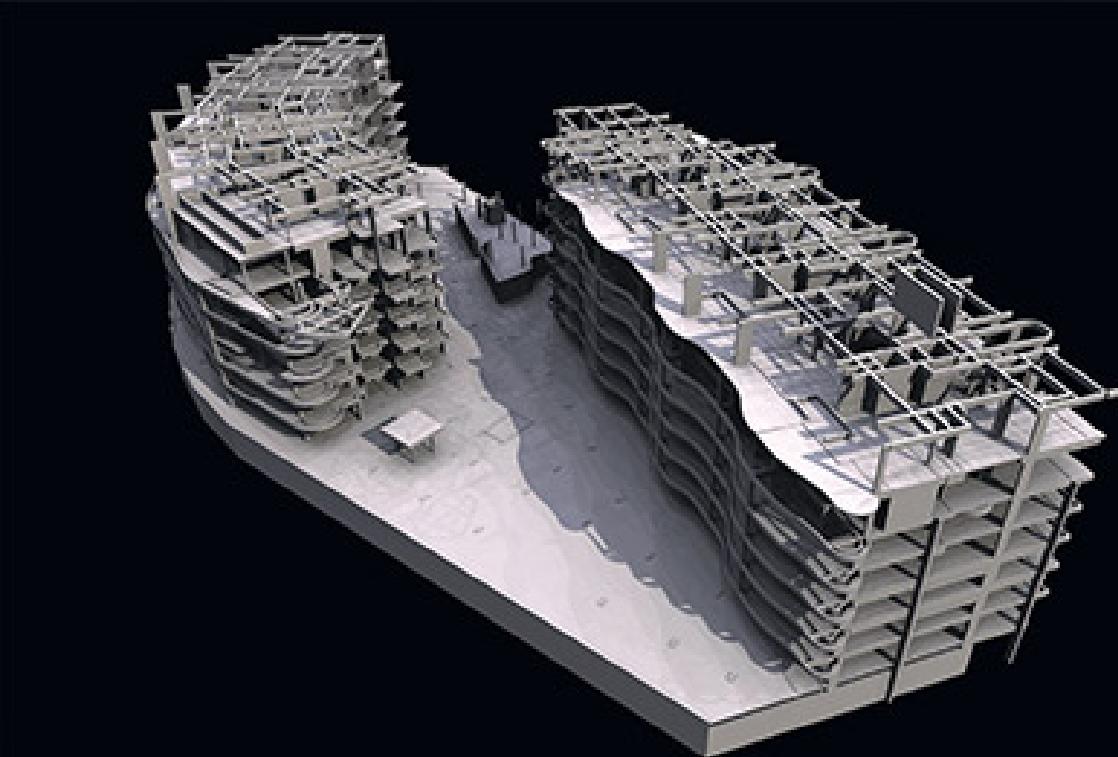
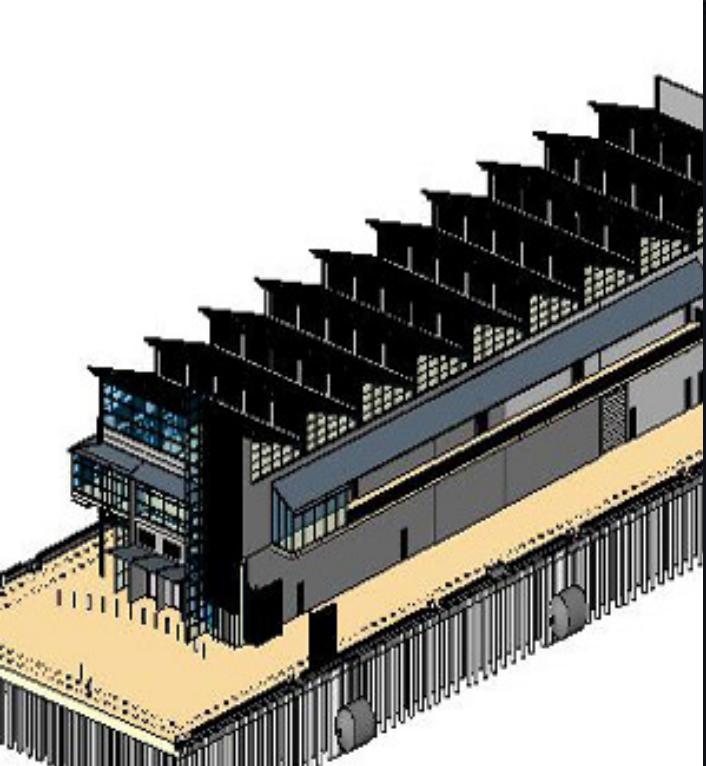




可視性型像化設計





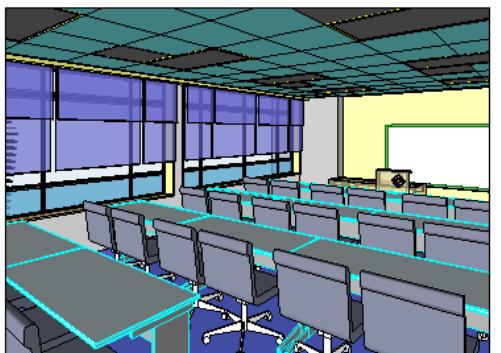


BIM为建筑界带来的冲击

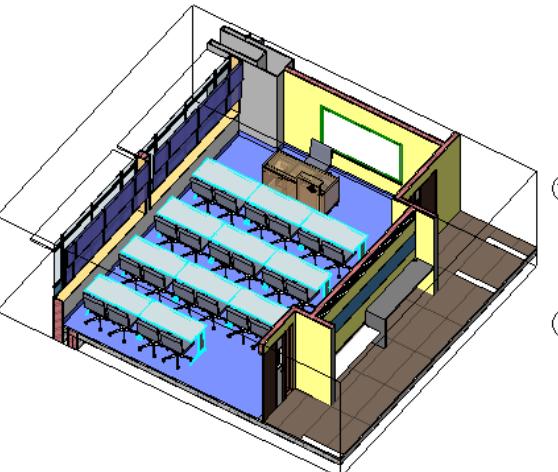
1. 可视性型像化设计
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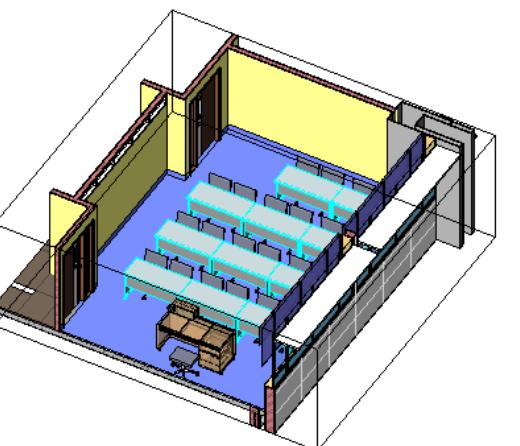
6 行政人员培训室立体示意图2



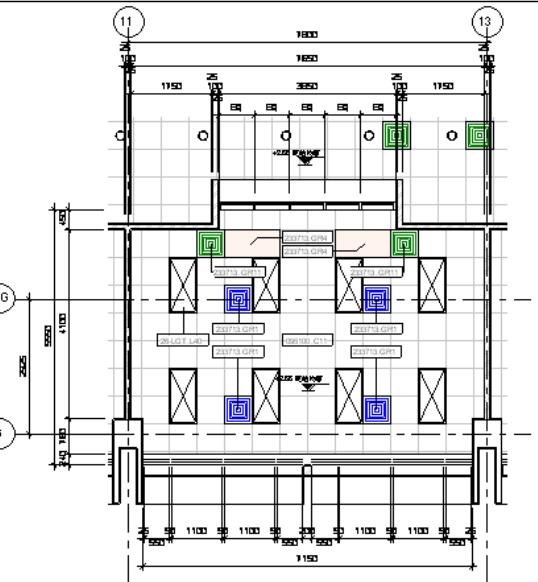
5 行政人员培训室立体示意图1



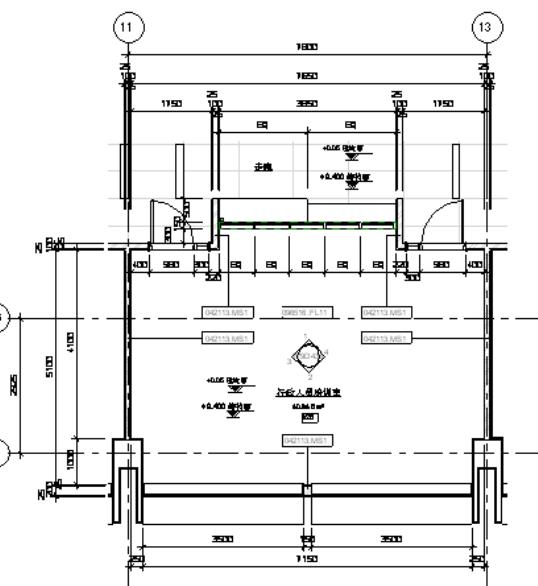
4 行政人员培训室立体剖面示意图2



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



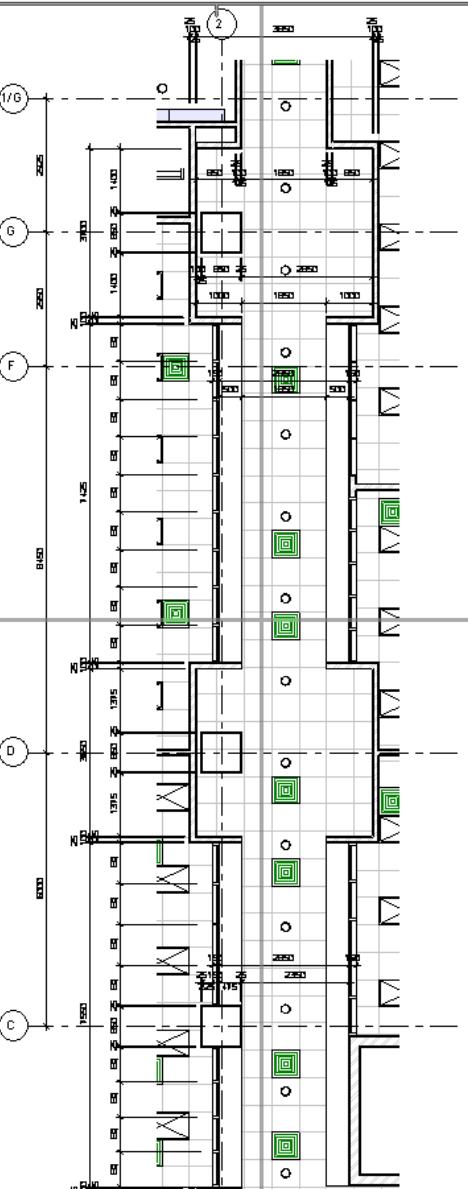
行政人员培训室平面图(高楼三层)1



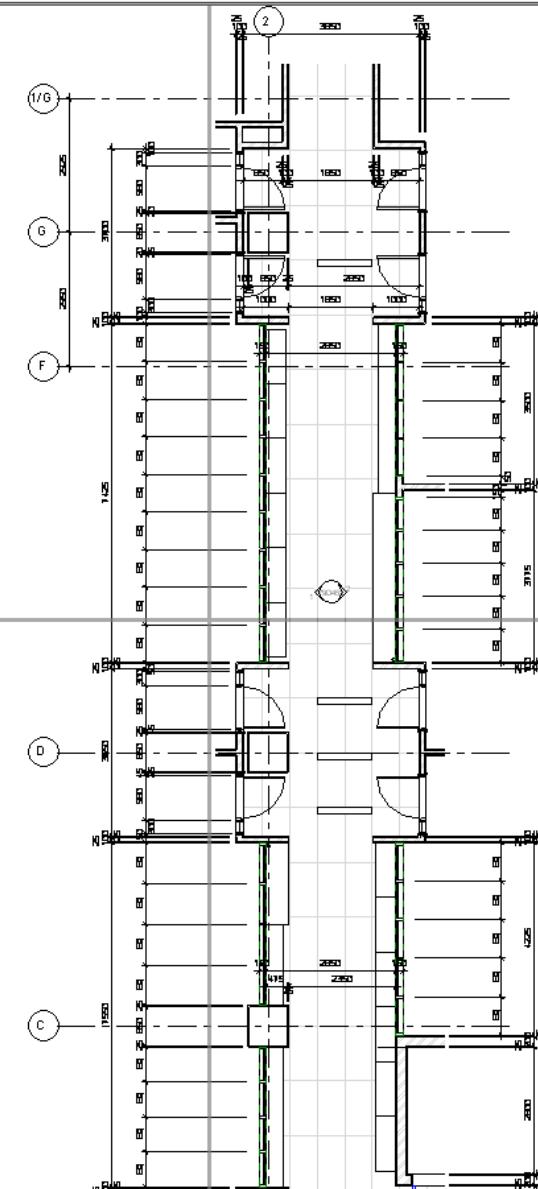
4 走廊立体示意图(低楼三至四层)2



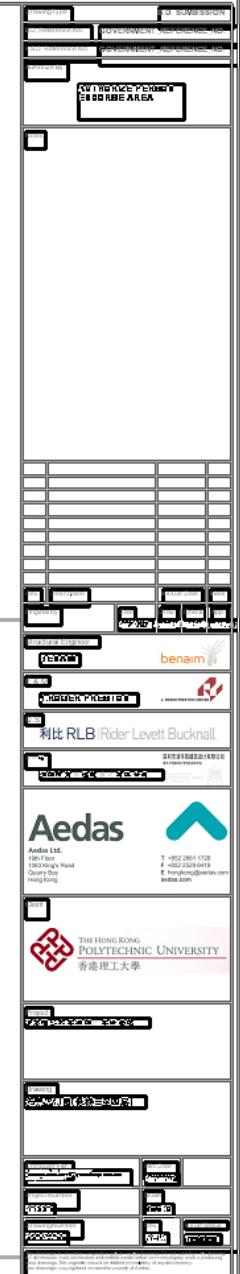
3 走廊立体示意图(低楼三至四层)1

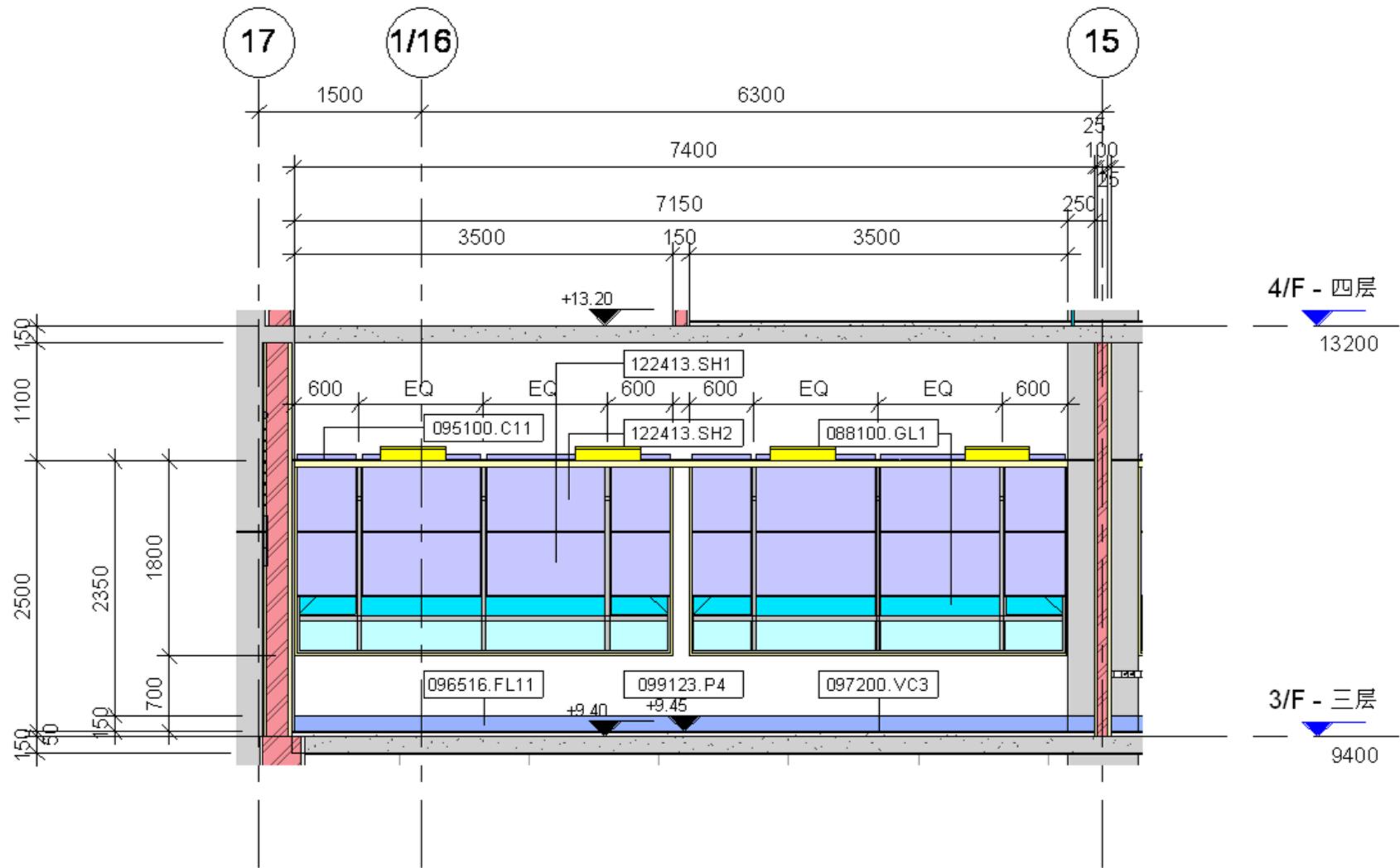


2 走廊天花平面图(低楼三至四层)



1 走廊平面图(低楼三至四层)

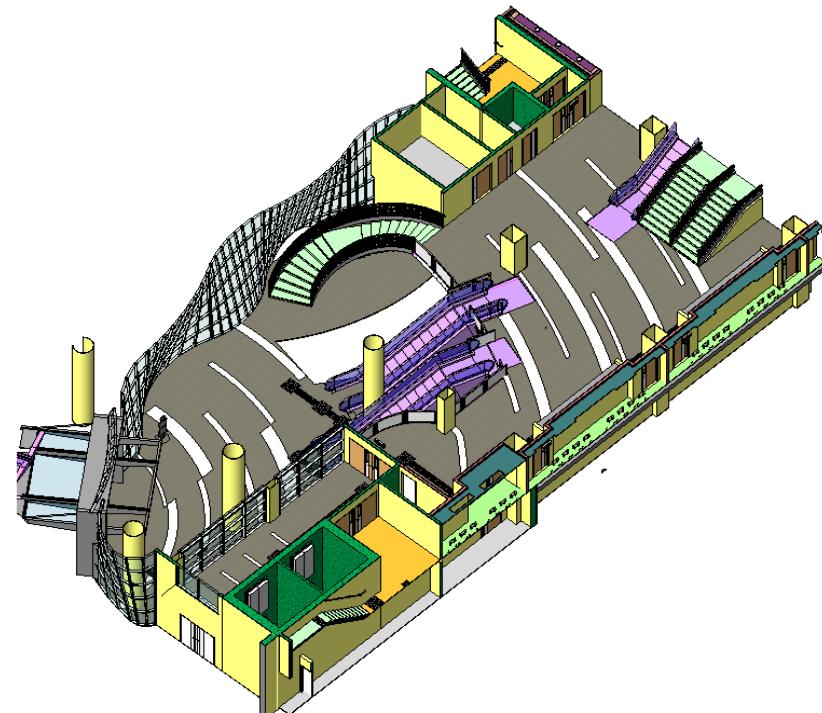
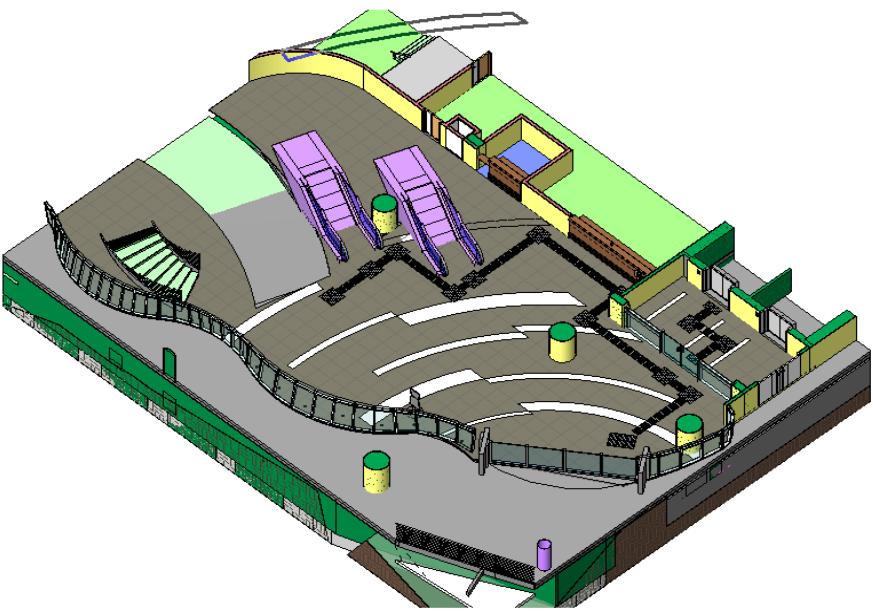
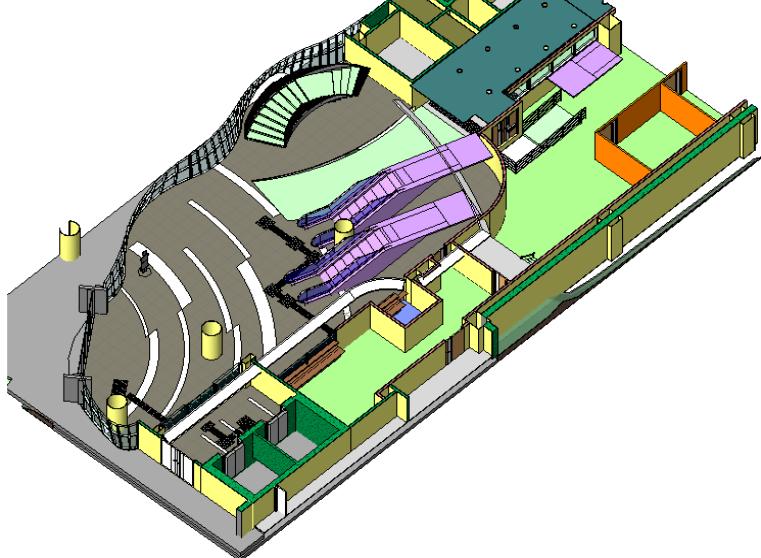
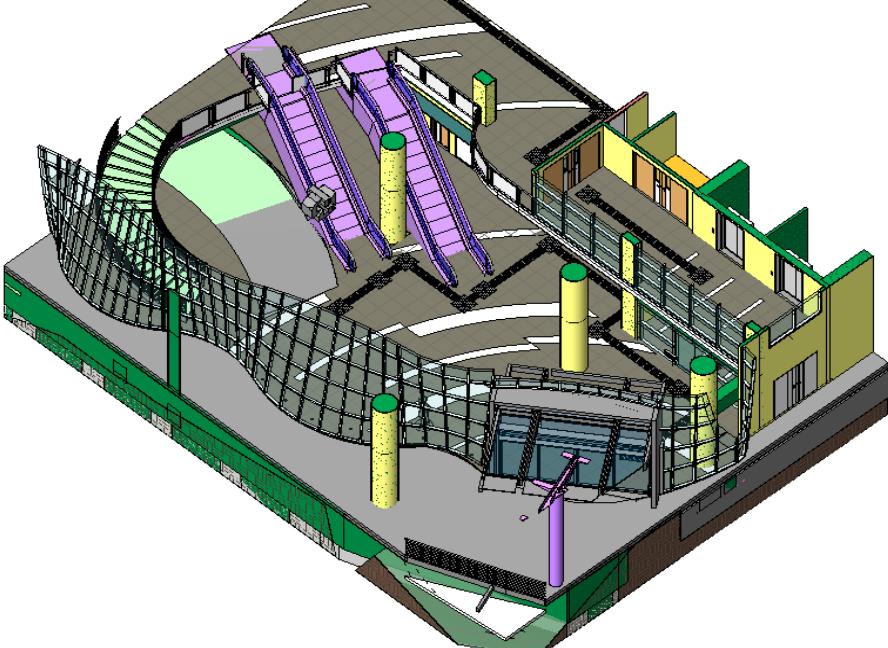


