CIC & HKFEMC – DfMA MiMEP Tradeshow 2021 Mic & MiMEP Webinar Forum 05 March 2021

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

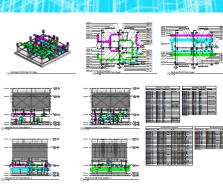
Mr. Gary L.P. Fong

Project Manager

FSE Engineering Group Ltd



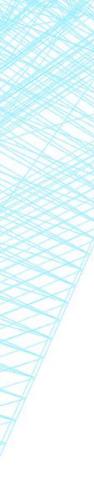






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### Why DfMA can be Widely Used?

### 10 years before

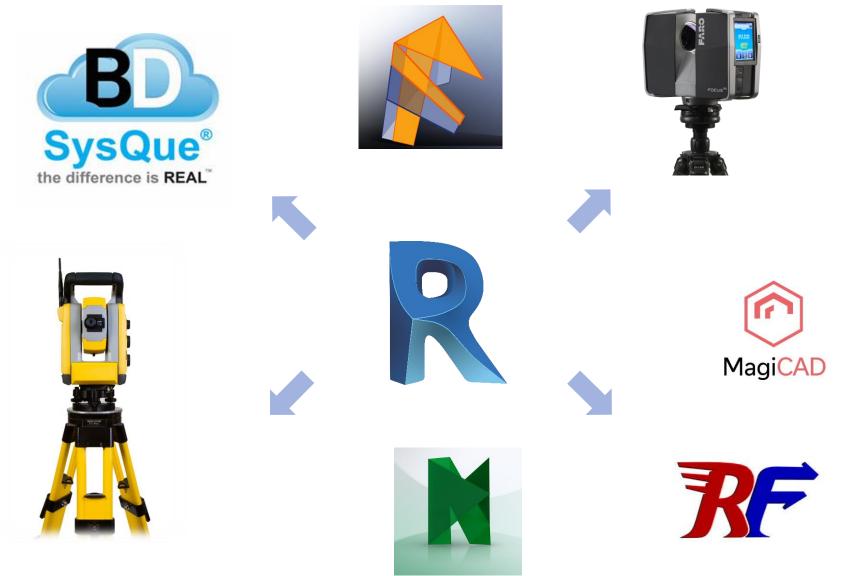
### 20 years before

30 years before

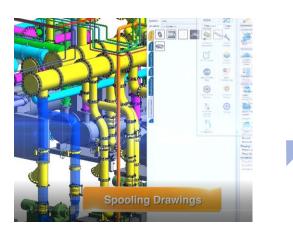
Now.....



### How to bring the BIM to field?



### How to bring the BIM to field?



Spooling



Visualization

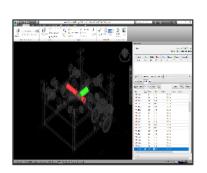


3D scanning

DfMA MiMEP



RTS - Accurate Positioning



**Clash Analysis** 



Hanger Design

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Data extraction

### Project Background

Project Name	West Kowloon Government Offices (WKGO)					
Location	11 Hoi Ting Road, Yau Ma Tei					
Site Area	te 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						



