This document lists the roles and responsibilities of the Central MEP Teams and the Project MEP Teams

The trades covered under the MEP Scope are as follows:

- ELECTRICAL
- HVAC
- PLUMBING & DRAINAGE
- FIRE FIGHTING
- EXTRA LOW VOLTAGE SYSTEMS
- LIFTS
- STPs and WTPs
- WATER FEATURES & SWIMMING POOLS
- PNG
- IRRIGATION
- SOLID WASTE MANAGEMENT

Role of Central MEP Teams

1. There will be two central MEP teams ;each team will have design responsibility and functional responsibility of the projects under their jurisdiction:

    a. Team 1 ð will include the South Mumbai, Fiorenza and Hyderabad Projects
    b. Team 2 ï will include NCP, Eternis, Palava, Thane and Pune Projects

2. Both teams will commonly share some resources like:

    a. Infra
    b. Specialist systems (Pools, Water Features, etc.)
    c. Elevators

3. The key responsibilities of Central MEP Teams will include:

    a. Policy writing
    b. Standardisation of design approach across projects
    c. Design development
        i. Review of DBR
        ii. Concept Design - lead
        iii. Schematic Design - lead
        iv. DD ï Collaborative (Central Team in Lead and Project Team in Support)
        v. Tender Documents ï Guide project team
        vi. Change management ï Support project team

    d. Authority submissions (scope further elaborated below)

4. The central team will lead policy updates and formulations, with the following focus:

    a. Cost and functionality
    b. Use of new materials and systems (Cost & Time advantages)
    c. Conversion of policies into implementable/enforceable checklists

5. The central team will standardise design approach and design documents (reports, calculations, BOQs, specs, type details, etc.) to achieve:

    a. Uniform quality of design across projects
    b. Uniform content level in design documents

c. Move away from person/team centric design

6. The central team will lead the project concept and schematic designs (while the project lead/ project design lead will be involved from Schematic design), to ensure:

    a. Appropriate assessment of scale
    b. Implementation of lessons learnt
    c. Proper referencing of precedents and policies

7. The central team will communicate and coordinate with the architects and structural engineers during up to the design development, which thereafter it shall be taken up by the project teams.

8. The central team will be responsible for the preparation of budget and design accordingly.

9. The central team will support the liason team to liaise with all necessary agencies for the first submissions (required for CC) to authorities (MOEF, CFO, HRC, Municipality, Utilities, etc.).

10. Subsequent submissions due to design changes, updates shall be managed by project teams, while the central design team will support.

11. The central team will review the design for compliance and quality post DD phase as and when required.

12. The central MEP team will review major technical variations, changes incorporated in the design by the project team during the progress of the project.

13. Project Control Associate will generate the MIS report of the team for the month.

14. The Project Control Associate will monitor the design schedule and review the project progress.

15. The Individual central team leader will be responsible for the review of the work progress and the quality of the work with the site team on monthly basis. They will provide support whenever requested by the PD/PMH or the site MEP team.

16. Each team will be responsible for the peer review of the design of the other team

Role of Project MEP Team

1. Project Team will be responsible for the following activities:

    a. The Detail Design of the Project
    b. Preparation of BOQs & Tender documentation.
    c. VFC drawings Preparation
    d. Construction Management of the Project
    e. Temporary Power and Water Distribution on site
    f. Authority approvals, handover to FM team

2. Project team (Design Team Lead) will be part of the design process after the schematic phase till the Architectural DD phase. However the MEP Project lead will be involved in the design of the project from the Schematic Design Phase.

3. The Project Team will coordinate with Consultant and prepare the tender package. Populate/ Verify the BOQ numbers.

4. All minor changes post architectural DD shall be undertaken by the Project Team.

5. Project Team will issue the complete tender package to the procurement team for further processing.

6. The Project Team will be involved in the Pre Bid meetings along with the MEP Central team.

7. Project Team - will review all the construction documents as per the Annexure - 1

8. Project Team - will inspect the progress of work. Refer Annexure - 2 for random and mandatory inspection requirements.

9. Project Team along with consultant (as applicable) -will inspect the executed work based on the Inspection request raised by the Contractor.

