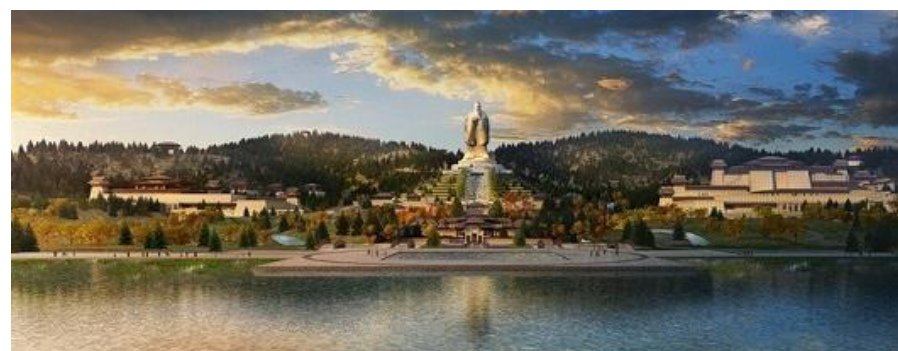




中国建筑马来西亚有限公司

CHINA STATE CONSTRUCTION ENGINEERING (M) SDN. BHD.
(1060634-X)

Utilization of BIM in LEEZA SOHO Tower



Two Symmetrical Spin Tower
connected by 4 bridges.



Zaha Hadid
1950.10.31 - 2016.3.31

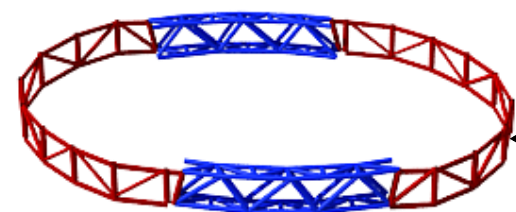
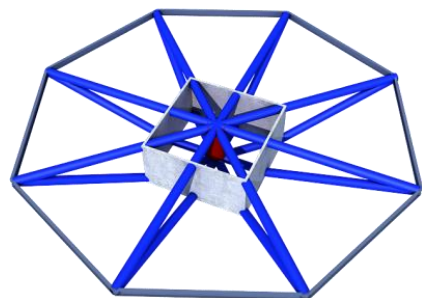


Difficulties & Challenges

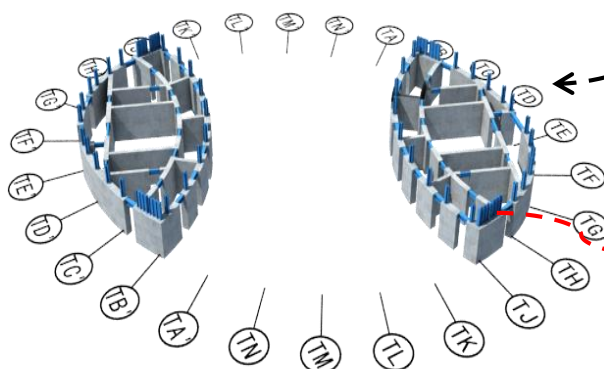




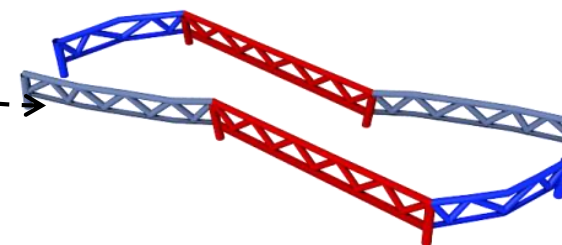
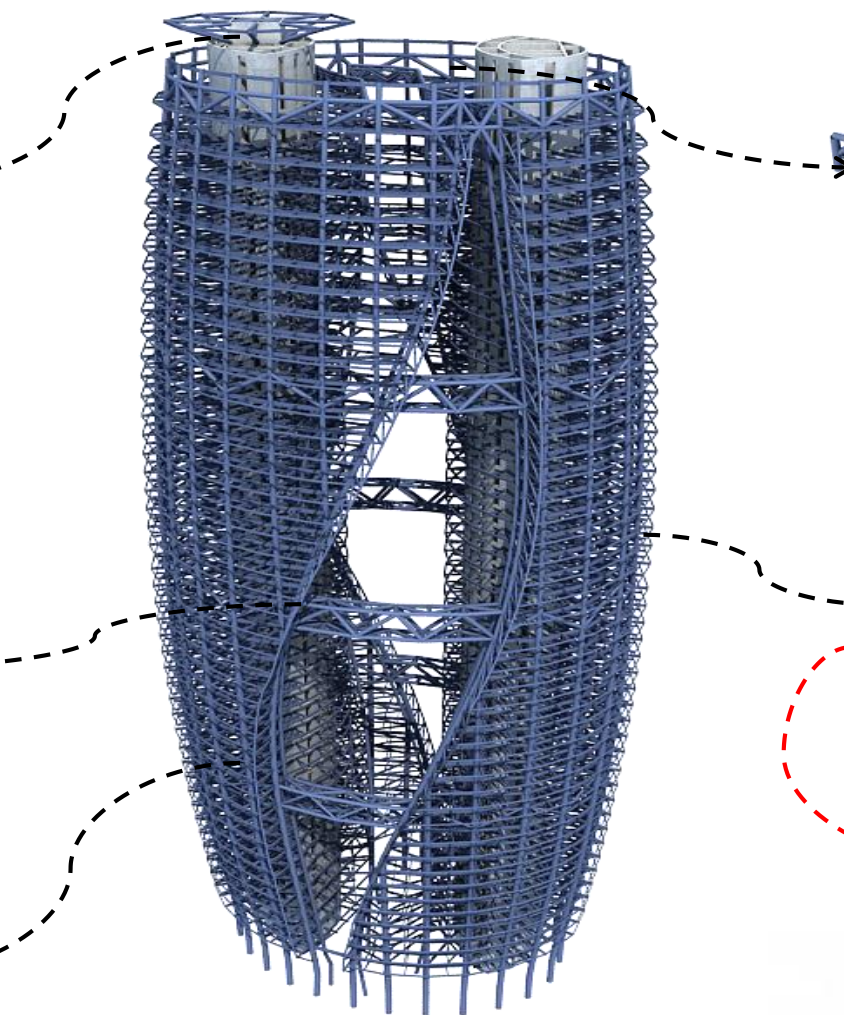
Helicopter platform



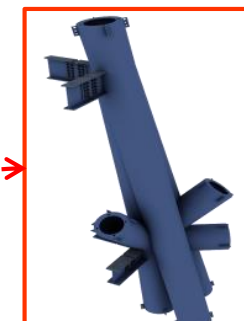
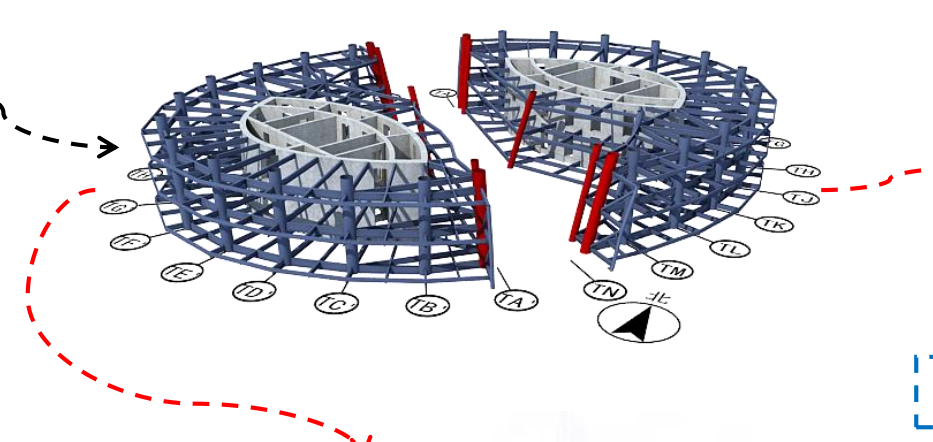
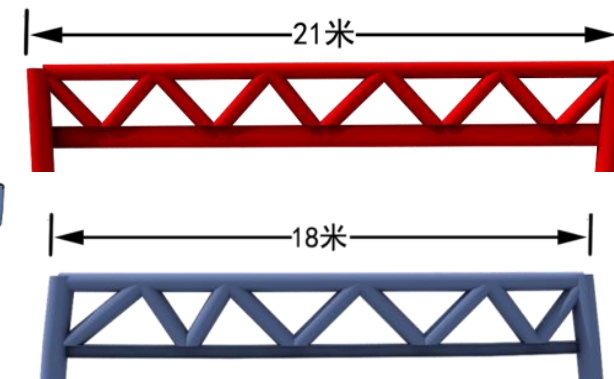
Connection Bridge



Oval Core Wall



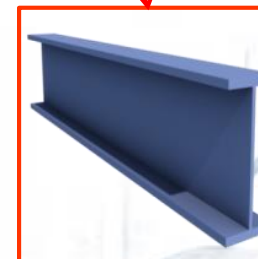
Skylight Truss



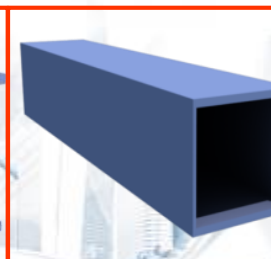
Y- Column



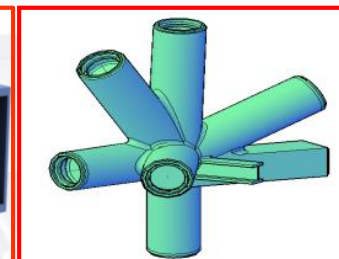
Composite Column and Beam



H型钢梁

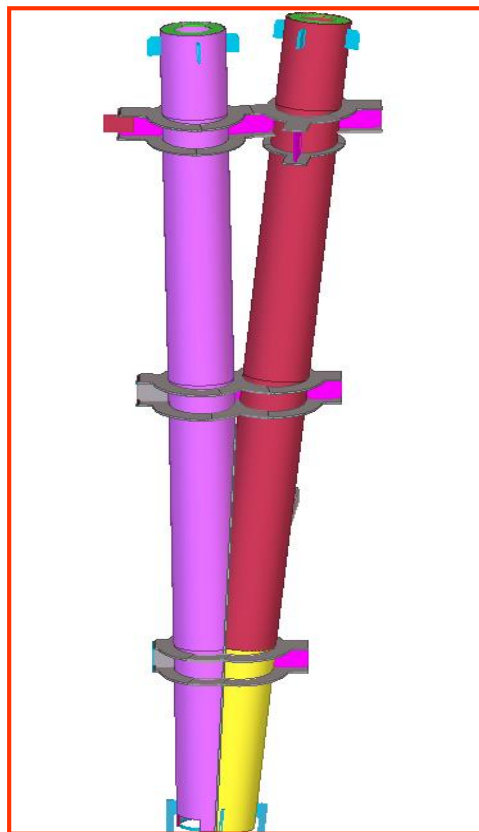
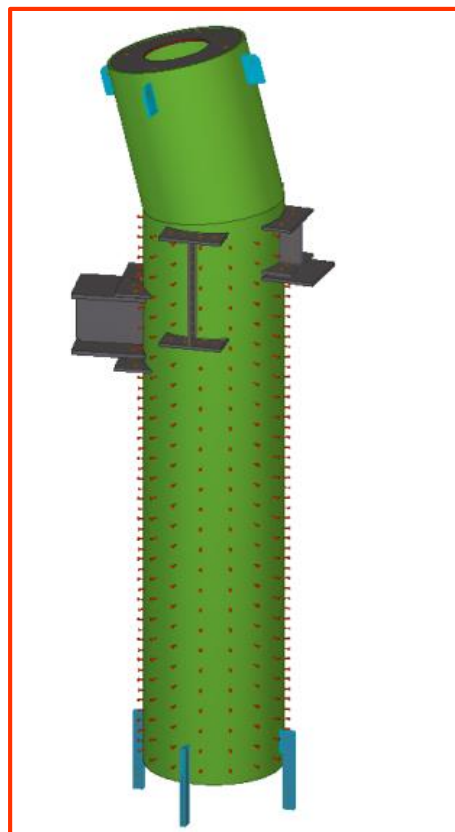
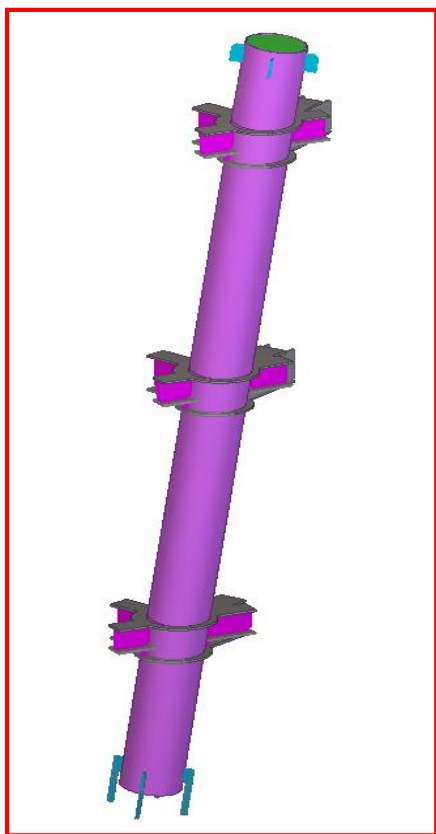


Box Beam

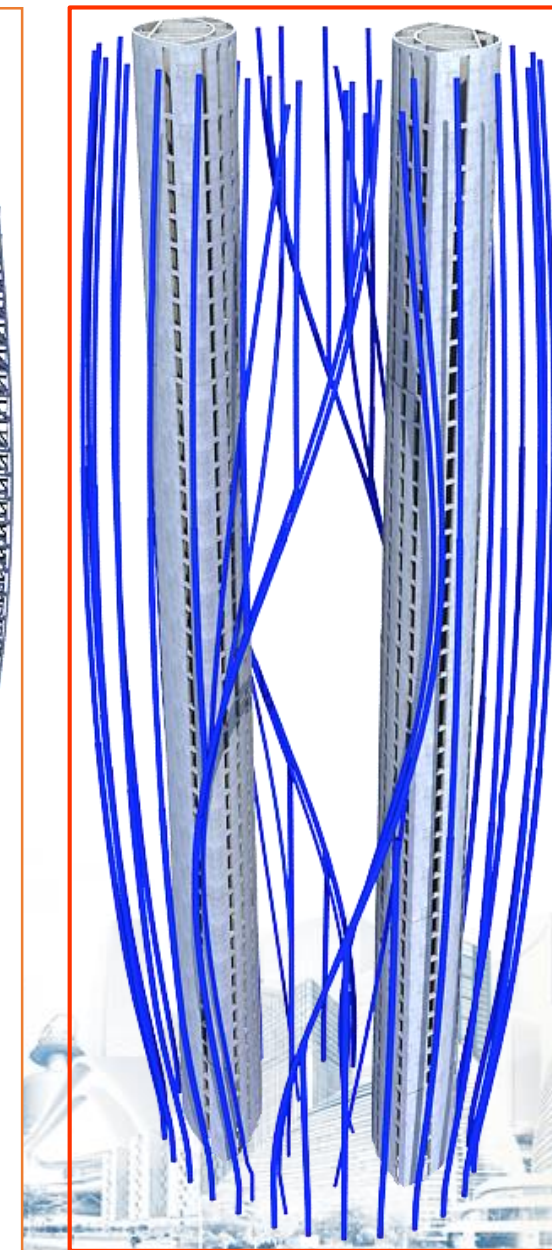
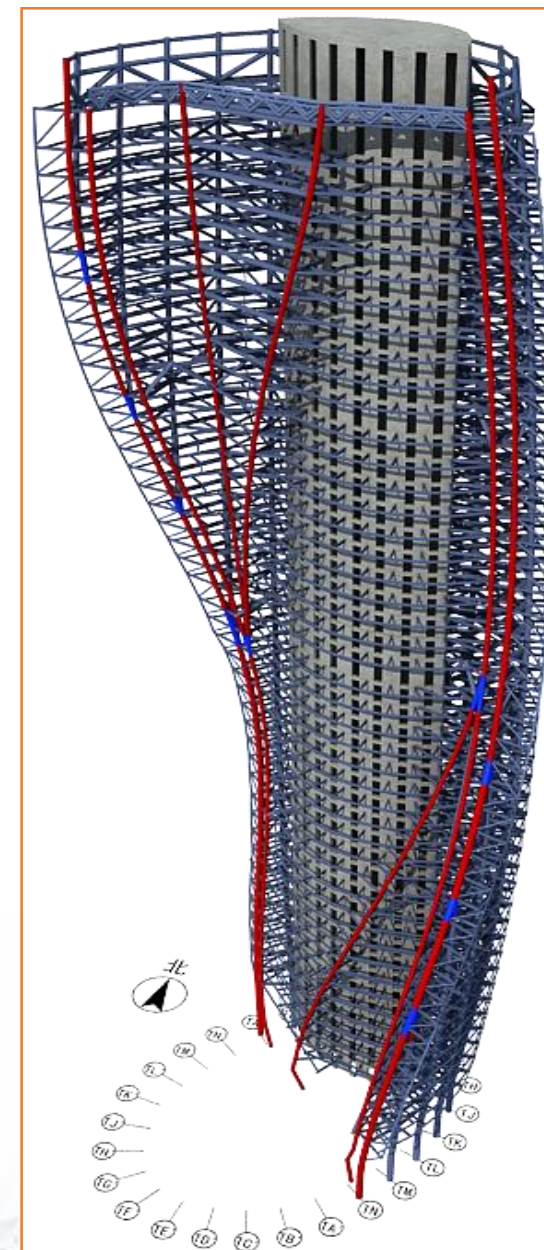


