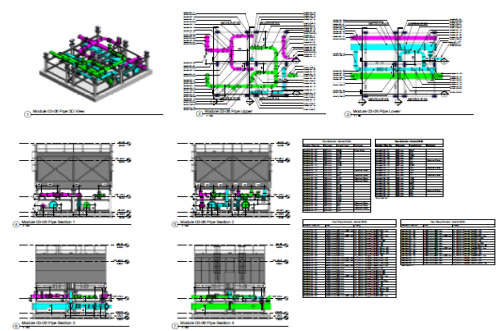
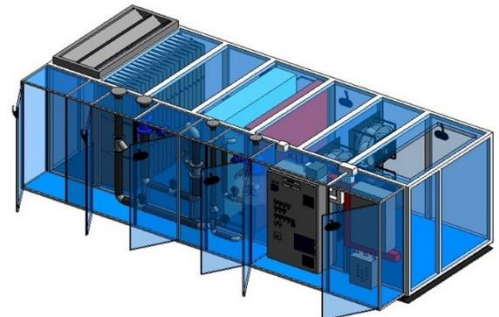
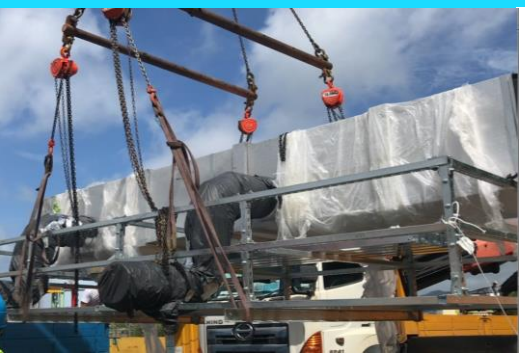


# DfMA MiMEP in West Kowloon Government Office(WKGO) & Tsing Yi Vehicle Examination Centre(Tsing Yi VEC)

Mr. Gary L.P. Fong  
Project Manager  
FSE Engineering Group Ltd





# Content

1. DfMA can be Widely Used
2. Project Introduction
3. Planning for DfMA MiMEP
4. Workflow for MEP Modularization
5. Quality Control DfMA MiMEP
6. Photos for DfMA MiMEP





## Why DfMA can be Widely Used?

10 years before

20 years before

30 years before

Now.....

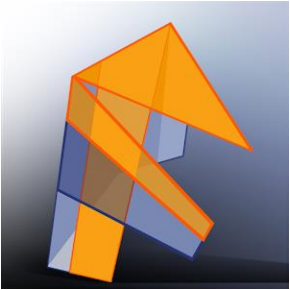




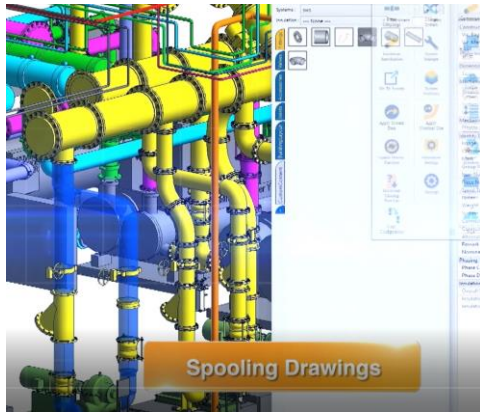
# How to bring the BIM to field?



# How to bring the BIM to field?



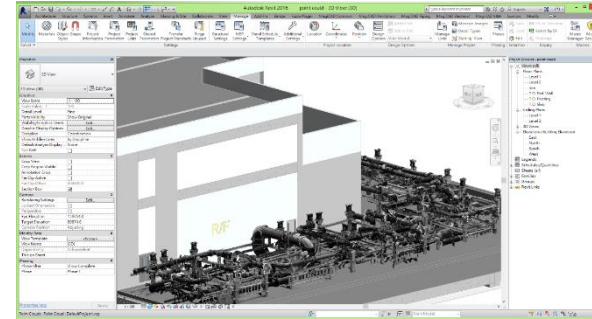
# How to bring the BIM to field?