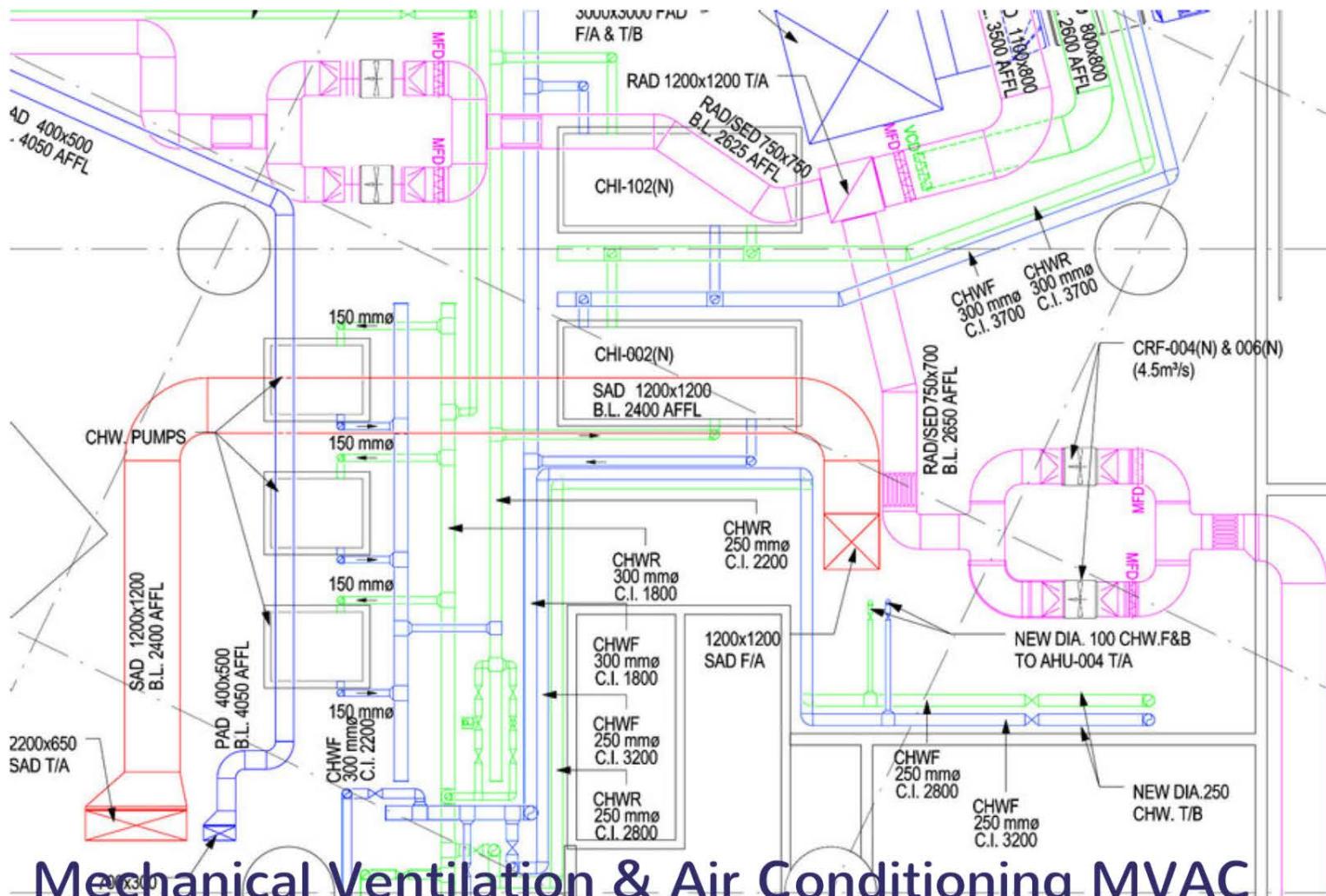


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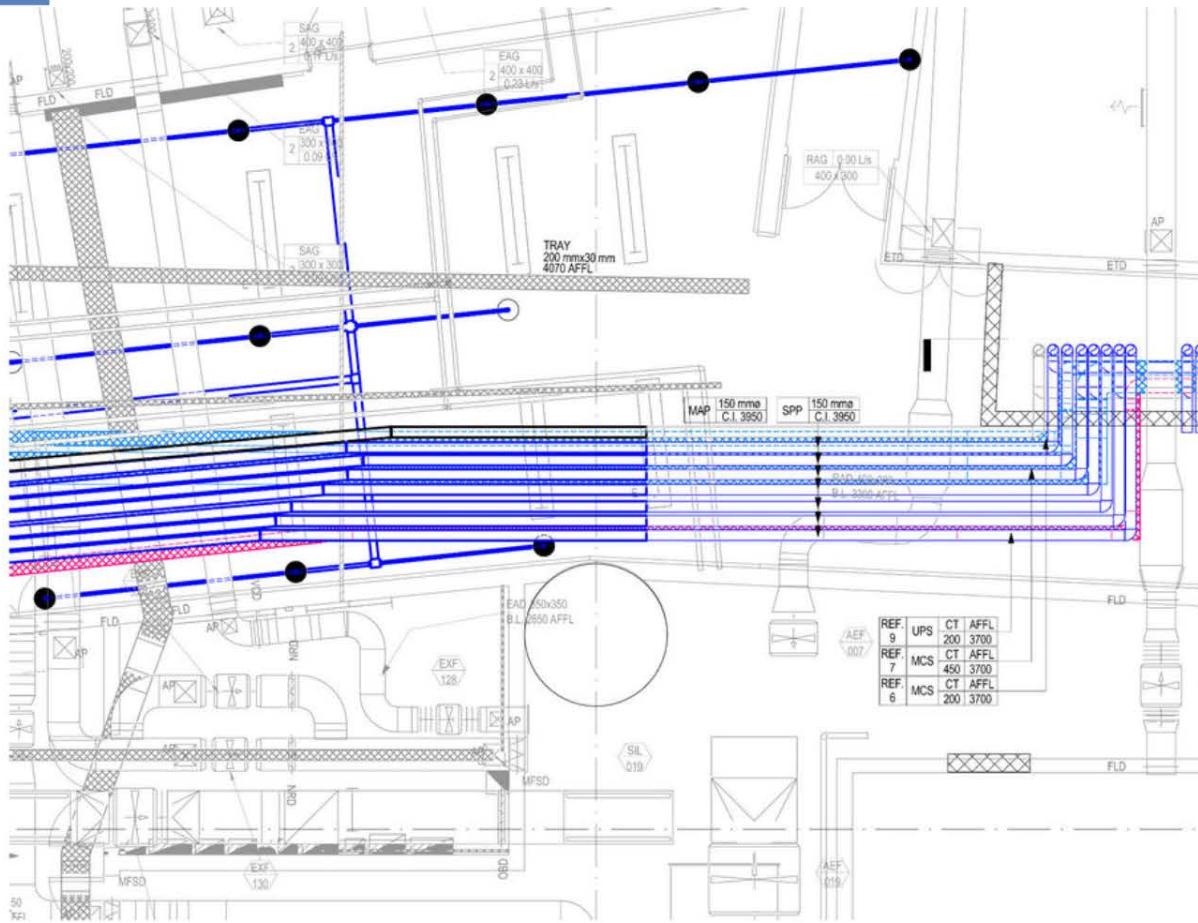
行政人员培训室立面图(高楼三层)6

1:50

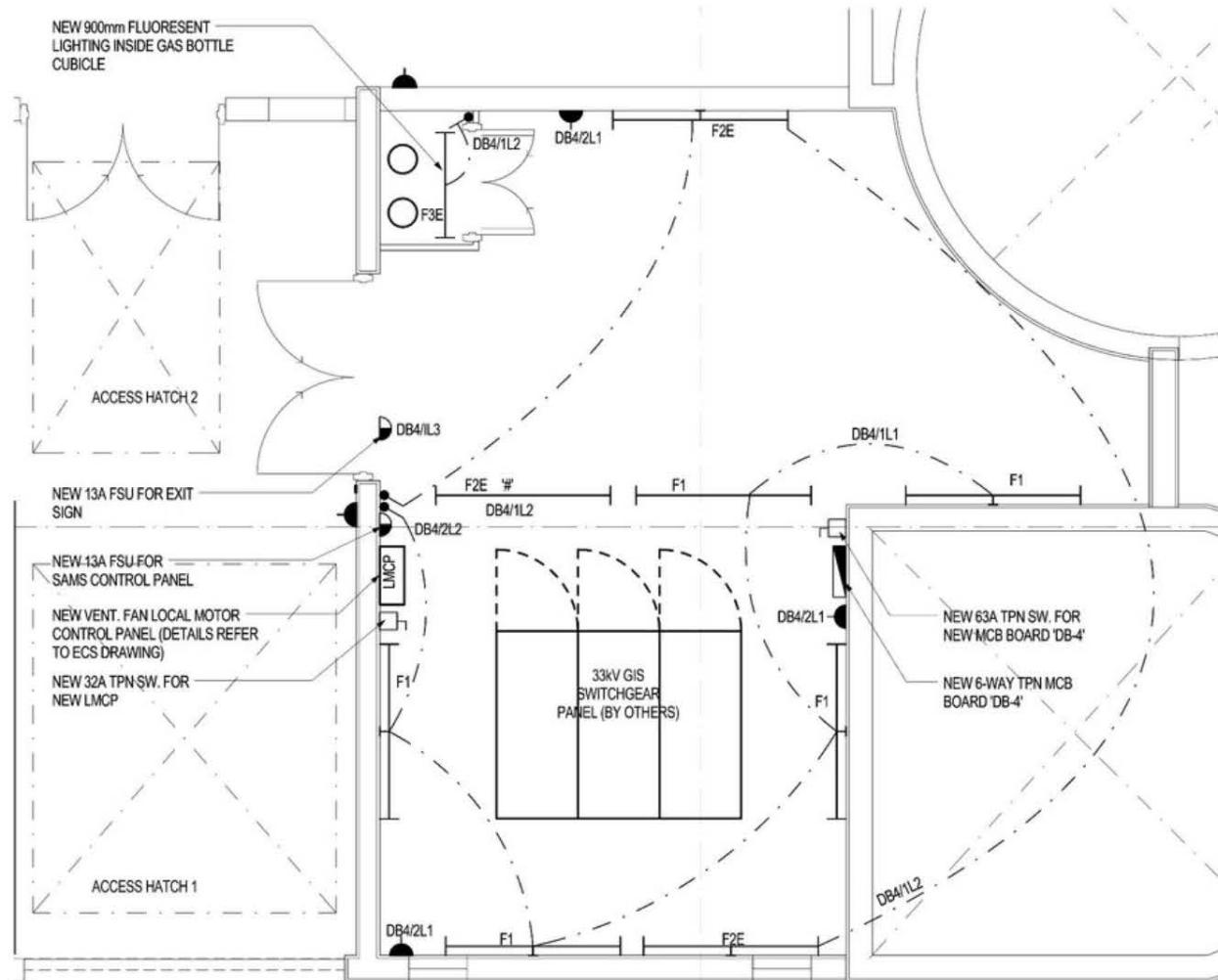




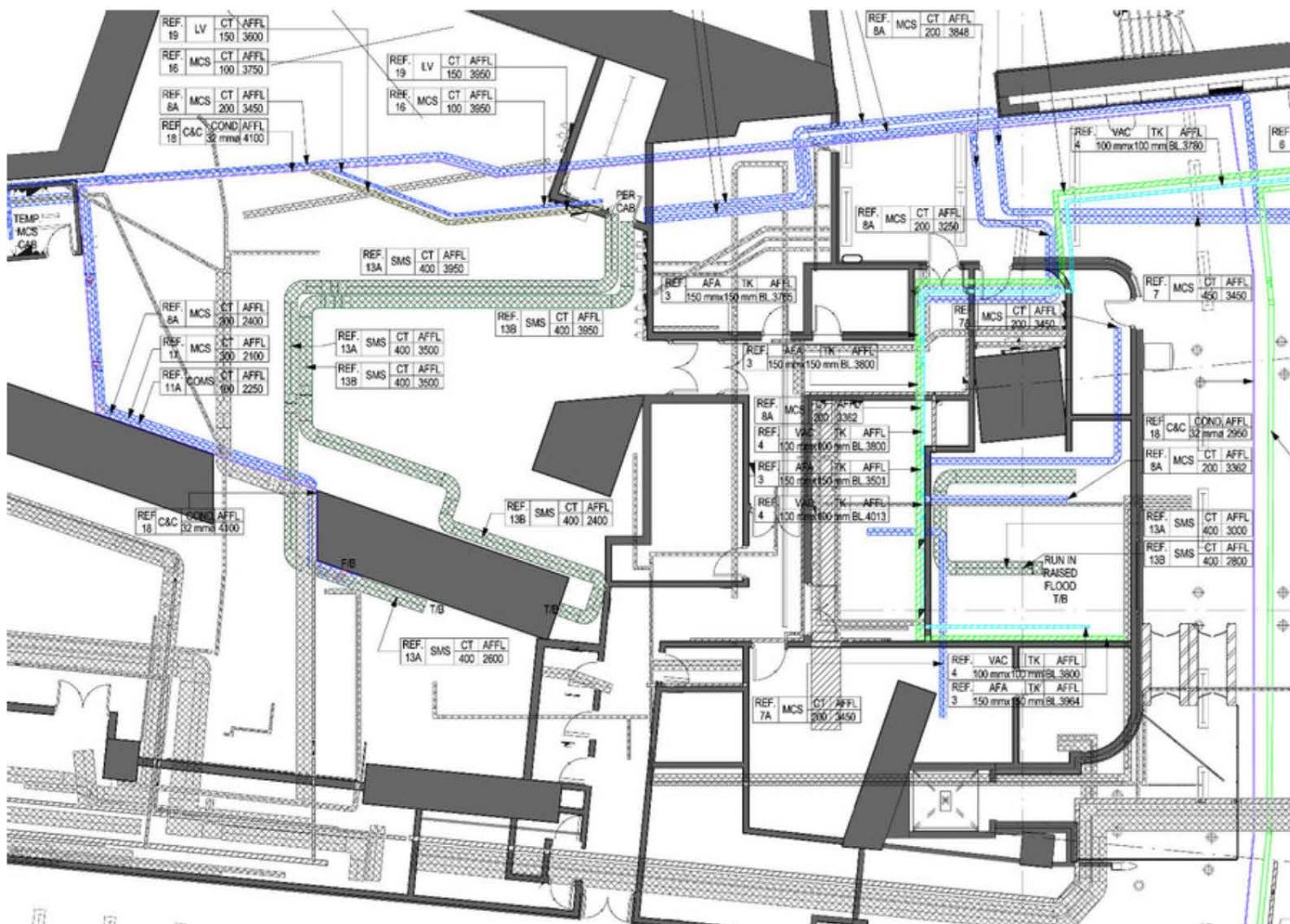
Mechanical Ventilation & Air Conditioning MVAC