Cast iron joint

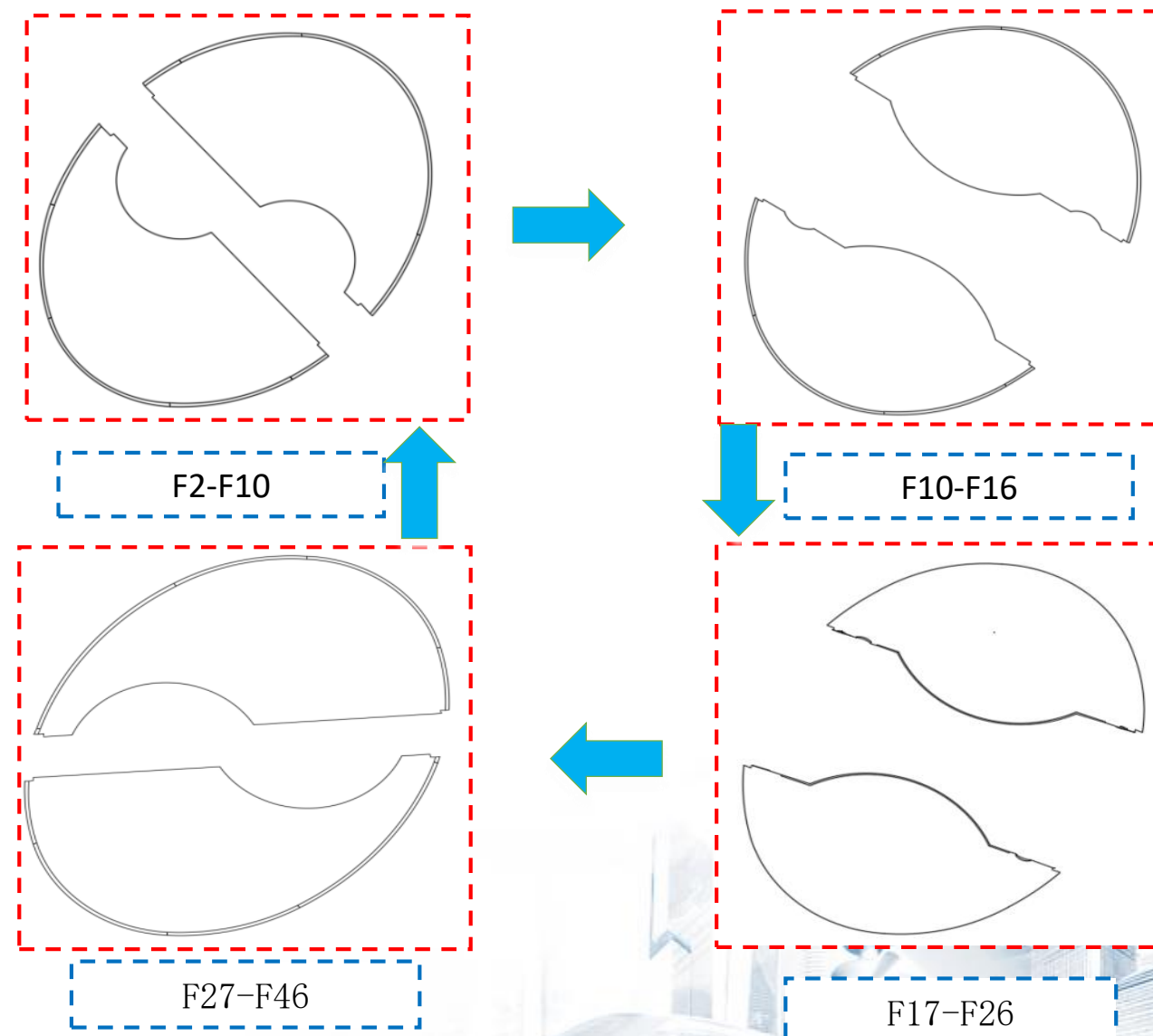
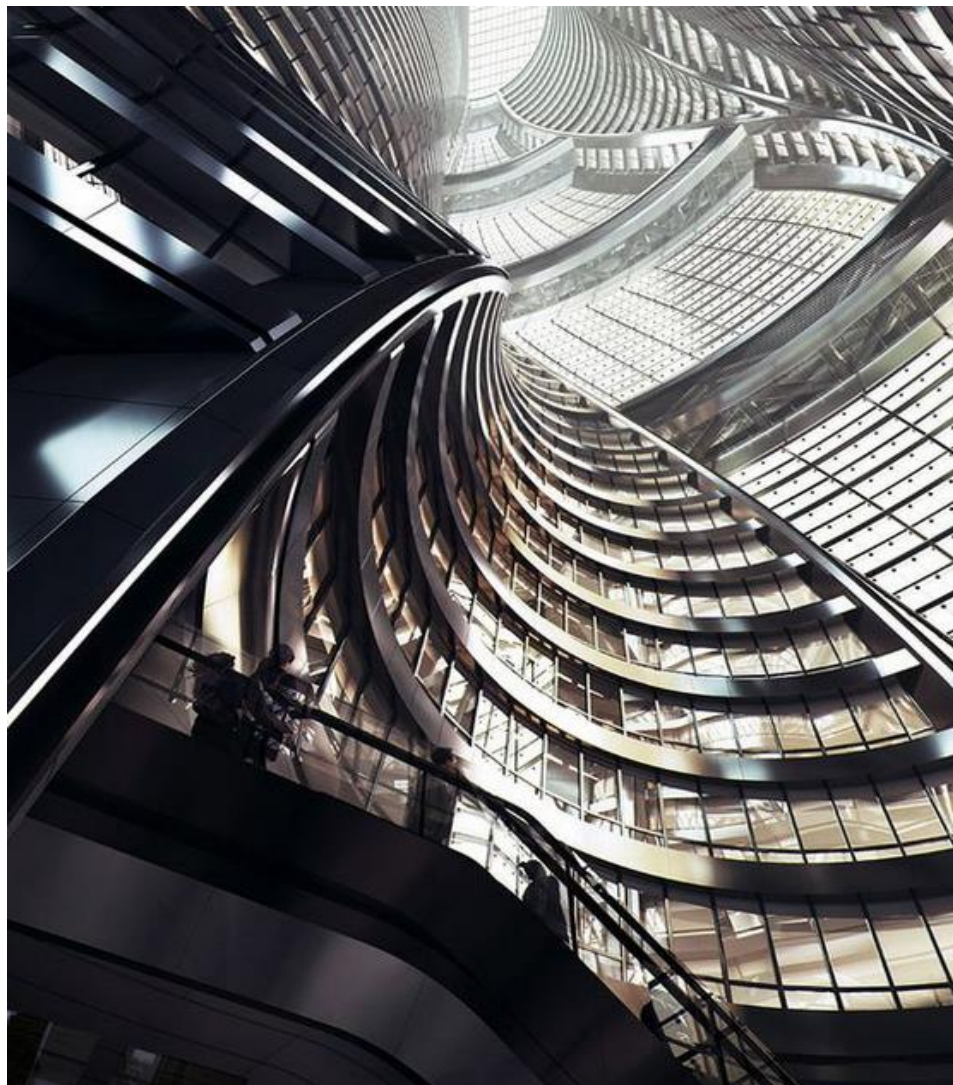
3D twisted steel column



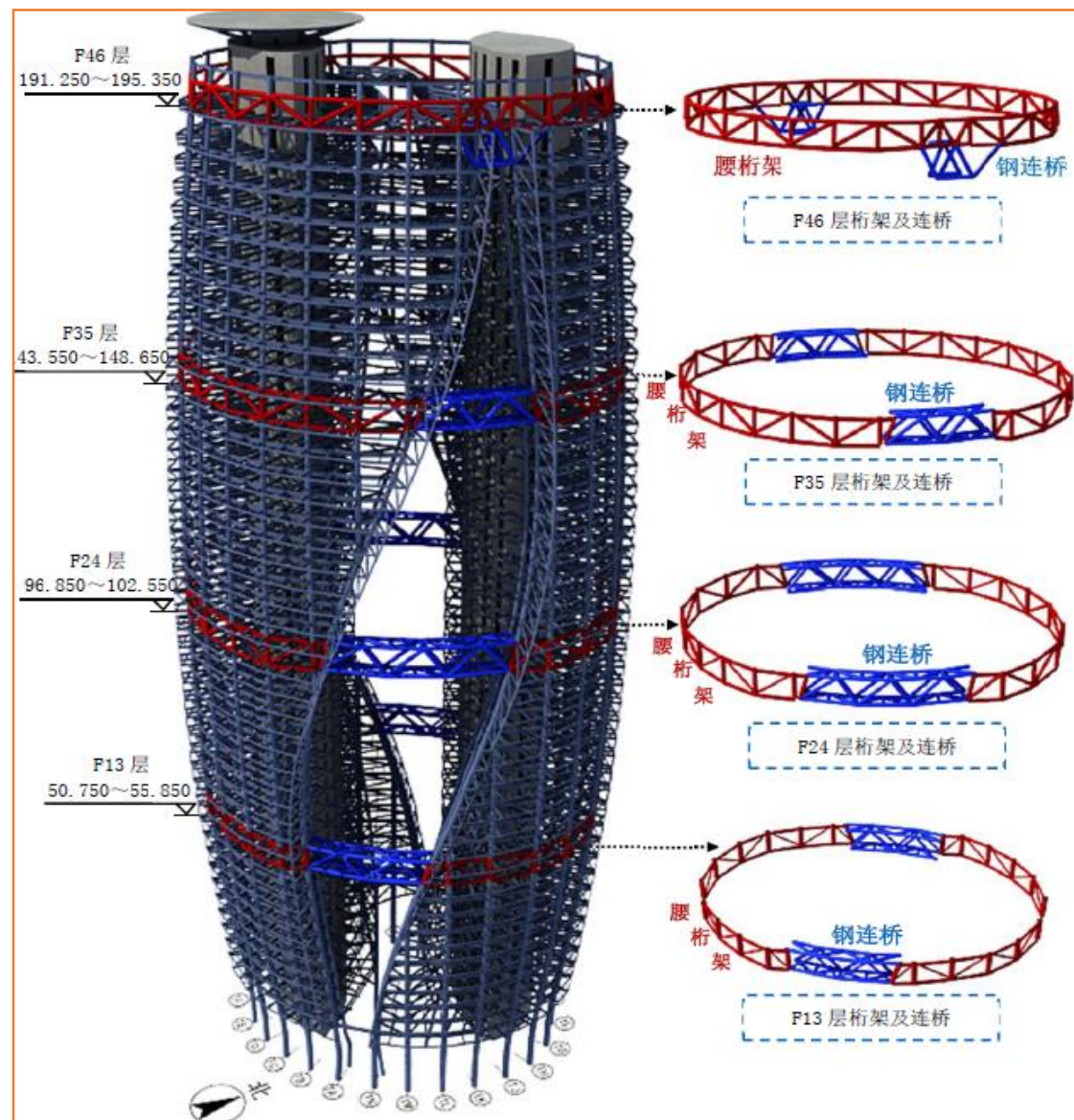
34 slope steel column, Maximum angle: 45° ,
Section: $\phi 1219 \times 30$ 、 $\phi 1219 \times 24$ 、 $\phi 813 \times 16$
Challenge: Design, Manufacture and installation