Spooling



Visualization



3D scanning

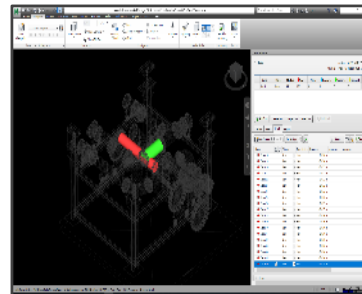
**DfMA**  
**MiMEP**



Hanger Design



RTS - Accurate Positioning



Clash Analysis



Data extraction





# Project Background



Project Name	West Kowloon Government Offices (WKGO)
Location	11 Hoi Ting Road, Yau Ma Tei
Site Area	10 000 m <sup>2</sup>
Construction Floor Area	115 000 m <sup>2</sup>
No. of Storeys	16 (North Tower), 18 (South Tower) & 2 Basement



Project Name	Tsing Yi Vehicle Examination Centre(Tsing Yi VEC)
Location	Sai Tso Wan Road, Tsing Yi
Site Area	30 750 m <sup>2</sup>
Construction Floor Area	64 530 m <sup>2</sup>
No. of Storeys	4 (30 inspection lanes for different kinds of vehicles, 2 chassis dynamometers for commercial vehicles & ancillary facilities for vehicles examination.)



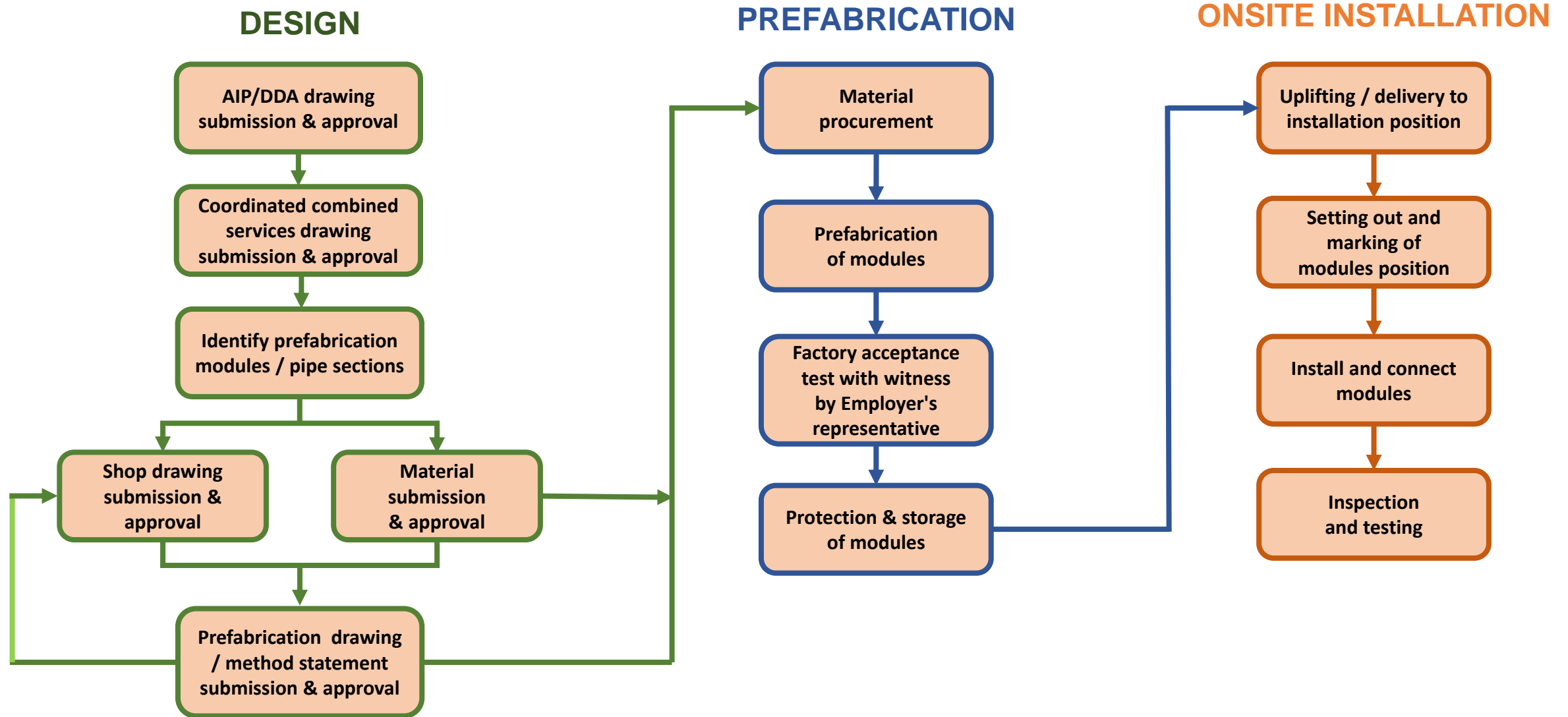
# Summary of Adoption for Design & Build Projects