Fire Services, Plumbing & Drainage



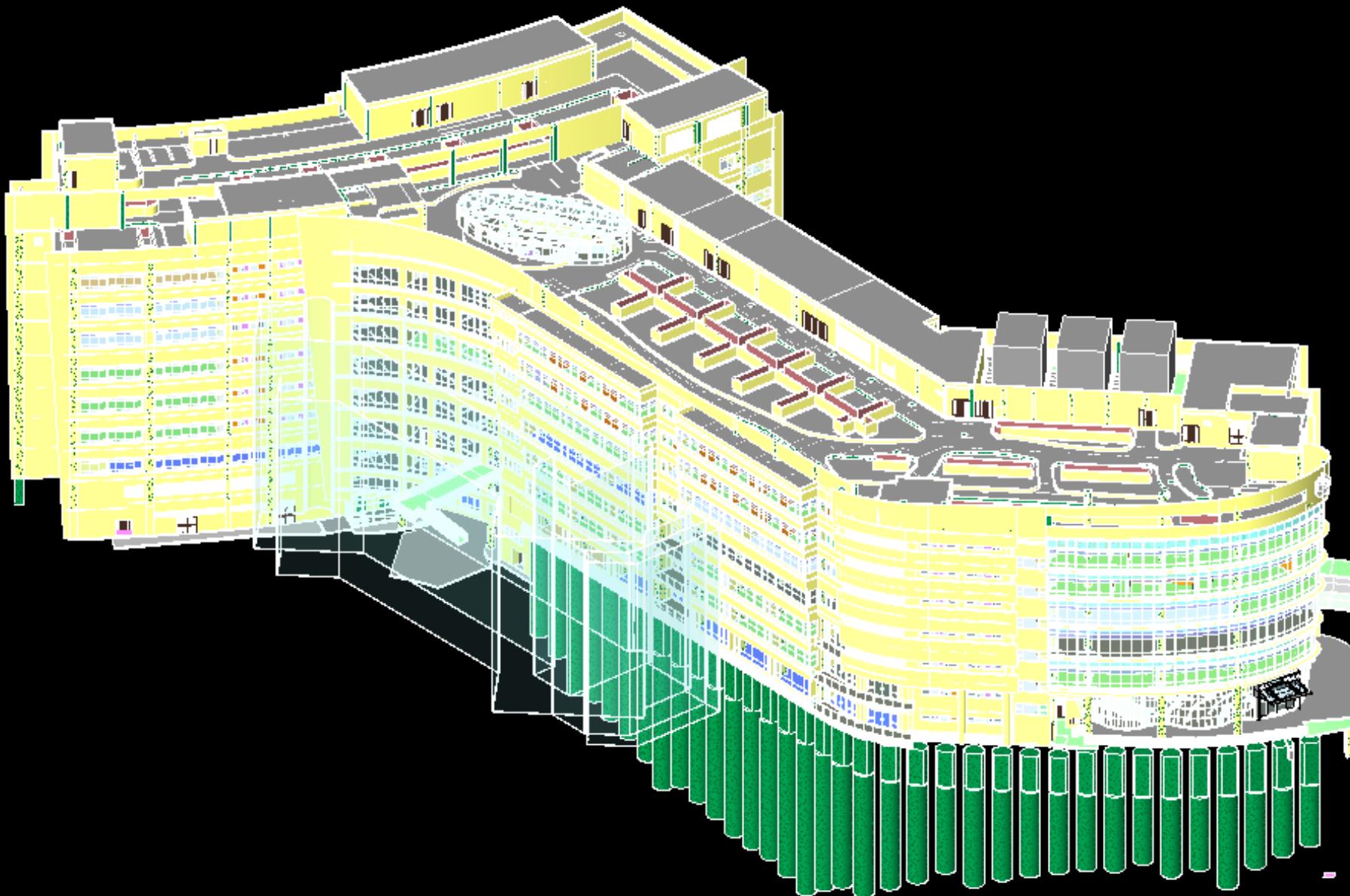
Electrical

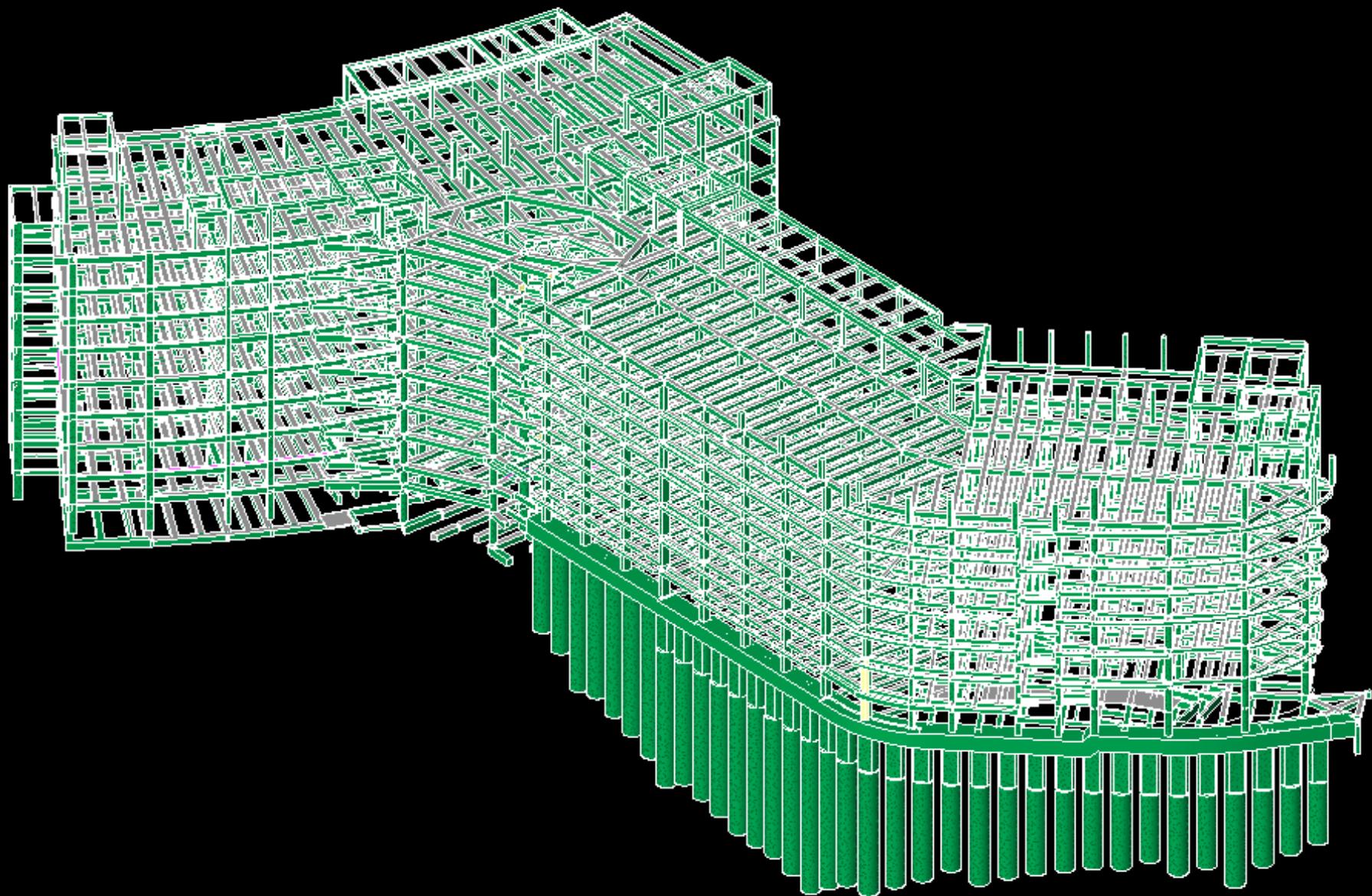


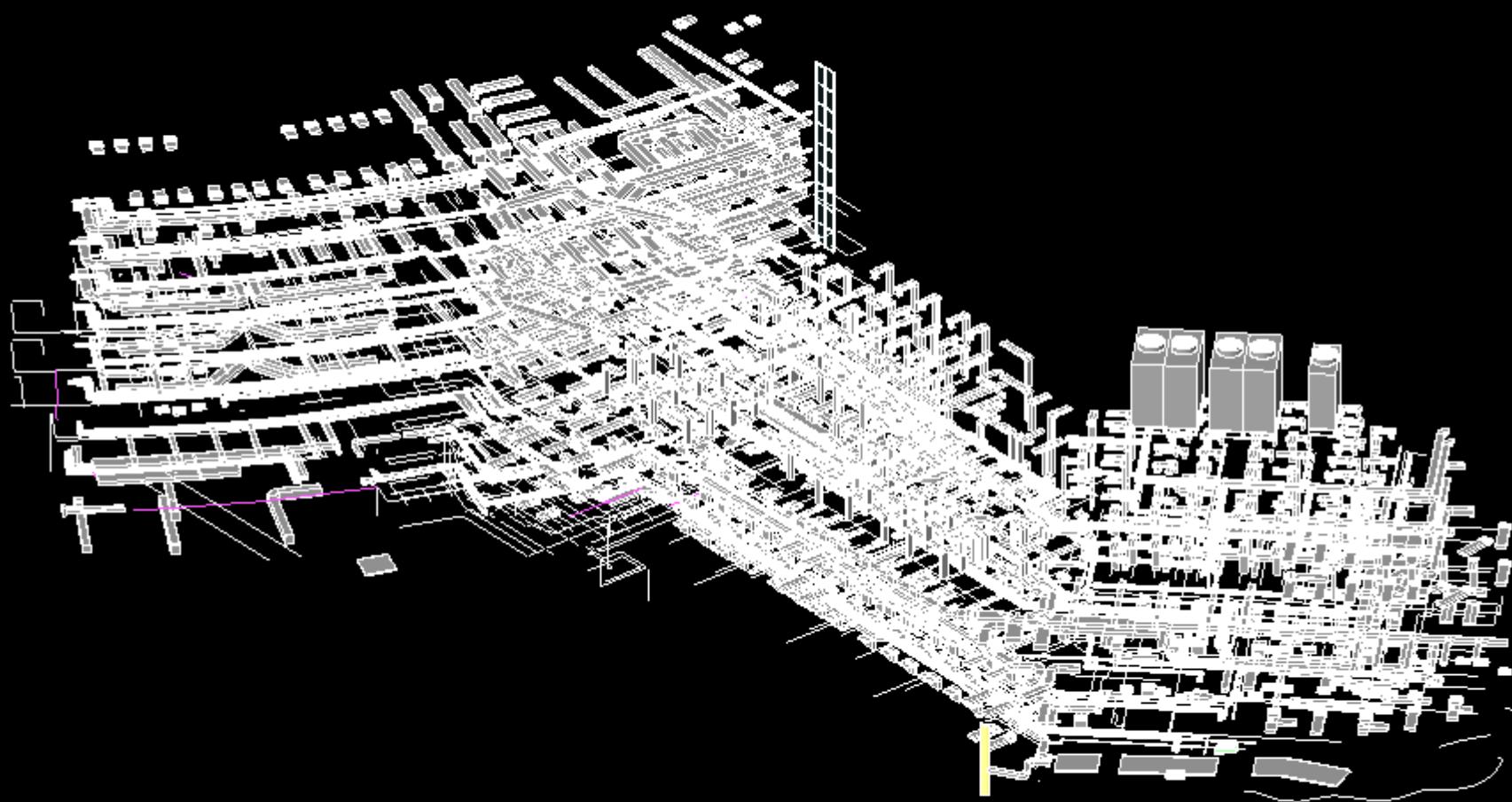
Cable Containment

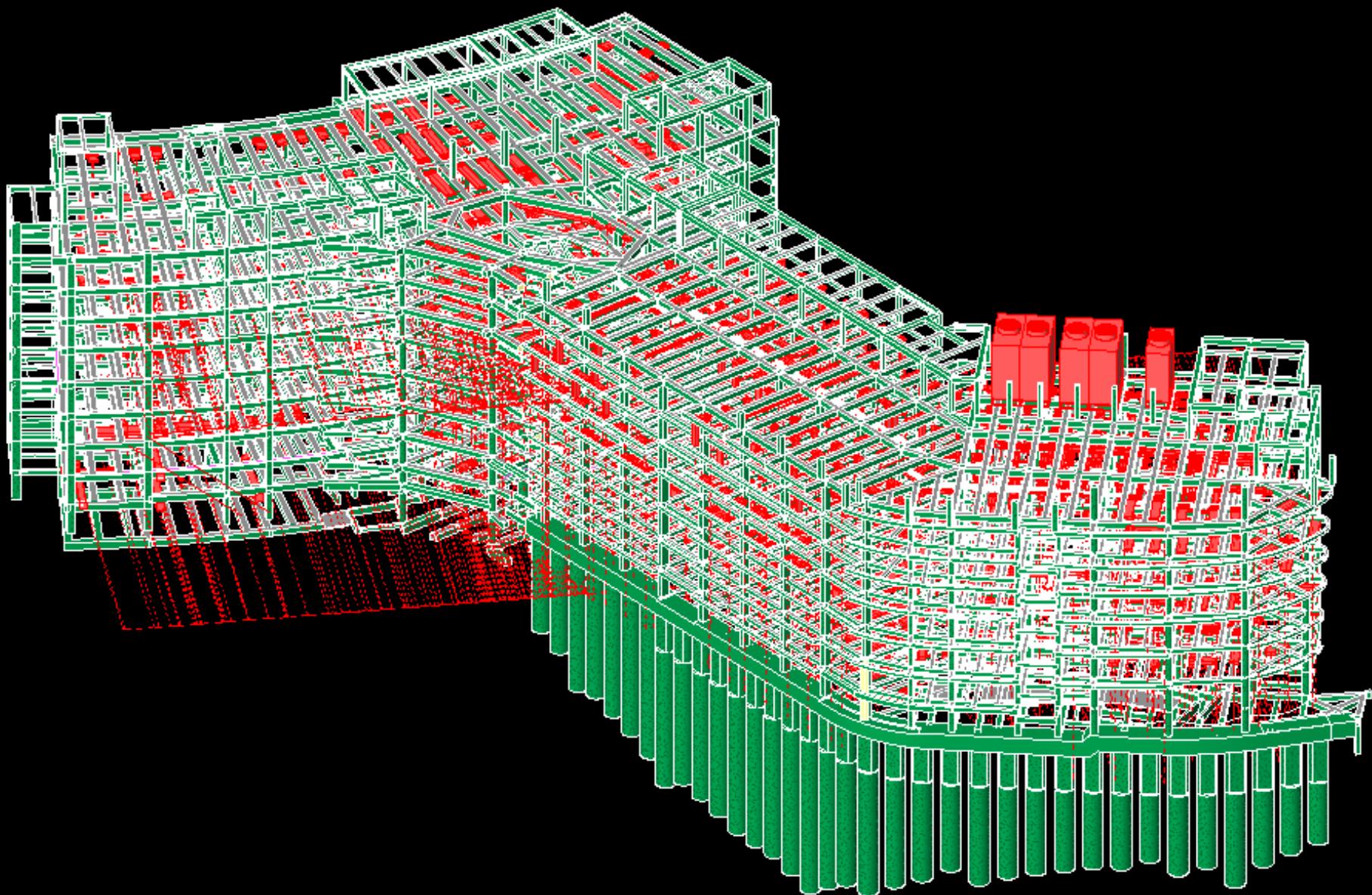
BIM为建筑界带来的冲击

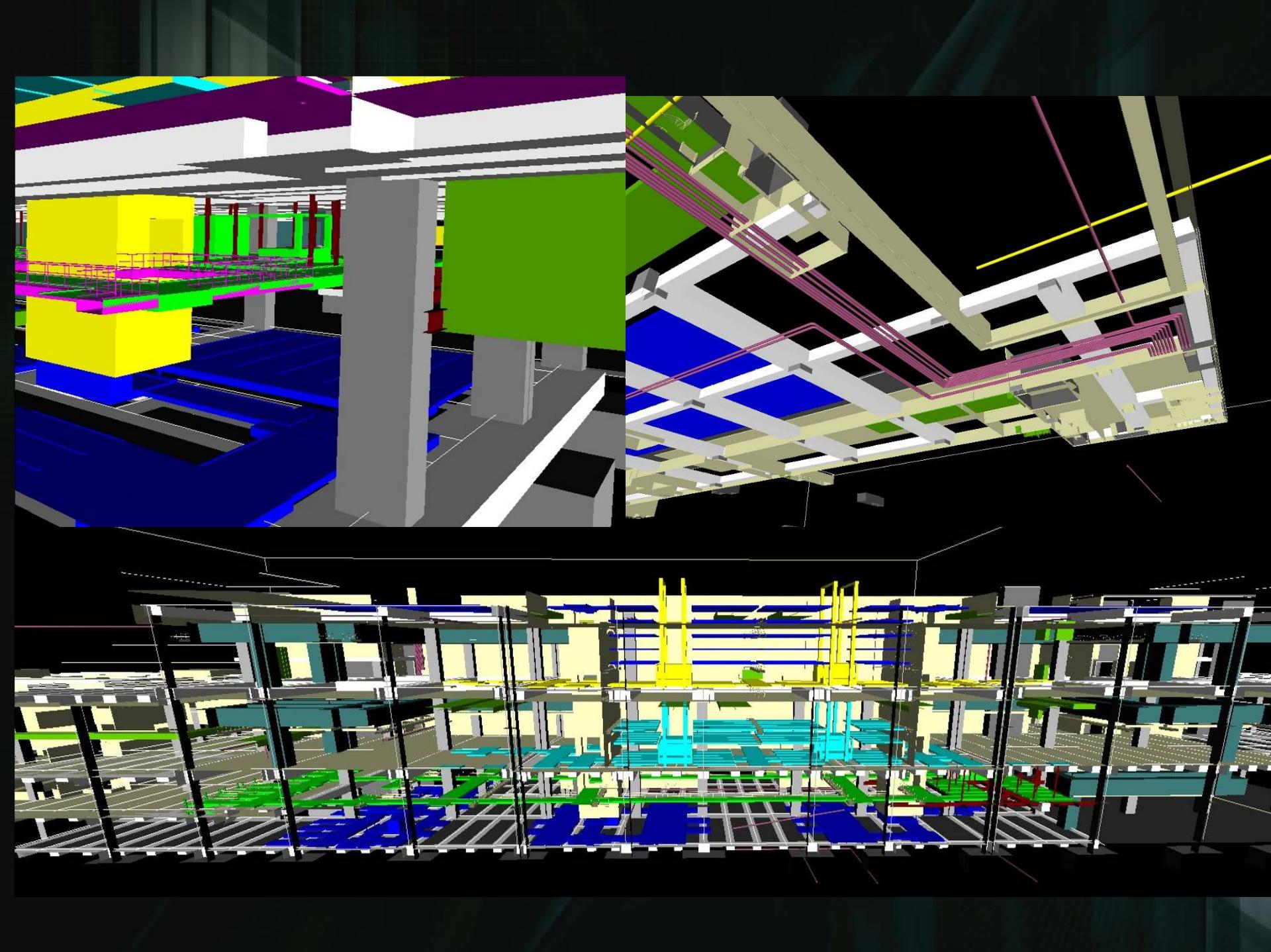
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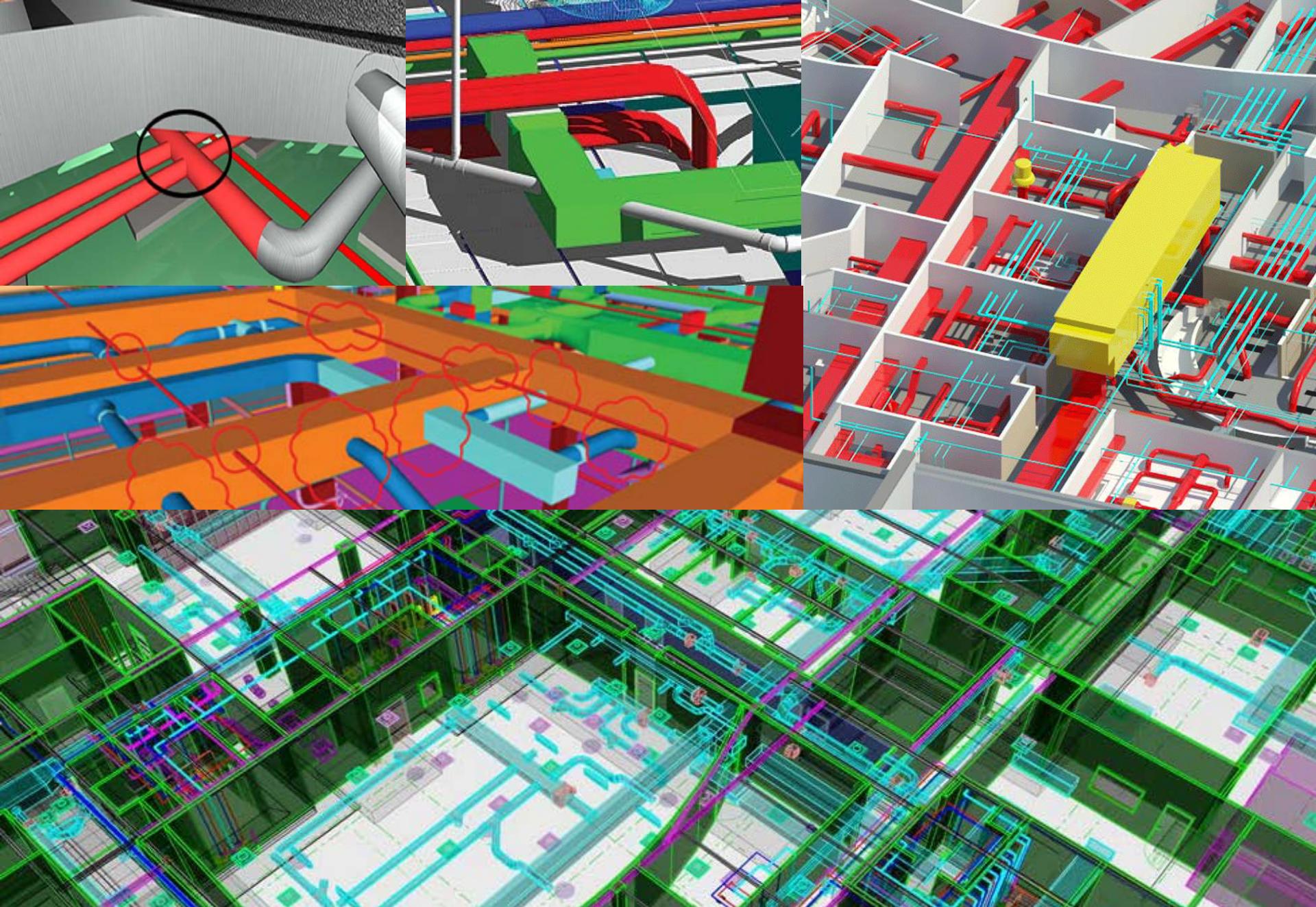












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6. 科学性分析及可持续发展设计
7. 复杂几何形状建筑
8. 从建造到制造
9. 运维

物業管理

Build Model Circulation Opening Datum Room & Area Work Plane

Properties

Sheet: LEGEND, ABBREV. Edit Type

Graphics Visibility/Graph... Edit...

Text Scale

C&R No.

Figure No. Prefix Z/LRL/PUT/M...

Sheet Name 2nd...

Identity Data

Properties help Apply

Z_LRL_PUT_ARC.rvt - Project Browser

- Views (all)
 - Floor Plans
 - (CONTRACT)_Z_PLATFORM LEVEL
 - (CONTRACT)_Z_RAIL LEVEL_S
 - (CONTRACT)_Z_S100_Site PI
 - (CONTRACT)_Z_TRACK LEVEL
 - (CONTRACT)_Z_TRACK_S100...
 - 3D Views
 - (CONTRACT)_Z_ISO
 - (CONTRACT)_Z_PER01
 - (CONTRACT)_Z_PER02
 - SOLAR DECEMBER 22 0900
 - SOLAR DECEMBER 22 1200
 - SOLAR DECEMBER 22 1500
 - SOLAR JUNE 22 0900
 - SOLAR JUNE 22 1200
 - SOLAR JUNE 22 1500
 - SOLAR MARCH 21 0900
 - SOLAR MARCH 21 1200
 - SOLAR MARCH 21 1500
 - SOLAR SEPTEMBER 21 0900
 - SOLAR SEPTEMBER 21 1200
 - SOLAR SEPTEMBER 21 1500
 - (3D)
 - Elevations (Building Elevation)
 - (CONTRACT)_Z_S100 EAST EL
 - (CONTRACT)_Z_S100 NORTH
 - (CONTRACT)_Z_S100 SOUTH
 - (CONTRACT)_Z_S100 WEST EL
 - Sections (Building Section)
 - 01
 - 02
 - PLATFORM 1
 - PLATFORM 2
 - Legends
 - Schedules/Quantities
 - DRAWING LIST
 - Tiling Schedule
 - VOICE PCP (All types)
 - Sheets (all)
 - A01/010 - LEGEND, ABBREVIA...
 - A01/100 - SITE PLAN
 - A01/101 - PLATEFORM PLAN SHE...