10. Project Team shall also be responsible for the inspection and acceptance of all incoming MEP materials to site.

11. Project Team shall undertake required site measurements and review & approve running bills of the Contractors.

12. Project Team to hold the progress meeting with all the MEP Contractors to review the executed schedule and future schedule. The meeting shall also be used to review and resolve:

    a. Progress on site
    b. Any constraints
    c. Procurement logs
    d. Technical submission logs
    e. NCR/ Observation lists and close out
    f. Site co-ordination issues

    This shall be held in the presence of civil construction manager

13. Project Team shall review any variation request sent by the contractors and after their verification MEP Project Team shall close all the quantity variation amendments on site and only major variations shall be sent to the HO after their review/comments.

14. Project team shall be responsible for the temporary power and water distribution on site only. However PMO to hire two contractors one for the temporary electrical distribution and one for the pressurised water distribution.

15. Project team shall check following documents ï VFC or Shop Drawings, Material Submittals, Method Statements, Contractors calculations, As Built Drawings, Operation and Maintenance Manuals, Commissioning Reports, Guarantee and Warrantee Certificates, QA/QC Plan, Safety plan, Hot work permits.

16. Project team is responsible for the handing over of the system to the FM team, as per design.

17. Project team shall be responsible for all necessary HSE compliance related to their and their contractorôs works at site.

18. Project team will functionally report to the HOC-MEP (or team member assigned) and administratively the Project Team leader will report to the Project Director. The Responsibility of the team to the Project Director and the HOC- MEP are defined in MEP-34

19. The infrastructure works for the projects will be done as per the following table:

S. No.	Activity	CIVIL – CM	MEP
1	Storm Water Drainage (including Rain Water Harvesting)	Complete works including piping	--
2	Sewerage	Complete works including piping	--
3	Water Supply	Excavation and area preparation	Pipe laying and testing
4	Electrical	Excavation, area preparation, laying of pipes, sleeves, chambers	Cable laying and testing
5	Data/Tel/Fire Alarm/SCADA/CATV/FTTH	Excavation, area preparation, laying of pipes, sleeves, chambers	Cable laying and testing (As applicable)
6	Street Lighting	Foundation and laying of sleeves	Cable laying, pole installation, testing
7	Irrigation / Flushing water	Excavation and area preparation	Pipe laying and testing
8	Transformer & Switching Yards	Complete Civil Works along with pipes for cable distribution, chequered plates	Installation of transformers and associated equipment along with testing and earthing
9	STP	- Complete Civil Works (Tanks, Foundation, etc.) along with laying of pipes and sleeves for the electrical and mechanical works. - Steel walkways, ladders and doors	- Installation of STP Electro mechanical Equipment - Puddle Flanges

