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)

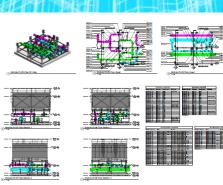
Mr. Gary L.P. Fong

Project Manager

FSE Engineering Group Ltd



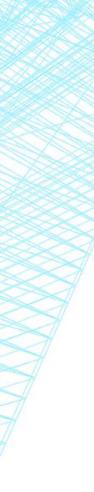






Content

- 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

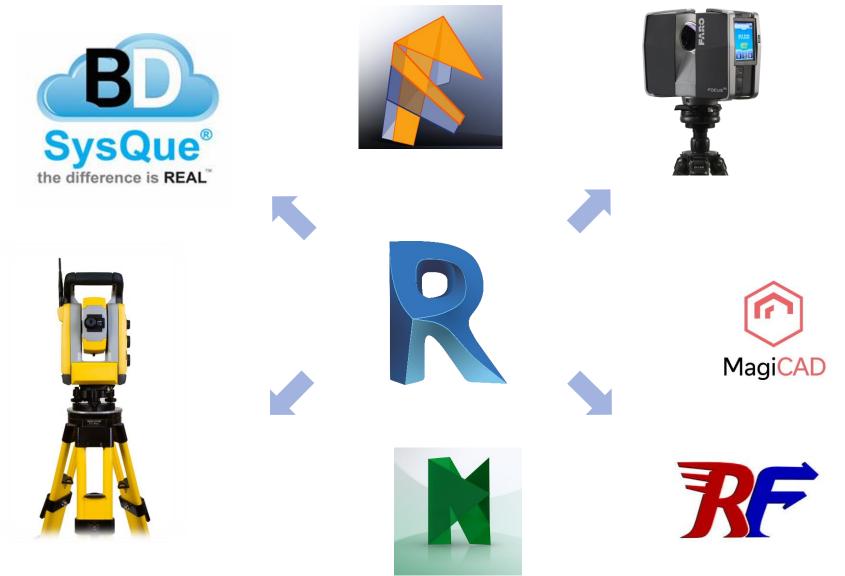
20 years before

30 years before

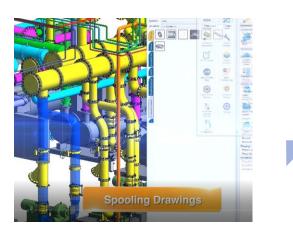
Now.....



How to bring the BIM to field?



How to bring the BIM to field?



Spooling



Visualization

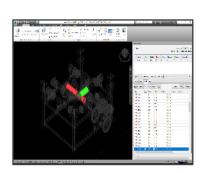


3D scanning

DfMA MiMEP



RTS - Accurate Positioning



Clash Analysis



Hanger Design

and later						fee	- Aleren Ta	e Courter	Deallas -
					100	TWO IS NOT	-	·10019414	* BACKNELWERT
Part Sector 1	100100011.064				128	100 E	-	· 100.00.0	· 8.6. 9.4.1.0001
					1.0	and a			* addies a front of
in land	thereis .	1440				man be	Under a	* 2000 000-A	· a hora a mineria
1 m	1 There	The life	200 11			Inch in Statistics	Salara -	a Participation of the local	a house and
COMPANY STATE	100000	1	College State			the terms of			1. W.1.0
	10000		1000			and a fill			a 1927
ALL AND A	- Table		and the second			from Second St.	-	· CONTRACTOR	+ 3.0T
And in the local day	and the right second		Colores 1	· Collins		Cast!	Long-	· · · · · · · · · · · · · · · · · · ·	
	- Bent Ballys Area								· whole
and the second	and the second second		Contract (and a local sector of the		· Martin A	Print.
I Barnette	and the second se		Contract of the			Assessory hotelait	TAKEN .		* disc.
Distances and	A COLORADO		advised.	Anad		208-70-51	COMP.		- 100 K
			ALC: NO.			10.001		a loger second second	1 0.00.00
Conception of the	Contraction of the second s		and the second			1000.01	Sec.	a companyor.	1 100.00
102.222	Compare Visal Vi		Contract of the	1.0443.0		mark in		- Logi atrona	14.4
10.00	Contract of the second		A second second			Chi hall	1200	· Catalitat	
	- New York		the second			Consection 4.	Contra of		2 1071
AND DEC	-have		Complete State			Sec. 11			· 107
	- Carriel Contract		and the second			41-0	Contraction of the local division of the loc	· Intillica	+ 4.04C
	and the second second		and the second s			Anna Laist Laisenta	And Address of the owner owner owner owner owner owner owner	· MANDA AND	· destination
	A Date of Street					Annu these bracks	Une		P. Burrantis
		100	i ka Tanghini		Né.	3840 TELL	Table of	· more	1.00.00000000