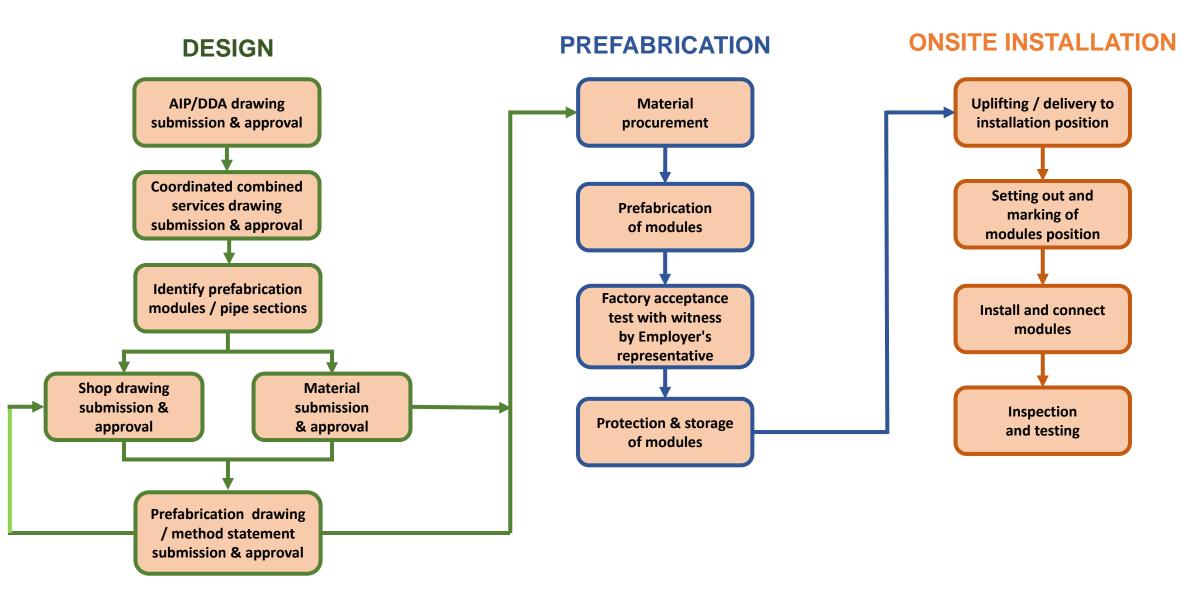
Project Name	Tsing Yi Vehicle Examination Centre(Tsing Yi VEC)
Location	Sai Tso Wan Road, Tsing Yi
Site Area	30 750 m <sup>2</sup>
Construction Floor Area	64 530 m <sup>2</sup>
No. of Storeys	4 (30 inspection lanes for different kinds of vehicles, 2 chassis dynamometers for commercial vehicles & ancillary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

### Summary of Adoption for Design & Build Projects

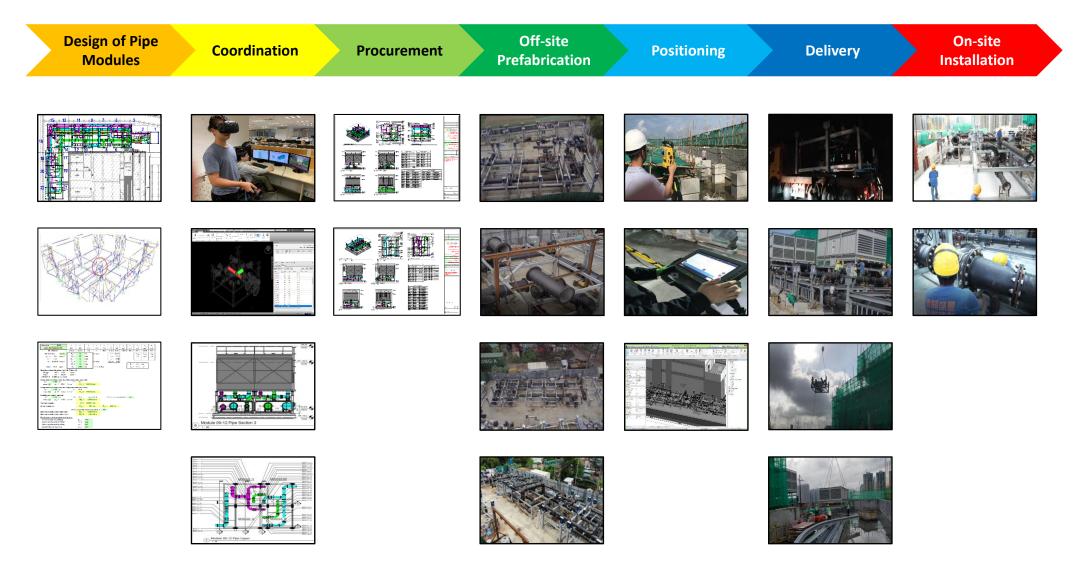
Trade	DfMA MiMEP	WKGO	VEC
HVAC	Modular Cooling Tower and Pre-fabricated Pipework for Cooling Tower Plant	$\checkmark$	$\checkmark$
	Pre-fabricated Pipework for Chiller Plant	$\checkmark$	$\checkmark$
	Integrated Air Handling Unit	$\checkmark$	$\checkmark$
EL	Pre-fabricated MCB Board Panel Module	$\checkmark$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