Annexure 1
Construction Document Approval Matrix

HVAC		Reviewed & Approved by						
Sr. No.	Item Description	Lodha MEP Project Team	Lodha MEP Central Team	MEP Consultant	Lodha Architect	Factory Inspection / Test	Third Party	Remarks & Comments
1	Sheet metal duct	√	-	-	-			
2	Factory fabricated duct	√	-	-	-	√		
3	Pre insulated ducts	√						
4	Profiles & Corners	√						
5	Duct supports, Anchor fastener	√	-	-	-			
6	Duct Insulation - Thermal	√	-	-	-			
7	Duct Insulation - Acoustic	√	-	-	-			
8	Volume control damper	√	-	-	-			
9	Non return damper	√						
10	Pressure relief damper (stairwell pre. system)	√						
11	Fusible link fire damper	√	-	-	-			
12	Motorised Smoke & Fire damper	√	-	-	-			
13	Flexible duct connector	√	-	-	-			
14	Flexible duct	√	-	-	-			
15	Air Devices (Grilles & Diffusers)	√	-	-	√			Architect's approval
29	Thermostat / Remote controller	√	-	-	√			for Final Fix Items
16	Solenoid Valves and Actuators	√	-	-	-			
17	VRV / VRF	√				√		
18	Duct heaters	√				√		
19	VAV	√						
20	Sound attenuator	√	√	√		√	√	
21	Humidity / Temparature sensor	√						
22	D P Switches	√						
23	Indoor /Outdoor AC units	-	√	√	-			
24	TFA (FAHU)	-	√	√	-	√		
25	Anti vibration mounts	√	-	-	-			
26	Cable Tray for refrigerant piping	√	-	-	-			
27	Copper Pipes & fittings	√	-	-	-			
28	Pipe insulation	√	-	-	-			
30	Condensate drain pipe & insulation	√	-	-	-			
31	Power & Control Cables for AC Unit	√	-	-	-			
32	Chilled water pipes & fittings	√	-	-	-			
33	Pre insulated HDPE pipes and fittings	√						
34	Valves - Isolation	√	-	-	-			
35	Pipe supports	√	-	-	-			
36	Balancing valves	√	-	-				
37	2 / 3 way valves	√	-	-	-			
38	Strainers	√	-	-	-			
39	Chilled water pipes insulation	√	-	-	-			
40	Expansion bellows	√	-	-	-			
41	Chilled Water Pumps	√	√	√	-	√		
42	Pressurisation unit	√	-	-	-	√		
43	Chemical Dosing System	√	√	√		√		
44	Air vessel (Pressure Vessel)	√	-	-	-			
45	Chillers	-	√	√	-	√	√	
46	Automatic air vents	√	-	-	-			
47	Drain cock	√	-	-	-			
48	Pressure gauges (Glycerine base)	√	-	-	-			
49	Temperature gauges	√	-	-	-			
50	Under deck insulation	√	-	-	-			
51	Fresh air fans	-	√	√	-			
52	Extract air fans	-	√	√	-	√*		*Heavy Duty
53	Jet Fans	-	√	√	-	√*		*Heavy Duty
54	Pressurisation fans	-	√	√	-	√*		*Heavy Duty
55	LV Cables for HVAC	√			-			
56	MCC Panels & Control Cubicles	-	√	√	-	√*		*Type Test
57	Cable glands / lugs	√	-	-	-			
58	Fire stopping material & Sealant	√	-	-	-			
59	Duct sealant	√	-	-	-			
60	Air handling units (AHU)	-	√	√	-			
61	Fan Coil Units (FCU)							
62	Copper Tubes & fittings	√						
63	Exhaust / ventilation system	√						
64	Refrigerant gas	√						
65	Kitchen Hood w/ or w/o Fire Suppression Sys	√				√		
66	Sand Trap	√	-	-	-			
67	Hard ware items	√						

Electrical		Reviewed & Approved by						
Sr. No.	Item Description	Lodha MEP Project Team	Lodha MEP Central Team	MEP Consultant	Lodha Architect	Factory Inspection / Test	Third Party	Remarks & Comments
1	PVC conduits & Accessories	√	-	-	-			
2	EMT - Conduits and Accessories	√						
3	G I Conduits & Accessories	√	-	-	-			
4	Cable Trays/ Ladders & Accessories	√	-	-	-			
5	Trunking & Accessories	√						
6	Cables for General purpose	√	-	-	-			
7	Hanger & Support for electrical system	√	-	-	-			
8	Single core wires - FR / FRLS	√			-			
9	LV / HV Cables (FR / FRLS)	√			-			
10	LV / HV Cables (FS)	√	√		-	√	√	
11	Co-axial cables	√			-			
12	Tele / Data Cables (Structured cabling)	√			-			
13	Cable glands/lugs	√	-	-	-			
14	Transformer	√	√	√	-	√	√*	*Type Test
15	RMU / HT Panels & Switch gear	√	√	√	-	√	√*	*Type Test
16	Compact / Pocket Sub-stations (CSS / PSS)	√	√	√	-	√	√*	*Type Test
17	DG set (Prime / Stand by duty)	√	√	√	-	√	√*	*Type Test
18	LT Panels & Switch gear	√	√	√	-	√	√*	*Type Test
19	MCC Panels & Control cubicles	√	√	√		√	√*	*Type Test
20	APFC Panels	√	√	√	-	√	√*	*Type Test
21	ATS / AMF panels	√	√	√		√	√*	*Type Test
22	VFD's & other drives	√	√	√	-	√		
23	Distribution Board's	√	-	-	-			
24	Isolators / Emergency stop push buttons	√	-	-	-			
25	Bus ducts	√	√	√	-	√	√*	*Type Test
26	Bus system for Lighting Control	√		√		√		
27	Lighting Control Panels / System	√		√				
28	Wiring Devices & Accessories	√		√	√			
29	Occupancy / Motion Sensors.	√						Architect's approval for Final Fix Items .
30	Light Fixtures	√		√	√	√		
31	Aviation Indication lights (beacon Lights)	√	√	√	√			
32	Aviation Ind. Lights- Synchro. system	√	√	√				
33	Lightning protection systems	√	√	√	-		√*	*Type Test
34	Earthing system	√	√	√	-		√*	*Type Test
35	Equi-potential Bonding System	√	√	√				
36	D. I. Covers for Earth inspection chambers	√						
37	Audio Visual system	-	√	√	√			
38	VDP & Intercom system	√			√			
39	Fire Alarm System (FACP and Devices)	√	√	√	√			Architect's approval for Final Fix Items .
40	Public Address / BGM System	√	√	√	√			
41	Refuge alarm system / Panic Alarm System	√	√	√	√			
42	CO detection & Alarm system	√	√	√				
43	Inverter & Batteries	√	√	√	-			
44	UPS System	√	√	√	-			
45	Fire stopping material & Sealant	√	√	-	-			
46	Cable for Fire Alarm System	√	√	√	-			
47	Smart white board system	√	√	√	√			
48	Turnstile / Boom Barrier / Bollards	√	√	√	√			Architect's approval for Final Fix Items .
49	Poles and Traffic Lights	√	√	√	√			
50	Cables for Access Control System	√	√	-	-			
51	Readers and Controllers	√	√	√	-			
52	CCTV / DVR / NVR Modules	√	√	√	-			
53	Camera & its cables	√	√	√				
54	Fibre Optic Cables	√	√	√				
55	BMS Controllers / DDCs & Peripherals	√	√	√	-			
56	Wires and Cables for BMS	√	√	-	-			
57	High Mast Lights	√	√	√	√			
58	Lift & Escalators		√	√	√		√*	*Type Test