DRAWING LIST

DRAWING	DRAWING TITLE	REVISION	SHEET ISSUE DATE
A01/100	LEGEND, ABBREVIATION, DRAWING LIST		07/23/10
A01/100	SITE PLAN		07/22/10
A01/101	PLATF ORM PLAN SHEET 1 OF 2		07/22/10
A01/102	PLATF ORM PLAN SHEET 2 OF 2		07/30/10
A01/103	EAST ELEVATION		08/25/10
A01/104	WEST ELEVATION		07/22/10
A01/105	SOUTH ELEVATION		07/23/10
A01/106	NO. OF FLOOR ELEVATIONS		07/23/10
A01/107	SECTION 01		07/23/10
A01/108	SECTION 02		07/30/10
A01/109	ISOMETRIC & PERSPECTIVES		07/23/10
A01/120	SOLAR STU Y MARCH		07/23/10
A01/121	SOLAR STU Y MARCH		07/23/10
A01/122	SOLAR STU Y MARCH		08/26/10
A01/123	SOLAR STU Y JUNE		08/26/10
A01/124	SOLAR STU Y JUNE		08/26/10
A01/125	SOLAR STU Y JUNE		08/26/10
A01/126	SOLAR STU Y SEPT		08/26/10
A01/127	SOLAR STU Y SEPT		08/26/10
A01/128	SOLAR STU Y SEPT		08/26/10
A01/129	SOLAR STU Y DEC		08/26/10
A01/130	SOLAR STU Y DEC		08/26/10
A01/131	SOLAR STU Y DEC		08/26/10
A01/132	SECTIONS		10/20/10

Tiling Schedule

Family	Level	Type	Type Mark	Keynote	Count
GEM_MTR_Floor Care Mark Based_DimGray	PLATF ORM	GEM_MTR_Floor Care Mark Based_DimGray			12
GEM_MTR_Floor Security Line Based_Yellow	PLATF ORM				2
TLG-DRN-MTR-Type_A	PLATF ORM	Brick Frame Colour Khaki	A		36
TLG-DRN-MTR-Type_B	PLATF ORM	Brick Frame Colour Khaki	B		194
TLG-DRN-MTR-Type_C	PLATF ORM		C		240

VOICE PCP (All types)

Family	Mark	Type Mark
ELF-ARC-MTR-PCP	xxxx	E
ELF-ARC-MTR-PCP	xxxx	E
ELF-ARC-MTR-PCP	xxxx	E
ELF-ARC-MTR-PCP_Ext_Voice	xxxx	E
ELF-ARC-MTR-PCP_Ext_Voice	xxxx	E
ELF-ARC-MTR-PCP	xxxx	X
ELF-ARC-MTR-PCP_Ext_Voice	xxxx	X

Grand total: 16

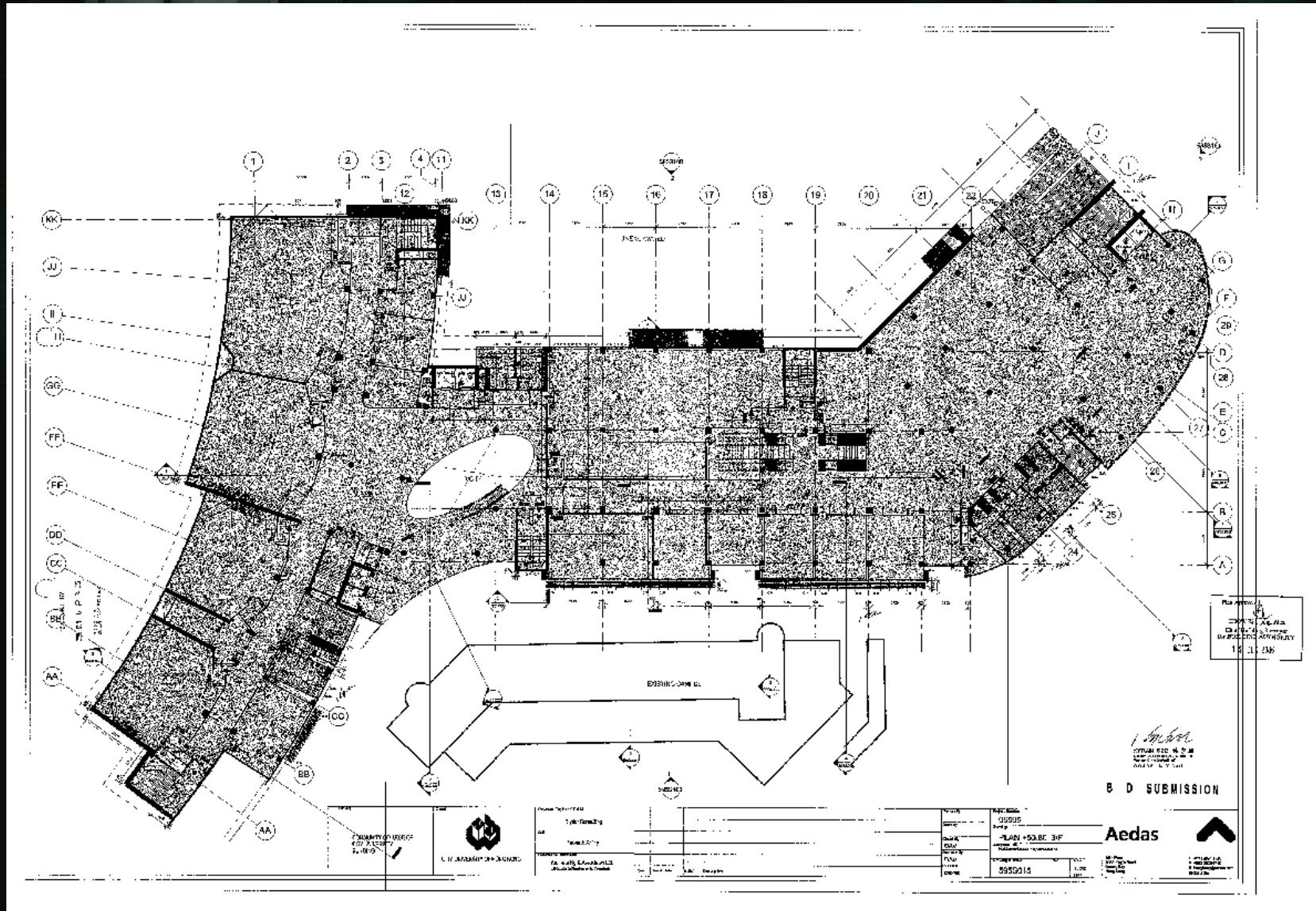
A14 1530141

	A	J	K	L
1	Id	FamilyName	TypeName	
2	7848	Model Text	600mm Arial	
3	1148899	Model Text	200mm - wood	
4	1148901	Model Text	300mm - black	
5	1148904	Model Text	50mm - steel	
6	1193027	GEM_MTR_Floor Care Mark Based_DimGray	GEM_MTR_Floor Care Mark Based_DimGray	
7	1194842	GEM_MTR_Floor Security Line Based_Yellow	Security Line_MTR_Floor Based_Yellow	
8	1206709	GEM_MTR_Floor Security Line Based_Yellow	Security Line_MTR_Floor Based_Yellow W39600mm	
9	1282975	GEM_MTR_Floor Security Line Based_Yellow	Security Line_MTR_Floor Based_Yellow W39500mm	
10	1528388	TLG-DRN-MTR-Type_A	Brick Frame Colour Khaki	A
11	1528390	TLG-DRN-MTR-Type_A	Brick Frame Colour DimGray	
12	1529333	TLG-DRN-MTR-Type_B	Brick Frame Colour Khaki	B
13	1529335	TLG-DRN-MTR-Type_B	Brick Frame Colour DimGray	
14	1530141	TLG-DRN-MTR-Type_C	Brick Frame Colour Khaki	C
15	1530143	TLG-DRN-MTR-Type_C	Brick Frame Colour DimGray	
16	1532279	TLG-DRN-MTR-Type_C	Brick Frame Colour Khaki W200mm	C
17	1606926	TRN-TRN-MTR-LRL-Headstock	TRN-TRN-MTR-LRL-Headstock	
18	1618524	TRN-TRN-MTR-LRL-Coach	TRN-TRN-MTR-LRL-Coach	
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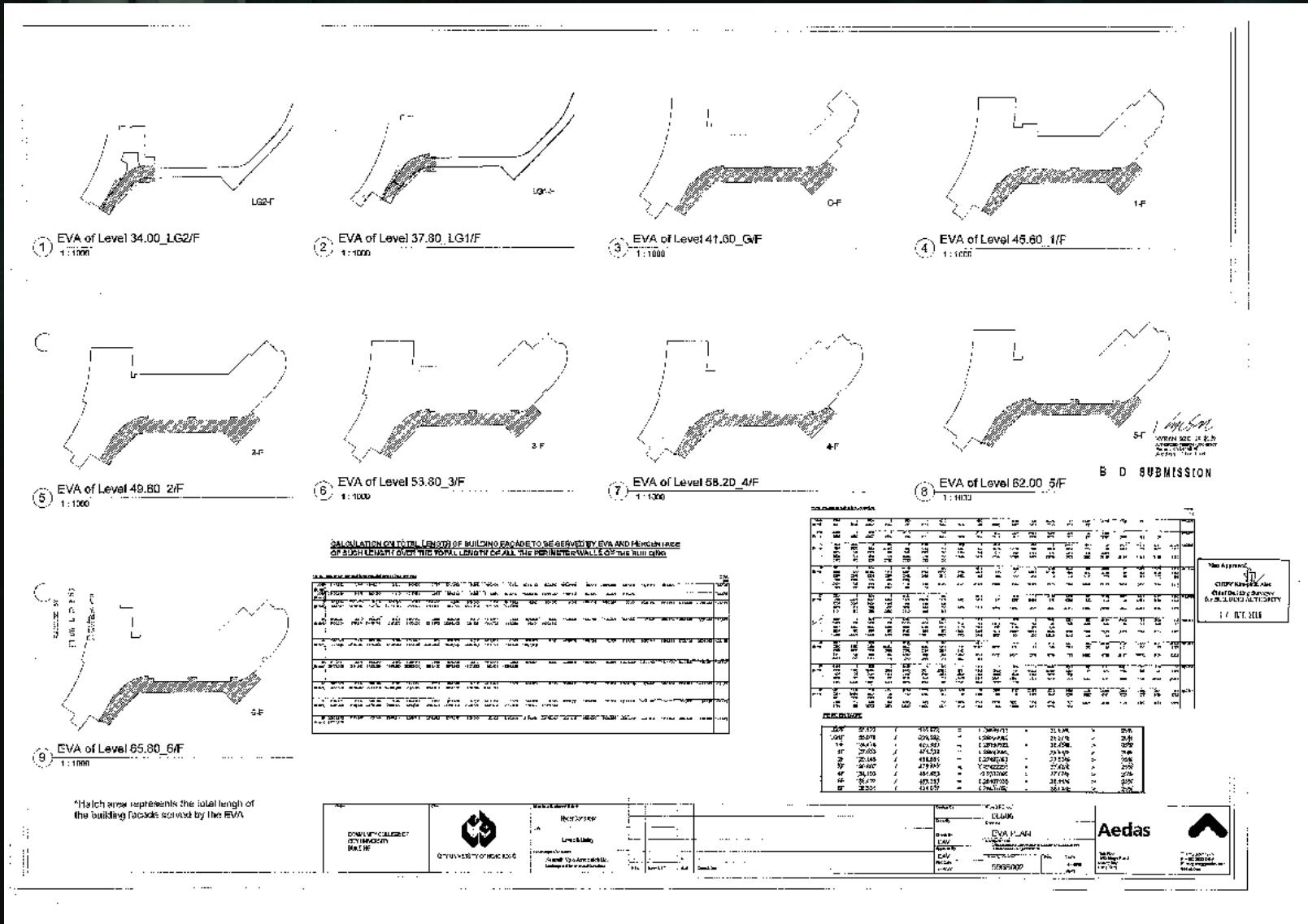
BIM为建筑界带来的冲击

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自動化送審文件



自動化送審文件



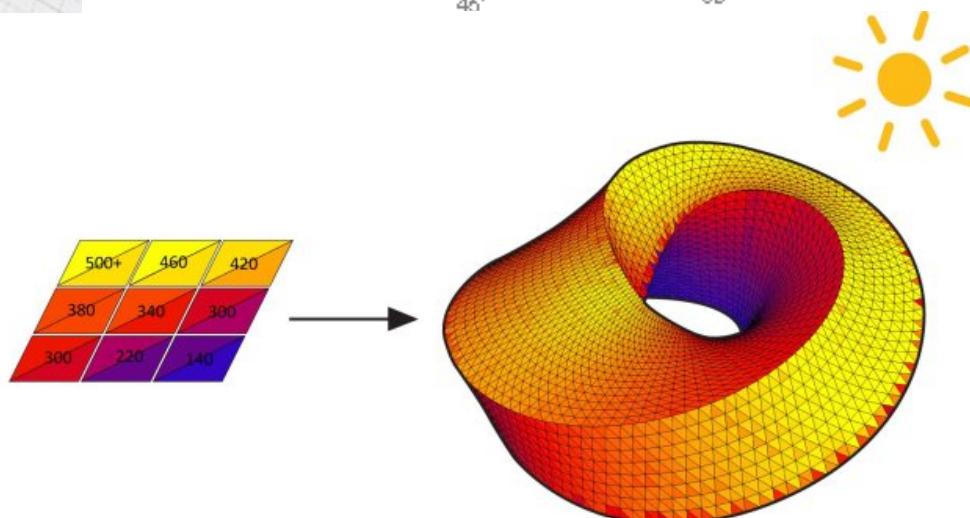
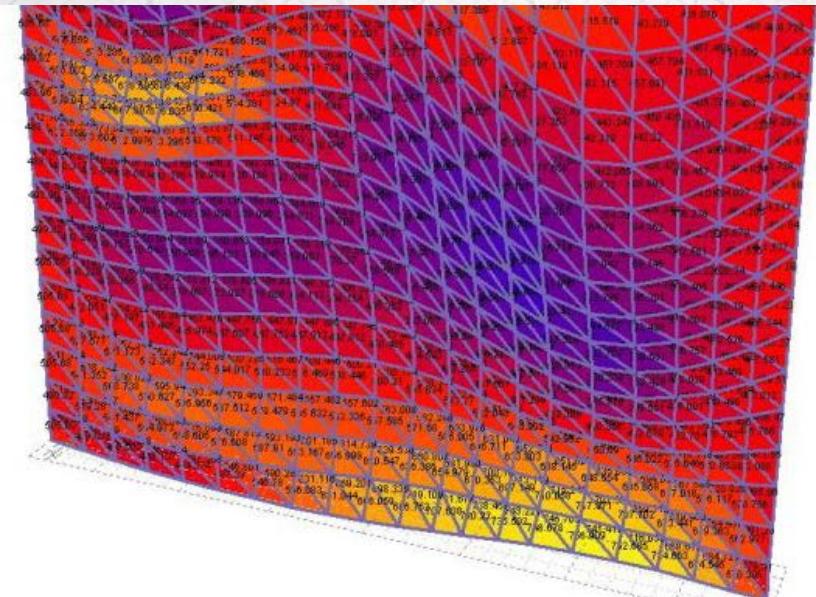
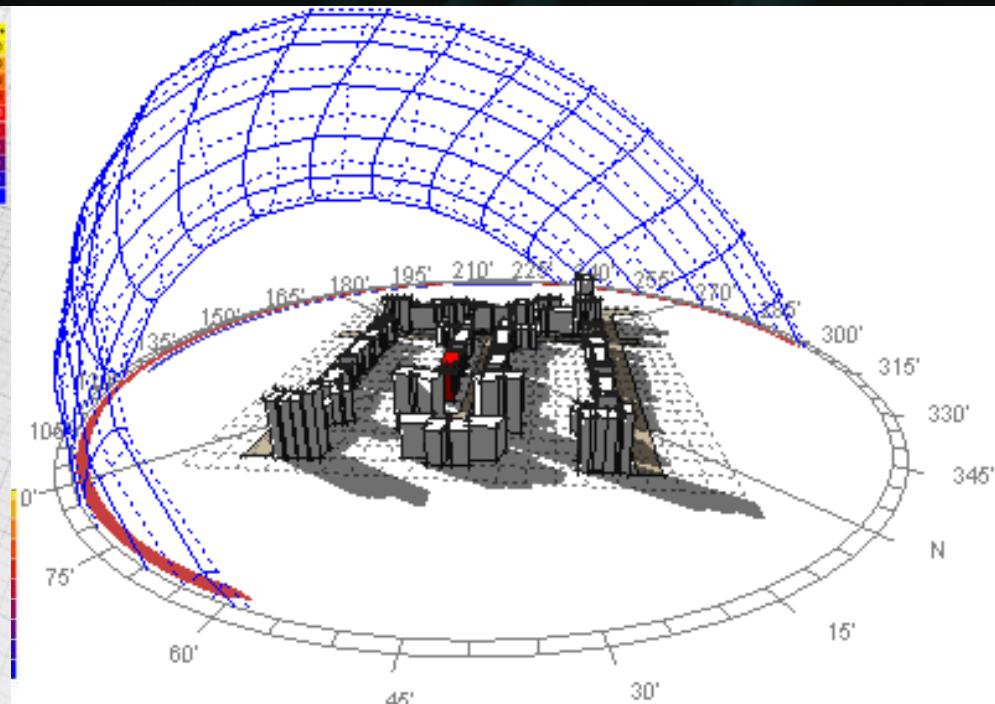
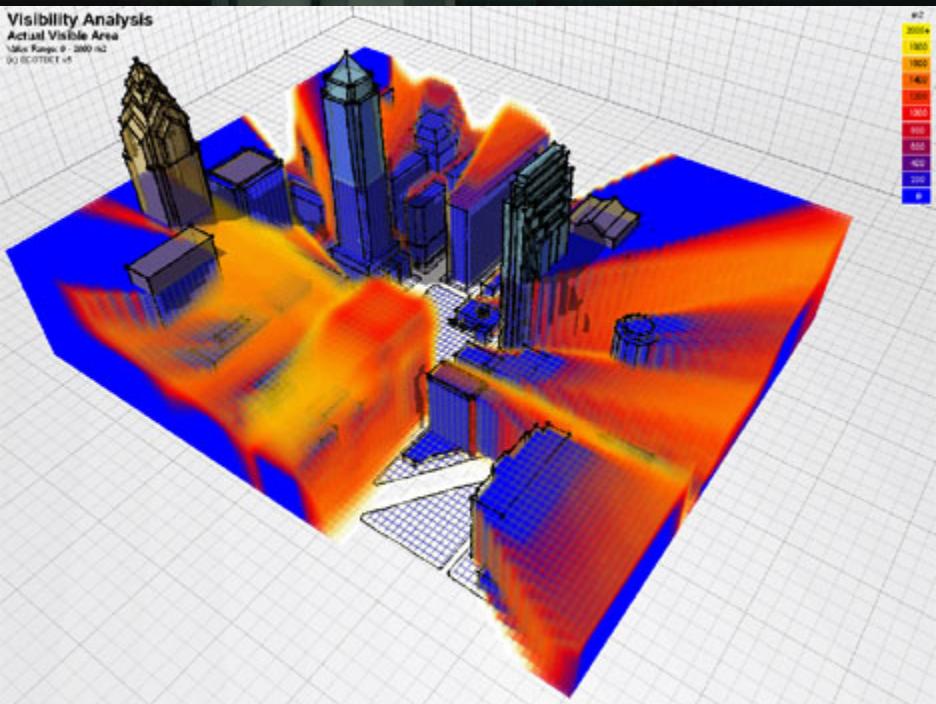
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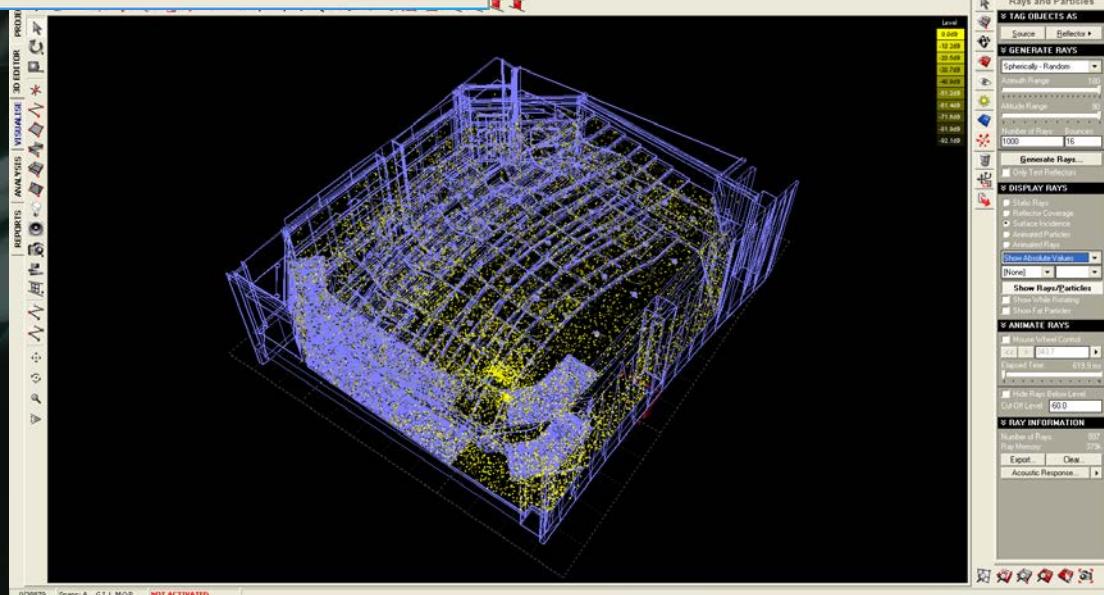
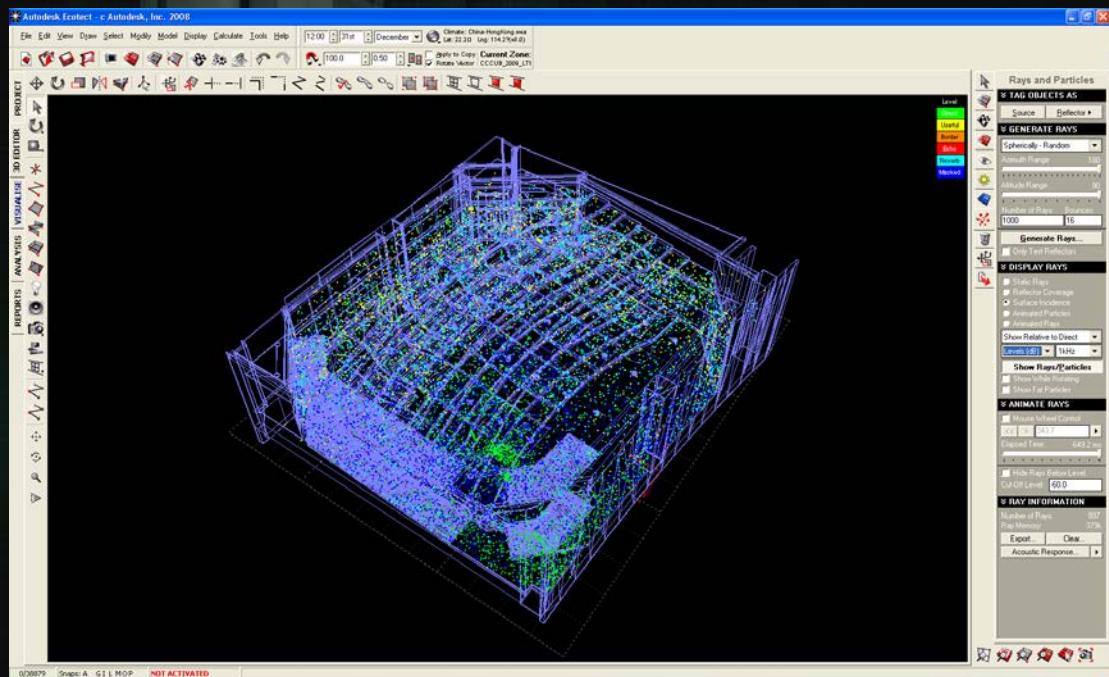
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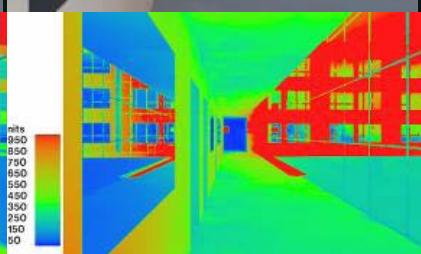
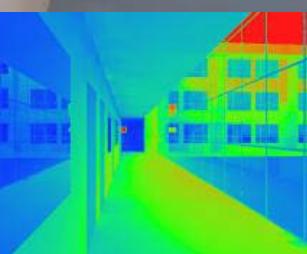
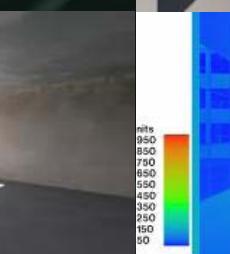
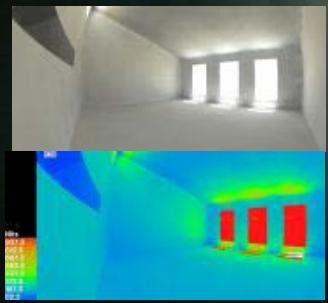
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7. 复杂几何形状建筑
8. 从建造到制造
9. 运维