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 ²					
Construction Floor Area	115 000 m ²					
No. of Storeys 16 (North Tower), 18 (South Tower) & 2 Basement						



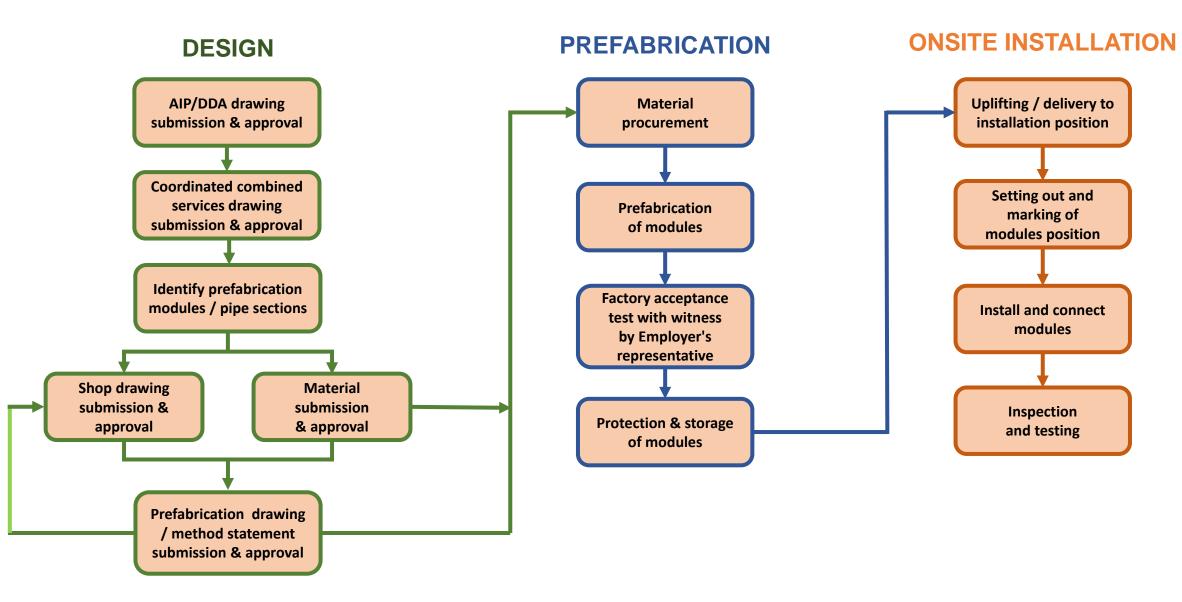
Project Name	Tsing Yi Vehicle Examination Centre(Tsing Yi VEC)
Location	Sai Tso Wan Road, Tsing Yi
Site Area	30 750 m ²
Construction Floor Area	64 530 m ²
No. of Storeys	4 (30 inspection lanes for different kinds of vehicles, 2 chassis dynamometers for commercial vehicles & ancillary facilities for vehicles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