Trade	DfMA MiMEP	WKGO	VEC
HVAC	Modular Cooling Tower and Pre-fabricated Pipework for Cooling Tower Plant	✓	✓
	Pre-fabricated Pipework for Chiller Plant	✓	✓
	Integrated Air Handling Unit	✓	✓
EL	Pre-fabricated MCB Board Panel Module	✓	✓
	Pre-fabricated Trunking / Cable Tray Riser		✓
FS	Pre-fabricated Pressure Switch Assembly for F.S. / Sprinkler System	✓	✓
	Pre-fabricated Sprinkler Test and Drain Facilities	✓	✓
	Pre-fabricated Pressure Reducing Valve Assembly	✓	✓
PD	Modular Water Pump Set	✓	✓
	Pre-fabricated Pressure Reducing Valve Assembly	✓	✓

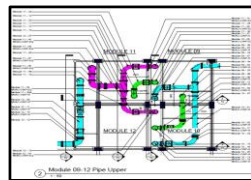
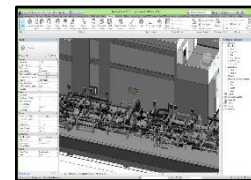
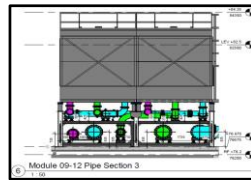
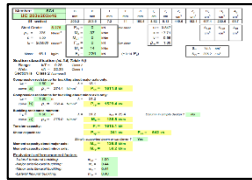
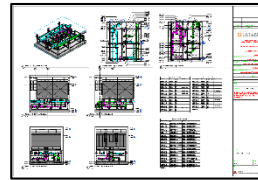
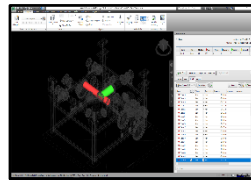
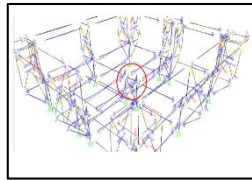
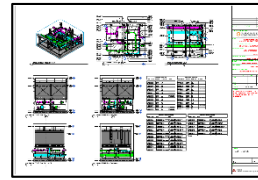
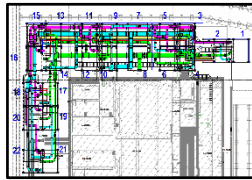