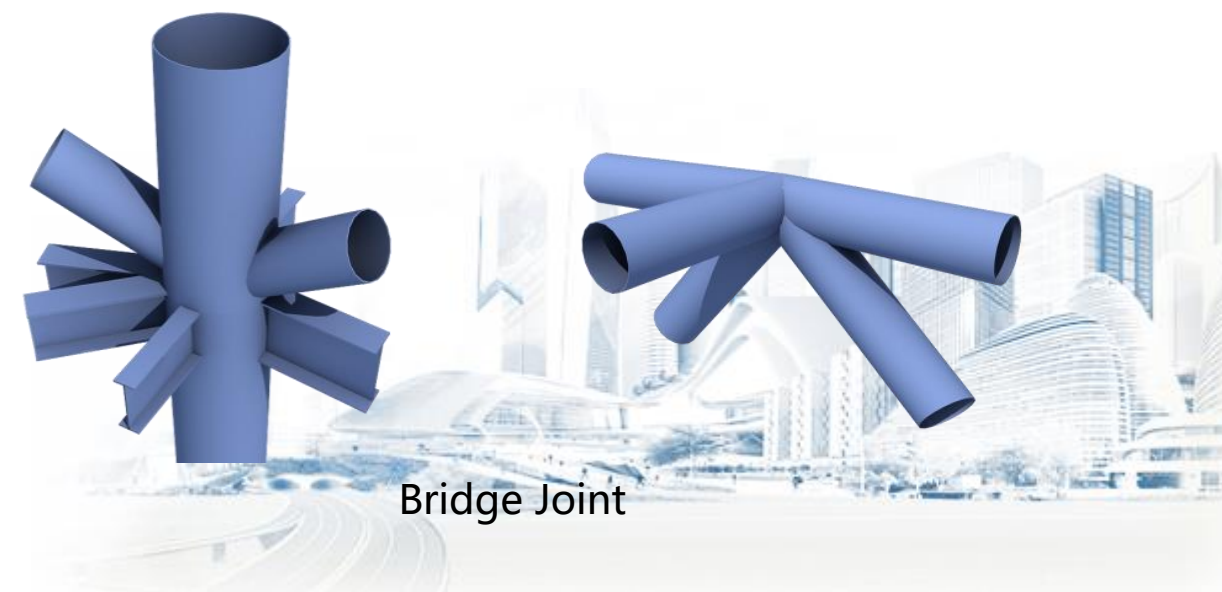
Curved Edge Panel



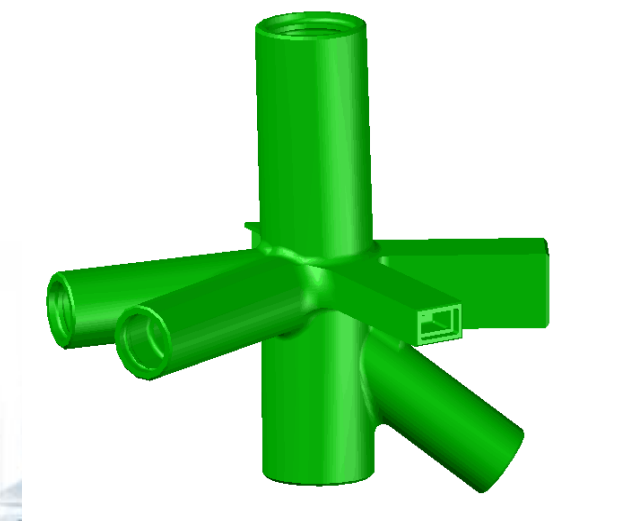
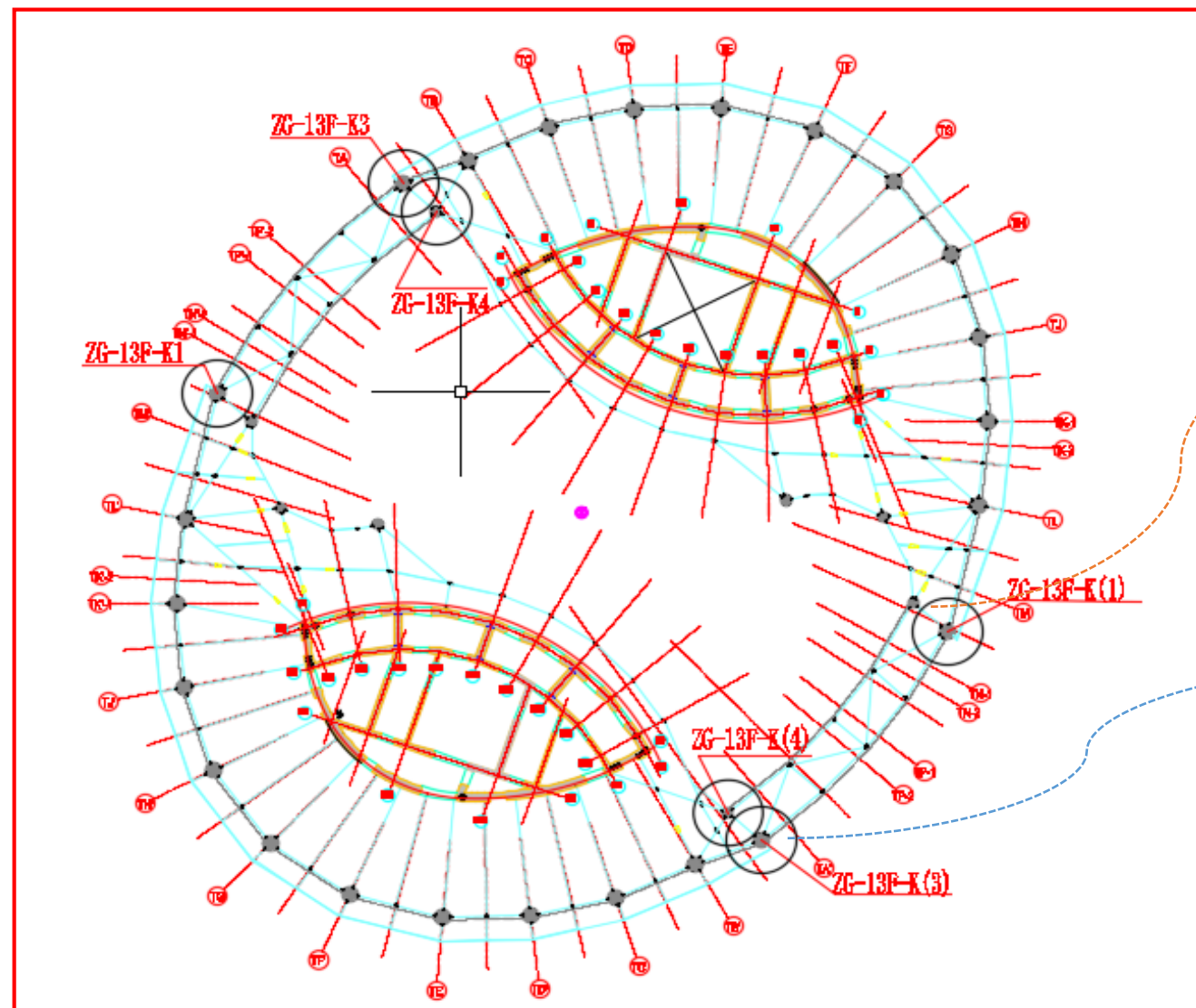
Connect Bridges and Outrigger Truss



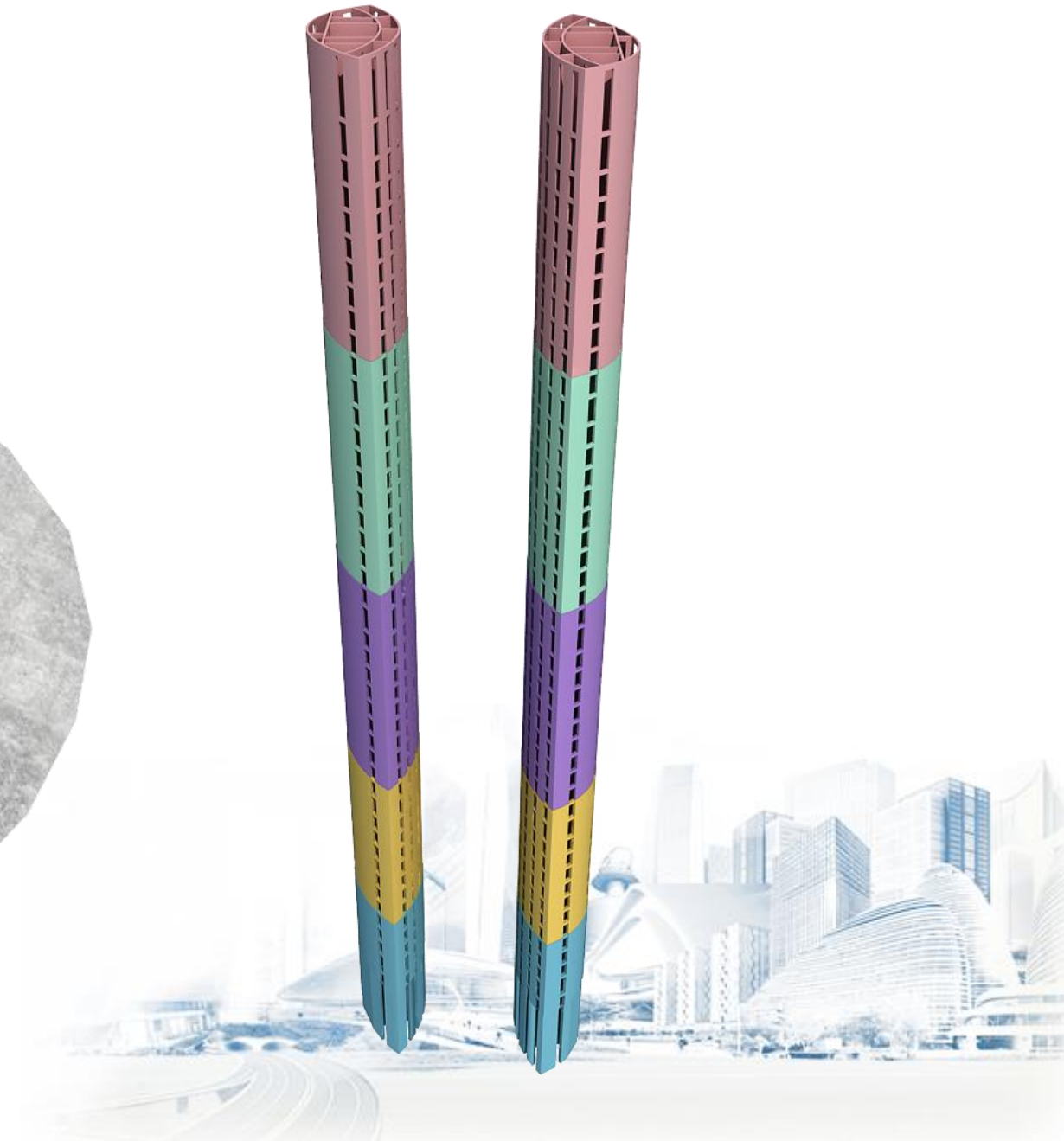
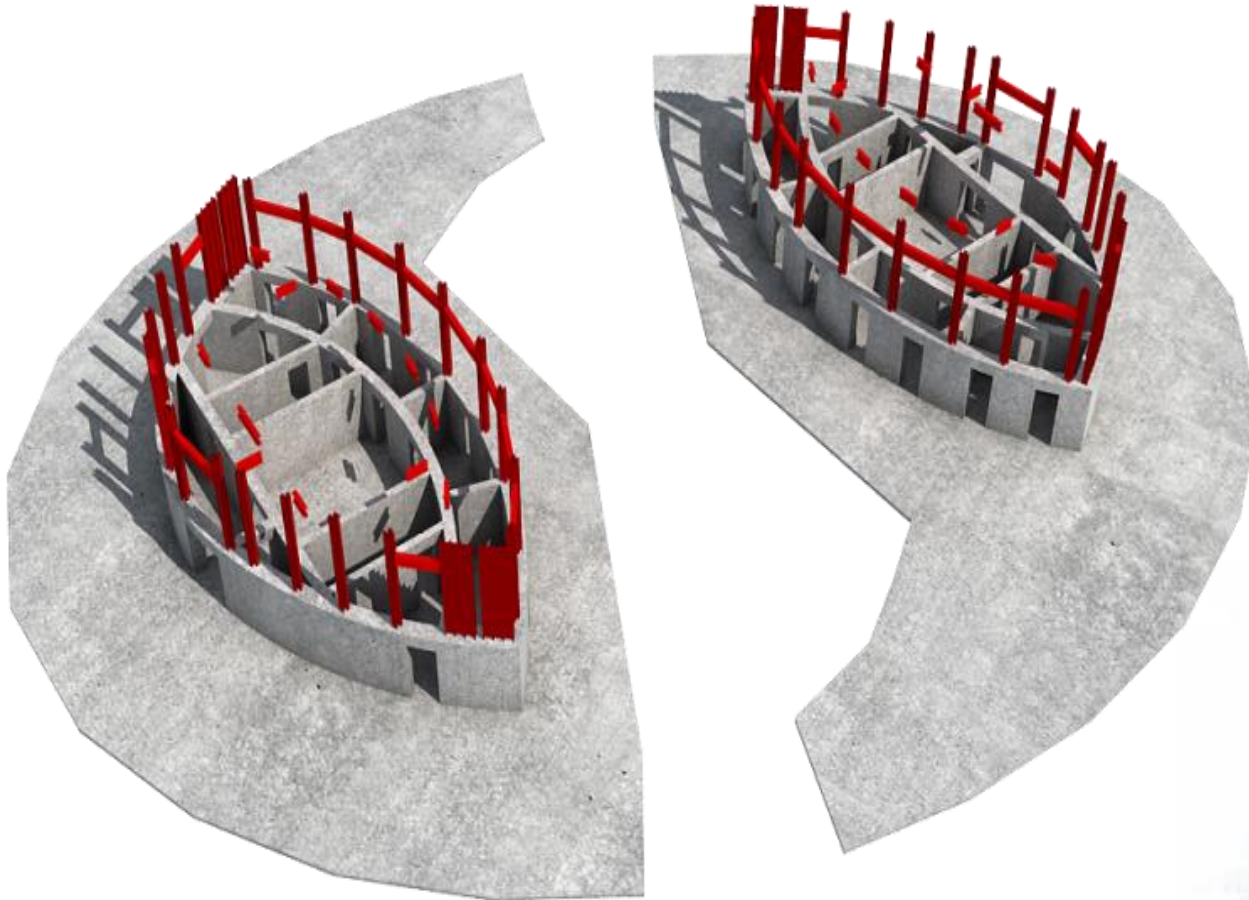
Floor	Span	Single Weight	Number
F13-F14	22.62m	88.68t	2
F24-F25	35.14m	149.59t	2
F35-F36	21.21m	86.92t	2
F45-F46	7.34m	11.59t	2