Fire Fighting Sr. No.	Item Description	Reviewed & Approved by				Factory Inspection / Test	Third Party	Remarks & Comments
		Lodha MEP Project Team	Lodha MEP Central Team	MEP Consultant	Lodha Architect			
1	G.I. Pipes	√	-	-	-			
2	G.I. Pipe fittings	√	-	-	-			
3	Grooved coupling	√	-	-	-			
4	Pipe Clamps & supports	√	-	-	-			
5	Anti Vibration Pa / Cushy Foot mounting	√	-	-	-			
6	Expansion Bellow	√	-	-	-			
7	Ball Valves	√	-	-	-			
8	Butterfly valves	√	-	-	-			
9	Non return valves / Check Valves	√	-	-	-			
10	Air Release Valves	√	-	-	-			
11	Y-Strainer	√	-	-	-			
12	Pressure reducing valves	√	-	-	-			
13	Sluice Valves	√	-	-	-			
14	Gate Valve	√	-	-	-			
15	Landing Valve	√	-	-	-			
16	Fire hose reel	√	-	-	-			
17	Fire hose reel cabinet	√	-	-	√			
18	Breaching inlet	√	-	-	√			Architect's approval for Final Fix Items .
19	D.I./C.I. Manhole covers and frames	√	-	-	√			
20	Sprinklers & Accessories	√	-	-	√			
21	Fire hose reel cabinet accessories	√	-	-	-			
22	Zone control Valve	√	-	-	-			
23	Flow switch	√	-	-	-			
24	Water meter (?)	√	-	-	-			
25	Electronic Flow Meter	√	-	-	-			
26	Level Controller & Indicator (Water)	√	-	-	-			
27	Fire Hydrant	√	-	-	-			
28	Pressure Control Switches	√	-	-	-			
29	Deluge Valve Assembly	√	√	√				
30	Gong Bell System	√	√	√				
31	Pressure Gauge (Glycerine base)	√	-	-	-			
32	Anticorrosive coating	√						
33	Primer & Paints	√	-	-	-			
34	Welding Electrodes	√	-	-	-			
35	Anchor Fastener / Rawl Bolts	√	-	-	-			
36	Fire Pumps (Electrical / Diesel Engine Driven)	√	√	√	-			
37	Fire Stopping materials & Fire Sealant	√	√	√	-			
38	G.I. Pipe protection coating for UG service	√	-	-	-			
39	MCC Panels & Control cubicles	√	√	√				
40	Puddle Flanges	√	-	-	-			
41	Control Panels	√	-	-	-			
42	Normal power Cables / wires	√	-	-	-			
43	Cable Tray / Ladder	√	-	-	-			
44	Fire resistant / Fire Survival cables	-	√	√	-		√*	*Lab Test
45	Explosion proof (Class A/B/C) Cable glands	-	√	√	-			
46	Test Drain Assembly	√	-	-	-			
47	Orifice plate	√	-	-	-			
48	Installation control valve	√	-	-	-			
49	RCC hume pipe	√	-	-	-			
50	Air vessel (Pressure Vessel)	√	-	-	-			
51	Portable fire extinguisher (ABC / CO_2)	√	-	-	-			
52	LV Cables	√			-			
53	Cable glands (Double compression)	√			-			
54	Fire Curtain System	-	√	√	-			
55	Fire Denture System	-	√	√	-			
56	Court Yard Hydrant System	-	√	√	-			
57	Air Vents	√	-	-	-			
58	RR Hose & Branch Pipe	√						
59	Hose Cabinet	√						
60	First Aid Hose reel	√						
61	Firemen Axe	√						
62	Fire Blankets	√	-	-	-			
63	Inergen / FM 200 systems		√	√	-			
64	Novac System		√	√	-			
65	Fire Suppression system		√	√	-			
66	Mono rail with chain pulley block assembly		√	√	-		√	