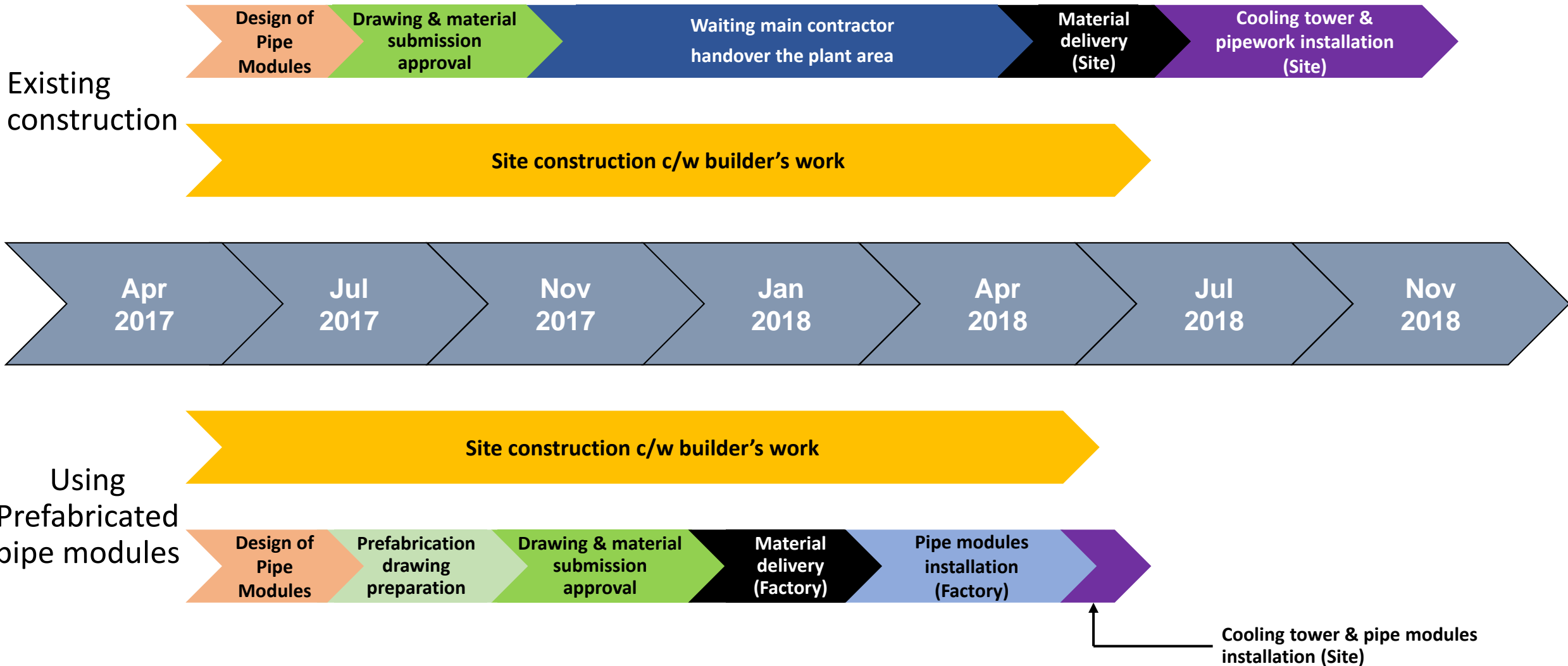
# Planning for DfMA MiMEP



# Workflow for MEP Modularization

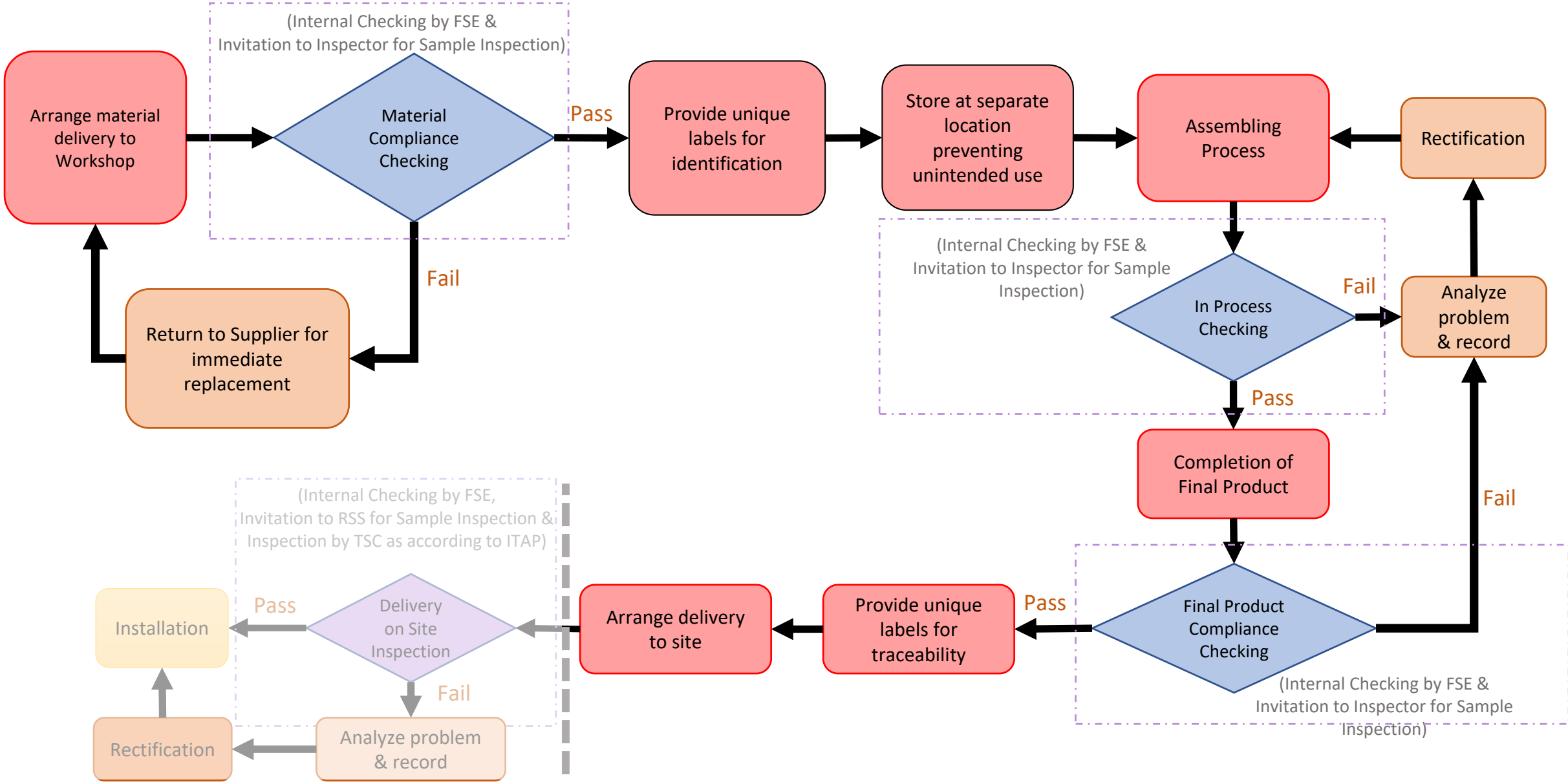


# Comparison of Installation Timeline between Traditional & Prefabricated Cooling Tower Pipe Module





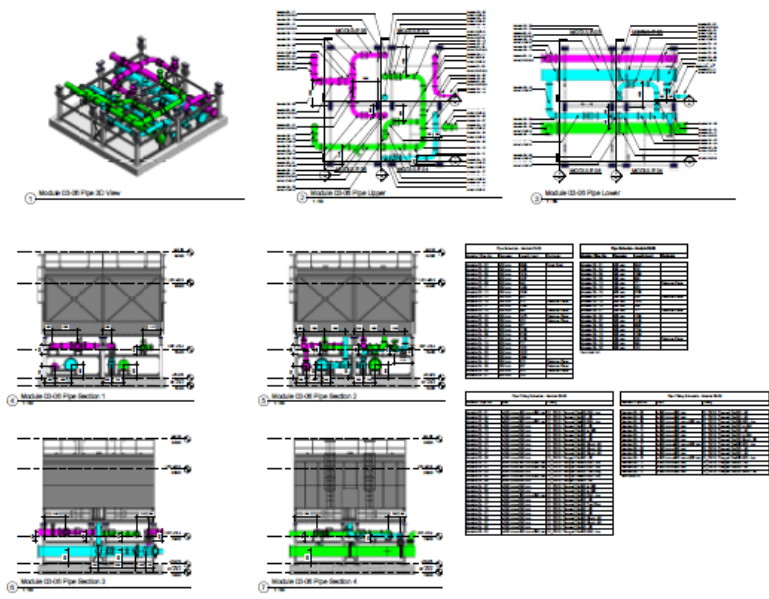
# Quality Control of Integrated AHU Installation



# Overview Matrix of responsibilities for off site Integrated AHU/PAU (DfMA)

Item	Activities (Witness/ Checking/ Test)	Assembling Sub-contractor - PRC workshop	Internal QA/ QC (CP - YEC) HK	Internal QA/ QC (CP - YEC) - stay in PRC	CP (HH)	Inspector	RE	Remark
A	Materials							
1	Material handover Checking (Check Model, Size, Origin and Designation)	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	Inspection (% TBA)	
B	Assembling processes							
	For AHU Items							
2	AHU and PAU Fabrication (Frame, Coil, EC fan, Drain Pan)	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	N/A	
	For Integrated Items							
3	Pipework Installation (Valve and accessories)	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	N/A	
4	Pipework Insulation Installation	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	N/A	
5	Electrical Panel Installation (LMCP, DDC and IAQ control Panels)	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	N/A	
6	IAQ Equipment Installation (UV Light, Plasma Generator)	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	N/A	
7	Cable Containment Installation	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	N/A	
8	Control and Power Cable Wiring Work	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	N/A	
9	Drawing Compliance (Refer to Integrated AHU Shop Drawing)	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	Inspection (5%)	
	Final Product							
10	Electrical Testing (Insulation Test, Continuity Test)	Checking (100%)	N/A	Checking (10%)	Witness	Inspection (10%)	N/A	
11	CCMS Point Test	Checking (100%)	N/A	Checking (10%)	Witness	Inspection (10%)	N/A	
12	Motor Test	Checking (100%)	N/A	Checking (10%)	Witness	Inspection (10%)	N/A	
13	AHU Final Checking (Outlook and Components)	Checking (100%)	N/A	Checking (10%)	Witness	Inspection (10%)	N/A	
C	Delivery							
14	Package checking	Checking (100%)	N/A	N/A	N/A	N/A	N/A	
15	Product Delivery-on-site (Designation, Visual Check for apparent defect and factory QA record)	N/A	Checking (100%)	N/A	Witness	Inspection (100%)	Inspection as according to ITAP	

