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METHOD STATEMENT TITLE	Rev. A
(BS-SHD-EL) Modification of Busbar in Existing LV Switchboard for New Fuse Switch Panel at Main Depot Building, Siu Ho Wan Depot	

	Prepared by:	Checked by:	Reviewed by:	Reviewed by:
Signature:				
Name:	Maxson Wong	Hobby Leung	Leung Kwok Fung / ~~Hui Wai Kwan~~	MH Isa / ~~W.H. Lam~~
Position:	BS Engineer	SBSE	SM / ~~SO~~	QM / ~~QE~~
Date:	29/5/2024.	29/5/2024.	29/5/2024.	29/5/2024.
	Reviewed by:	Reviewed by:	Reviewed by:	Approved by:
Signature:				
Name:	~~James Ma~~ / Iris Ho	Yeung Wai Lun	Paul Freeman / Mark McGleenon	Eric Fong
Position:	~~EM~~ / EO	A. Project Director	Sr. Project Director / A. Project Director	Project Director
Date:	29/5/2024.	30/5/2024.	31/5/2024	31/5/24

CONTENT

1. Introduction (Overview of the operation/works)

This method statement gives a guideline for the modification of riser busbar in existing Panel 12 of LV switchboard MSB-2.2 for the connection of busbar trunking to new fuse switch panel in Room 8.27. The works will involve modifying busbar in Panel 12 and connection of busbar trunking for new fused switch panel adjacent to the MSB-2.2. The detailed procedures for the modification work and safety measures will be outlined to ensure the works are carried out in a proper and safe way with good quality and to meet the project programme.

This method statement will be reviewed and amended to improve the aspects of safety and quality based on the actual conditions.

2. Reference Documents (Identify relevant documents by name and reference number)

a) Code of Practice for the Electricity (Wiring) Regulations (2020 Edition), EMSD
b) "Rule & Procedures for Working within or adjacent to the Railway", "Railway Safety Rules" and "Safety Requirements and Information for Contractor"
c) The General Specification for Electrical and Mechanical (E&M)
d) The Factories and Industrial Undertaking Construction Site (Safety) Regulations of the Hong Kong Special Administration Region
e) The Factories and Industrial Undertaking (Electricity) Regulations of the Hong Kong Special Administration Region
f) A Guide to the Factories and Industrial Undertaking Ordinance (Section 6A & 6B) from the Labour Department of the Hong Kong Special Administrative Region

3. Details of Sub-Contractor/Specialist Sub-Contractor

China State Mechanical and Electrical Engineering Limited

4. Responsibilities for Activities described within Method Statement

CSHK is responsible to inspect and carry out the construction works. The following persons, as listed in the table below, will attend the specific tool-box talk and be responsible for the activities:

Company	Name	Position
CSCE	Leung Hing On, Hobby	Senior BS Engineer
	Wong Ho Yin, Maxson	BS Engineer
	Lyu Yu Han, Carol	BS Engineer
CSME	Ha Hau Sze, Keith	Project Manager (BS System) REW C0 & H0 (No. W075836)
	Tam Chun Pong, Eric	Construction Manager (BS System) REW C0 (No. W077108)
	Yip Siu On	Project Manager (ESS) REW B0 (No. W122256)

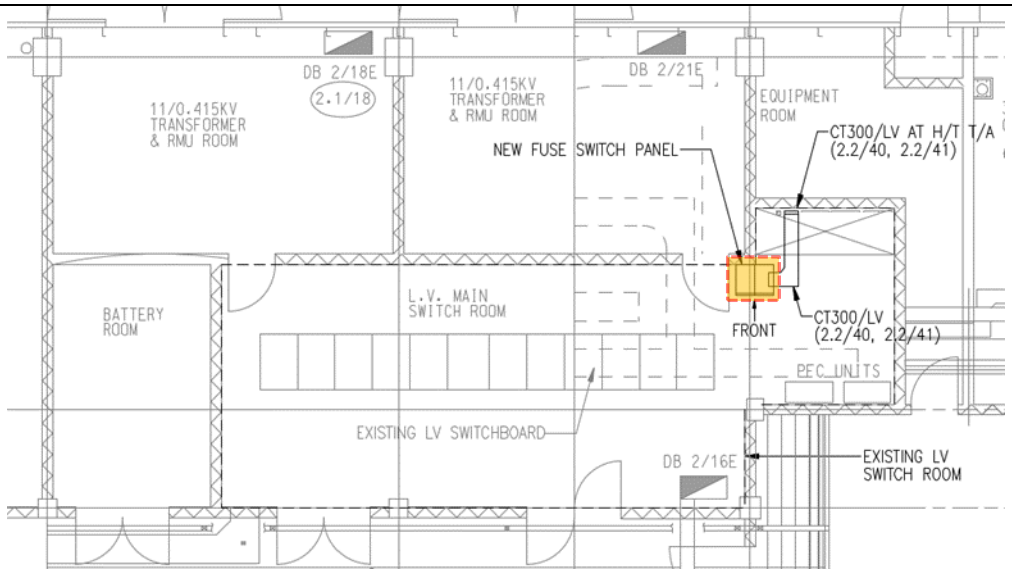
5. Programme and Working Hours (Start & finish date of operation/works)