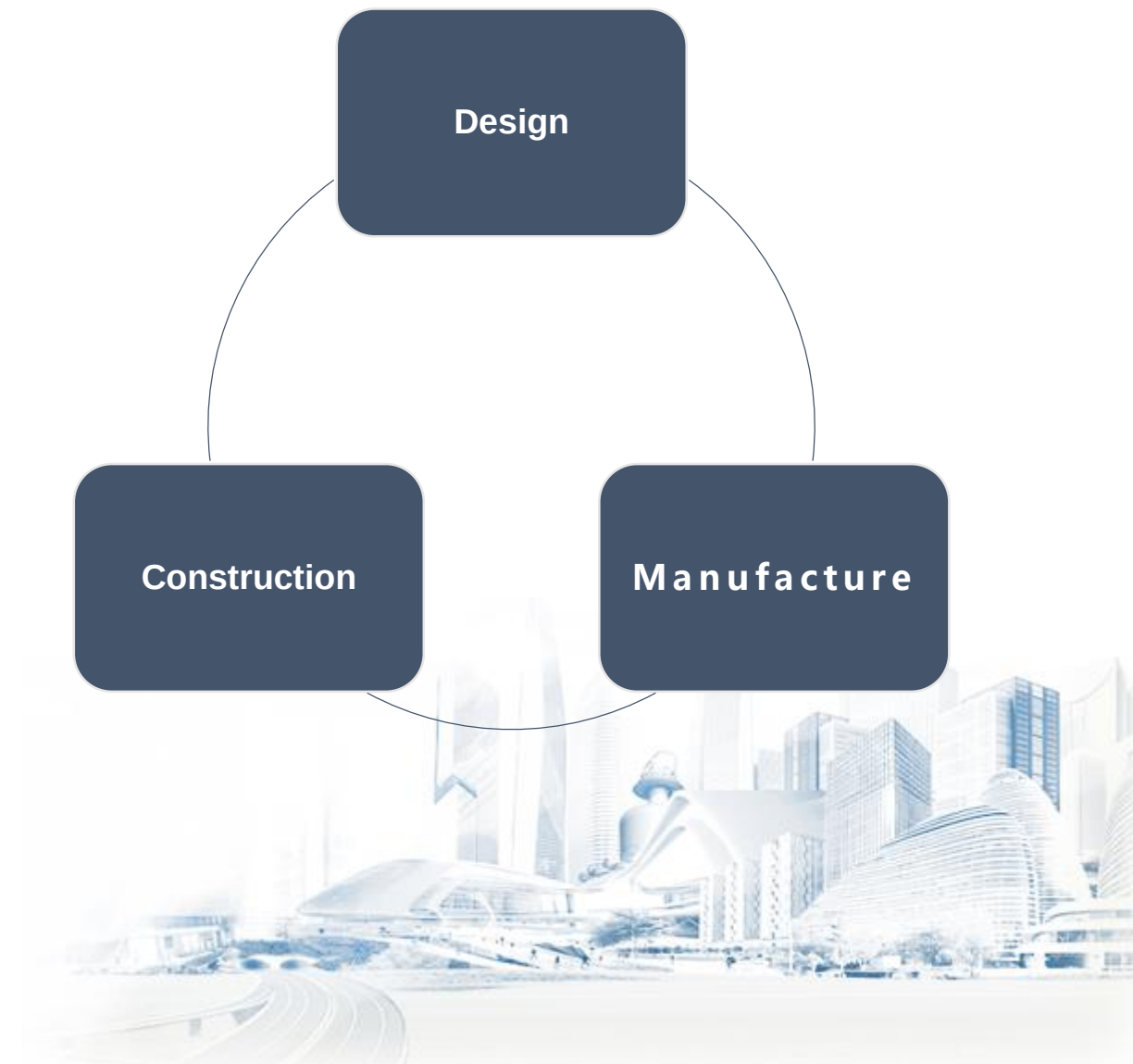


Cast Iron Joint



Oval-sharp Core Wall







PART 2

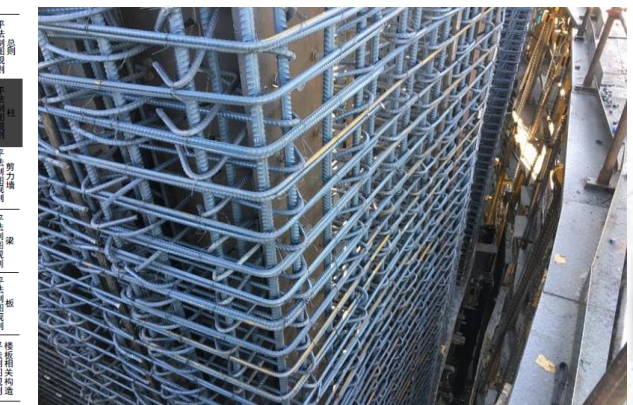
Design Phase



Upgrade 2D standard joint drawing to 3D Module

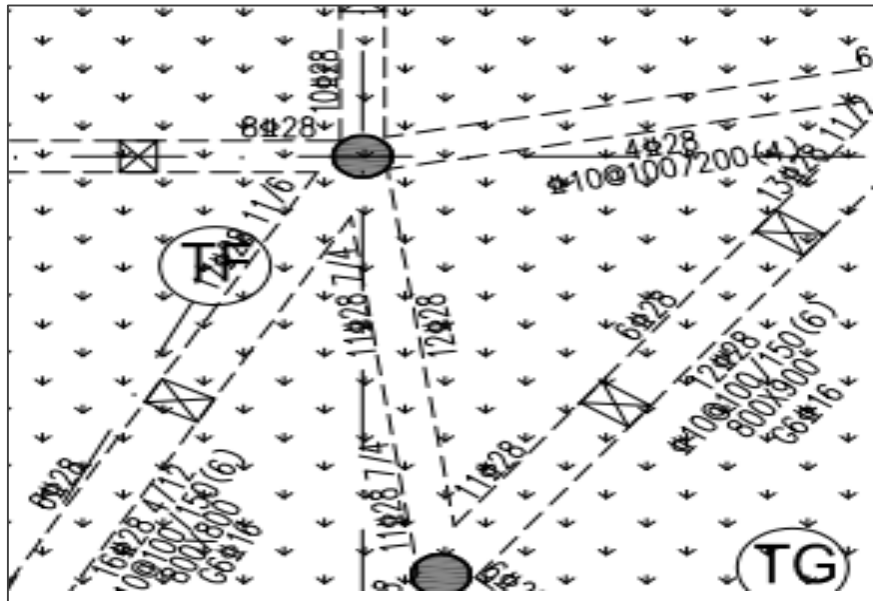


Frame Beam

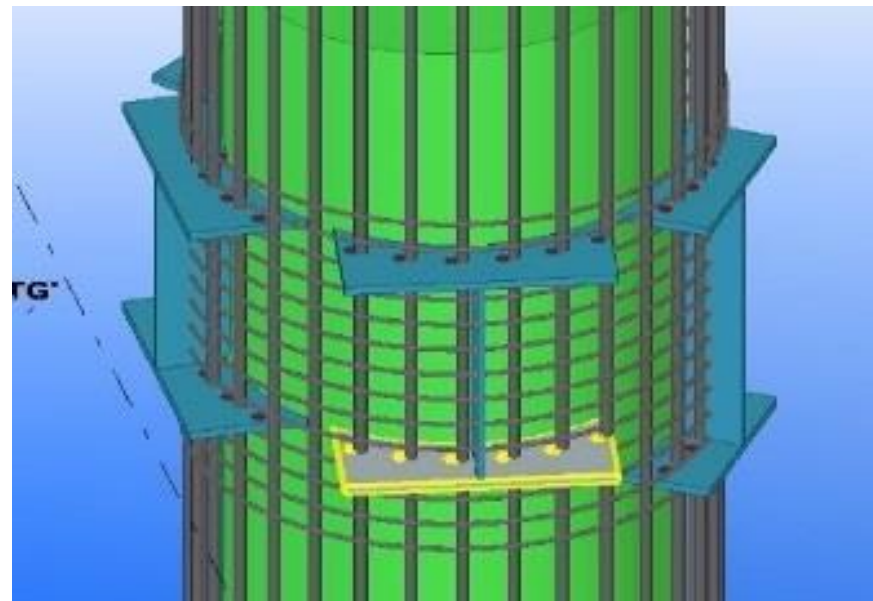


Stirrup details for column connection

Design - Complex 3D Joint



2D Drawings



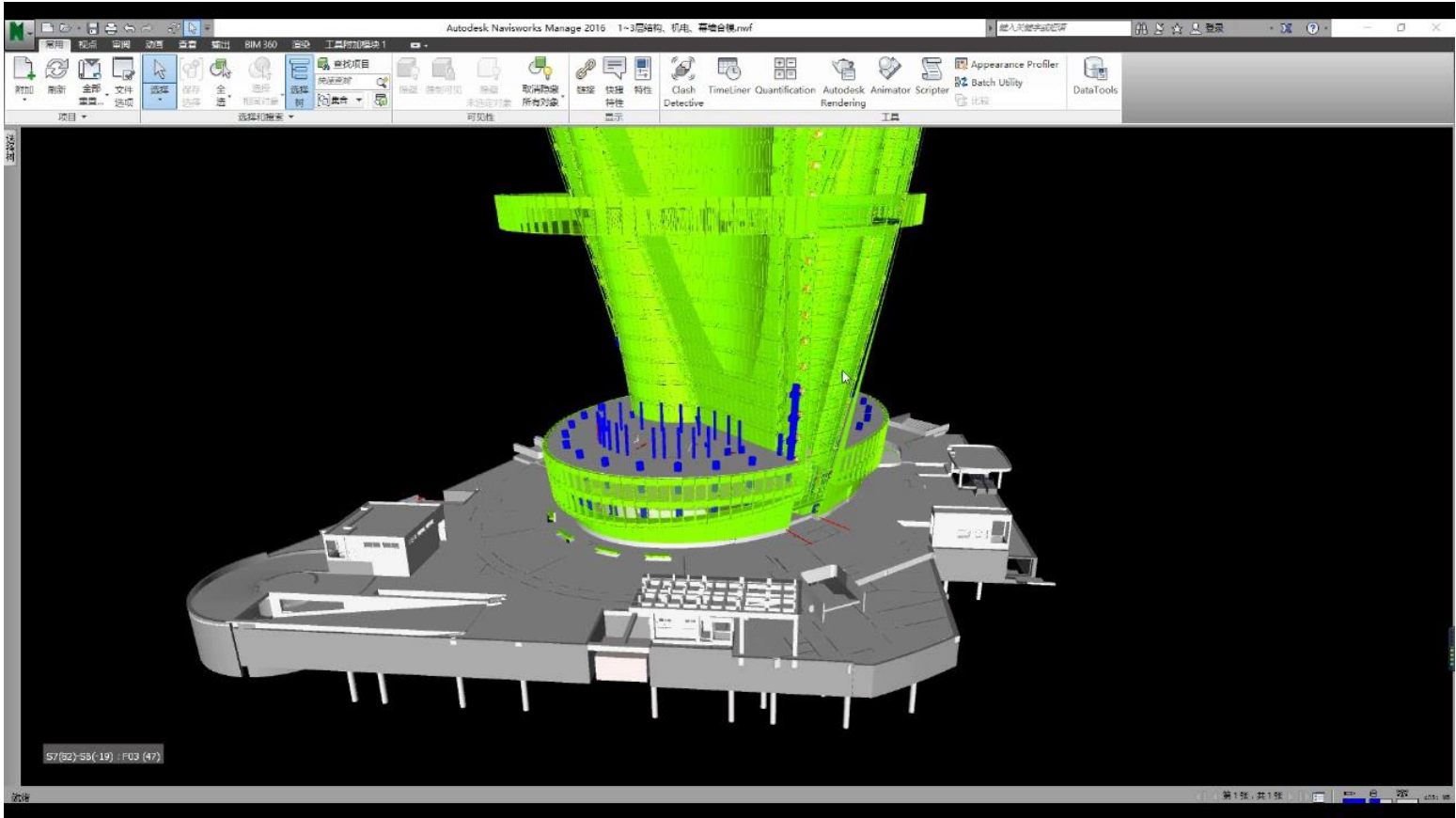
Revit 3D Module

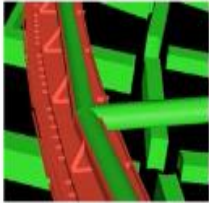
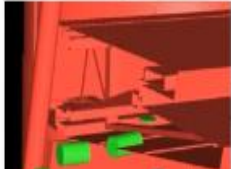
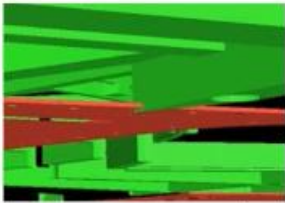


Site Work



Design - Clash Detection

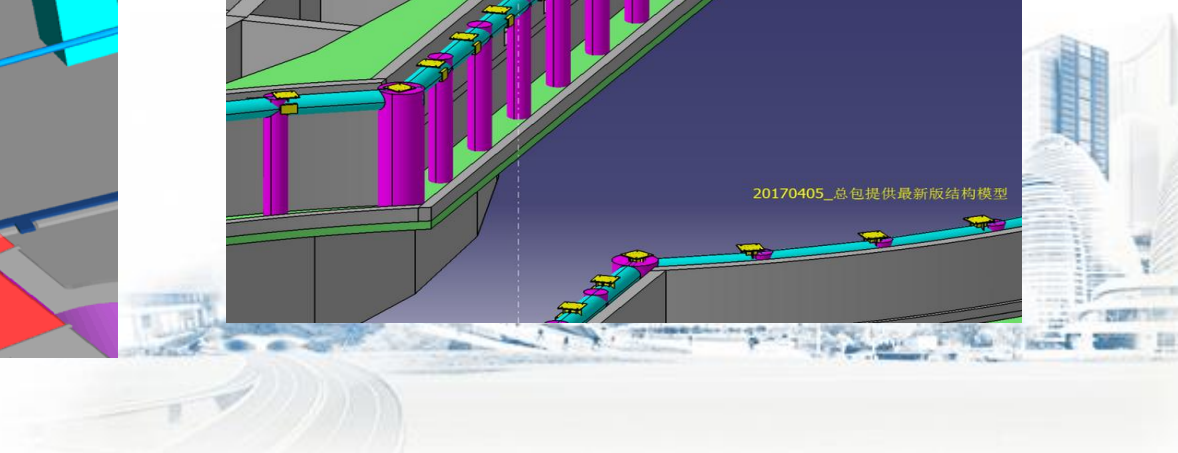
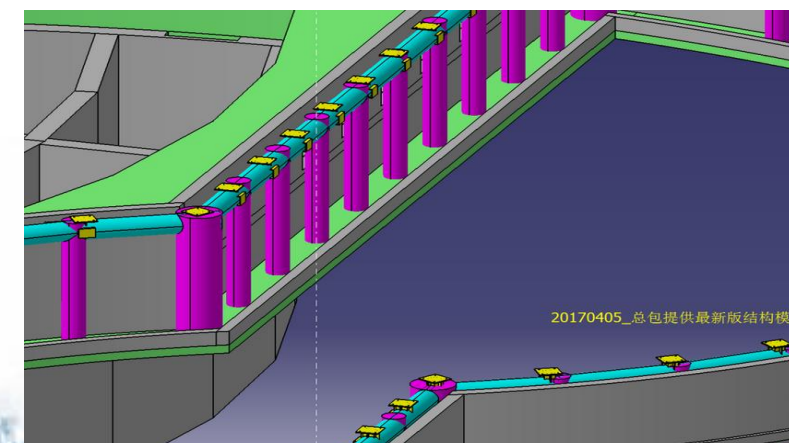
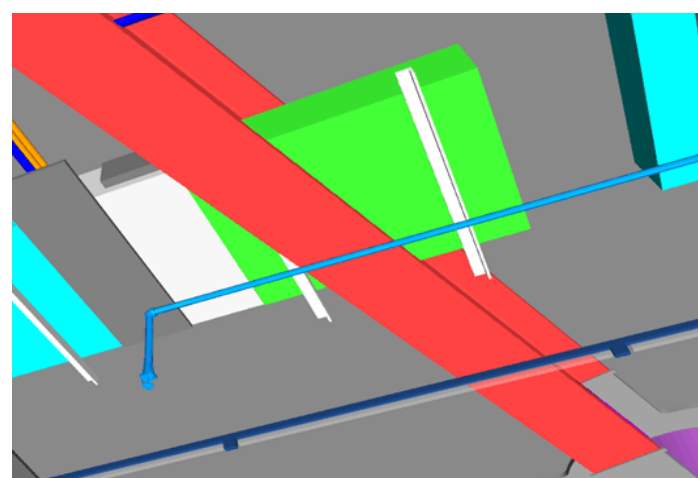
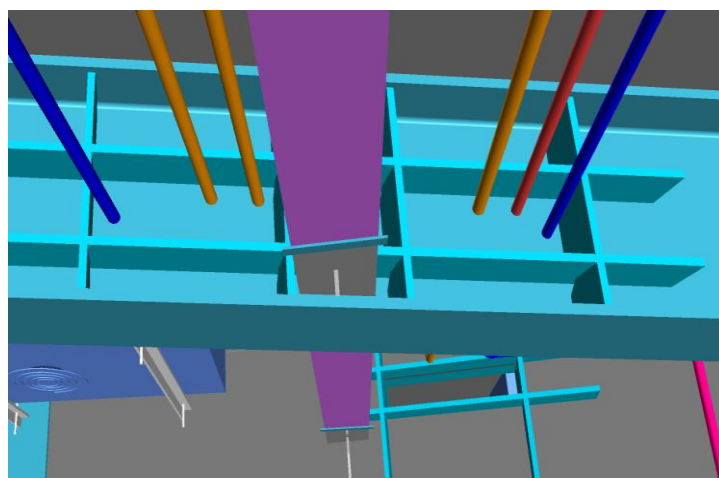
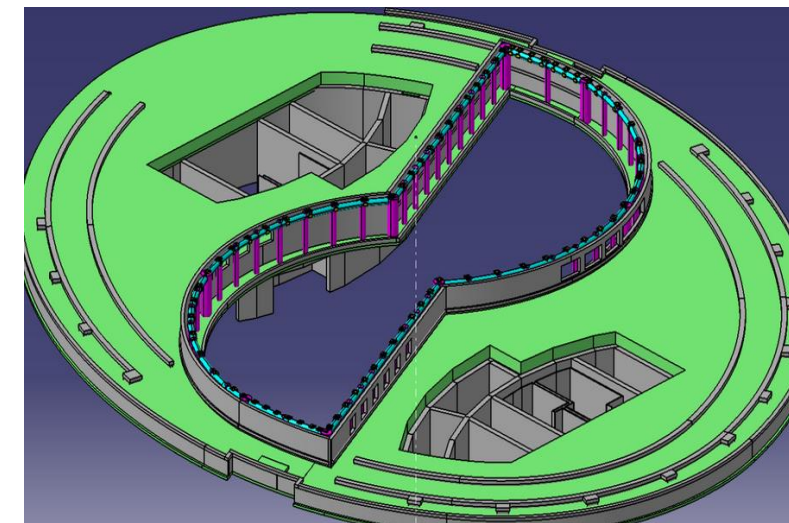
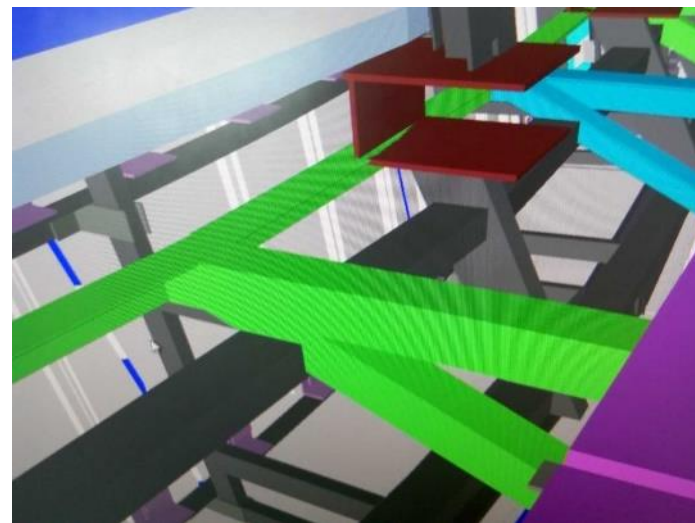
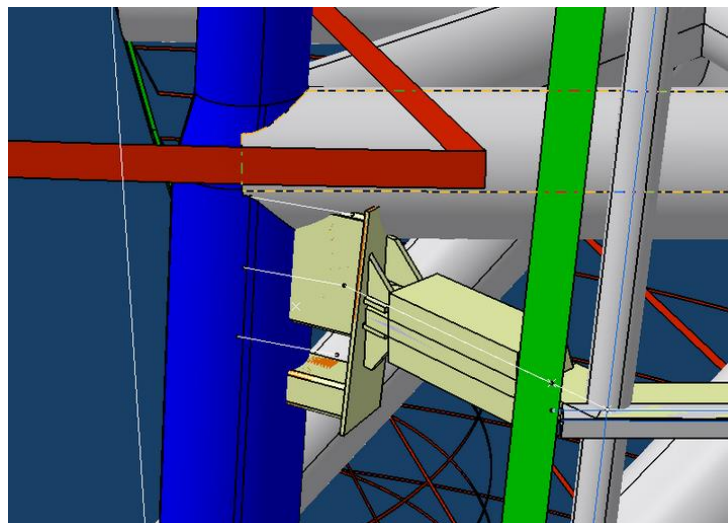


TB-T07 : F02		幕墙与二楼钢梁碰撞	幕墙（过大）修改模型
SC-T01 : F01		首层旋转门机电雨水管与雨棚吊顶冲突	机电调整雨水管
B14-BJ : R01 坡道地下005层平面图		地下吊顶与结构梁碰撞	结构模型有误，修改
B7-SB : F01		机电首层门厅风盘与幕墙碰撞	机电调整，幕墙透风器找顶部位支撑到结构模型