Summary of Adoption for Design & Build Projects

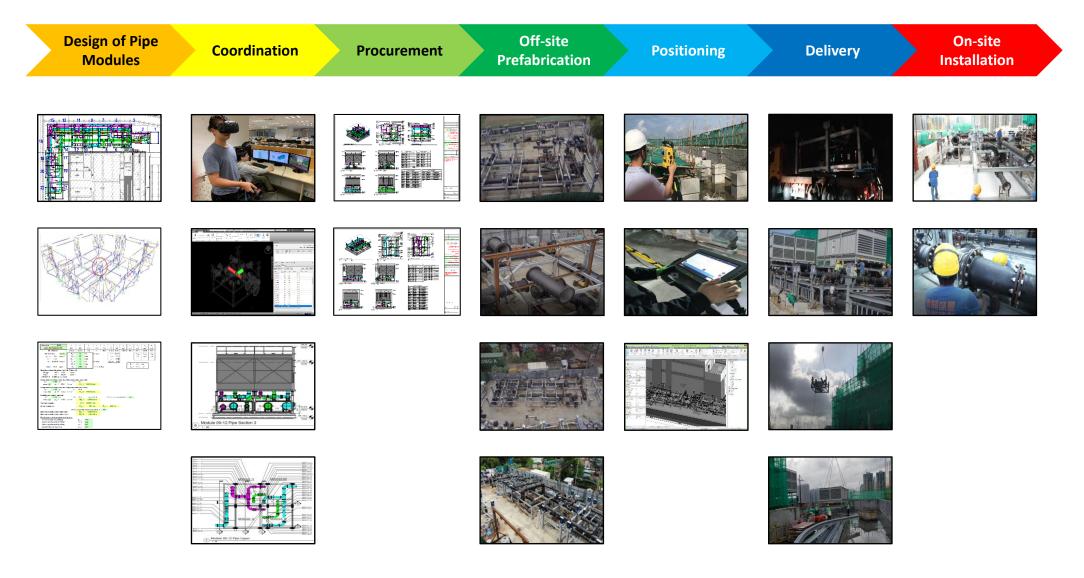
Trade	DfMA MiMEP	WKGO	VEC
HVAC	Modular Cooling Tower and Pre-fabricated Pipework for Cooling Tower Plant	\checkmark	\checkmark
	Pre-fabricated Pipework for Chiller Plant	\checkmark	\checkmark
	Integrated Air Handling Unit	\checkmark	\checkmark
EL	Pre-fabricated MCB Board Panel Module	\checkmark	\checkmark
	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



