

M&E CHECKLIST FOR BUS SHELTER, TAXI / PASSENGER PICK-UP SHELTER, PEDESTRIAN OVERHEAD BRIDGE (POB) AND COVERED LINKWAY

Project: _____

(√) Tick the appropriate box for all items

Standard Requirements	Yes	NA	Remarks
1. General			
1.1 Drawings are in A1 series.	<input type="checkbox"/>		
1.2 Site plan, location plan and layout plans showing road reserve line and LTA's maintenance boundary are included.	<input type="checkbox"/>		
1.3 The proposed installations provided are within LTA's maintenance boundary.	<input type="checkbox"/>		
1.4 Electrical installations above PUB drains are complied with PUB's requirements.	<input type="checkbox"/>		
1.5 Design calculations with design parameters and acceptance criteria are included.	<input type="checkbox"/>		
1.6 Technical data, catalogues, relevant test certificates / certificates of compliance from accredited testing facilities for proposed equipment, cables, materials and accessories are included.	<input type="checkbox"/>		
1.7 All electrical drawings, documents and design calculations are endorsed by Licensed Electrical Worker (LEW).	<input type="checkbox"/>		
1.8 All lightning protection system drawings, documents and design calculations are endorsed by Electrical Professional Engineer (PE).	<input type="checkbox"/>		
1.9 Responses to LTA's previous comments are attached.	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 All additions/deletions/amendments are clouded.	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Commuter facilities M&E requirements stated in LTA's Architectural Design Criteria (ADC) Section 4 are complied with.	<input type="checkbox"/>		

2. Electrical Distribution			
2.1 Design of the electrical distribution is complied with LTA's ADC requirements and drawings.	<input type="checkbox"/>		
2.2 Single line diagrams for OG box and/or distribution board are included.	<input type="checkbox"/>		
2.3 Electrical loading and cable sizing calculations are included.	<input type="checkbox"/>		
2.4 OG box details showing plan view, front view, back view, internal view, external view, sections and elevations are included.	<input type="checkbox"/>		
2.5 Type B MCB are provided for all outgoing circuits.	<input type="checkbox"/>		
2.6 Surge protection device is provided as per LTA's ADC requirements.	<input type="checkbox"/>		
2.7 SPPG approved OG Box location complete with the route of SPPG incoming cables are included.	<input type="checkbox"/>		
2.8 OG box is not in the path of commuter walkway and line of sight of commuters looking at the oncoming traffic (e.g. obstructing the sight of arrival bus)	<input type="checkbox"/>		
2.9 HD uPVC pipes for installation of armoured cables from the OG box to the proposed commuter facilities are provided with straight run or with gradual long bends.	<input type="checkbox"/>		
2.10 HD uPVC pipes complete with draw wires with straight run or with gradual long bends are provided for advertisement panel for bus shelters.	<input type="checkbox"/>		
3. Lighting Design and Light Fittings			
3.1 No up-lighters are to be provided.	<input type="checkbox"/>		
3.2 Lighting level simulation reports with lux plots (one meter apart) and dimensions of simulated areas correspond to the lighting layout plans are included.	<input type="checkbox"/>		
3.3 Lighting levels and uniformity ratio measured at the ground level are complied with LTA's ADC requirements.	<input type="checkbox"/>		
3.4 The maximum allowable power budget is complied with LTA's ADC requirements.	<input type="checkbox"/>		

3.5	LED type light fittings of weatherproof IP65, vandal proof minimum IK06, ultra-violet (UV) stabilised and colour rendering index of 80 to 89 with colour temperature between 2700K and 3000K are provided.	<input type="checkbox"/>		
3.6	Lighting layout plans and sections with detailed cable routes from the OG box to the respective light fittings are included.	<input type="checkbox"/>		
3.7	The layout arrangement of light fittings are generally in line with LTA's ADC drawings.	<input type="checkbox"/>		
3.8	Alternate lighting circuits are provided.	<input type="checkbox"/>		
3.9	High covered linkway lighting circuits are complied with LTA's ADC drawings.	<input type="checkbox"/>		
3.10	Covered POB is provided with intelligent lighting detection system as complied with LTA's ADC requirements.	<input type="checkbox"/>		
3.11	Cross-sectional mounting details of the proposed light fitting to demonstrate ease of maintenance is provided.	<input type="checkbox"/>		
4.	Lightning Protection System			
4.1	The lightning protection system is designed in compliance to SS 555 and SS551.	<input type="checkbox"/>		
4.2	Lightning protection layout plans, sections and installations details, such as lightning bonding, earth pit, etc. are included.	<input type="checkbox"/>		
4.3	Minimum 10mm thick aluminium honey comb roof panels complete with minimum 1 mm thick top panel are provided as air termination system for the lightning protection system.	<input type="checkbox"/>		
4.4	The roofs are bonded to the support posts and support posts are connected to earth pits as per LTA's ADC drawings.	<input type="checkbox"/>		
4.5	All exposed metal parts, such as metal railings, bus signage poles, notice boards, etc. within 2m radius of the commuter facilities perimeter are bonded to the lightning protection system.	<input type="checkbox"/>		
4.6	All metal structures are bonded to the rebar of the floor slab by means of a purpose made clamp or weld. Location of bonding and typical bonding details are provided.	<input type="checkbox"/>		

4.7	Each commuter facilities structures for POB, covered linkway, bus shelters, etc. are provided with an independent lightning protection system, including earth pits.	<input type="checkbox"/>		
4.8	The lightning protection system between two or more commuter facilities structures, such as POB, covered linkway, bus shelters, etc. are bonded and electrically continuous.	<input type="checkbox"/>		
4.9	Earth pits are not in the path of commuter walkway.	<input type="checkbox"/>		
5.	Earthing System and Equipotential Bonding			
5.1	Earthing requirements is provided in accordance to SS 551.	<input type="checkbox"/>		
5.2	Equipotential bonding are provided in accordance to SS CP5 for all exposed metal parts and metallic street furniture.	<input type="checkbox"/>		
5.3	Equipotential bonding layout plans, sections and cable route to OG box are included.	<input type="checkbox"/>		

 Qualified Person (QP)

 Date

Note: Please tick in appropriate box for all items.
 This checklist is to be submitted for every submission/re-submission.