Plumbing		Reviewed & Approved by						
Sr. No.	Item Description	Lodha MEP Project Team	Lodha MEP Central Team	MEP Consultant	Lodha Architect	Factory Inspection / Test	Third Party	Remarks & Comments
1	CPVC Pipes & Accessories	√	-	-	-			
2	UPVC Pipes & Accessories	√	-	-	-			
3	PPR Pipes & Accessories	√						
4	Low noise pipes & Accessories	√	-	-	-			
5	Cast Iron Pipes & Accessories	√	-	-	-			
6	LA Class pipes & Accessories	√	-	-	-			
7	G.I. Pipes & Accessories	√	-	-	-			
8	Pex Pipes & Accessories	√	-	-	-			
9	D.I. Pipes & Accessories	√	-	-	-			
10	HDPE / LDPE Pipes & Accessories	√	-	-	-			
11	RCC Pipes & Accessories	√	-	-	-			
12	SS Pipes & Accessories	√	-	-	-			
13	Grooved coupling / Victaulic Couplings	√	-	-	-			
14	Pipe Clamps & supports	√	-	-	-			
15	Stoneware pipes & Accessories	√	-	-	-			
16	Anti Vibration Pad / Cushy Foot Mounting	√	-	-	-			
17	Expansion Bellows.	√						
18	Insulation for Hot Water Pipes	√	-	-	-			
19	Butterfly valves	√	-	-	-			
20	Non return valves / Check Valves	√	-	-	-			
21	Air Release Valves / Pressure release valves	√	-	-	-			
22	Y Strainer / Easy clean strainers	√	-	-	-			
23	Pressure Reducing Valves	√	-	-	-			
24	Solenoid Valves	√	-	-	-			
25	Sluice Valves	√	-	-	-			
26	Thermostatic valve	√	-	-	-			
27	Gate Valves, Ball Valves	√	-	-	-			
28	Ball Valves	√						
29	Float switches	√						
30	Transfer Pump	√	√	√				
31	Booster Pump	√	√	√				
32	Circulation Pump	√	√	√				
33	UPVC / SS Floor Drain	√	-	-	√			
34	Floor gratings	√	-	-	√			Architect's approval for Final Fix Items .
35	Channel Gratings	√	-	-	√			
36	Rain water outlet / Cowl / Insect jali	√	-	-	√			
37	Car park floor drain	√	-	-	√			
38	Gully trap	√	-	-	-			
39	Expansion bellow	√	-	-	-			
40	Water meter (analogue type)	√	-	-	-			
41	Water meter (digital type / Smart meter)	√	√	√				
42	Electronic Flow Meter	√	-	-	-			
43	Level Controller & Indicator (Water)	√	-	-	-			
44	Lawn Hydrant	-	√	√	√			Architect's approval for Final Fix Items .
45	Geyser (Electric hot water heater)	√	-	-	√			
46	Drinking Water Cooler	√	-	-	√			
47	Solar Panel & Solar Hot Water Tank	-	√	√	√			
48	Hydro pneumatic Pumps / Transfer Pump	-	√	√	-			
49	Sump Pumps (Storm Water, Sewage)	-	√	√	-			
50	Borewell Pumps	-	√	√	-			
51	Heavy duty Submersible lifting pumps		√	√		√		
52	Duct Foot Mounting assembly / system		√	√		√	√	
53	Ball Float Valve	√	-	-	-			
54	Pressure Gauge (Glycerine base)	√	-	-	-			
55	Primer & Paints	√	-	-	-			
56	Three Way Motorized Valve	√	-	-	-			
57	Grease Trap	√	-	-	-			
58	Welding Electrodes	√	-	-	-			
59	Anchor Fastener / Rawl Bolts	√	-	-	-			
60	Fire Stopping materials & Sealant	√	-	-	-			
61	Testing Kit	√	-	-	-			
62	G.I. Pipe protection / wrapping coating for UG	√	-	-	-			
63	MCC Panels / Control Cubicles	√	-	-	-			
64	Normal power Cables / wires	√	-	-	-			
65	Cable Tray / Ladder	√	-	-	-			
66	Fire resistant multi core flexible cables	√	-	-	-			
67	Water hammer arrestor	√	-	-	-			
68	Planter drain	√	-	-	-			
69	Puddle Flanges (Hot dipped GI / PVC /HDPE)	√	-	-	-			
70	Hose bib tap	√	-	-	-			
71	Diverters, Mixers	√						
72	CP Fittings & water accessories	√			√			
73	Sanitary wares	√			√			
74	LV Cables	√			-			
75	Cable glands	√			-			
76	Filters (Carbon, Sand, Multi Media, Cartridge)	-	√	√	-			
77	RO Plant	-	√	√	-			
78	D.I./ C.I. Heavy duty Manhole covers & frames	√	-	-	√			Architect's approval for Final Fix Items .
79	Catch Basin	√	-	-	√			
80	Heavy duty D. I. Manhole Cover	-	√	√	√			