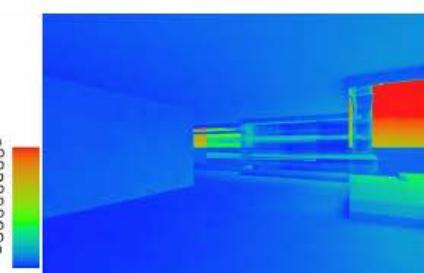
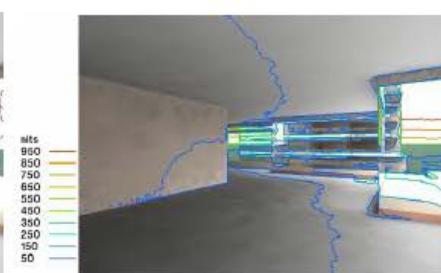
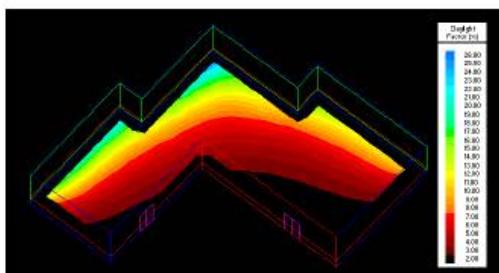
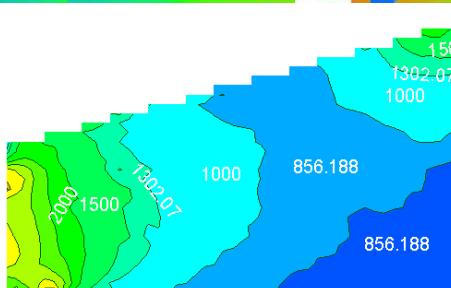
科學性分析及可持續發展設計



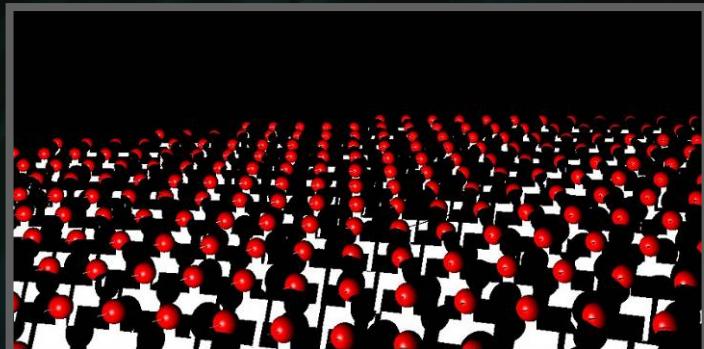
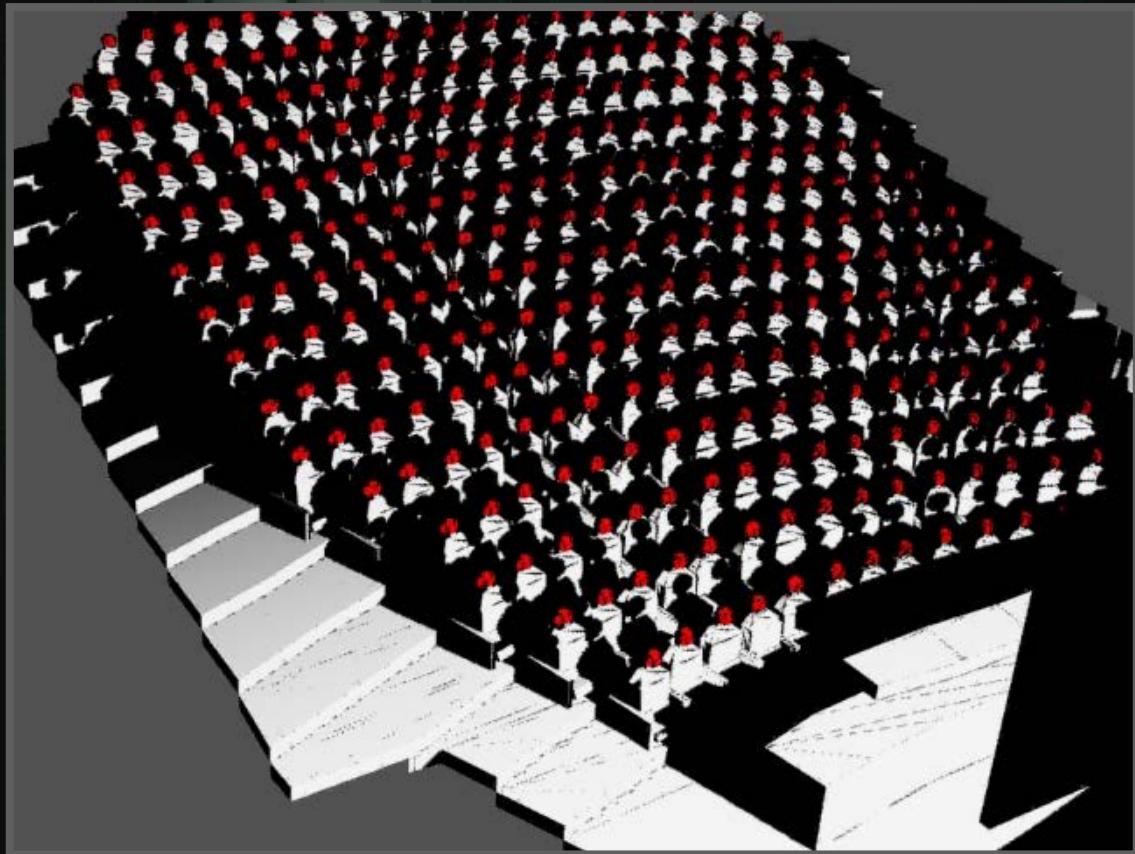




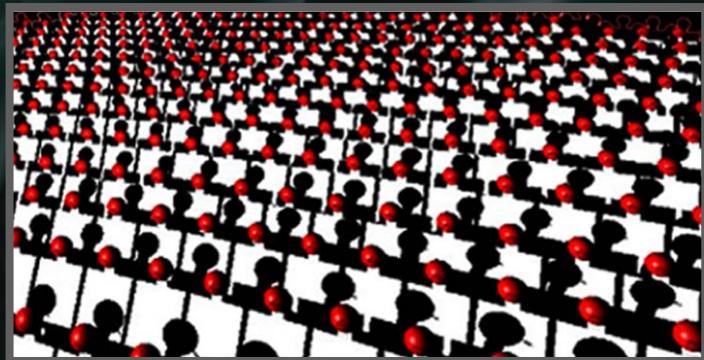
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Jan										100.0	99.7	100.0	100.0	100.0	84.6	38.8	5.2								
Feb										100.0	100.0	100.0	100.0	100.0	98.7	73.9	32.7	3.0							
Mar										100.0	100.0	100.0	100.0	100.0	100.0	91.5	60.4	25.7							
Apr										0.0	100.0	100.0	100.0	100.0	100.0	100.0	98.0	84.0	51.3	0.0					
May										0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	92.9	0.0	0.0	0.0				
Jun										0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	96.5	0.0	0.0	0.0	0.0		
Jul										0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	96.3	0.0	0.0	0.0	0.0		
Aug										0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	90.2	64.8	0.0	0.0			
Sep										0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	92.2	64.0	30.8	0.0				
Oct										100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.0	63.7	26.7						
Nov										100.0	100.0	100.0	100.0	100.0	100.0	100.0	77.0	31.7	1.8						
Dec										100.0	95.1	93.6	100.0	93.0	67.6	22.2								71.82	



科學性分析及可持續發展設計



低可視性

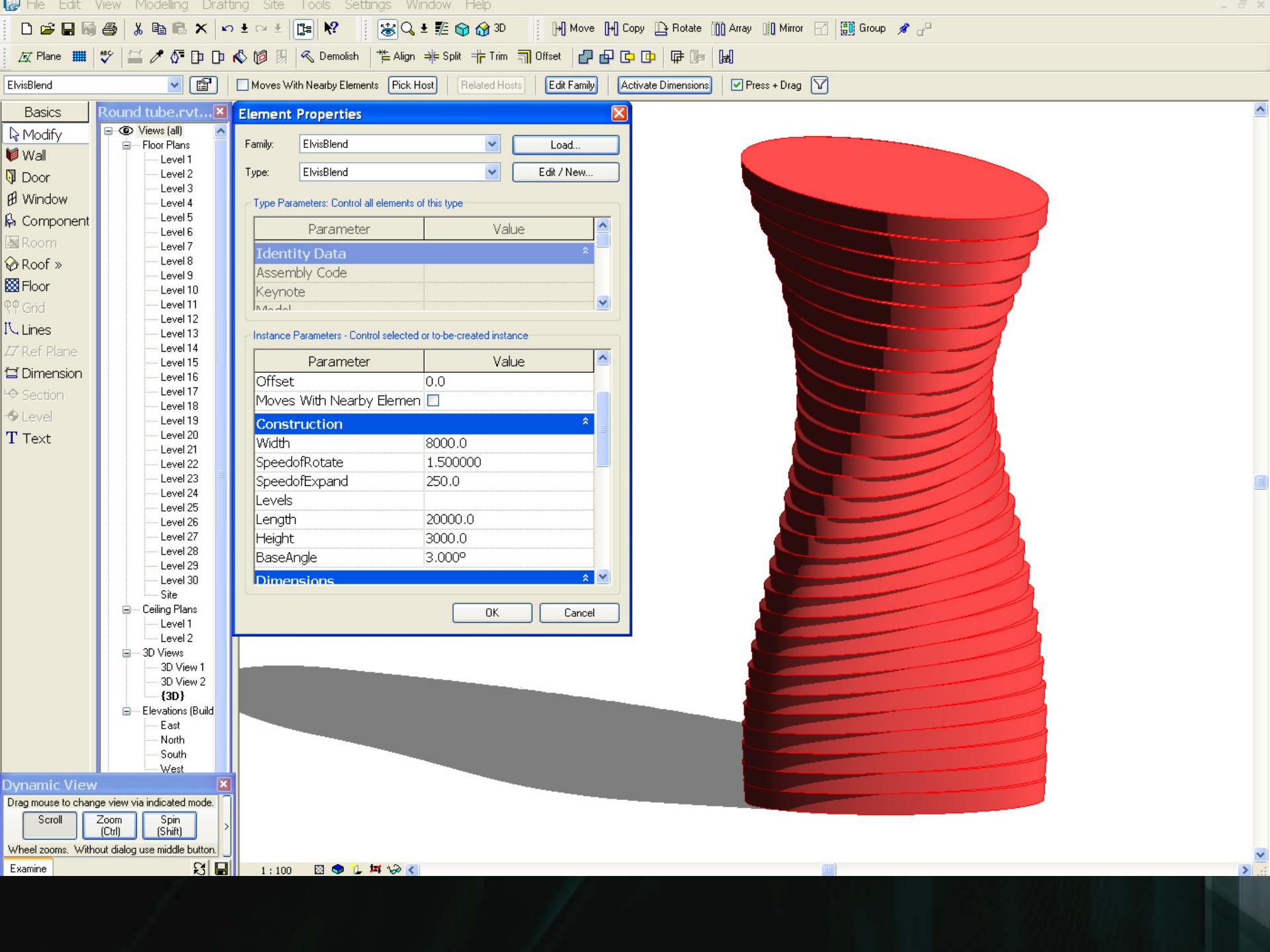


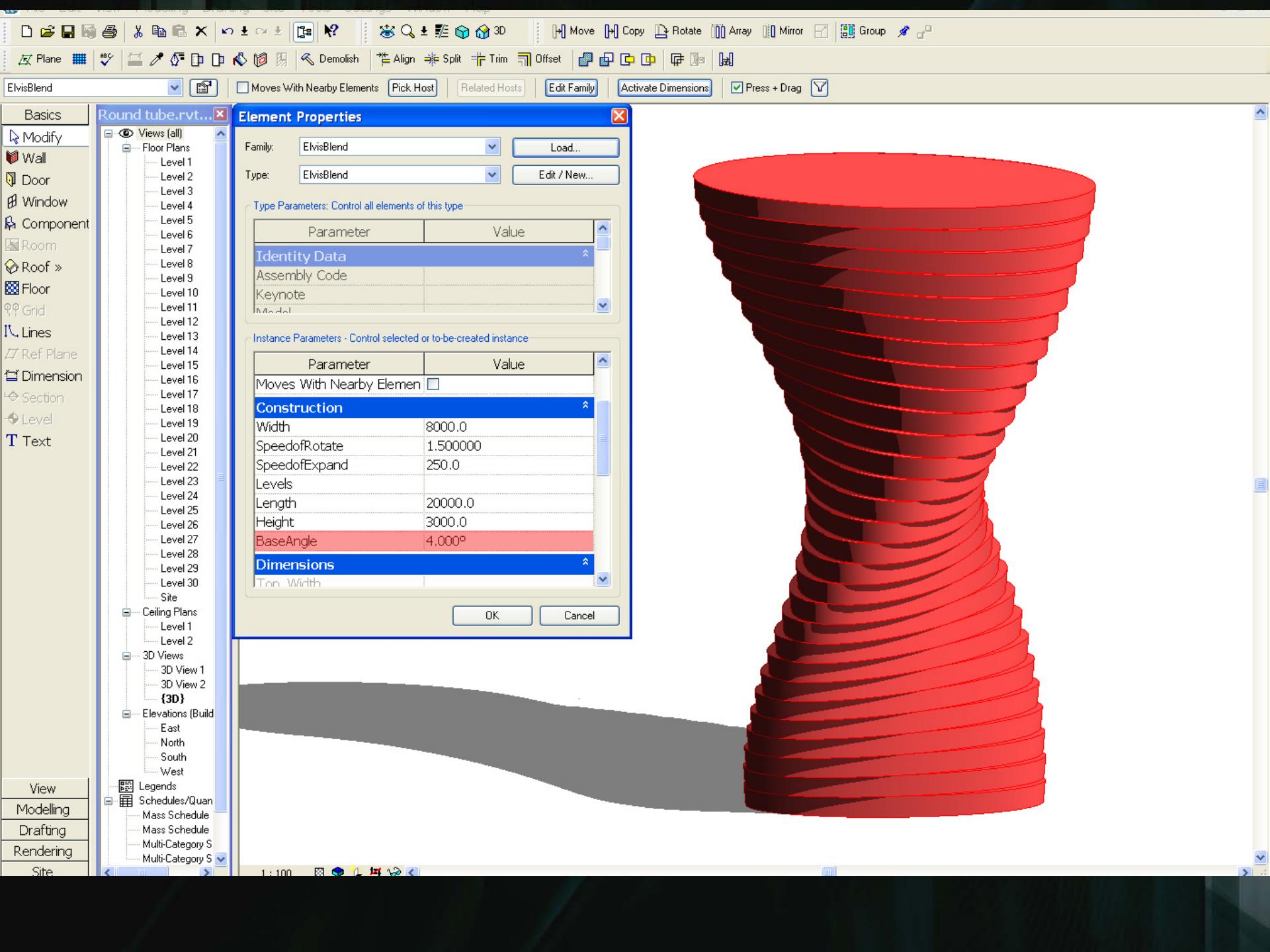
高可視性

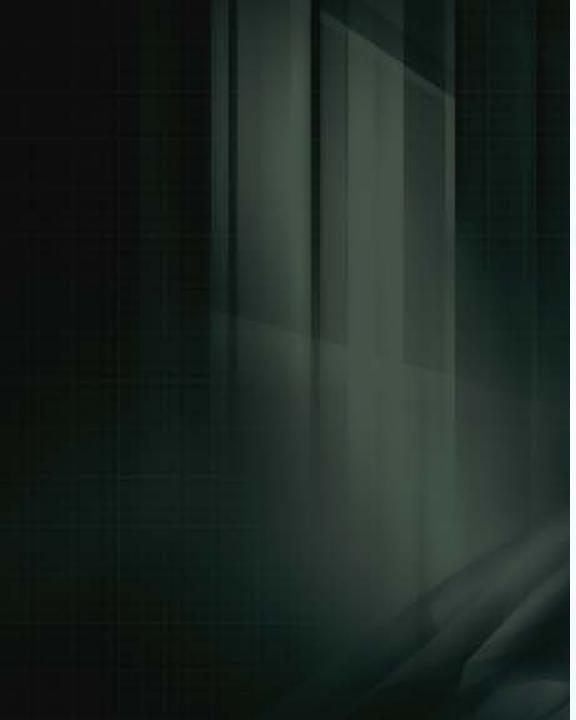
可視性設計

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absolute world

BUILDING 2



absolute world

BUILDING 2

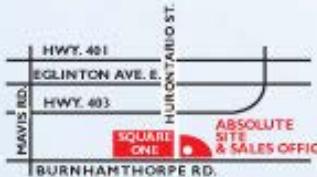
AbsoluteWorld's two buildings, as envisioned by their creator, Yansong Ma.