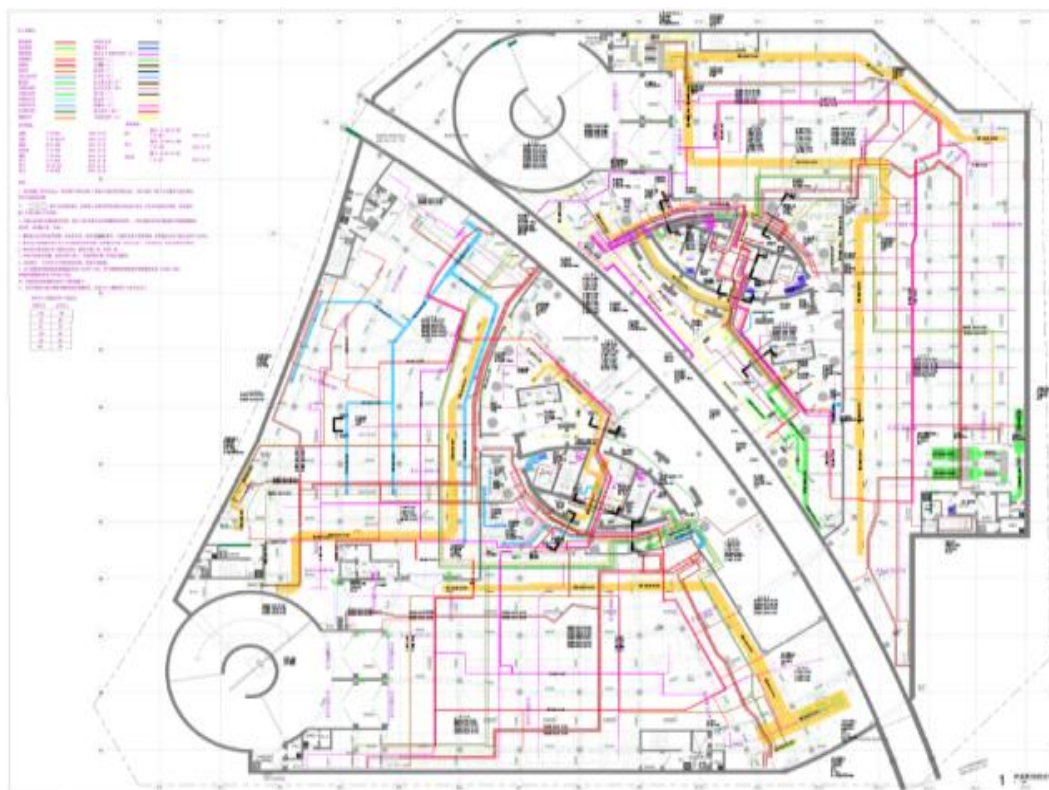




Design - Clash Detection



Design - Clash Detection Shop drawing Generation



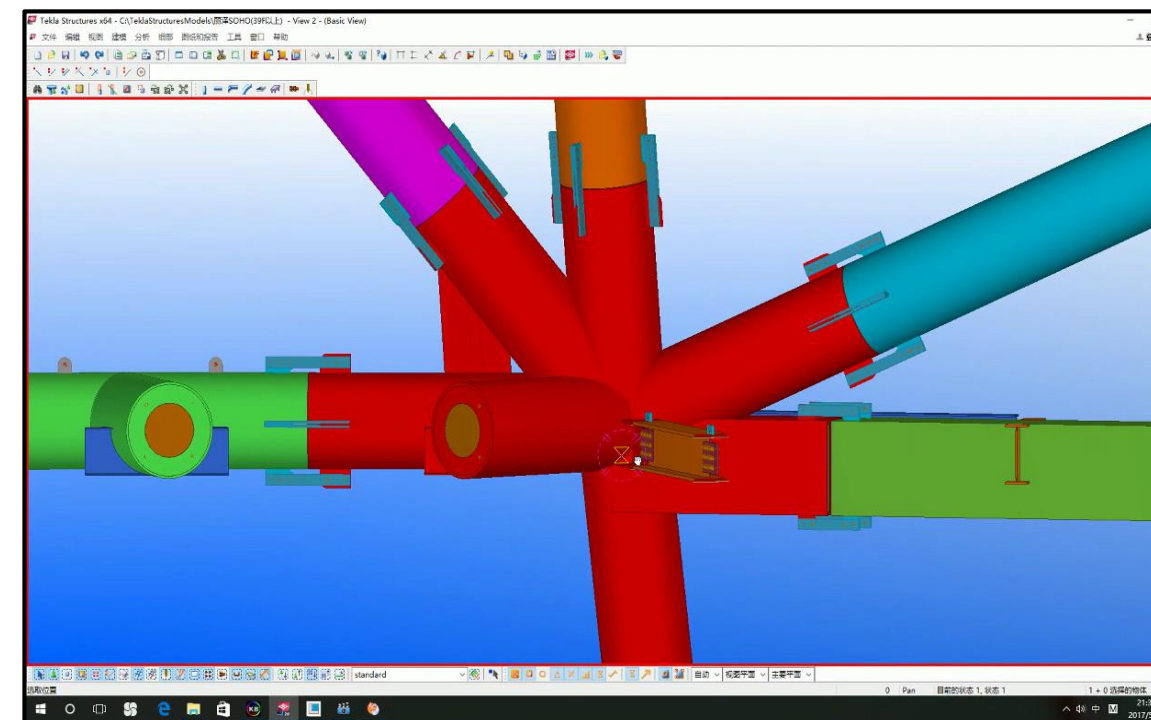
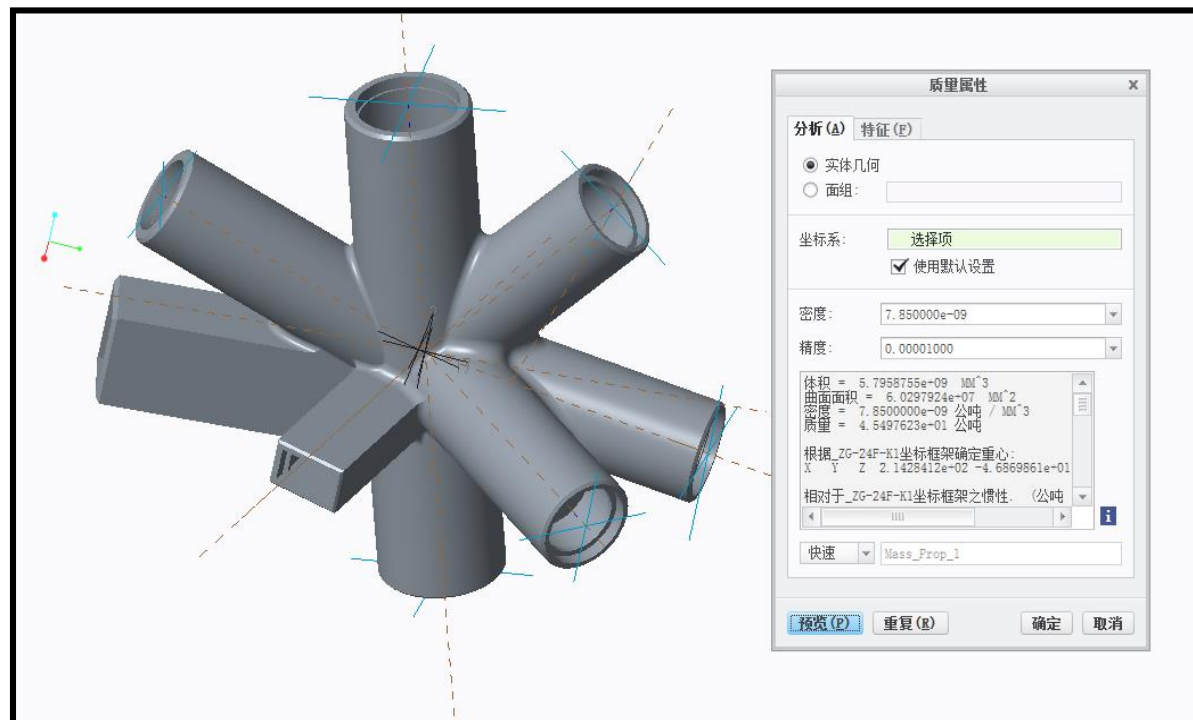


PART 3

Manufacture Phase



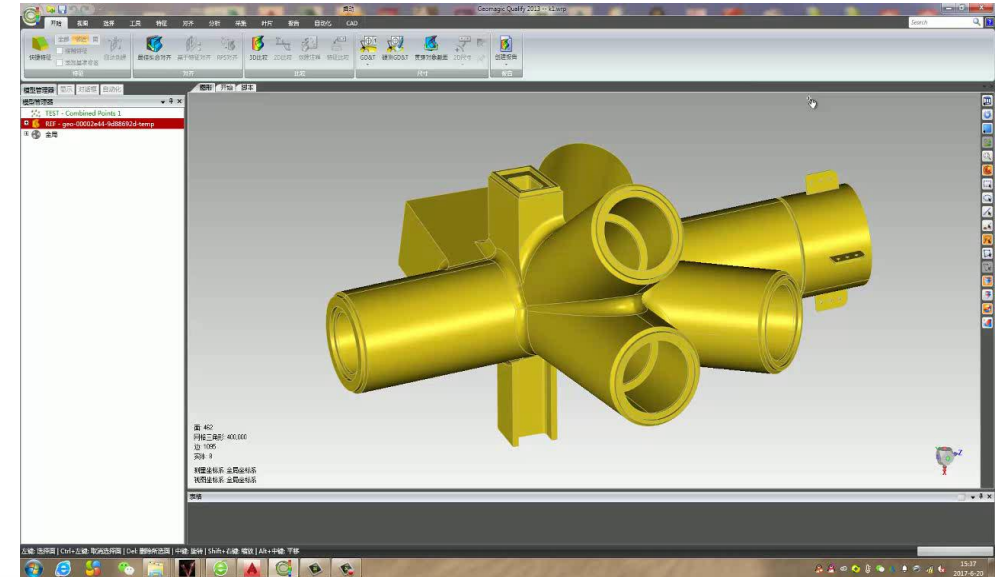
Manufacture – Cast Iron Shopdrawing



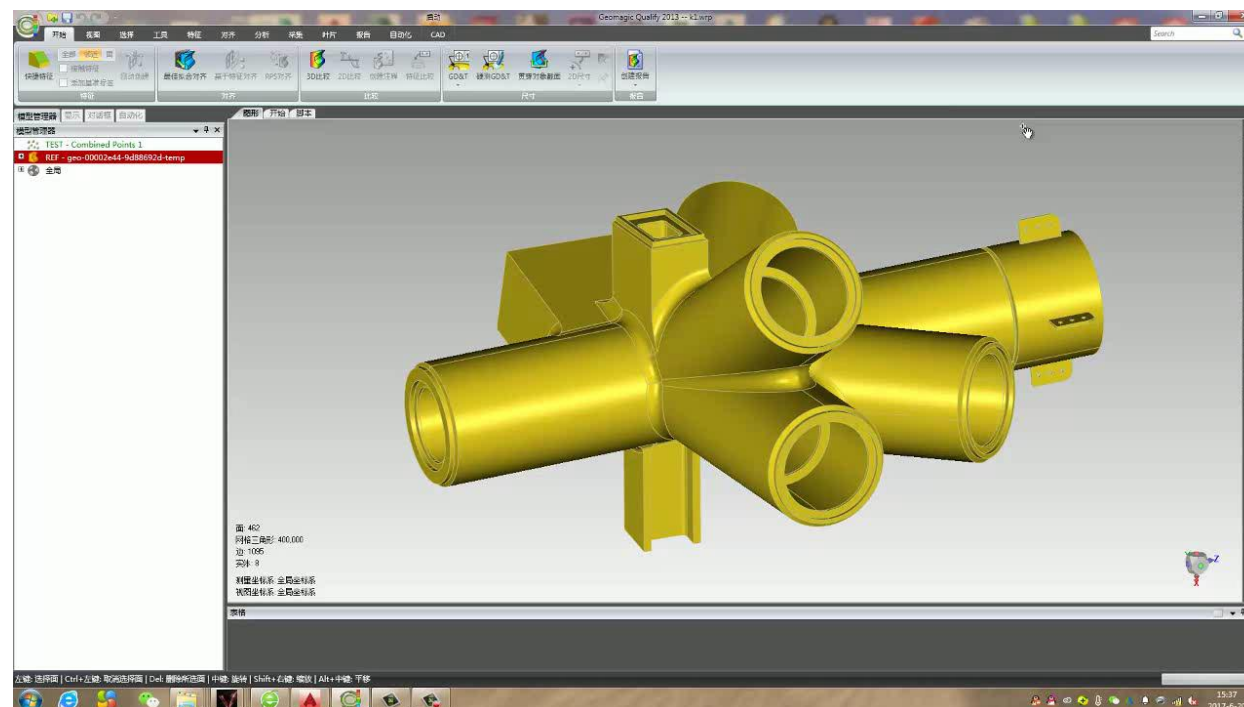
Pro-e for Cast Iron Joint Design



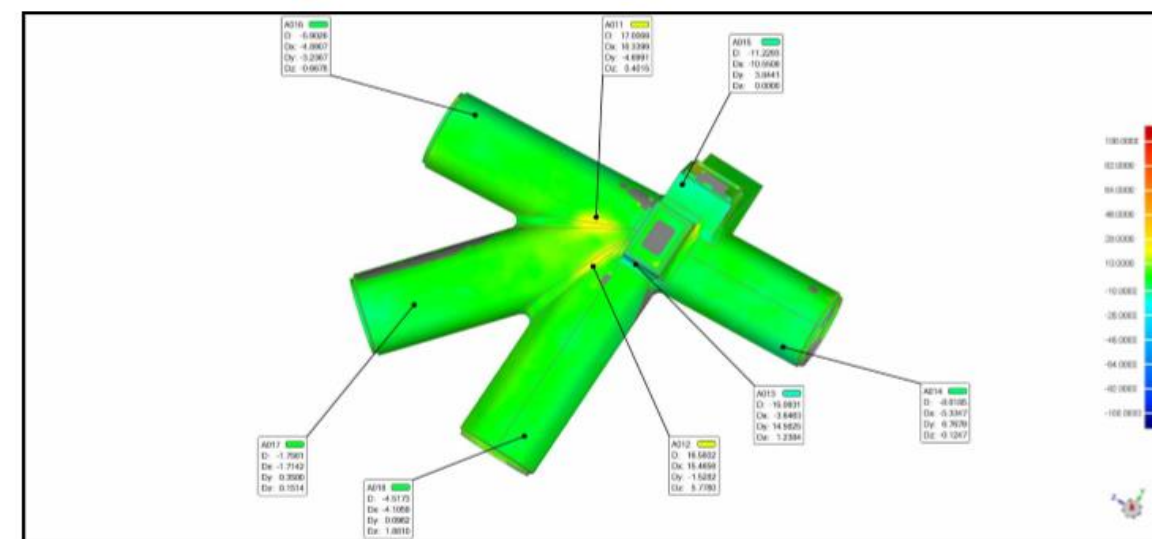
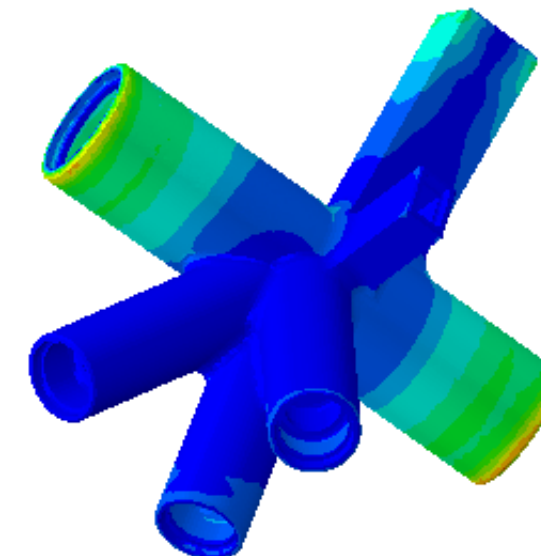
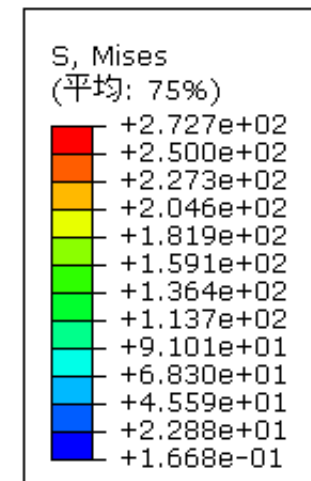
Manufacture – Cast Iron