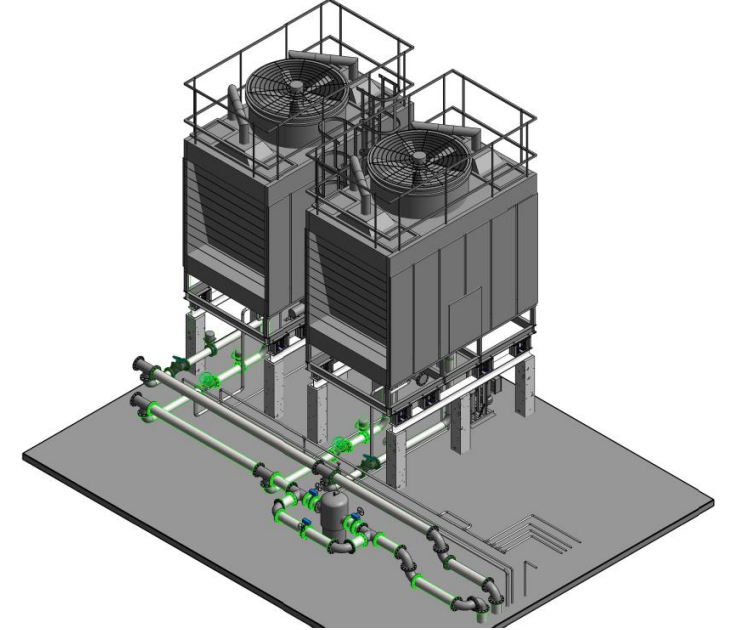
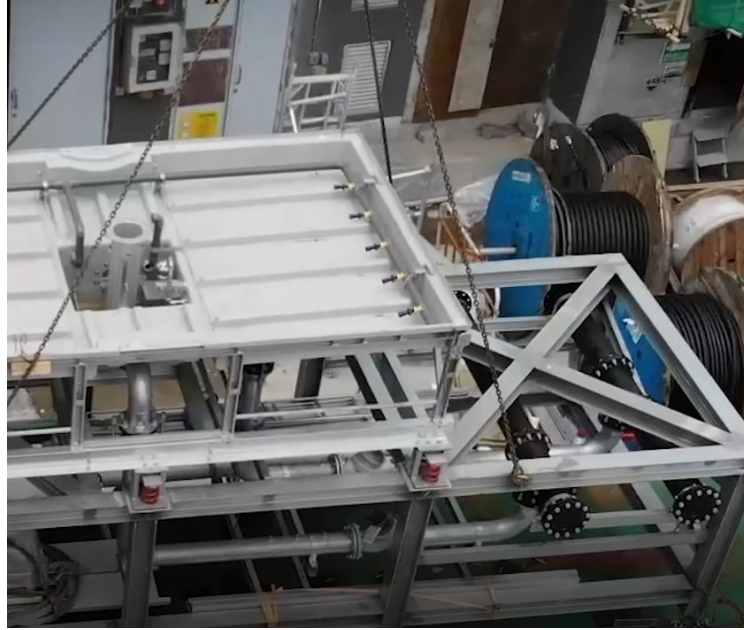