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."

absolute world

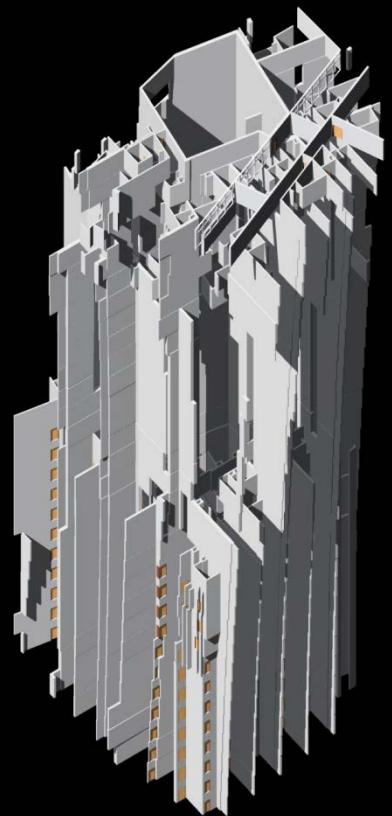
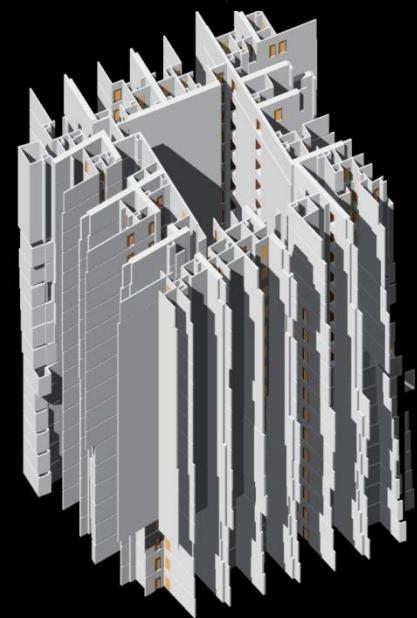
BUILDING 1

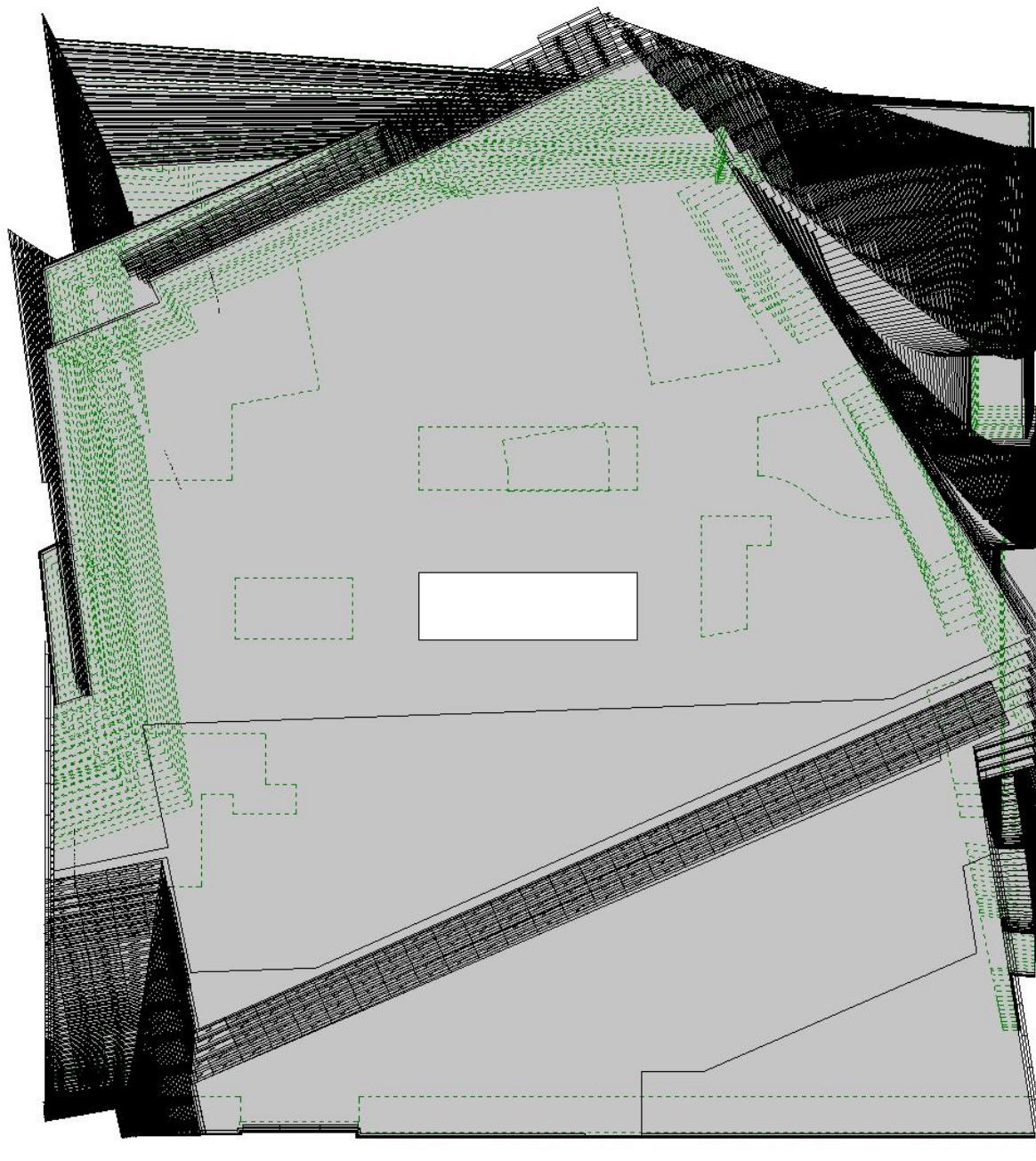


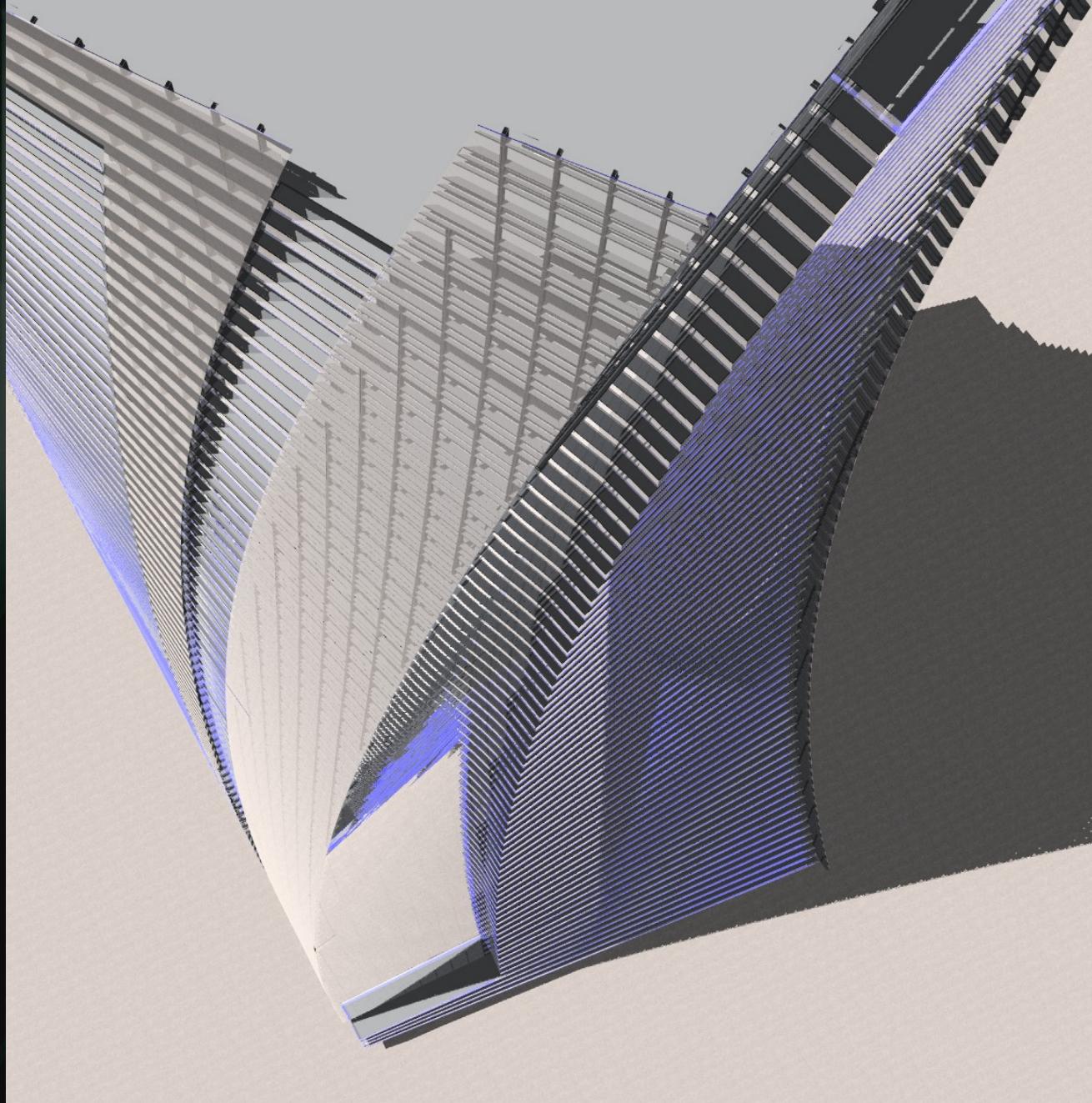
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SAT. & SUN.: 11 A.M. - 6 P.M.
FRI: CLOSED

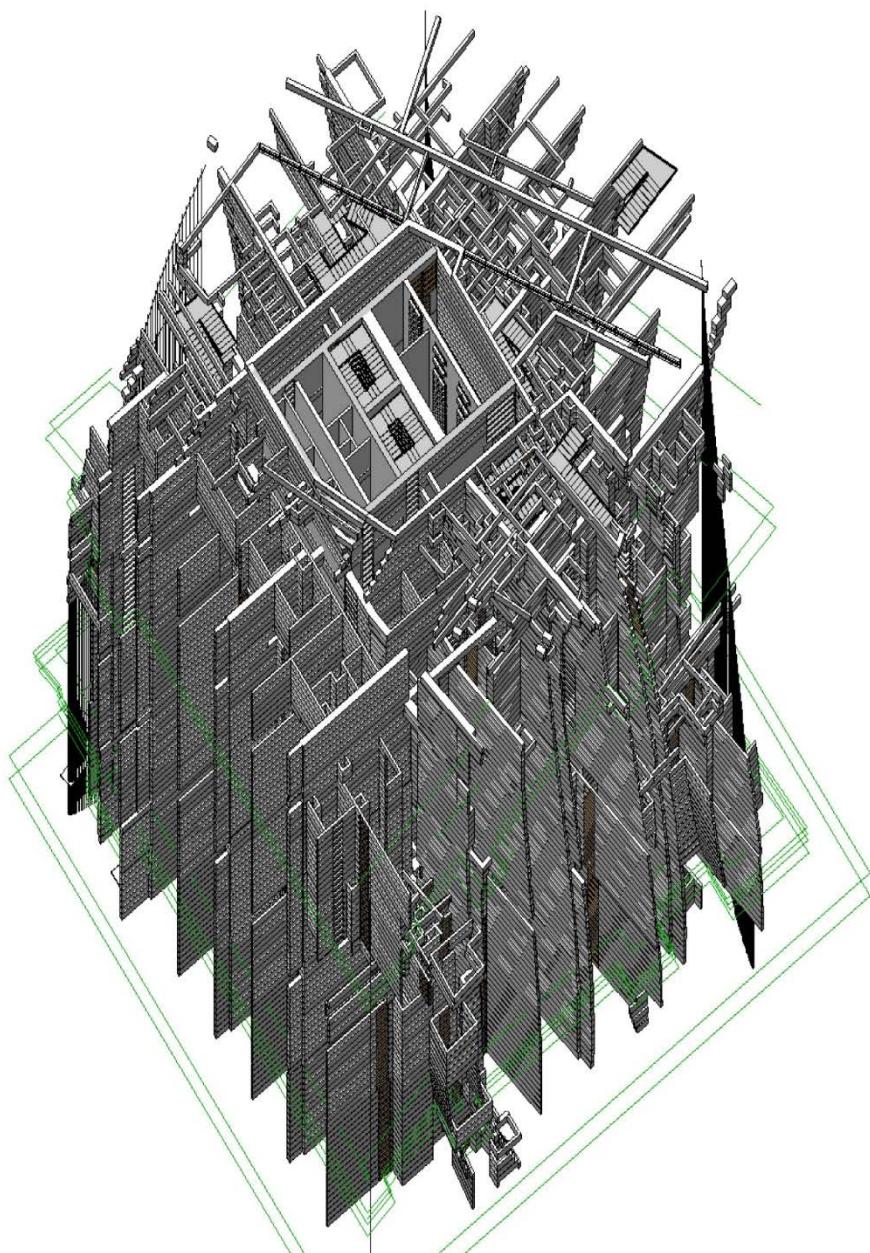
Chargers Residential Units Area 57,745 sqm
Floor Area 1551,455 sqm Building Height 364 m

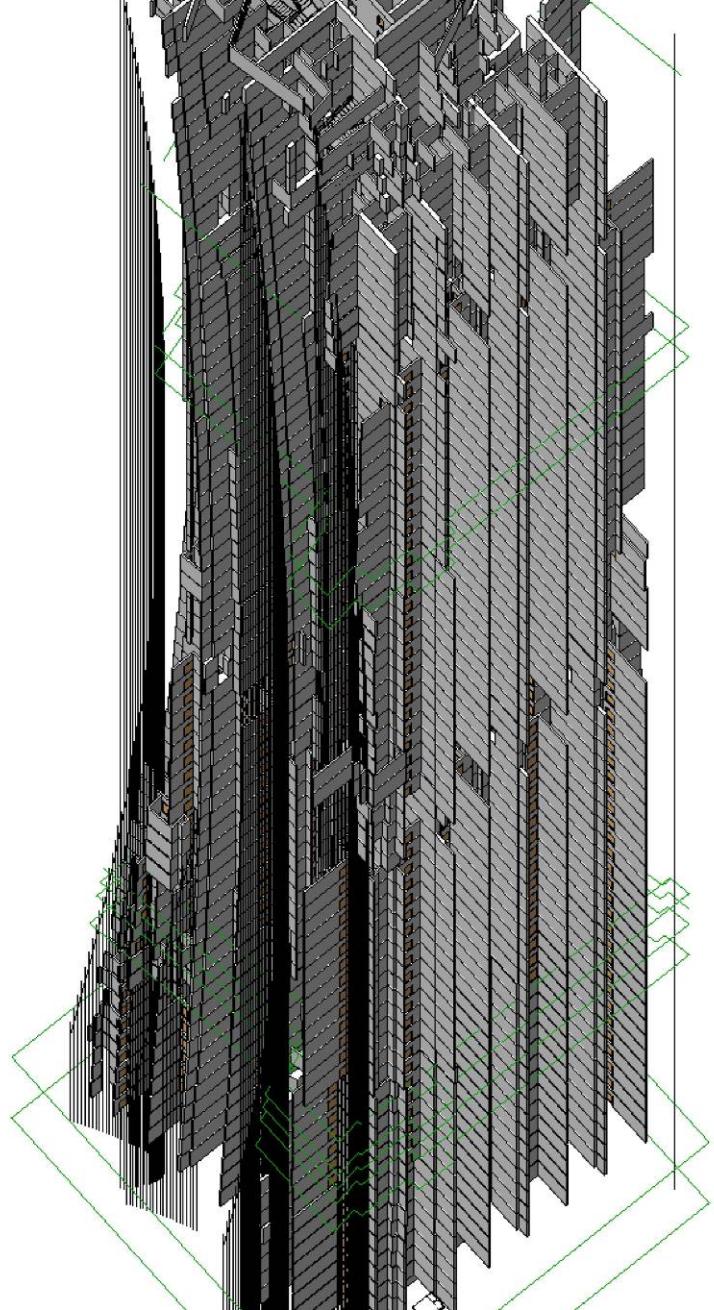
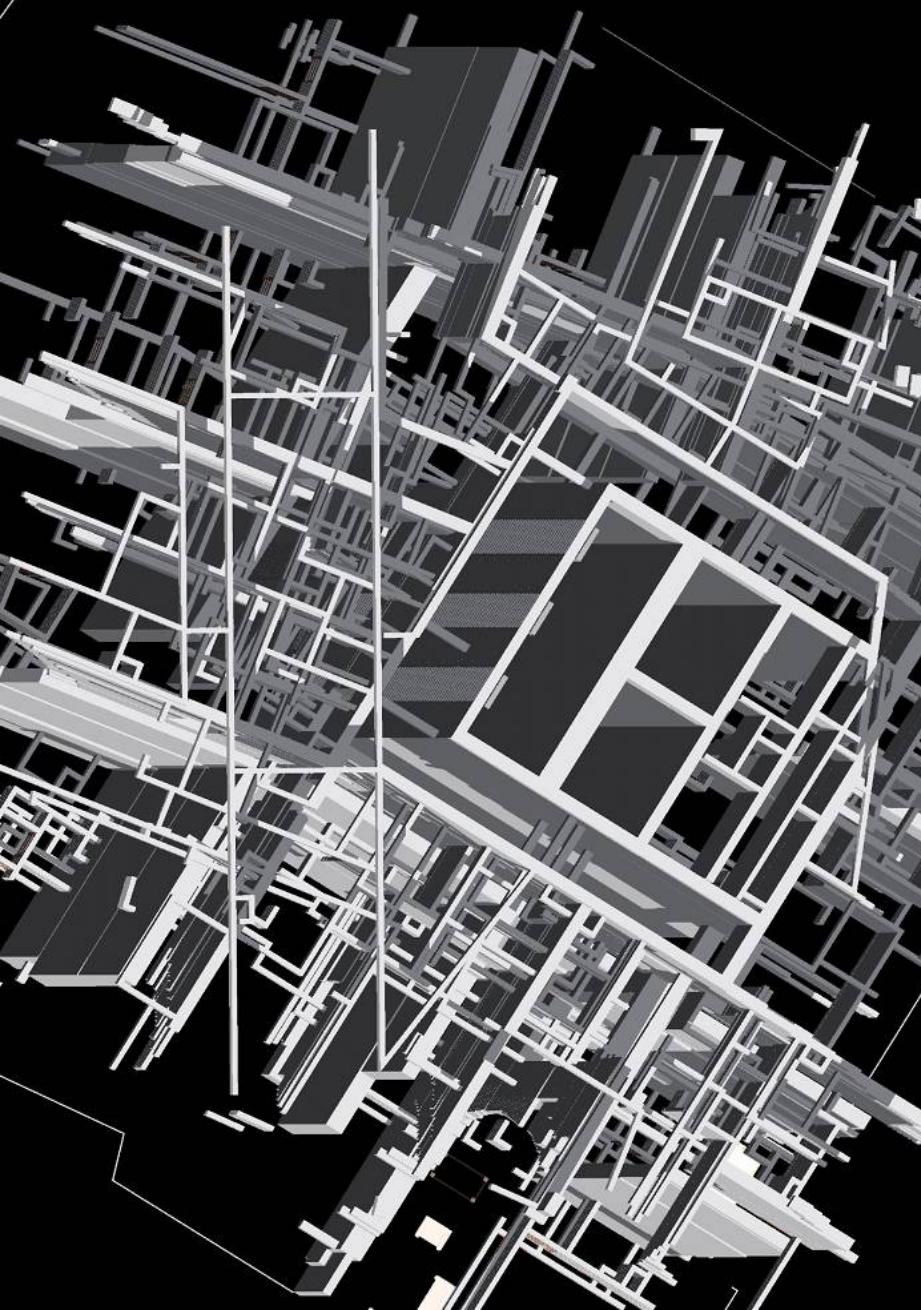
Dubai Ocean Heights One

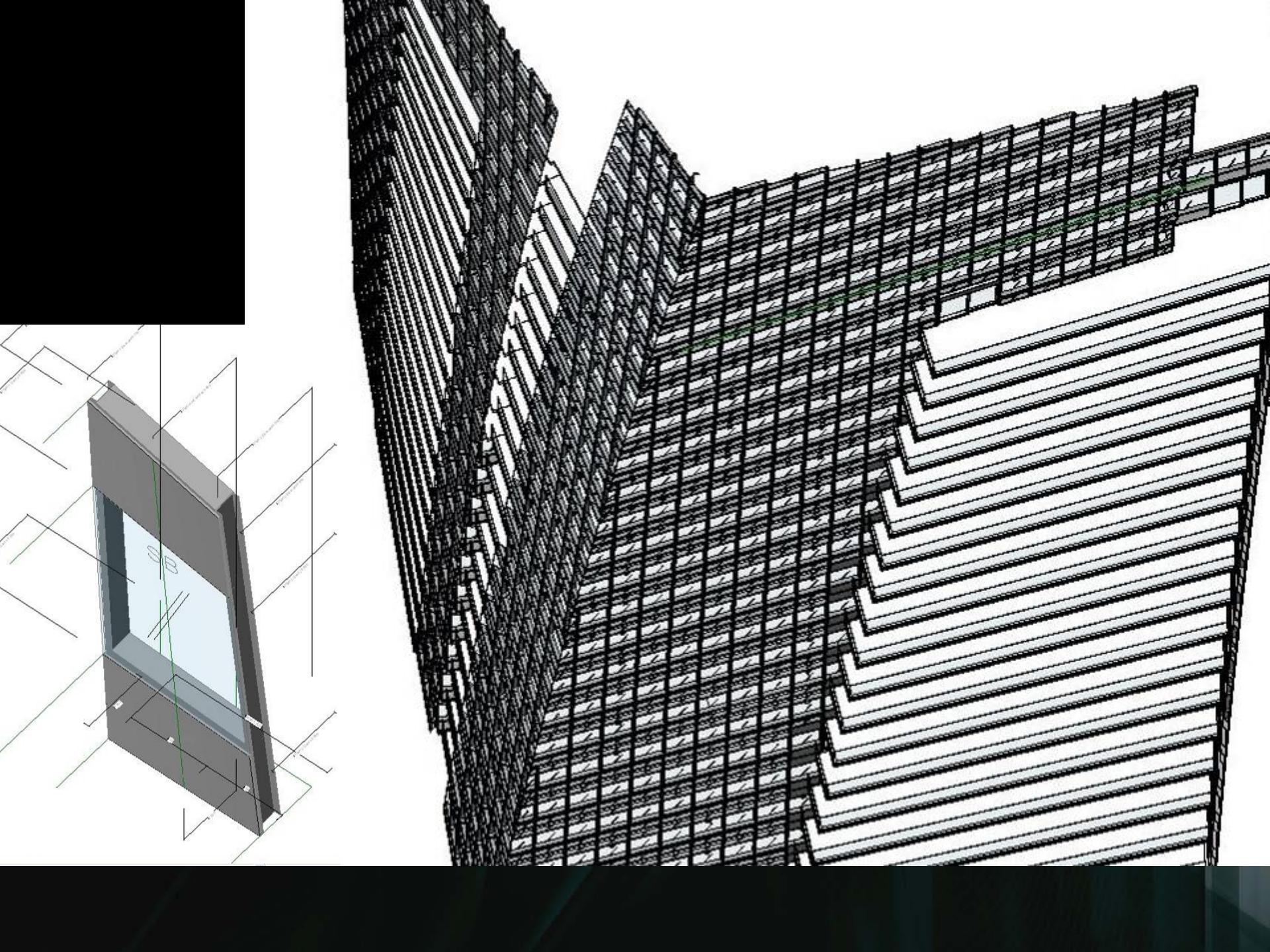












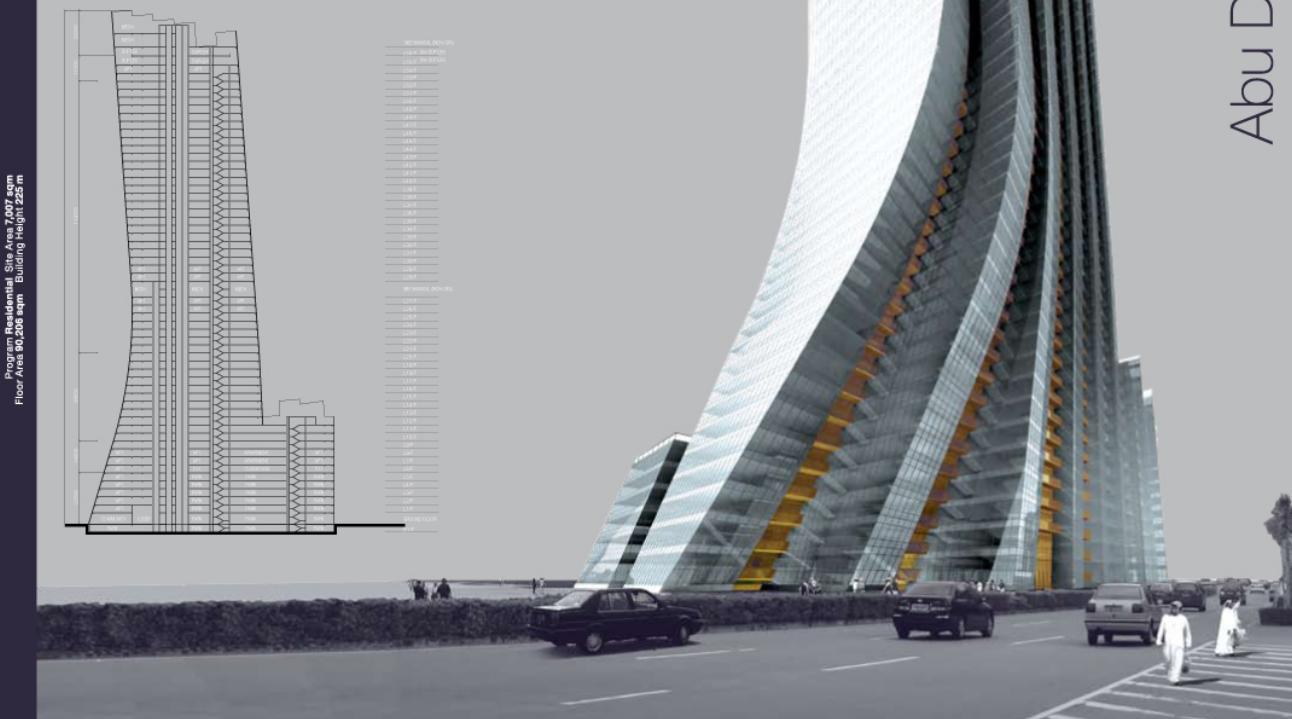


Abu Dhabi Empire Tower

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.