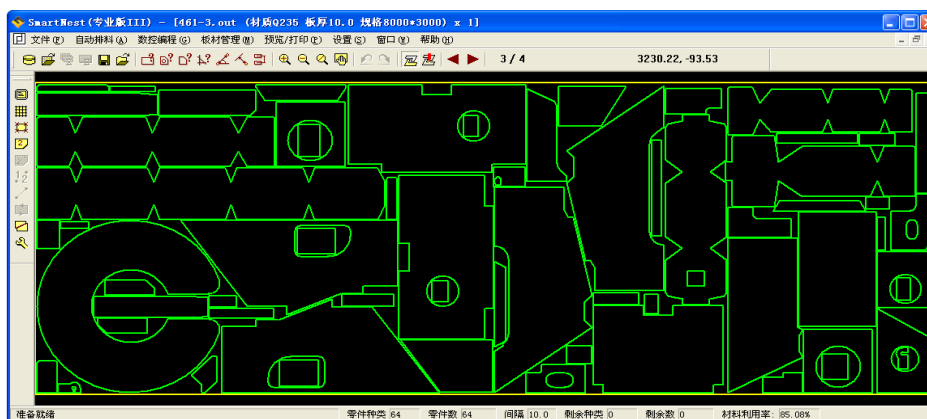
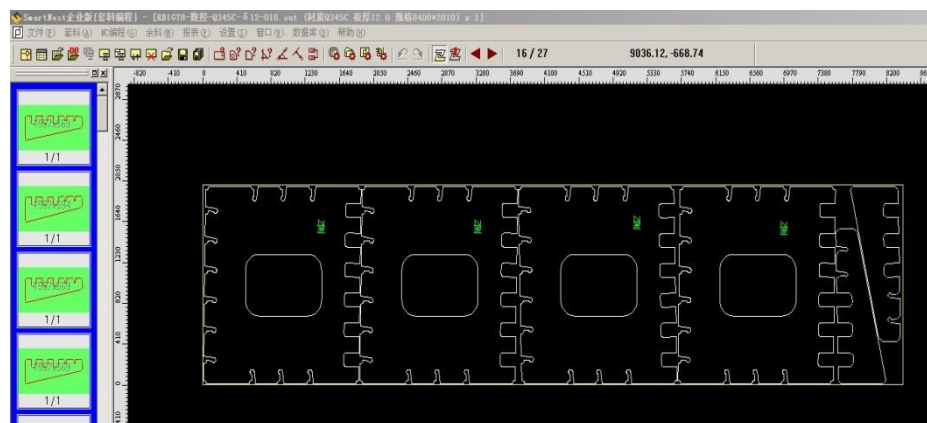
Manufacture – Cast Iron check



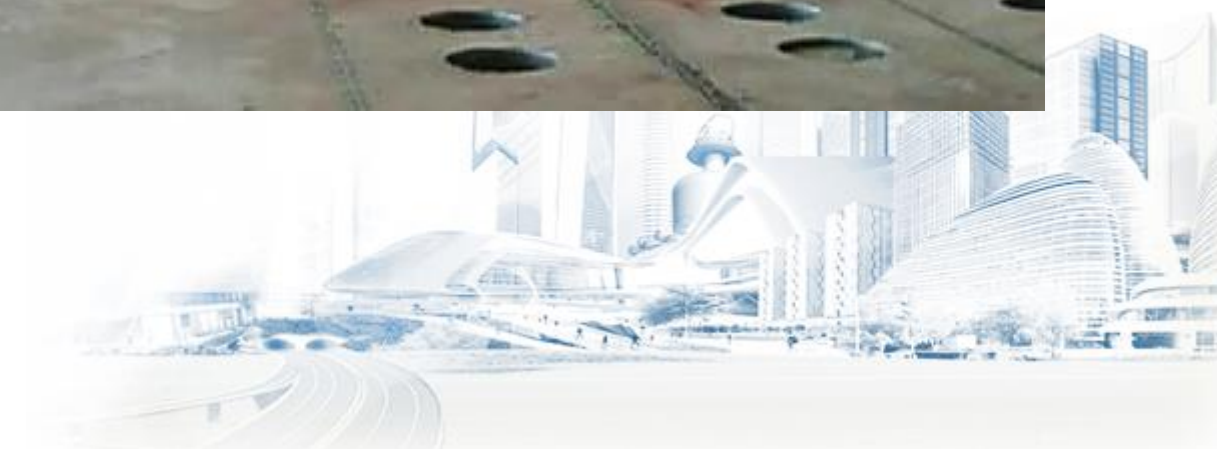
3D scan



Manufacture – Blanking Design



SmartNEST、FASTcam



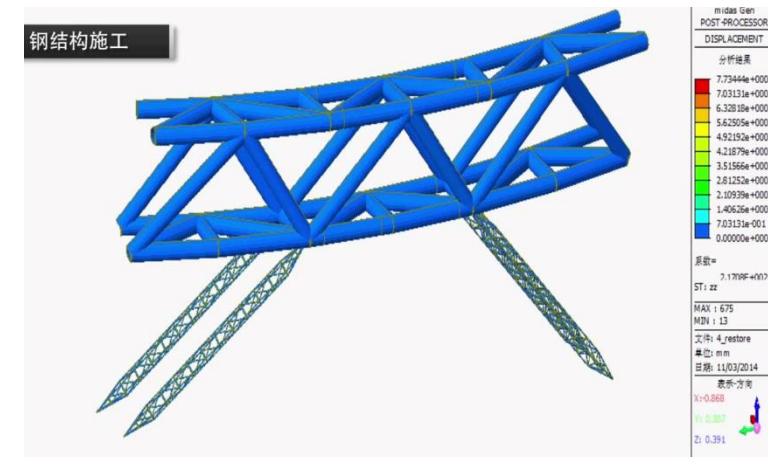
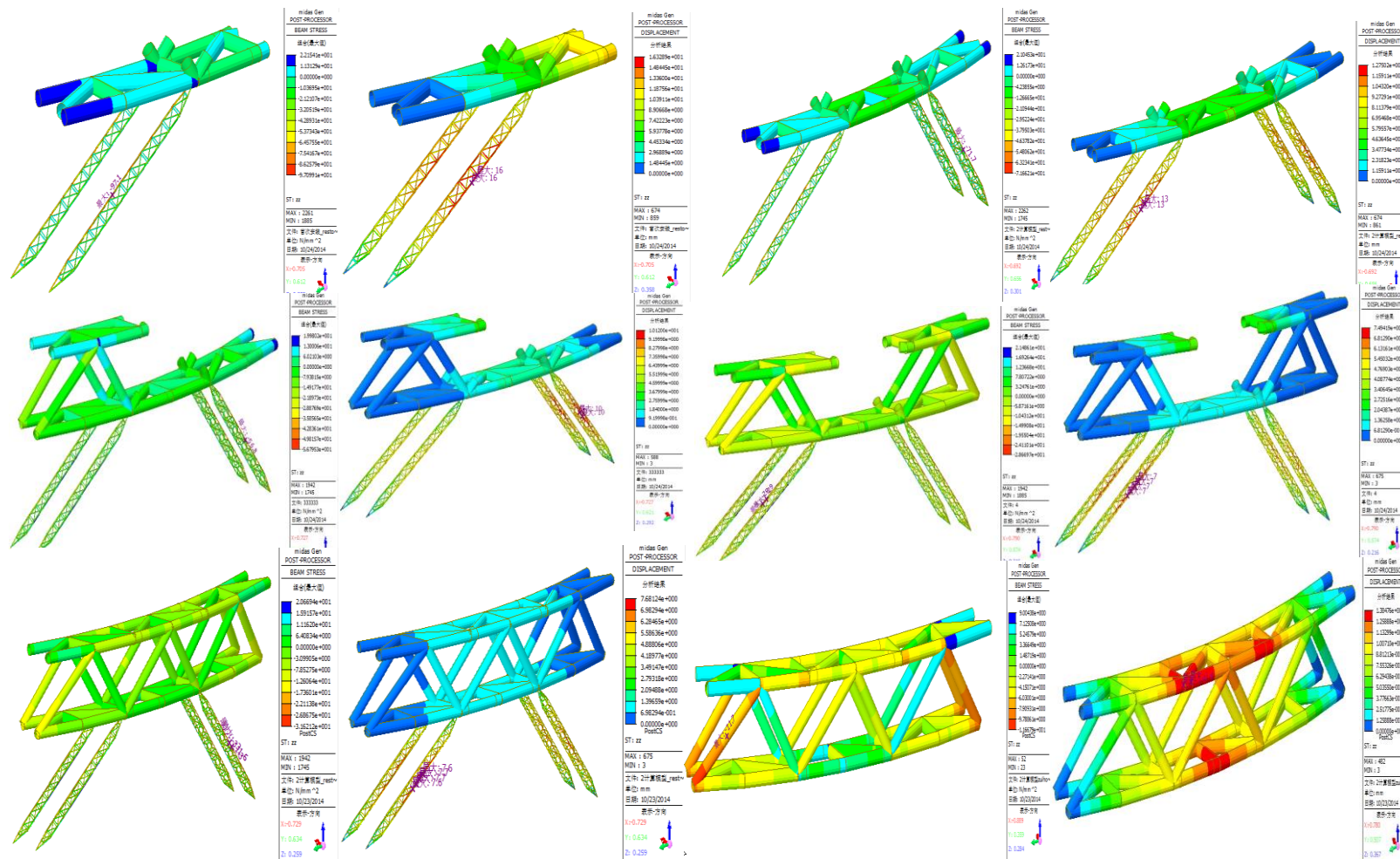