# HVAC DfMA MiMEP (WKGO)



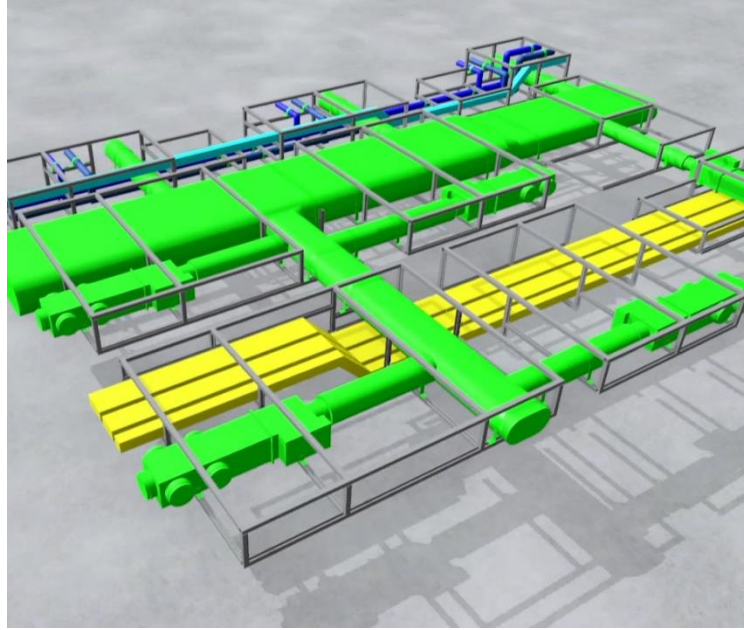




# HVAC DfMA MiMEP (Tsing Yi VEC)





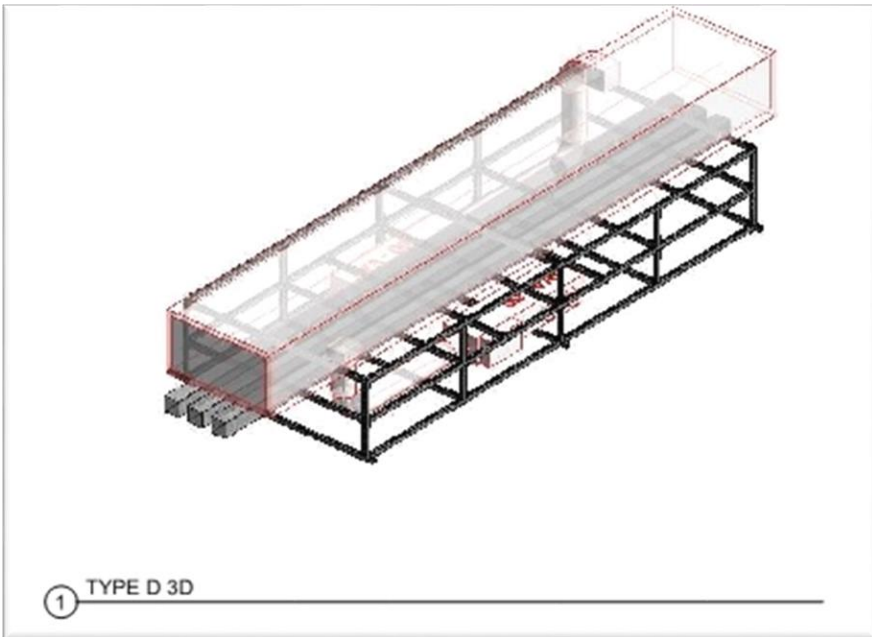
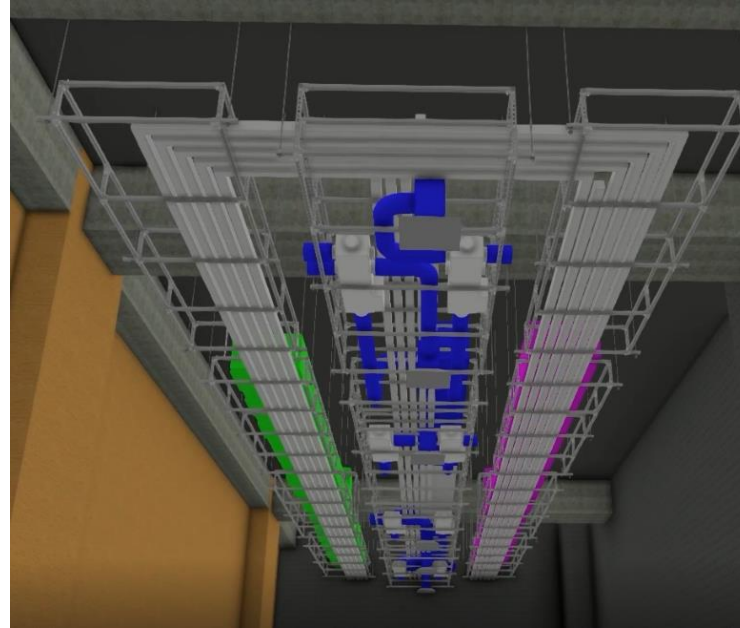