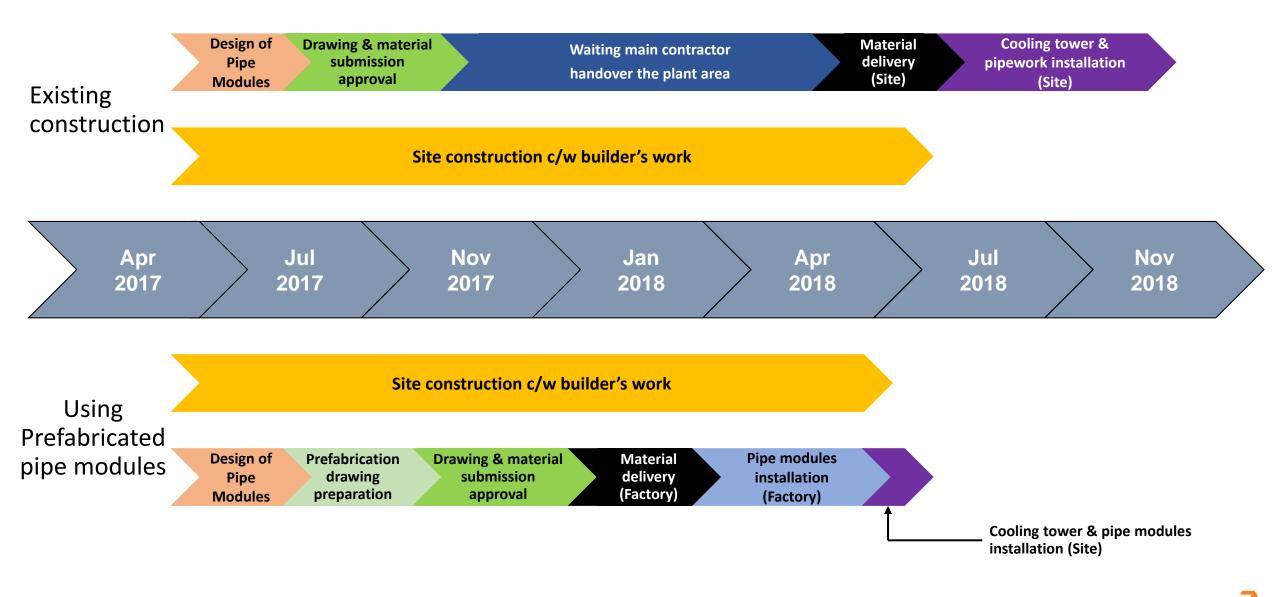
#### Planning for DfMA MiMEP



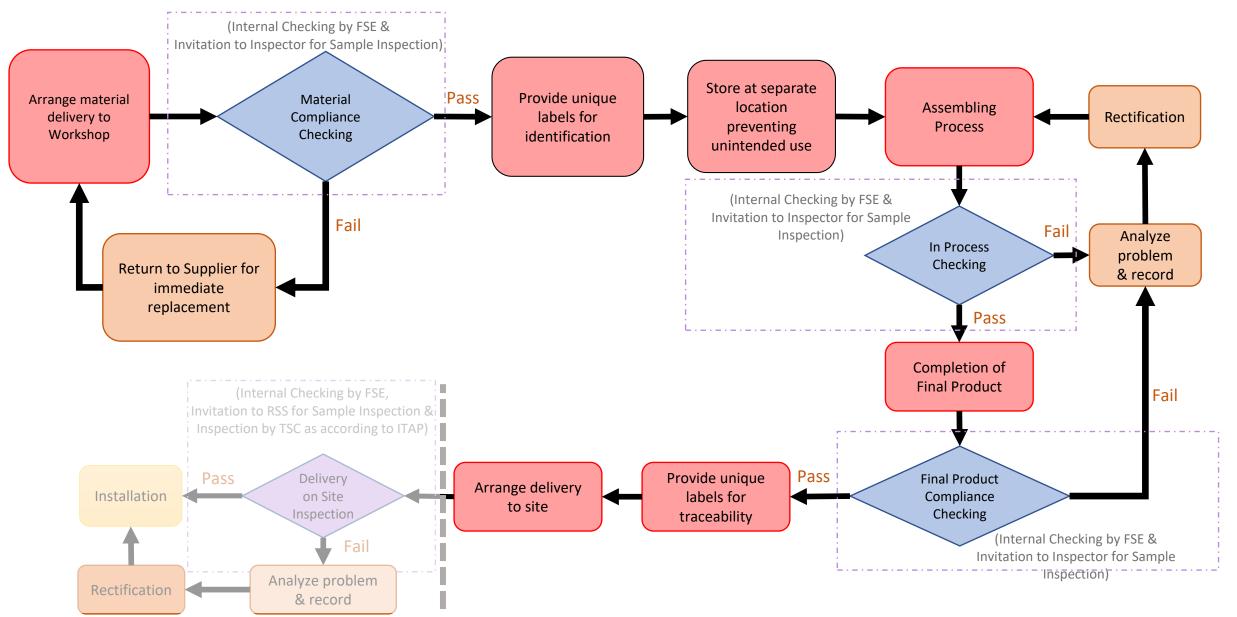
#### Workflow for MEP Modularization



#### 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
Α	Materials							
1	Material handover Checking (Check Model, Size, Origin and Designation)	Checking (100%)	N/A	Checking (5%)	Witness	Inspection (5%)	Inspection (% TBA)	
В	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	
С	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	

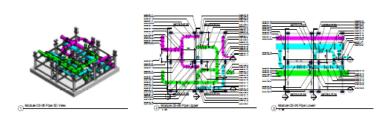
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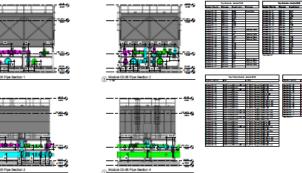
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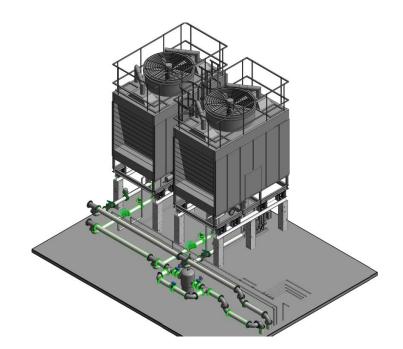