PART 4

Construction Phase

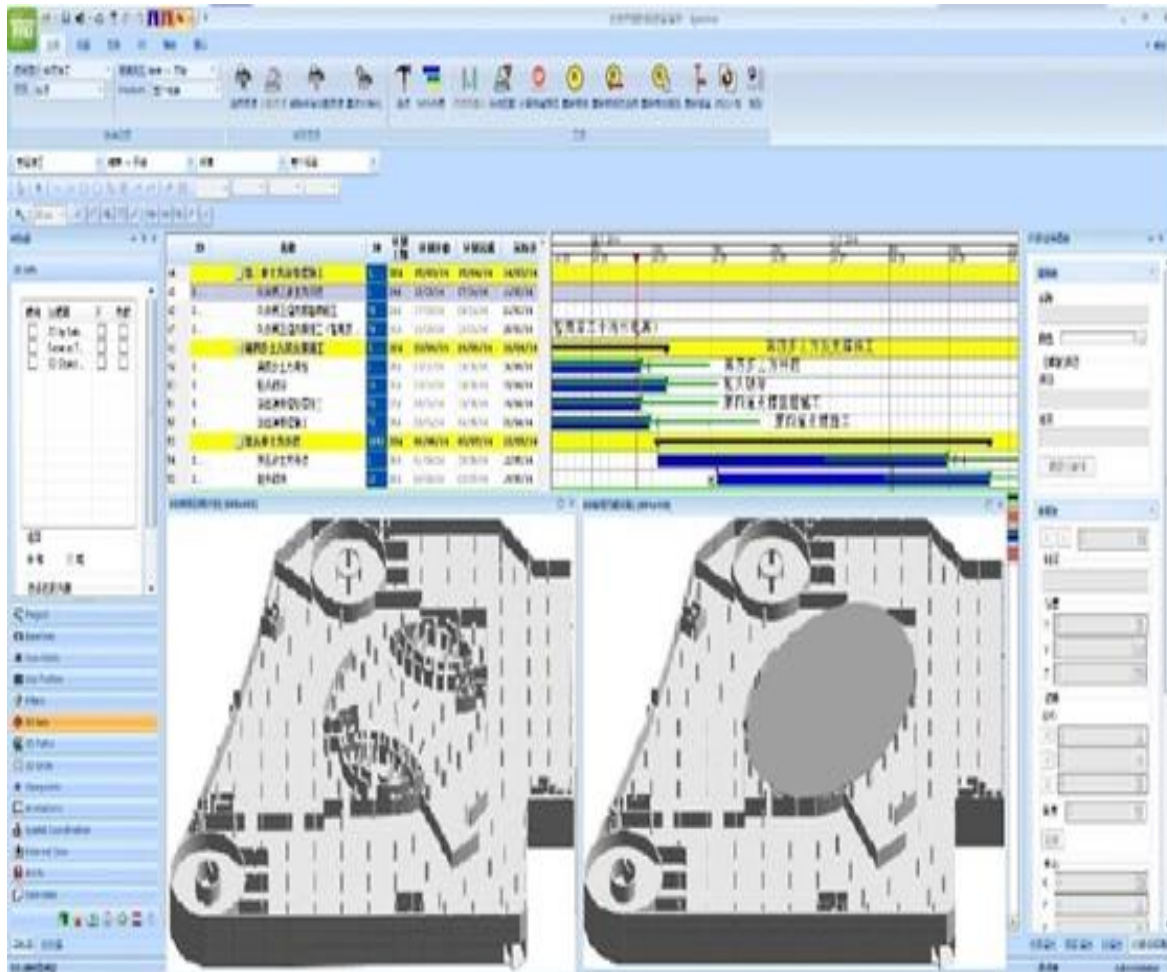


Schedule Management – Installation Simulation

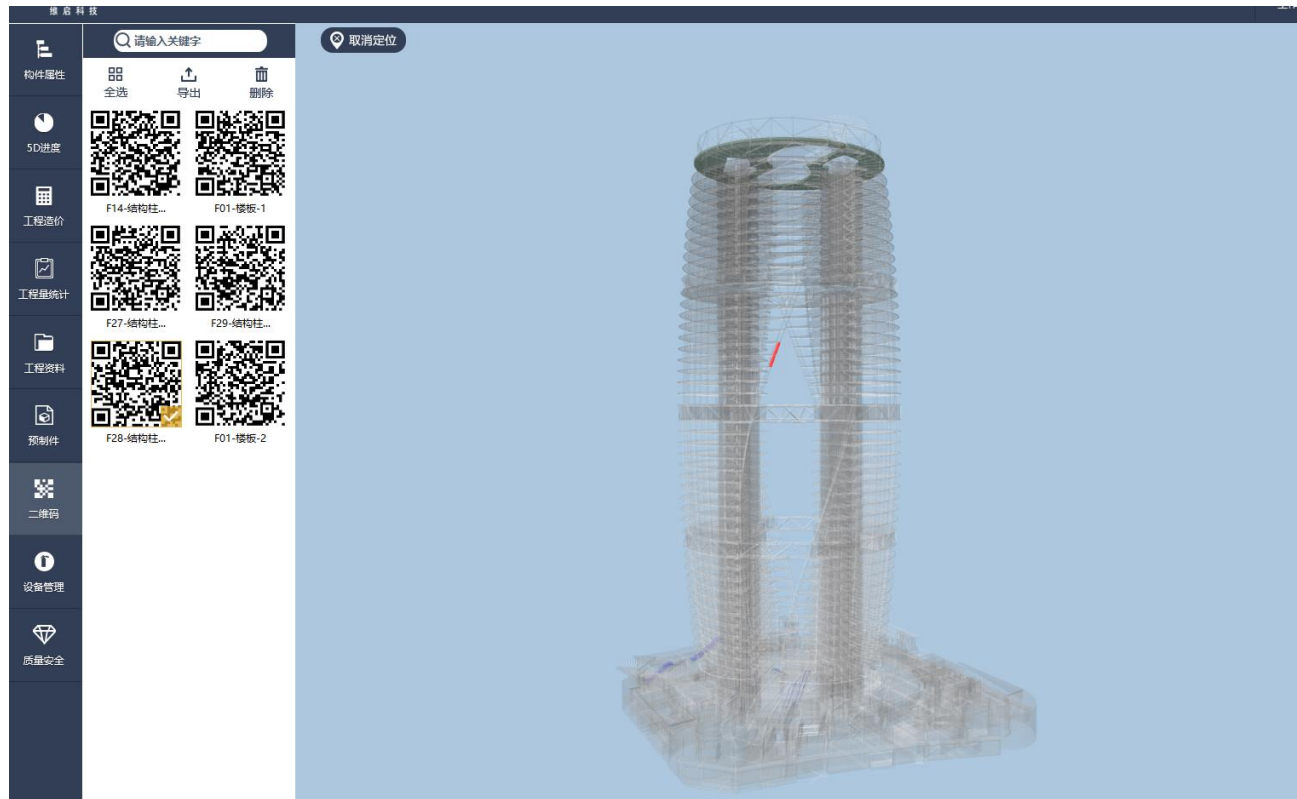


Schedule Management – Milestone Simulation

○



Schedule Management – Logistical Tracking

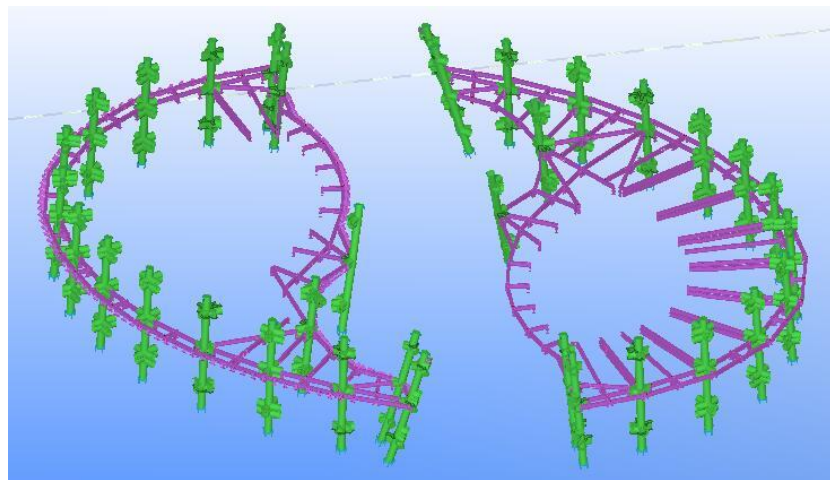
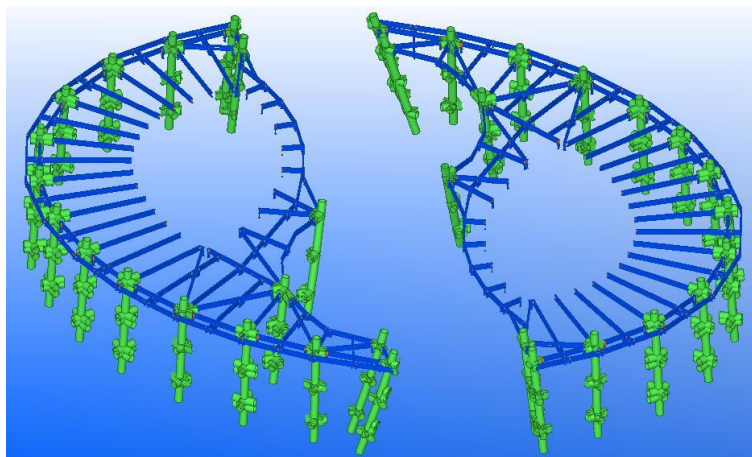
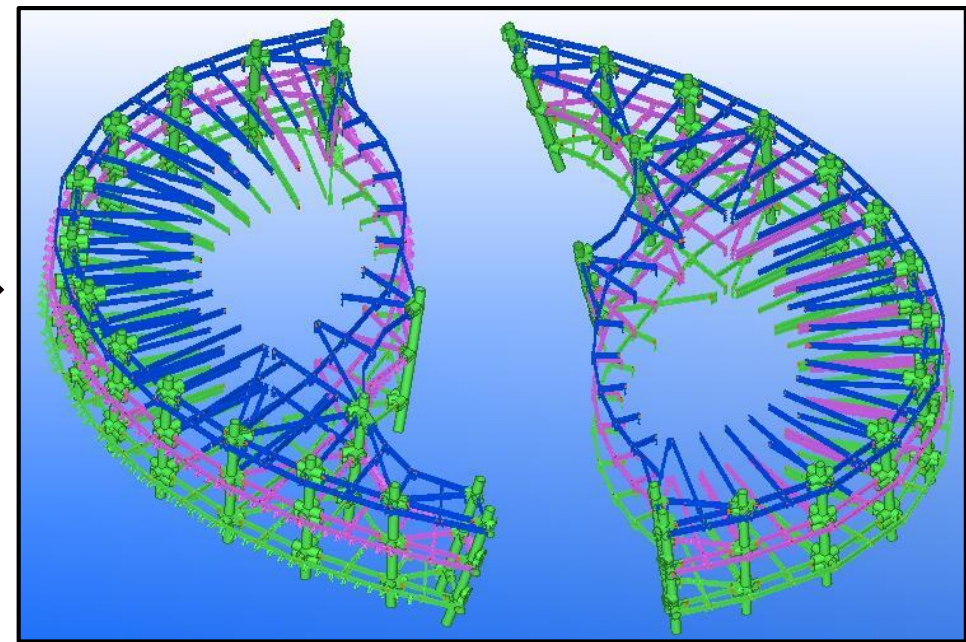
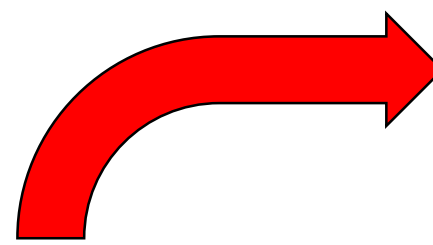
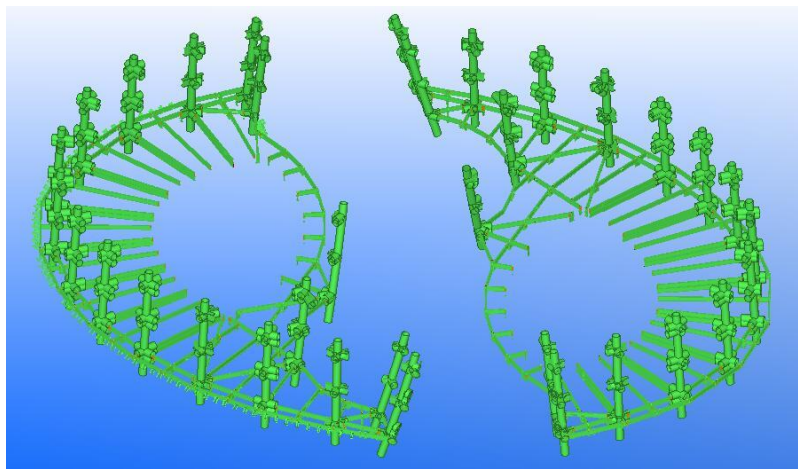


Bar Code Generation

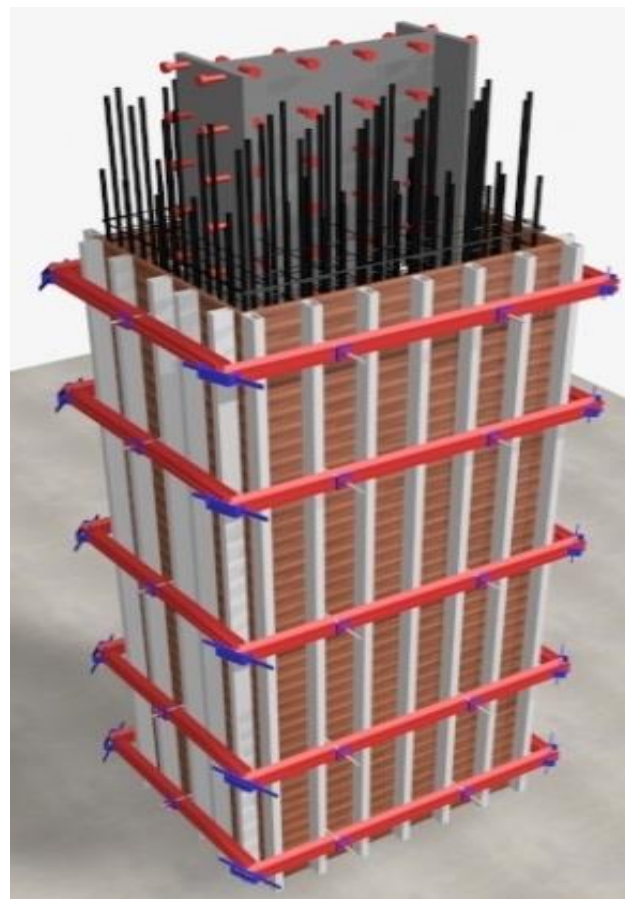


Bar Code Scan

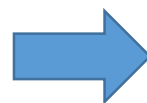
Schedule Management – Situation Report



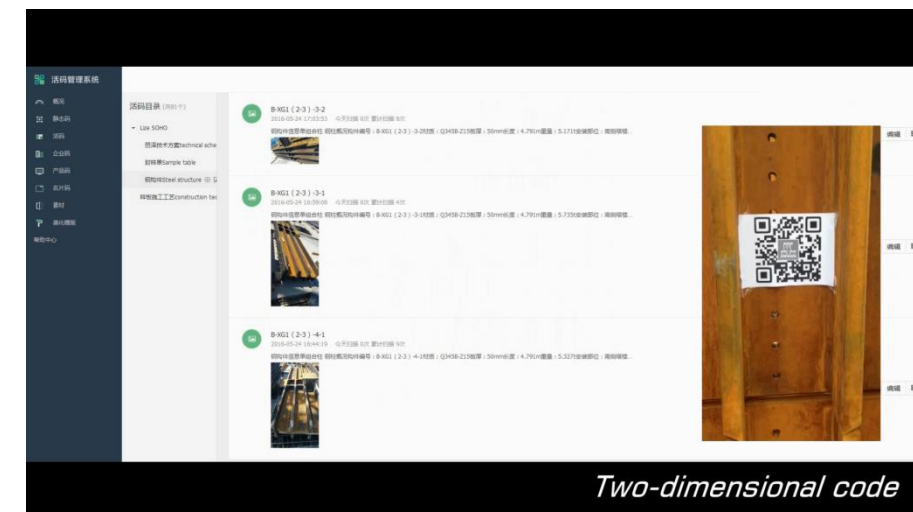
■ QA\QC Management – Module to Mock up



BIM Module



Mock up

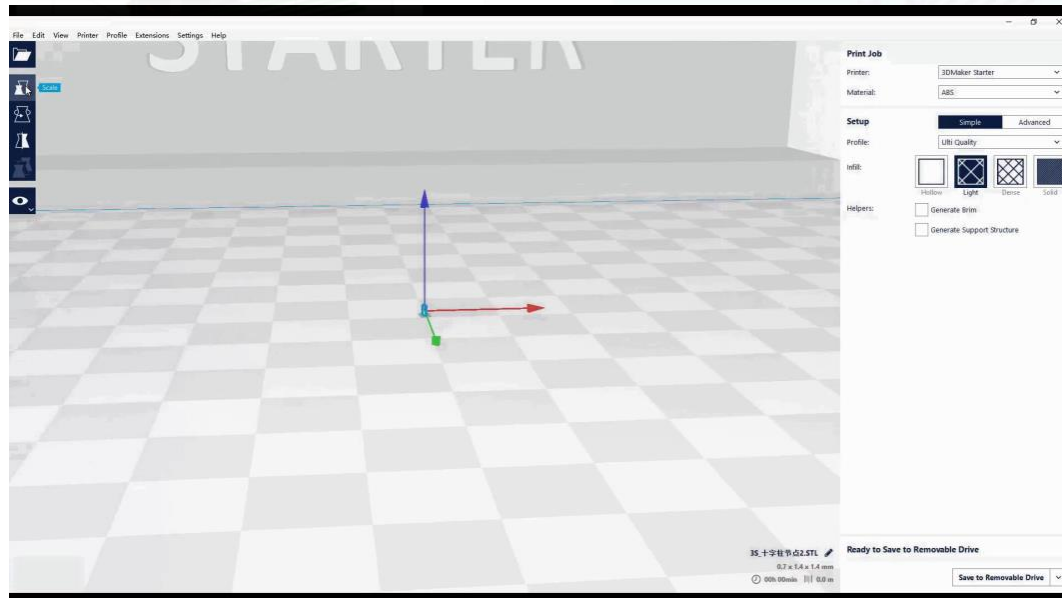
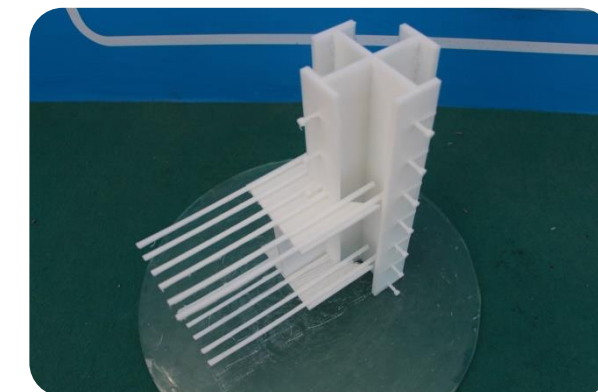
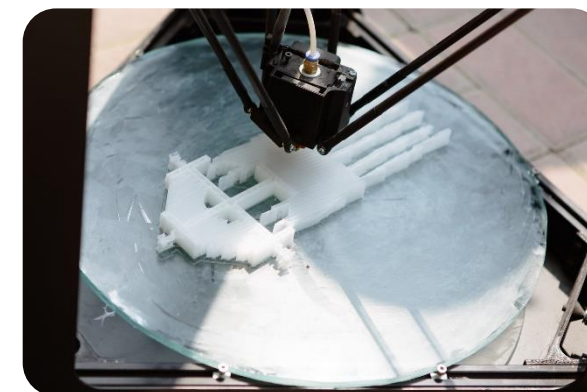
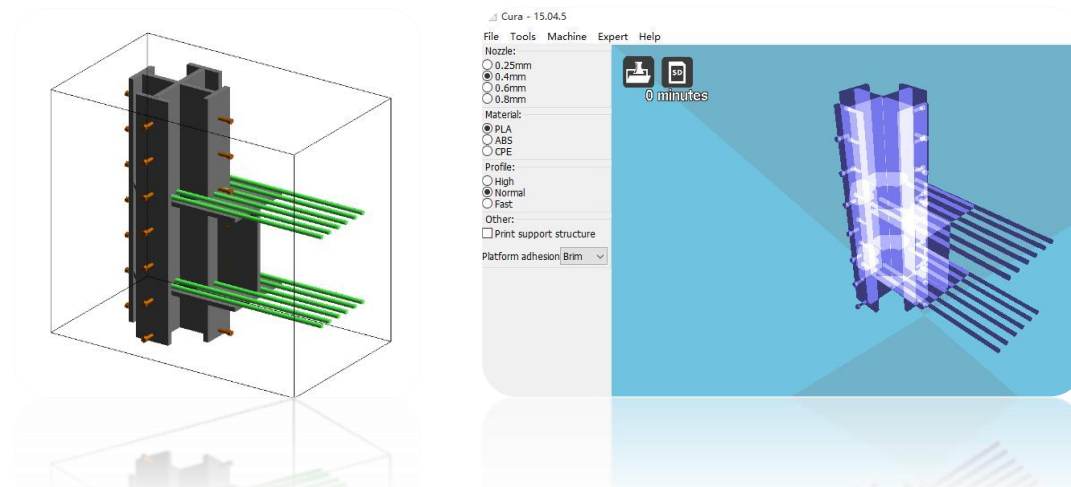