Dubai Ocean Heights Two

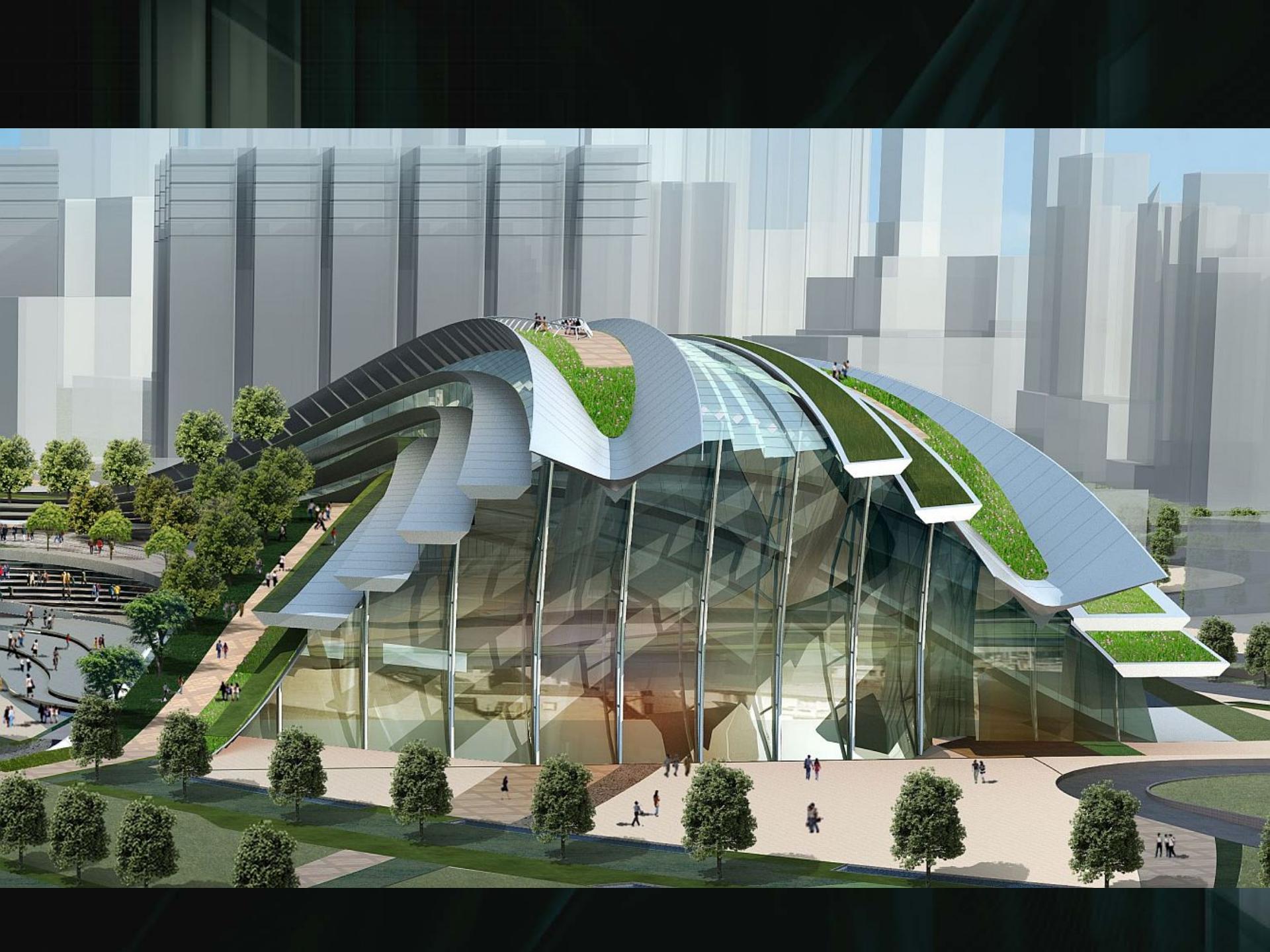
Ocean Heights Two is also located in Dubai Marina, UAE, along with its sister project, Ocean Heights One. At 460 meters in height and 105 floors, it will be the tallest tower in its vicinity. However, unlike its predecessor, the requirements for more modulated units up to the 60th floor, forced a different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

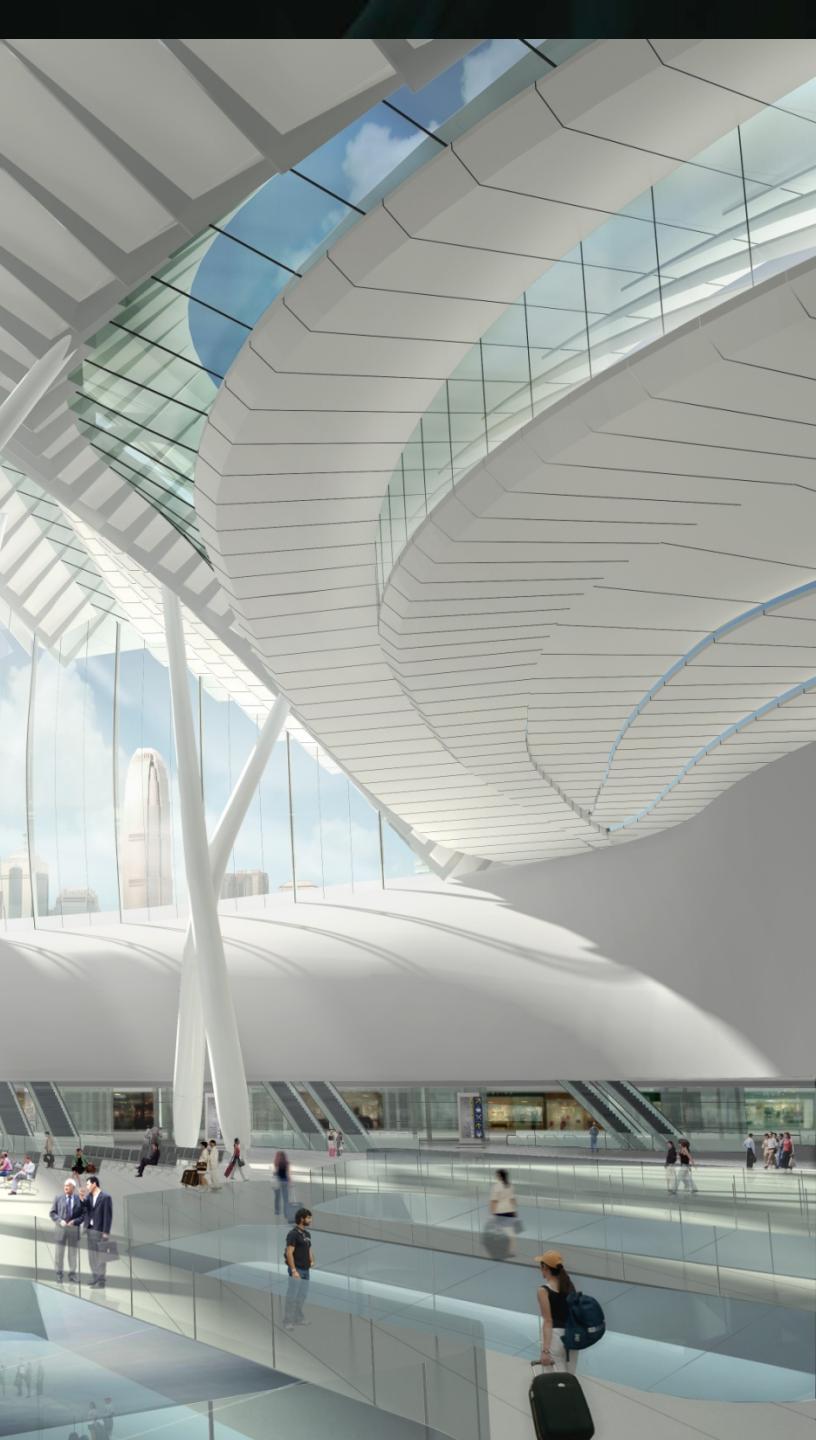
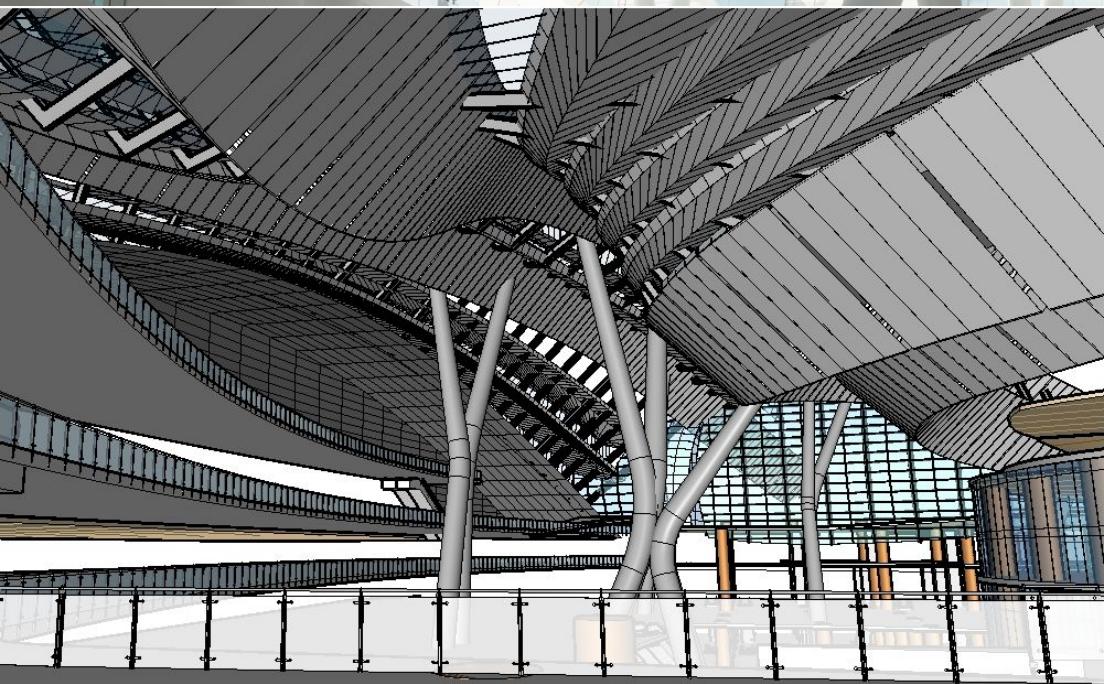
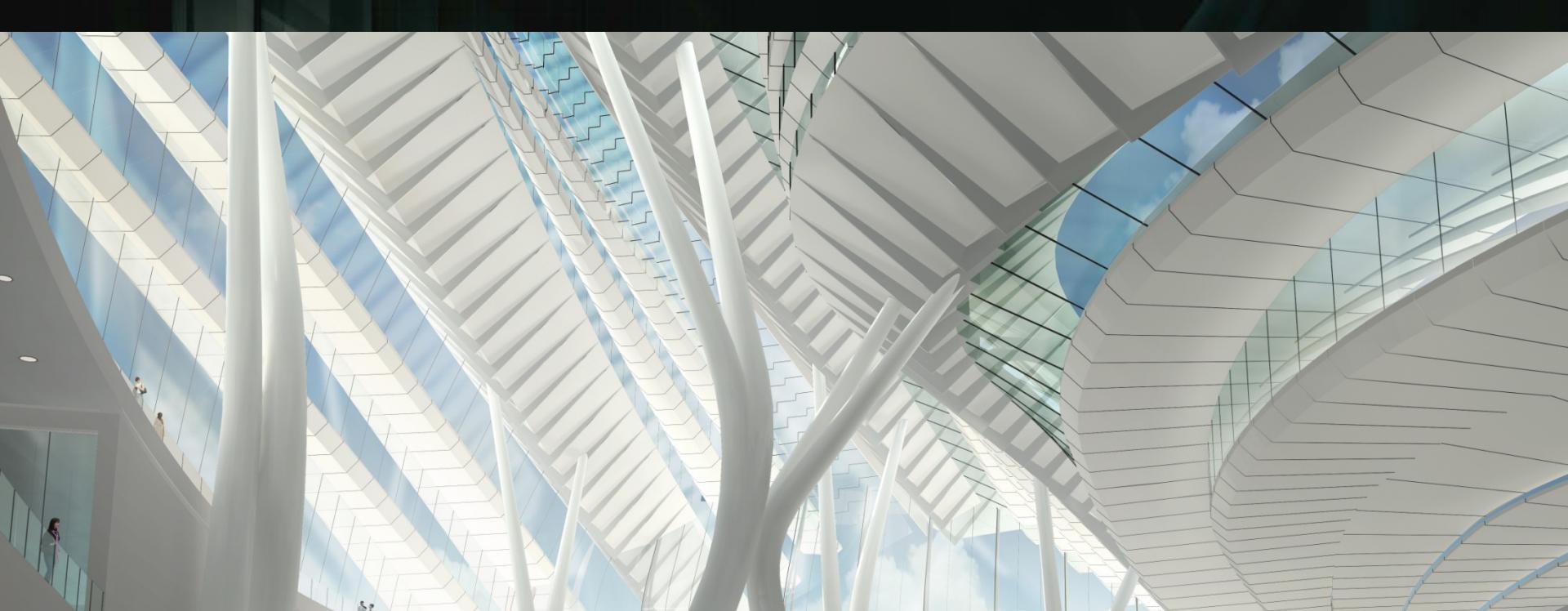
The first 60th floors of the tower are intended to be service apartments, which in order to be marketable, needed to have the majority of units standardized. The curved shape of the tower improves views past its densely located neighbors. The playfulness of this tower was concentrated into the two most 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.





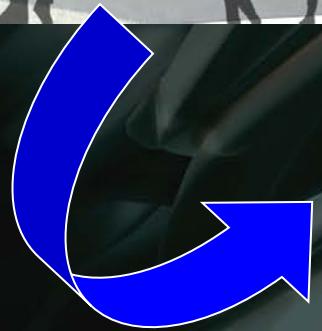




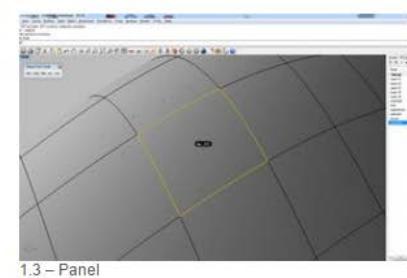
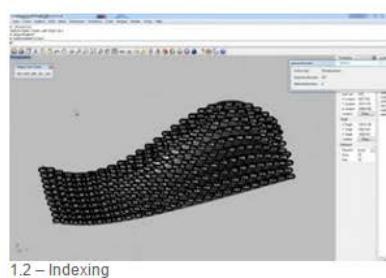
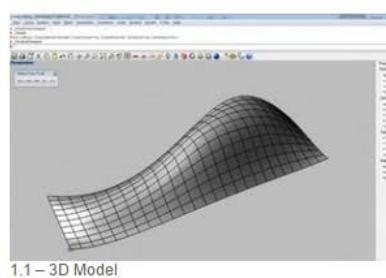


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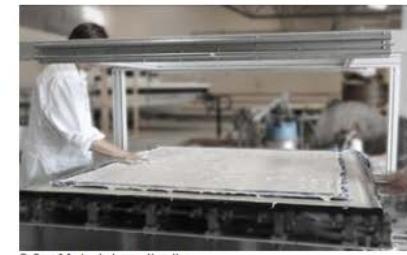
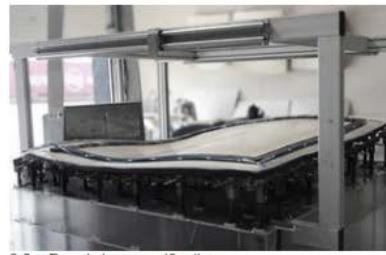


从建造到制造



Step 2 – Mould Preparation

The casting sides are applied to the mould surface in reference to the projected lines from the above suspended laser projector. The mould position is tested to verify the final panel shape, finally the material is added to the mould surface.



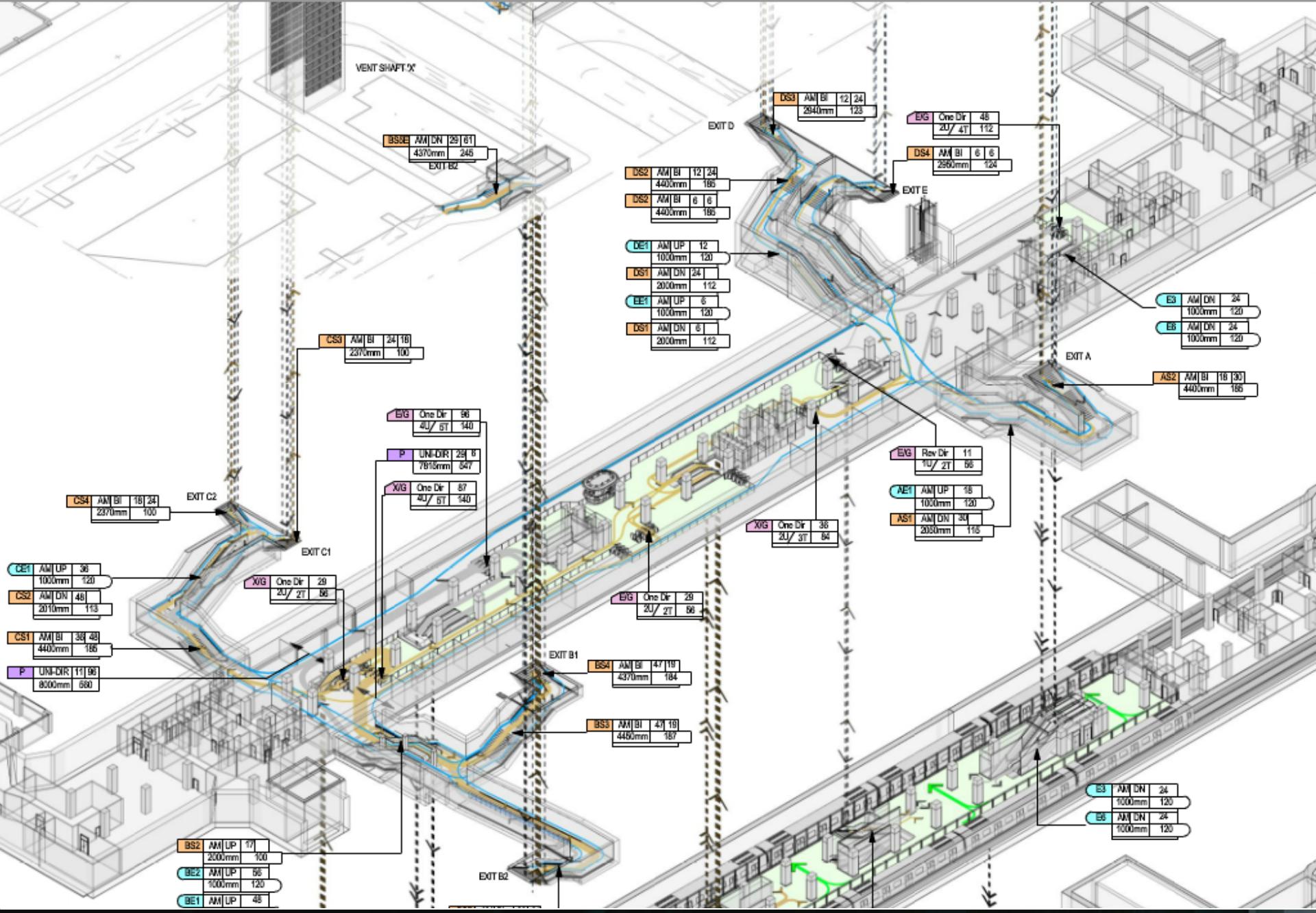
Step 3 – Casting panel

The mould is positioned to the final panel shape and is left until the material is hardened. After hardening, the mould is positioned to release the panel from the surface and the finished panel can be extracted.