Sr. No.	Service	Activity/Type of Inspection & Approvals	Bldgs LESS than 100m ht.	Bldgs > 100m ht BUT <200m ht.	Bldgs >200m ht.	Horizontal/ Township projects	GCP	Commercial Bldgs.
1	HVAC	SD	NR	M	M	NR	R	R
2	Electrical	SD	NR	M	M	M	M	M
3	Electrical	SD	NR	R	M	R	R	R
4	Plumbing	SD	NR	M	M	M	M	M
5	Plumbing	SD	NR	R	M	R	R	R
6	FF	SD	M	M	M	M	M	M
7	FF	SD	R	R	M	R	R	R
8	IBMS	SD	NR	M	M	M	M	M
9	IBMS	SD	NR	M	M	R	M	M
10	STP/WTP	SD	M	M	M	M	M	M
11	DG	SD	M	M	M	M	M	M
12	Lifts	SD	M	M	M	M	M	M
13	Coordination	SD	NR	M	M	M	M	M
14	HVAC	MAS	M	M	M	M	M	M
15	Electrical	MAS	M	M	M	M	M	M
16	Plumbing	MAS	M	M	M	M	M	M
17	FF	MAS	M	M	M	M	M	M
18	IBMS	MAS	M	M	M	M	M	M
19	STP/WTP	MAS	M	M	M	M	M	M
20	DG	MAS	M	M	M	M	M	M
21	Lifts	MAS	M	M	M	M	M	M
22	HVAC	MIR	M	M	M	M	M	M
23	HVAC	MIR	R	R	R	R	R	R
24	Electrical	MIR	M	M	M	M	M	M
25	Electrical	MIR	R	R	R	R	R	R
26	Plumbing	MIR	M	M	M	M	M	M
27	Plumbing	MIR	R	R	R	R	R	R
28	FF	MIR	M	M	M	M	M	M
29	FF	MIR	R	R	R	R	R	R
30	IBMS	MIR	M	M	M	M	M	M
31	IBMS	MIR	R	R	R	R	R	R
32	STP/WTP	MIR	M	M	M	M	M	M
33	DG	MIR	M	M	M	M	M	M
34	DG	MIR	R	R	R	R	R	R
35	Lifts	MIR	R	R	R	R	R	R

Abbreviations Used:

MIR	Material Inspection
WIR	Work Inspection
MAS	Material submittal
SD	Shop Drawing
MS	Method Statement
EHS	Environmental Health and Safety
R	Random
M	Mandatory

Annexure 2
Inspections/Review Protocol

Abbreviations Used:

MIR	Material Inspection
WIR	Work Inspection
MAS	Material submittal
SD	Shop Drawing
MS	Method Statement
EHS	Environmental Health and Safety
R	Random
M	Mandatory

Sr. No.	Service	Location	Activity	Type of Inspn & Approvals	Bldgs LESS than 100m ht.	Bldgs > 100m ht BUT <200m ht.	Bldgs >200m ht.	Horizontal/ Township projects	GCP	Commercial Bldgs.	Mock up
1	Electrical	Slab/Walls	Concealed conduits	WIR	M	M	M	M	M	M	
2	Electrical	Slab/Walls	Rope pulling thru conduits*	WIR	R	R	R	R	R	R	
3	Electrical	Shafts	Containment	WIR	R	R	R	R	R	R	
4	Electrical	Above false ceiling	Containment	WIR	R	R	R	R	R	R	
5	Electrical	Exposed	Containment	WIR	R	R	R	R	R	R	
6	Electrical	All areas	Point wiring	WIR	R	R	R	R	R	R	
7	Electrical	Façade/Roof	Aviation Lighting	WIR	M	M	M	M	NR	M	
8	Electrical	Façade/Roof	Façade Lighting	WIR	M	M	M	M	NR	M	
9	Electrical	Façade/Roof	Façade earthing	WIR	M	M	M	M	NR	M	
10	Electrical	Façade/Roof	Lightning Protection System	WIR	M	M	M	M	NR	M	
11	Electrical	All areas	Cabling	WIR	R	R	R	R	R	R	
12	Electrical	Plant rooms	Installation of Main Panels	WIR	M	M	M	M	M	M	
13	Electrical	Service area	Common area DBs	WIR	R	R	R	R	R	R	
14	Electrical	Apartments	Apartment DBs	WIR	R	R	R	R	NR	R	M
15	Electrical	All areas	Lights/Switch/Sockets	WIR	M	M	M	M	M	M	
16	Electrical	All areas	Wire & Cable testing	WIR	M	M	M	M	M	M	
17	Electrical	All areas	T & C with Power On	WIR	M	M	M	M	M	M	
18	Electrical	Landscape	Lighting and Power	WIR	M	M	M	M	M	M	
19	Electrical	All Towers/Infra/GCP	DG & panels, associated cables	WIR	M	M	M	M	M	M	
20	Electrical	All Towers/Infra/GCP	DG T&C	WIR	M	M	M	M	M	M	
21	IBMS	Exposed	Containment	WIR	R	R	R	R	R	R	
22	IBMS	All areas	Wiring/Cabling	WIR	R	R	R	R	R	R	
23	IBMS	All areas	Installation of Devices	WIR	R	R	R	R	R	R	M
24	IBMS	All areas	Wire & Cable testing	WIR	M	M	M	M	M	M	
25	IBMS	All areas	IBMS Panels / Head ends	WIR	M	M	M	M	M	M	
26	IBMS	All areas	System Stand alone T&C	WIR	M	M	M	M	M	M	
27	Plumbing	Tanks / Walls /Slabs	Puddle flange/Sleeves	WIR	M	M	M	M	M	M	
28	Plumbing	Slab/Walls	Concealed pipes Testing	WIR	M	M	M	M	M	M	
29	Plumbing	Shafts	Piping installation	WIR	M	M	M	M	M	M	
30	Plumbing	Above false ceiling	Piping installation	WIR	R	R	R	R	R	R	
31	Plumbing	Exposed	Piping installation	WIR	R	R	R	R	R	R	
32	Plumbing	Verticals	Air / Flow test	WIR	M	M	M	M	R	M	
33	Plumbing	Horizontal	Pressure / Flow test	WIR	M	M	M	M	R	M	
34	Plumbing	Toilet/Kitchen	Concealed items : WC tanks, Diverters, etc.	WIR	M	M	M	M	R	M	
35	Plumbing	Slabs/Sunk	Floor traps	WIR	M	M	M	M	R	R	
36	Plumbing	Toilet/Kitchen/Utility Balcony	Floor drains	WIR	R	R	R	R	R	R	