Two-dimensional code

二维码技术查询

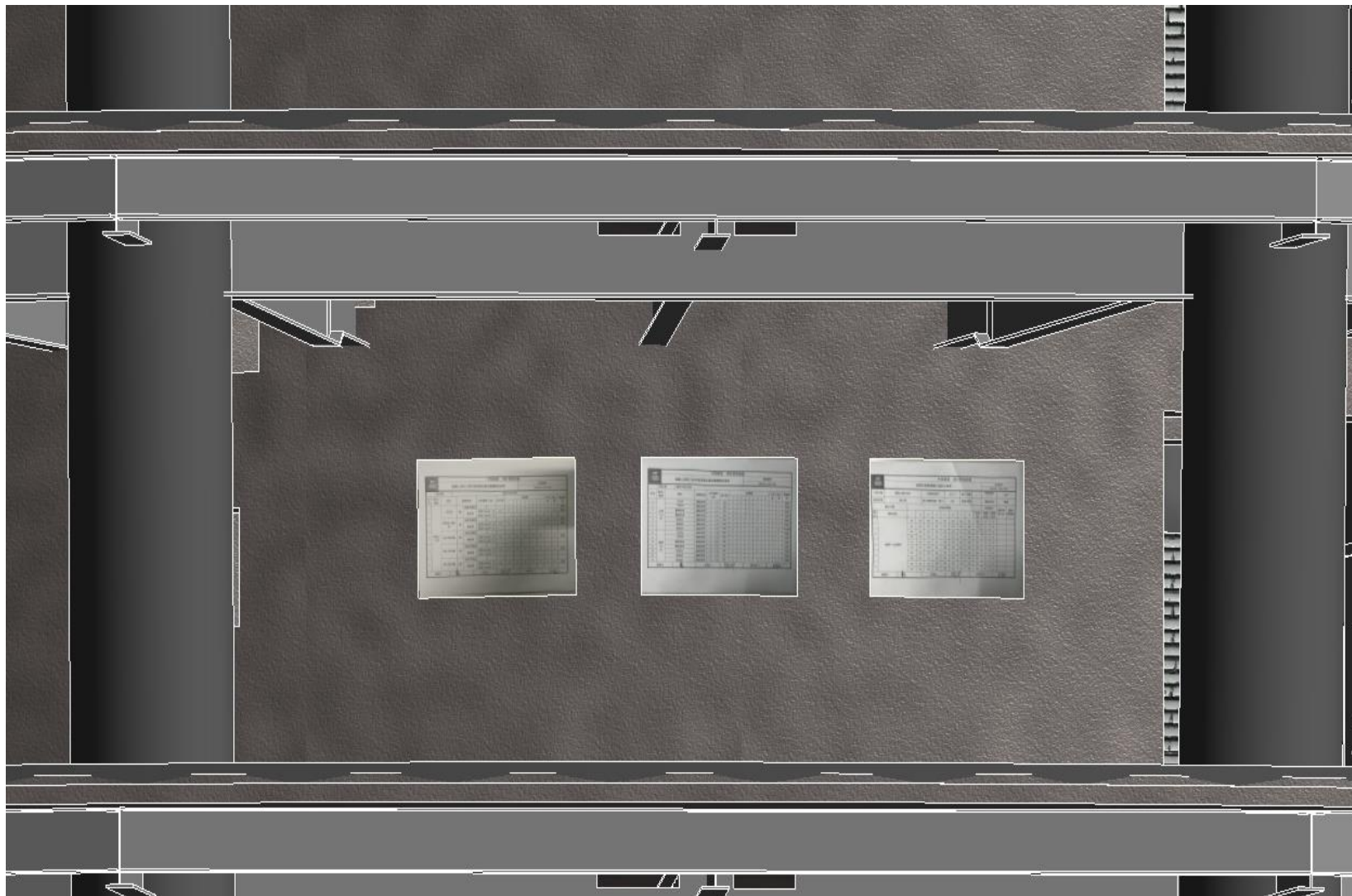


QA\QC Management – 3D printing

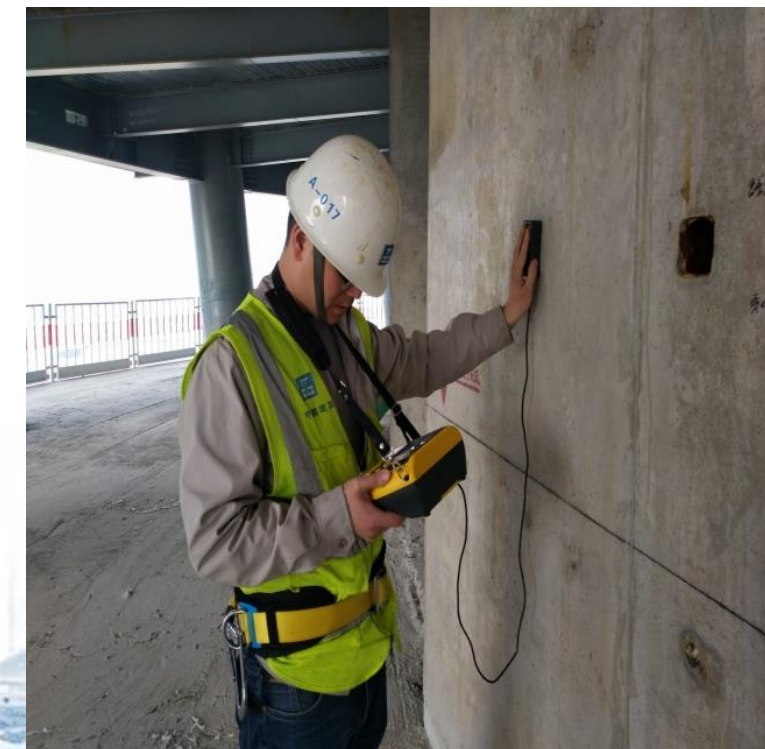




■ QA\QC Management – As Build Update



中国建筑 项目管理表格													
混凝土结构工程外观质量实测实量数据记录表										表格编号			
工程名称 丽泽 SOHO 项目										CSCEC01-SCSL-001			
序号	栋号/ 楼层	部位	检测内容	允许偏差 (mm)	设计值	实测值					平均值	最大值	检测结论
						1	2	3	4	5			
1	北塔 十七层	卫生间	楼板厚度	-5, +10	150	2	5	7	2	5	4	7	合格
2		卫生间	楼板厚度	-5, +10	150	1	7	3	1	7	4	7	合格
3		楼梯前室	楼板厚度	-5, +10	150	3	7	4	-2	7	4	7	合格
4		楼梯前室	楼板厚度	-5, +10	150	-3	2	2	-3	5	1	5	合格
5		管道井	楼板厚度	-5, +10	150	3	2	1	4	7	4	7	合格
6		强电间	楼板厚度	-5, +10	150	1	3	7	7	4	4	7	合格
7		弱电间	楼板厚度	-5, +10	150	2	5	7	12	5	4	12	不合格
8	南塔 十七层	卫生间	楼板厚度	-5, +10	150	1	7	3	1	7	4	7	合格
9		卫生间	楼板厚度	-5, +10	150	1	5	5	3	2	3	5	合格
10		楼梯前室	楼板厚度	-5, +10	150	1	7	3	1	7	4	7	合格
11		楼梯前室	楼板厚度	-5, +10	150	1	5	5	3	2	3	5	合格
12		管道井	楼板厚度	-5, +10	150	2	5	7	2	5	4	7	合格
13		强电间	楼板厚度	-5, +10	150	1	7	3	1	7	4	7	合格
14		弱电间	楼板厚度	-5, +10	150	3	7	4	-2	7	4	7	合格
检测人		记录人		项目总工程师									



■ QA\QC Management – NCR Close

晚上7:15 72%

整改通知单 新增

安全	质量
丽泽SOHO项目 筛选	
	曹元 10-15 18:32 施工缝在封模前未凿毛... 北塔34层墙面 待审核 郭利
	曹元 10-14 17:07 钢筋偏位, 保护层不符... 北塔擦窗机墙体 整改中 罗詹 还剩4天
	曹元 10-13 20:10 施工缝在封模前未凿毛... 南塔管道井墙体错台 已完成
	曹元 10-12 21:22 钢筋偏位, 保护层不符... 北塔屋面女儿墙 已完成
	曹元 10-11 18:16 施工缝在封模前未凿毛... 北塔屋面机房层顶板 已完成
	曹元 10-10 21:47

周计划 日巡检 整改单 实测实量 危险源





Safety Management

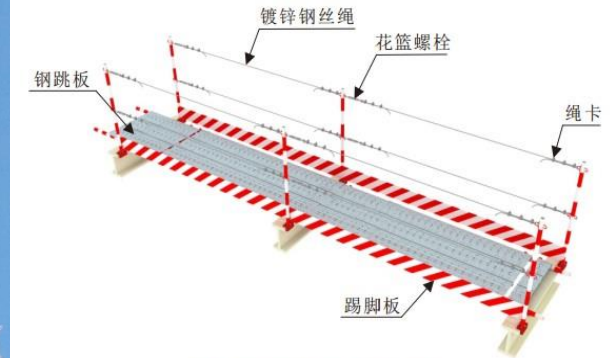
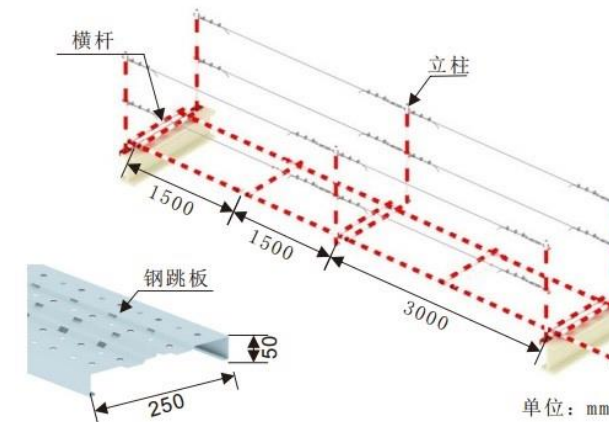


图1 定型钢跳板通道整体效果

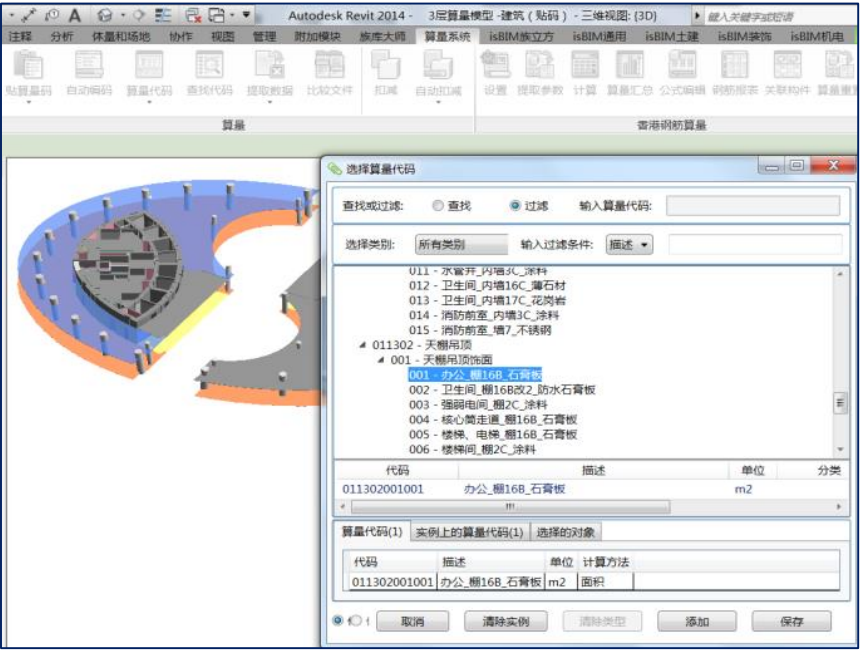


Safety Management - VR





BIM Commercial



Define QS Model

WPS 表格 - 丽泽soho算量清单代码.xlsx - WPS 表格

开始 插入 页面布局 公式 数据 审阅 视图 开发工具 特色功能

宋体 11 A⁺ A⁻

粘贴 复制 格式刷 B I U 田 背景色 颜色 字体颜色 合并居中 自动换行

我的WPS x 丽泽soho算量清单代码.xlsx x + 点此查找命令及功能

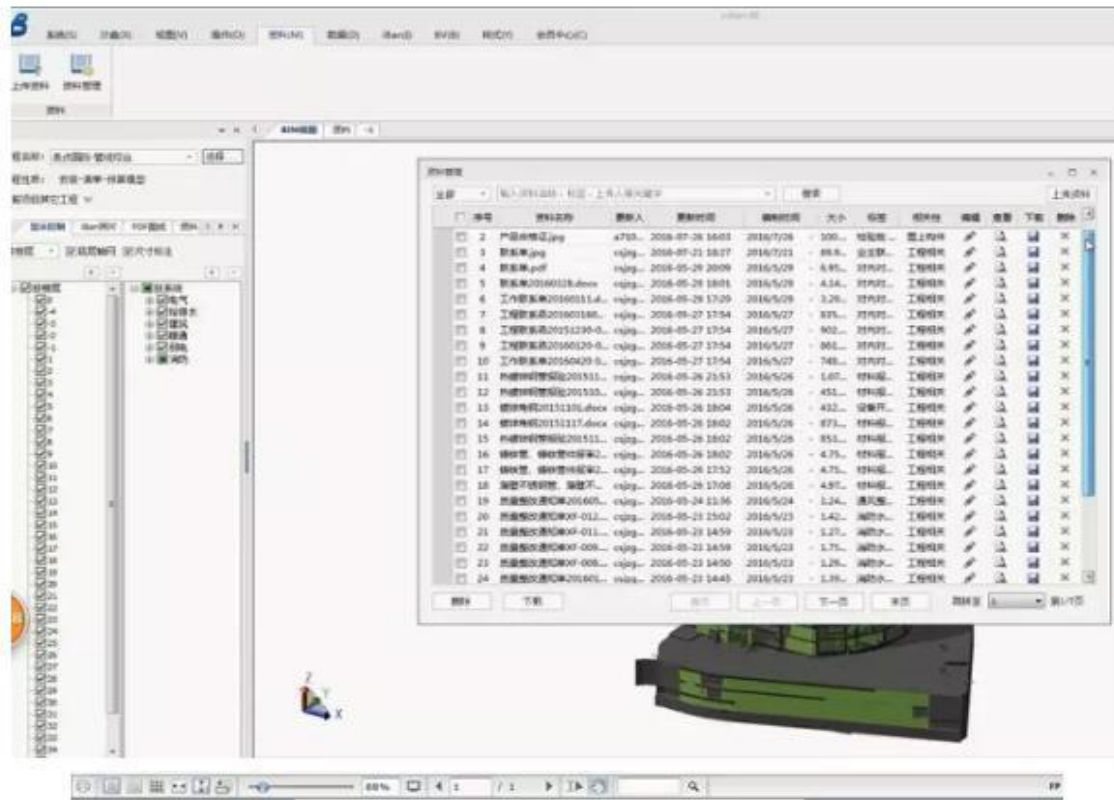
	A	B	C	D	E	F
	代码	Column2	Column3	Description	unit	value
1	010401			砖砌体		
2	010401004			混凝土砌块	m3	体积
3	010401004001			加气混凝土砌块	m3	体积
4	010502			柱		
5	010502001			矩形柱	m3	体积
6	010502001001			矩形梁_C60	m3	体积
7	010502001002			圆柱_C60	m3	体积
8	010503			梁		
9	010503002			矩形梁	m3	体积
10	010503002001			矩形梁_C60	m3	体积
11	010503002002			矩形梁_C30	m3	体积
12	010504			墙		
13	010504001			混凝土直形墙	m3	体积
14	010504001001			混凝土直形墙_C60	m3	体积
15	010505			板		
16	010505001			有梁板	m3	体积
17	010505001001			有梁板_C30	m3	体积

Coding the item

算量代码	描述	单位	算量值	对象数量
010502001002	圆柱_C60	m³	131.52	34
010503002001	矩形梁_C60	m³	25.72	52
010503002002	矩形梁_C30	m³	16.38	48
010504001001	混凝土直形墙_C60	m³	600.31	136
010505001001	有梁板_C30	m³	245.02	32
010506001001	现浇整体楼梯_C30	m²	11.94	4
011702006001	矩形梁模板	m²	335.88	100
011702014001	有梁板模板	m²	171.79	28
011702016001	直形墙模板	m²	1948.84	136
011702028001	现浇楼梯模板	m²	47.04	4
010401004001	加气混凝土砌块	m³	109.41	98
010802001002	DM1323右-F(B) 防火门 1300x2300	m²	35.88	12
010802001003	DM0824-F(A) 防火门 800x2400	m²	3.84	2
010802001004	DM0823-F(A) 防火门 800x2300	m²	7.36	4
010802001005	DM0619-F(A) 防火门 600x1900	m²	9.12	8
010802001006	DM800 厕所门 800x2300	m²	3.77	2
010802001007	DM800 厕所门 900x2300	m²	8.28	4
010802001008	DM700 管井维修门 700x2100	m²	14.70	10
011102001001	办公 楼A	m²	1491.43	2
011102001003	弱电间 楼3A-3	m²	29.46	4
011102001004	核心筒走道 楼12A-1	m²	25.36	2
011102001005	楼梯前室 楼12A-1	m²	48.39	4
011102001006	楼梯间 楼12B	m²	159.23	8
011102001007	水管井 楼3A-3	m²	12.65	4
011102001008	清洁间 楼12F-2 地砖	m²	90.80	4

Generate QS list by 1SBIM

BIM Cloud - Document Control



L0D500 BIM Model



中国建筑马来西亚有限公司

CHINA STATE CONSTRUCTION ENGINEERING (M) SDN. BHD.
(1060634-X)





谢谢

THANKS