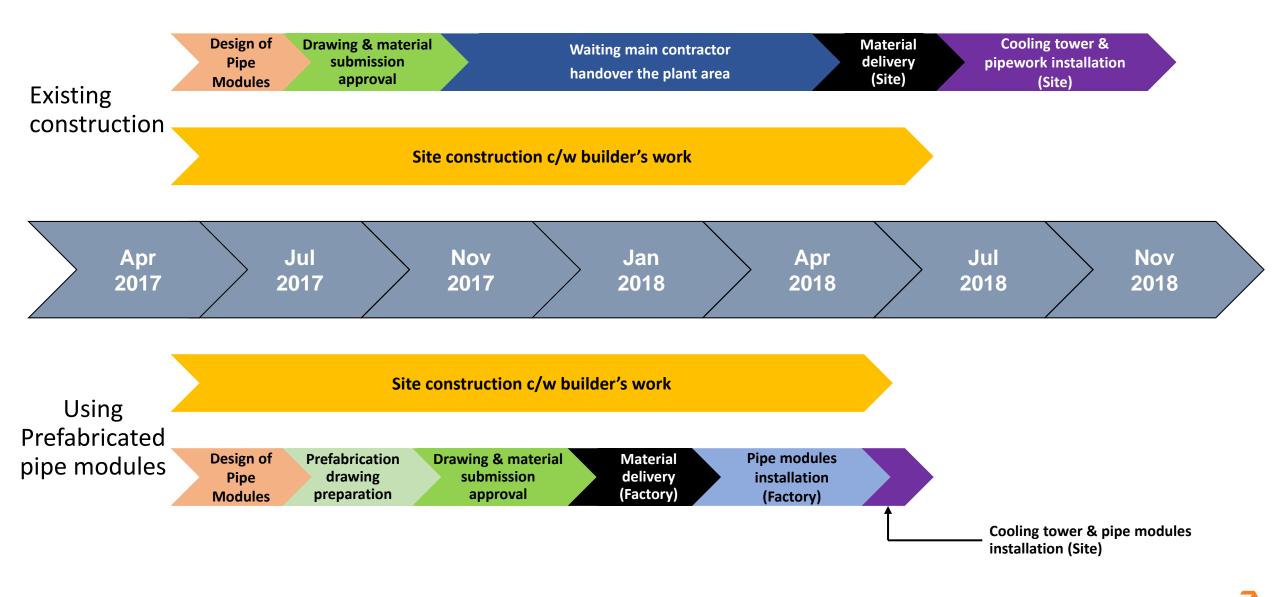
Planning for DfMA MiMEP



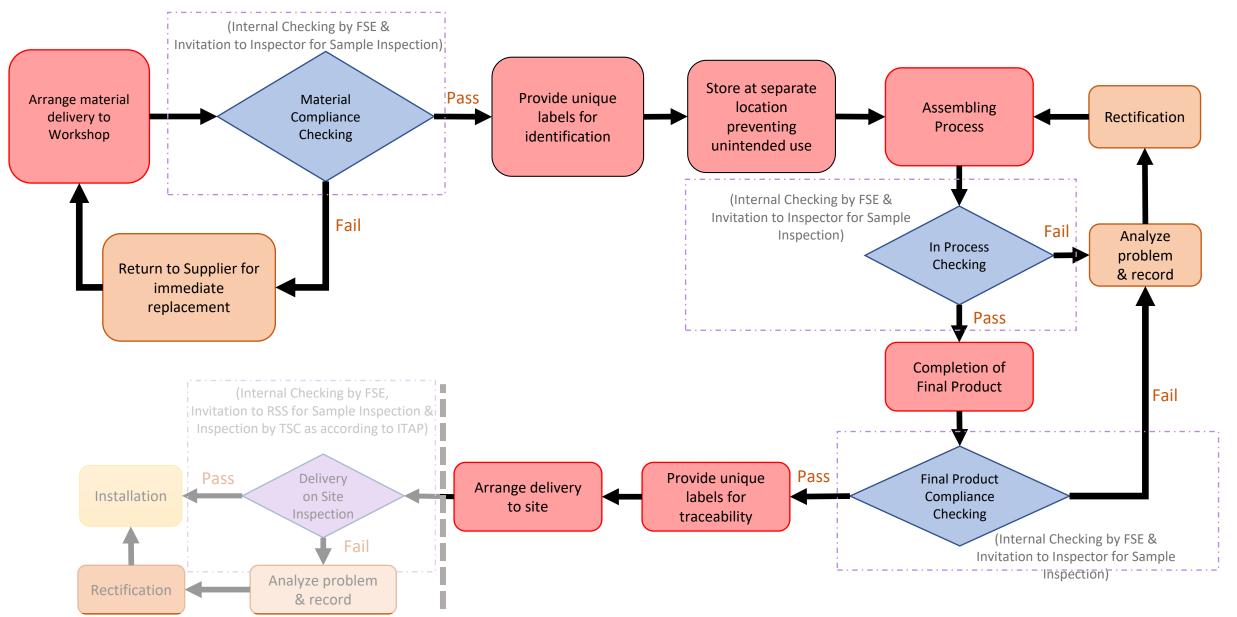
Workflow for MEP Modularization



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	

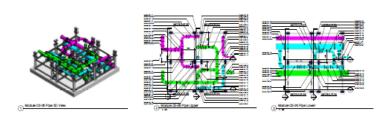
DfMA MiMEP in West Kowloon Government Office(WKGO) & Tsing Yi Vehicle Examination Centre(Tsing Yi VEC)