Sr. No.	Service	Location	Activity	Type of Inspn & Approvals	Bldgs LESS than 100m ht.	Bldgs > 100m ht BUT <200m ht.	Bldgs >200m ht.	Horizontal/ Township projects	GCP	Commercial Bldgs.	Mock up
38	Plumbing	Plant rooms	Pumps T & C	WIR	M	M	M	M	R	M	
39	Irrigation	Landscape	Piping and Pumps	WIR	R	R	R	R	R	M	
40	Irrigation	Landscape	T&C and Handing Over	WIR	M	M	M	M	M	M	
41	Plumbing	Toilet/Kitchen	CP & Sanitary	WIR	R	R	R	R	R	R	M
42	FF	Tanks / Walls /Slabs	Puddle flange/Sleeves	WIR	M	M	M	M	R	M	
43	FF	Shafts	Piping installation	WIR	R	R	R	R	R	R	
44	FF	Above false ceiling	Piping installation	WIR	M	M	M	M	R	M	
45	FF	Exposed	Piping installation	WIR	R	R	R	R	R	M	
46	FF	All areas	Pressure testing	WIR	M	M	M	M	R	M	
47	FF	All areas	Painting & ID labelling	WIR	R	R	R	R	R	R	
48	FF	All areas	FHC /Extinguishers/ Sprinklers/Deluge valves & Nozzles/Hydrants/Breaching Inlet	WIR	R	R	R	R	R	R	
49	FF	Plant rooms	Fire pumps/Panels installation /Associated Piping	WIR	M	M	M	M	M	M	
50	FF	Plant rooms	FF system T & C	WIR	M	M	M	M	M	M	
51	IBMS	All areas	Overall T & C (cause & effect)	WIR	M	M	M	M	M	M	
52	HVAC	All areas	Equipments	WIR	R	R	R	R	R	R	M
53	HVAC	All areas	Piping Installation (Ref. & Cond. drain)	WIR	R	R	R	R	R	R	
54	HVAC	All areas	Pressure / Flow test of Piping	WIR	R	R	R	R	R	R	
55	HVAC	All areas	Control/Power cabling	WIR	R	R	R	R	R	R	
56	HVAC	All areas	Control drain piping including flow test	WIR	R	R	R	R	R	R	
57	HVAC	All areas	Ducting / Insulation	WIR	R	R	R	R	R	R	
58	HVAC	All areas	Grilles & Diffusers	WIR	R	R	R	R	R	R	
59	HVAC	All areas	Testing & Commissioning	WIR	M	M	M	M	M	M	
60	HVAC	All Towers/Infra/ GCP	Ducting and Engine exhaust	WIR	M	M	M	M	M	M	
61	STP/WTP	STP room	Piping/Containment/ Cabling	WIR	R	R	R	R	R	R	
62	STP/WTP	STP room	Piping & Cable testing	WIR	R	R	R	R	R	R	
63	STP/WTP	STP room	Equipment & Panel	WIR	M	M	M	M	M	M	
64	STP/WTP	STP room	STP - Dry run	WIR	M	M	M	M	M	M	
65	STP/WTP	STP room	STP - On load Commissioning	WIR	M	M	M	M	M	M	
66	Lifts	Lift Shaft	Shaft & Door alignment	WIR	M	M	M	M	M	R	
67	Lifts	Lift Shaft	Guide rails / Divider Beams	WIR	R	R	R	R	R	R	
68	Lifts	Lift Shaft	Lift car installation	WIR	R	R	R	R	R	R	
69	Lifts	Lift Shaft	Lift m/c installation	WIR	M	M	M	M	M	M	
70	Lifts	Lift Shaft	Cabling/Wiring/Bulkhead lightin	WIR	M	M	M	M	M	M	
71	Lifts	Lift Shaft	Slow speed testing	WIR	R	R	M	R	R	R	
72	Lifts	Lift Shaft	Testing and Commissioning	WIR	M	M	M	M	M	M	
73	Lifts	Lift Shaft	Approval and Handing over	WIR	M	M	M	M	M	M	
74	Coordination	With Other Trades	Handover to Other trades	TOR	M	M	M	M	M	M	
75	Coordination	With Other Trades	Takeover from Other trades	TOR	M	M	M	M	M	M	

*Random for FML contractor, Mandatory for Temporary contractor