## HVAC DfMA MiMEP (WKGO)



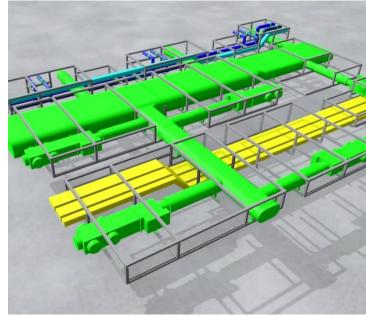






## HVAC DfMA MiMEP (Tsing Yi VEC)



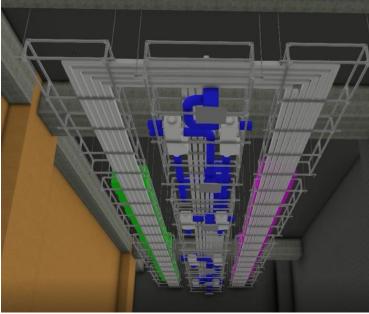




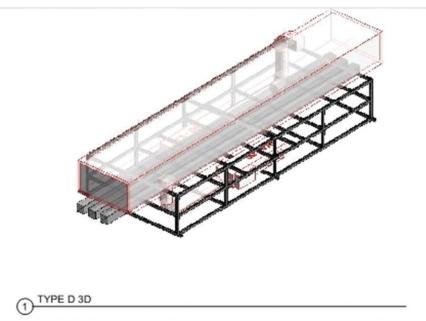


## HVAC DfMA MiMEP (WKGO)



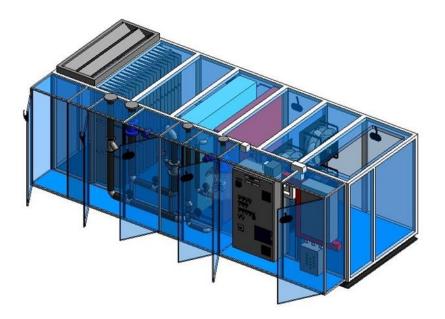


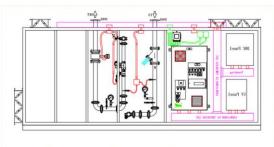


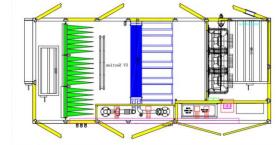


## HVAC DfMA MiMEP (Tsing Yi VEC)

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HVAC Integrated AHU

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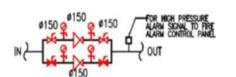


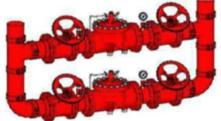


### EL PQM / MCB Board Prefabrication











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