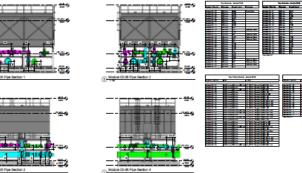
13







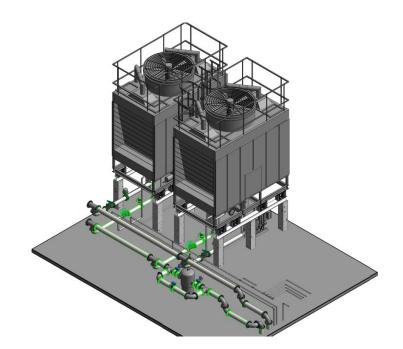




HVAC DfMA MiMEP (WKGO)



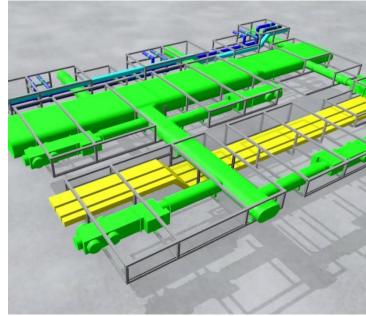






HVAC DfMA MiMEP (Tsing Yi VEC)



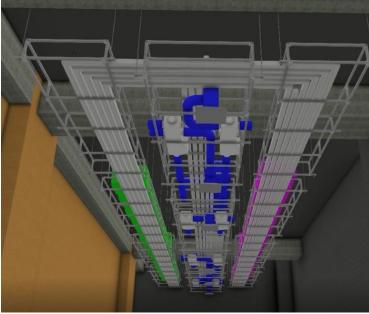




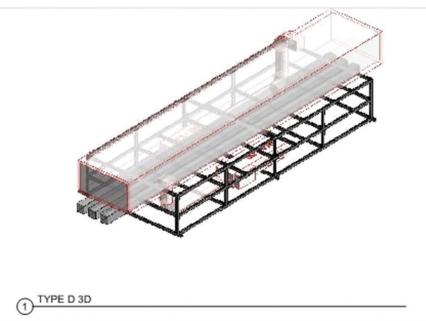


HVAC DfMA MiMEP (WKGO)



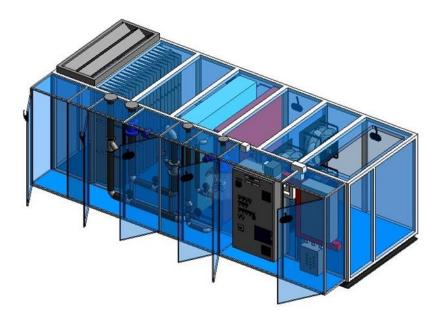


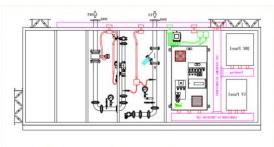


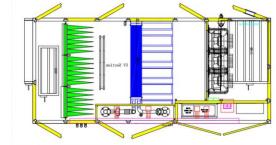


HVAC DfMA MiMEP (Tsing Yi VEC)

17











HVAC Integrated AHU

18

 $\langle \overline{} \rangle$





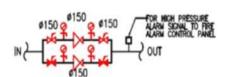


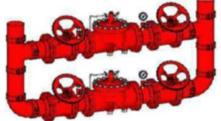


EL PQM / MCB Board Prefabrication





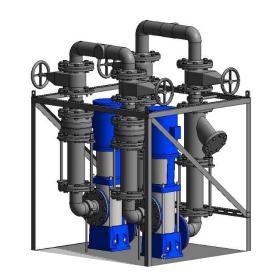






FS Pre-fabricated Sprinkler Test and Drain Facilities Pre-fabricated Pressure Reducing Valve









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

21

Thank you