# HVAC DfMA MiMEP (WKGO)

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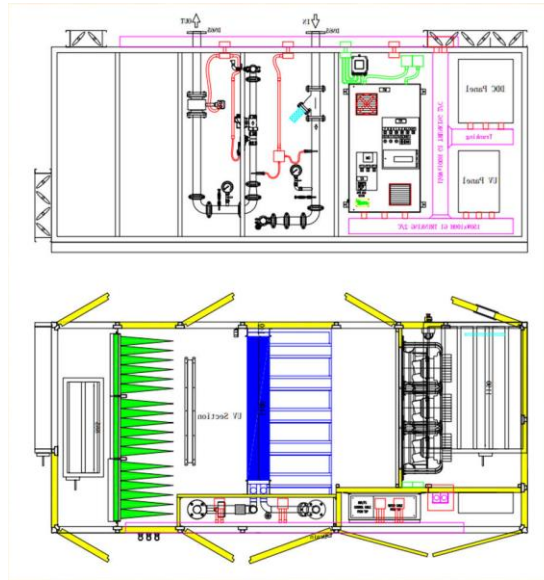
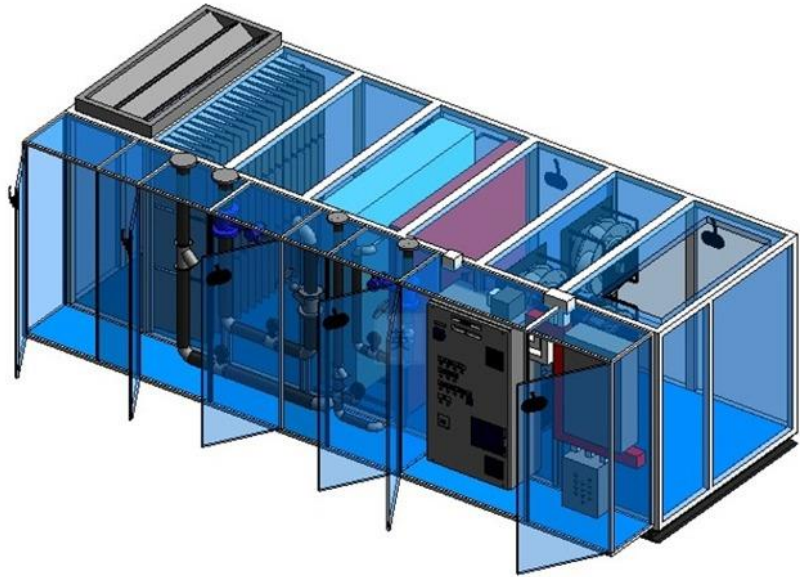




# HVAC DfMA MiMEP (Tsing Yi VEC)







# HVAC Integrated AHU

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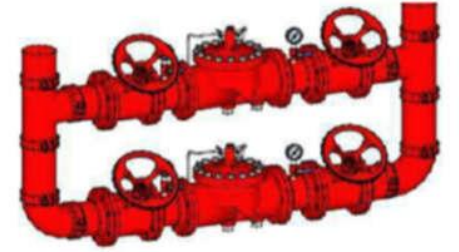
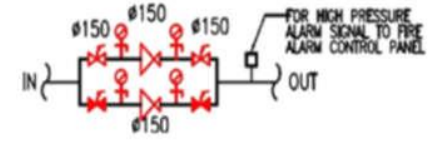
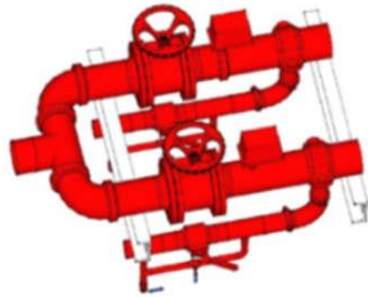
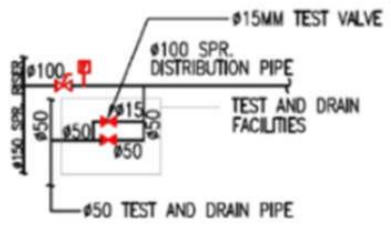




# EL PQM / MCB Board Prefabrication



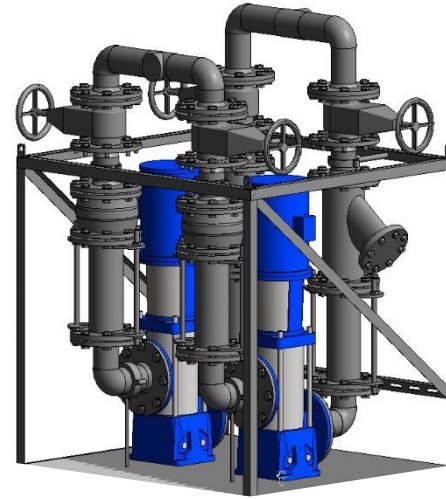




**FS**  
**Pre-fabricated Sprinkler Test and Drain Facilities**  
**Pre-fabricated Pressure Reducing Valve**







**PD**  
**Pre-fabricated Pressure Reducing Valve**  
**Pre-fabricated Pump Set**

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Thank you