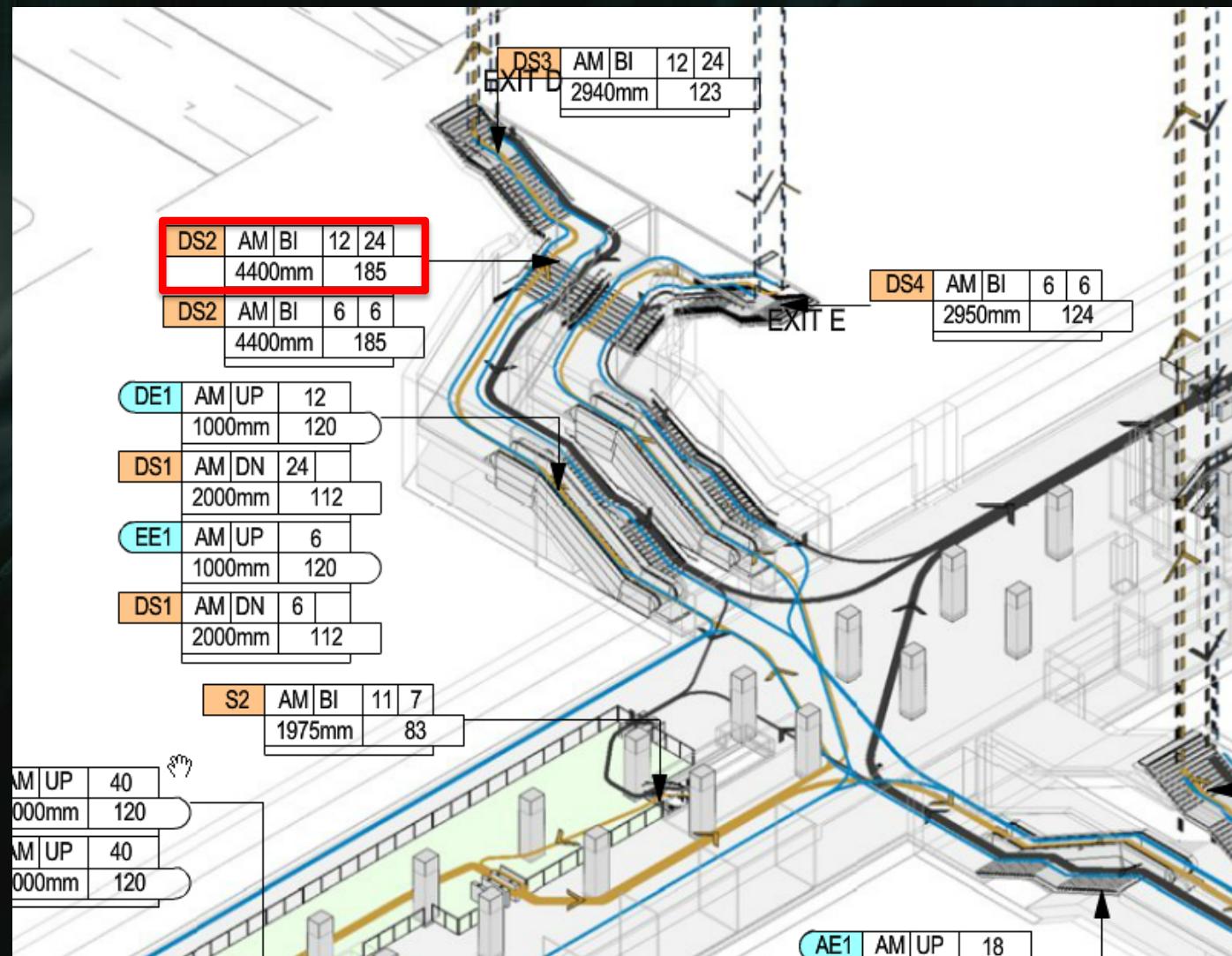
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STAIR SCHEDULE

NAME	STAIR WIDTH (mm)	NORMAL AM PEAK				TOTAL CAPACITY (U)
		DIR. (UP/DN/BI)	UP	DN	BI	
AS1	2050	DN	103	115	86	115
AS2	4400	BI	220	246	185	185
AS2E	4400	UP	220	246	185	220
BS1	2000	UP	100	112	84	100
BS2	2000	UP	100	112	84	100
BS3	4450	BI	223	249	187	187
BS4	4370	BI	219	245	184	184
BS4E	2630	UP	132	147	110	219
BS5	4370	BI	219	245	184	184
BS5E	4370	DN	219	245	184	245
CS1	4400	BI	220	246	185	185
CS2	2010	DN	101	113	84	113
CS3	2370	BI	119	133	100	100
CS3E	2370	UP	119	133	100	119
CS4	2370	BI	119	133	100	100
CS4E	2370	UP	119	133	100	119
DS1	2000	DN	100	112	84	112
DS1	2000	DN	100	112	84	112
DS2	4400	BI	220	246	185	185
DS2	4400	BI	220	246	185	185
DS3	2940	BI	147	165	123	123



Edit Label



Select parameters to add to the label. Parameters will be combined into a single label.

Enter sample values to represent this label in the family environment.

Wrap between parameters only

Category Parameters

Select available fields from:

Stairs

Actual Number of Risers

Actual Riser Height

Actual Tread Depth

Assembly Code

Assembly Description

Assembly Name

Calculated Capacity_AM

Calculated Capacity_Evacuation

Comments

Cost

Description

Dir_AM (UP/DN/BI)

Dir_EVA (UP/DN)

Dir_PM (UP/DN/BI)



Label Parameters

Parameter Name	Spaces	Prefix	Sample Value	Suffix	Break
1 Calculated Capacity_Evacua			EVA		<input type="checkbox"/>



OK

Cancel

Apply

A	B	C	D	E	F
Esc. No	Stair Name	Type Mark	Width	Actual Number of	Actual Riser
E7		ESC	1000	23	246
E8		ESC	1000	23	246
E9		ESC	1000	23	246
E10		ESC	1000		
E23		ESC	1000		
E11		ESC	1000		
E12		ESC	1000		
E13		ESC	1000		
E26		ESC	1000		
E25		ESC	1000		
E17		ESC	1000		
E18		ESC	1000		
E19		ESC	1000		
E15		ESC	1000		
E16		ESC	1000		
E14		ESC	1000		
E24		ESC	1000		
E1		ESC	1000		
E2		ESC	1000		
E3		ESC	1000		
E4		ESC	1000		
E6		ESC	1000		
E5		ESC	1000		
E20		ESC	1000		
E21		ESC	1000		
E22		ESC	1000		
BE1	BE1	ESC	1000		
BE2	BE2	ESC	1000		
BE3	BE3	ESC	1000		
BE4	BE4	ESC	1000	22	227
BE5	BE5	ESC	1000	22	227
BE6	BE6	ESC	1000	22	227
	ES2	FINISH	1850	17	147
	ES2		1900	17	147
	ES3	FINISH	1850	19	134
	ES3		1900	19	132
	ES5	FINISH	1850	9	173

Autodesk Revit 2014 - S

Architecture Structure Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Modify Modify Schedule/Quantities

Properties

Category: 0.0 Parameter: Format Calculated Unit Insert Delete Resize Hide Unhide All Insert Delete Resize Merge Insert Clear Group Ungroup Unmerge Image Cell Shading Borders Reset Font Align Horizontal Align Vertical

Properties Parameters Columns Rows Titles & Headers Appearance

Schedule Properties

Fields Filter Sorting/Grouping Formatting Appearance

Available fields:

- Actual Number of Risers
- Actual Riser Height
- Actual Tread Depth
- Assembly Code
- Assembly Description
- Assembly Name
- Base Level
- Calculated Capacity_AM
- Calculated Capacity_Evacuation
- Comments
- Cost
- Count
- Critical
- Description
- Dir_AM (UP/DN/BI)
- Dir_EVA (UP/DN)
- Esc. No
- Escalator
- Escalator/Passenger Conveyor
- Family
- Family and Type
- Function
- Keynote
- Landing Type
- Left Support Type
- Machine/Controller Location (MIT/MOT/ MIT/CO)
- Manufacturer
- Mark
- mark test
- Maximum Riser Height
- ...

Properties help

Project Browser - Z_T

- Area Sched
- Column Sched
- ESC SCHED
- Esc Sched
- ESCALATOR
- EVA_ESC S
- EVA_STAIR
- PM_ESC S
- PM_STAIR**
- Room Sched

STAIR SCHEDULE

- Stair Schedule-mickeymoka2
- Stair Schedule_mickeymoka
- Structural Column Schedule
- Wall Schedule

Calculated Value

Name: Capacity Up

Formula: Width / 1000 mm * 50

Discipline: Common

Type: Integer

Scheduled fields (in order):

- Type Mark
- Dir_PM (UP/DN/BI)
- Width
- Capacity Up**
- Capacity Down
- Capacity - Bi Direction
- Calculated Capacity_PM
- Stair Name

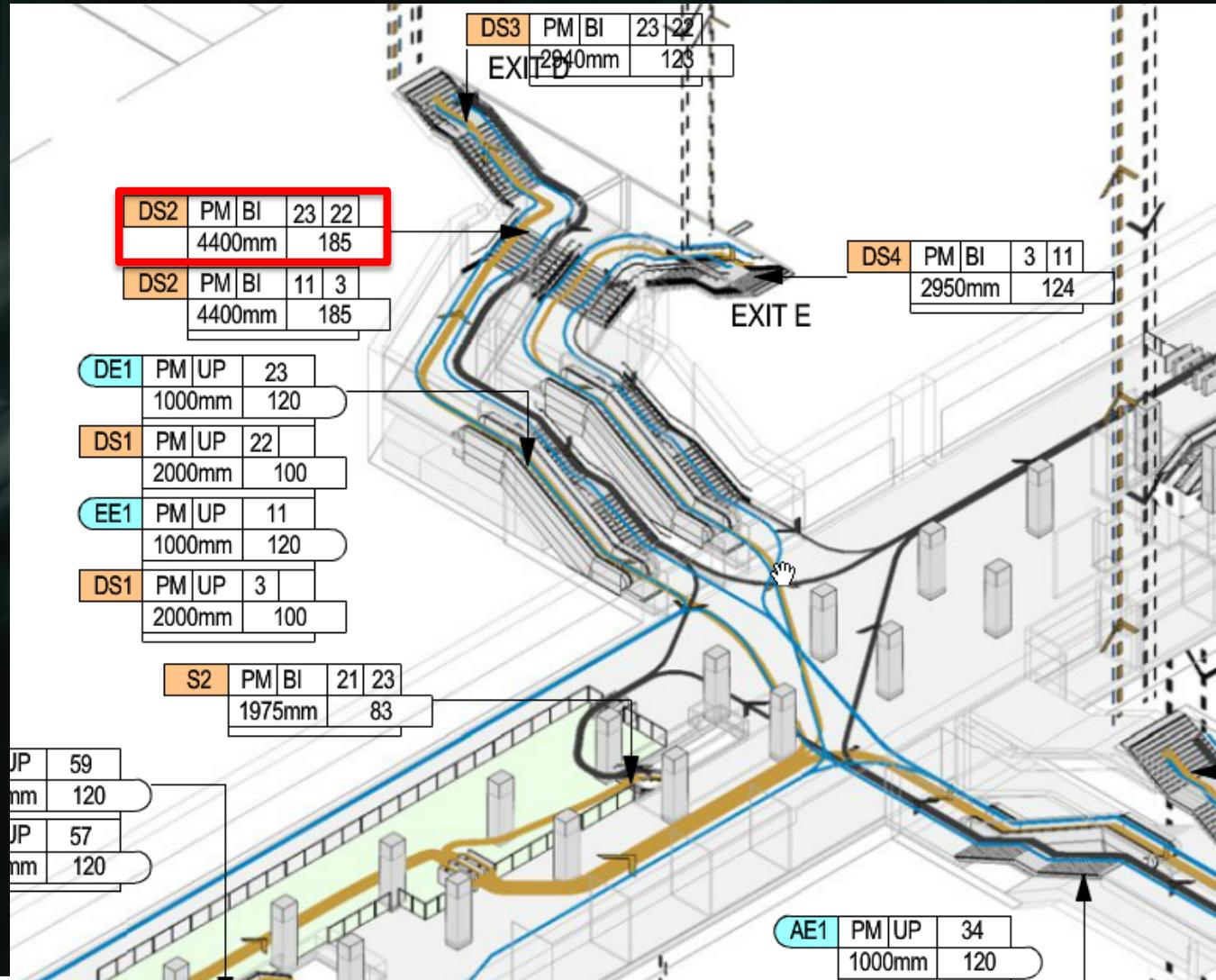
Add --> <-- Remove Add Parameter... Calculated Value...

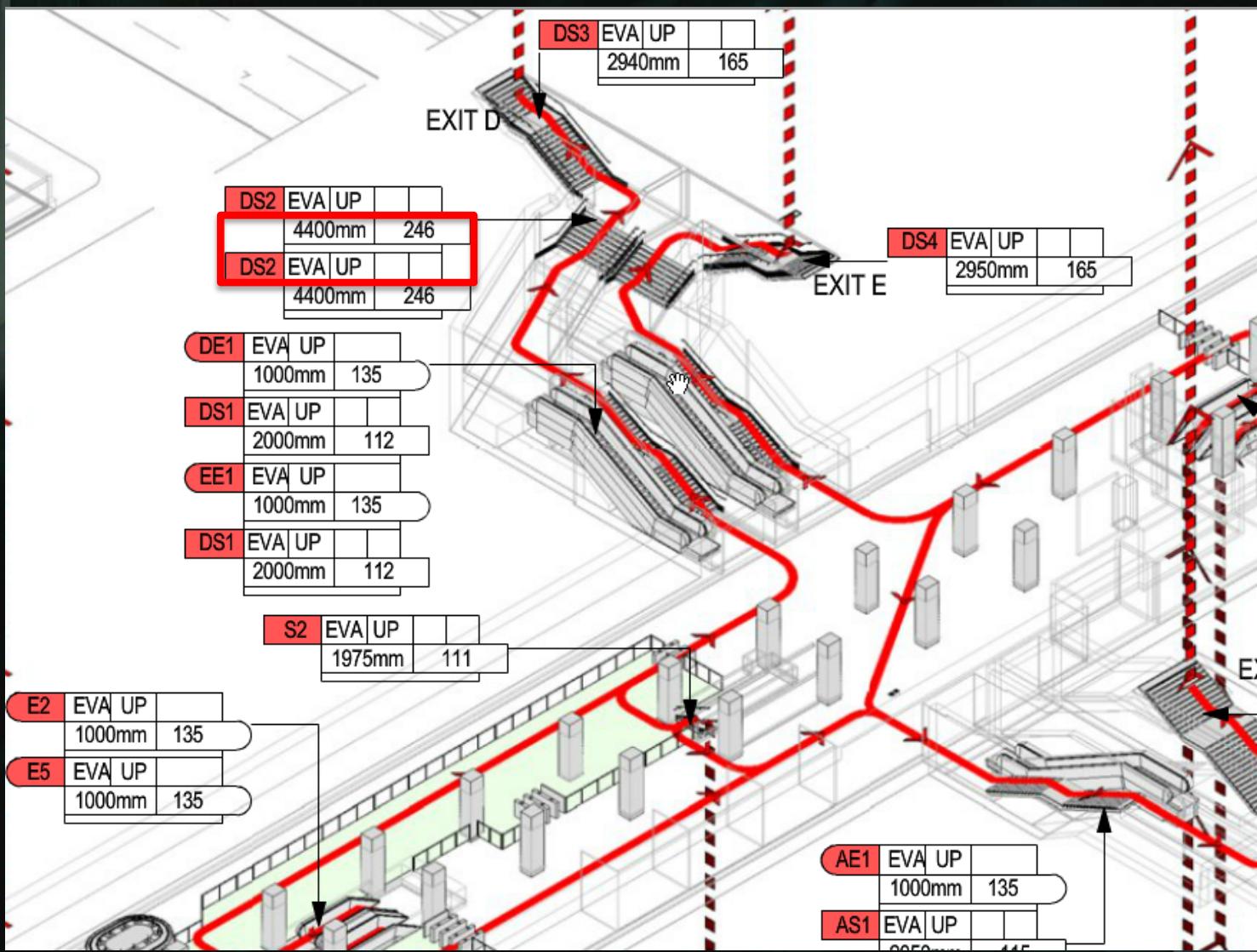
Edit... Delete Move Up Move Down 确定 取消 帮助

	BI	99	111	83	83
DN	99	111	83	111	
BI	99	111	83	83	

$$(23 + 22) / 185 = 24.3\% = \text{安全}$$

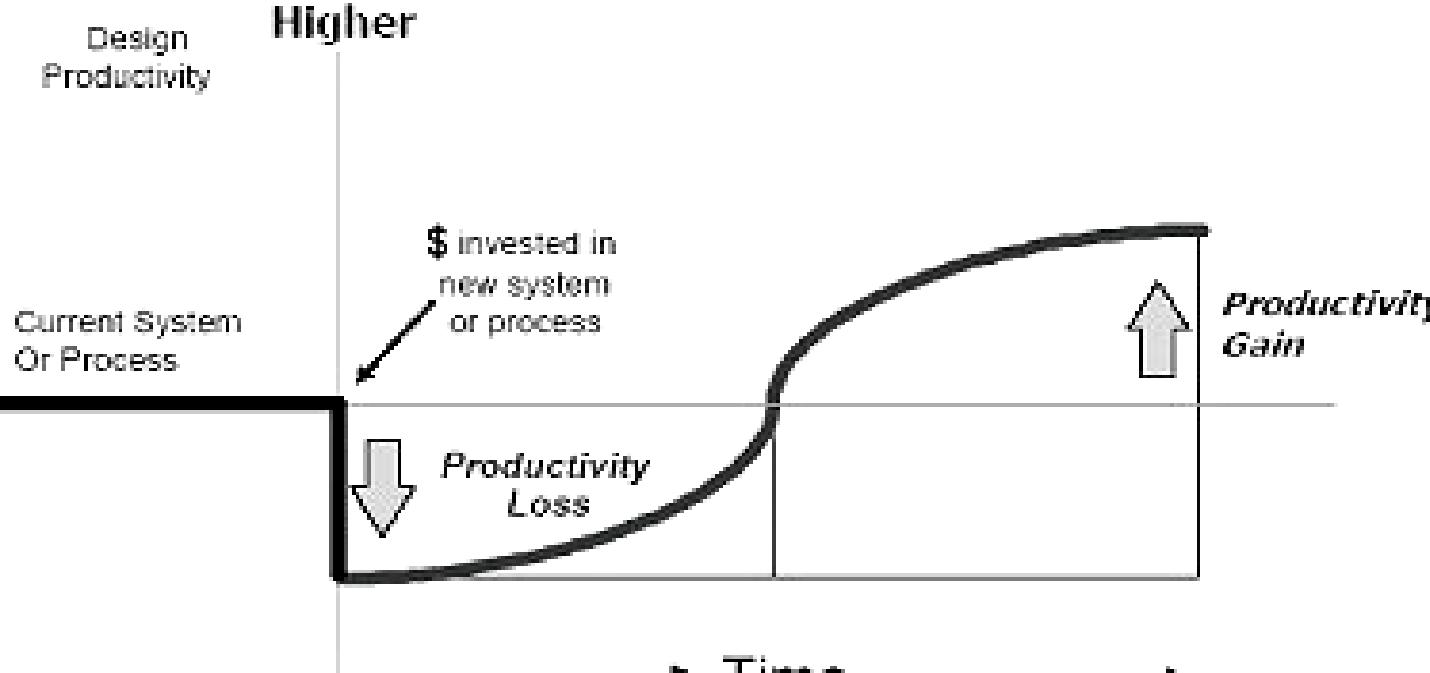
(安全指标超过80%，
可能会有危机)





物业管理 - 维修保护





$$\frac{(B - (\frac{B}{1+E})) \times (12 - C)}{A + (B \times C \times D)} = \text{First Year ROI}$$

A = cost of hardware and software (dollars)

B = monthly labor cost (dollars)

C = training time (months)

D = productivity lost during training (percentage)

E = productivity gain after training (percentage)

資料來源 26/1/07:
<http://aec.cadalyst.com/aec/article/articleDetail.jsp?id=124222>

生產效率 >60%

A = cost of hardware and software	\$6,000
B = monthly labor cost	\$4,200
C = training time	3 months
D = productivity lost during training	50%
E = productivity gain after training	25%

BIM为建筑界带来的冲击

1. 可视性型像化设计
2. 图纸制作
3. 各专业协调合作
4. 物件清单及投标文件
5. 自动化送审文件
6. 科学性分析及可持续发展设计
7. 复杂几何形状建筑
8. 从建造到制造
9. 运维
10.