	The working hours will be from 01:45 to 04:30. CSHK would check internally to fulfil the Construction Noise Permit Requirement.
6.	**Plant, Equipment & Material** (Identify type, model and specification of MAJOR plant & equipment)
	All plants and equipment will be inspected prior to the mobilization on site to ensure that they are in good working condition and comply with the current regulations. The major plants and equipment will be deployed to carry out the works are as follow: -

Plant / Equipment	**Quantity**
Portable Lighting Set	1 (set)
Screwdriver (Battery type)	2 (set)
Temporary Earthing Cable	1 (set)
Electrical-insulating Gloves	1 (pair)
Electrical-insulating Mat	1 (set)
PPE (Helmet, Safety Shoes, Reflective Vest)	1 (set per person)
Switch Padlock & Signage for L.O.T.O.	1 (set)
Working Ladder Platform	1 (set)
Digital Multimeter	1 (set)

Manpower	**Quantity**
Switchboard Worker	3
Registered Electrical Worker (Grade C0)	1
Supervisor	2
Competent Person (Non-track)	1

7.	**Construction Methods / Construction Sequence Drawings**
	7.1 – Install New Fuse Switch Panel The location of new fuse switch panel and routing of new busbar trunking are shown as below layout plan and mark-up photo. The new switch panel, new busbar trunking and accessories will be installed prior to the modification of riser busbar in Panel 12 of LV switchboard MSB-2.2.



LV Switch Room Layout Plan

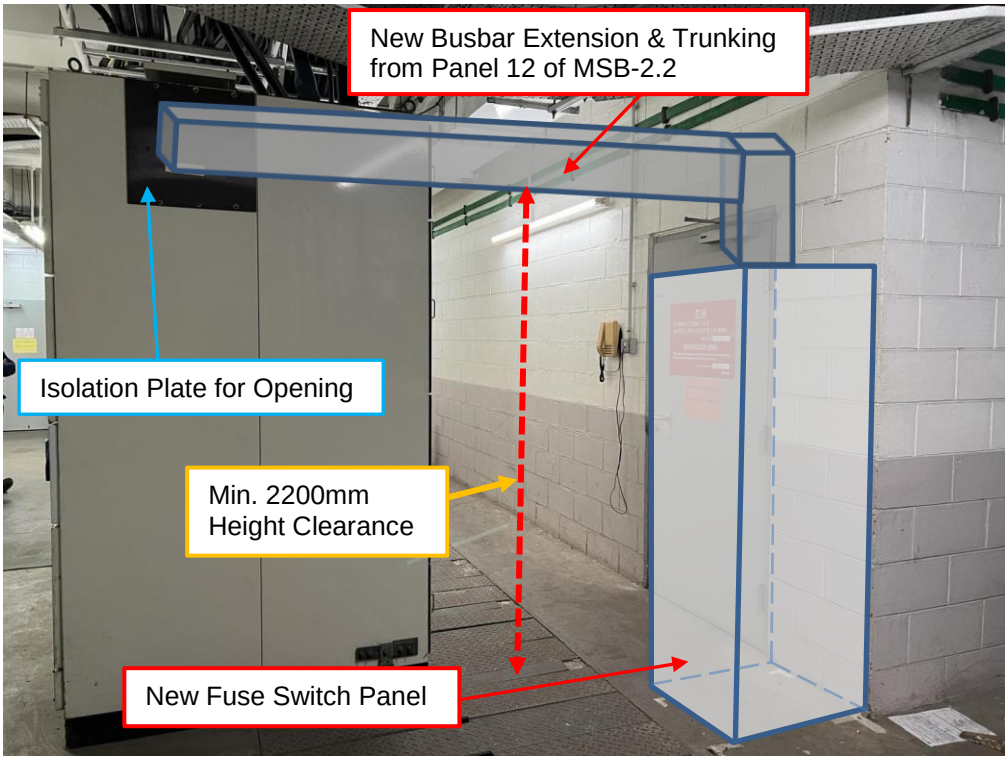
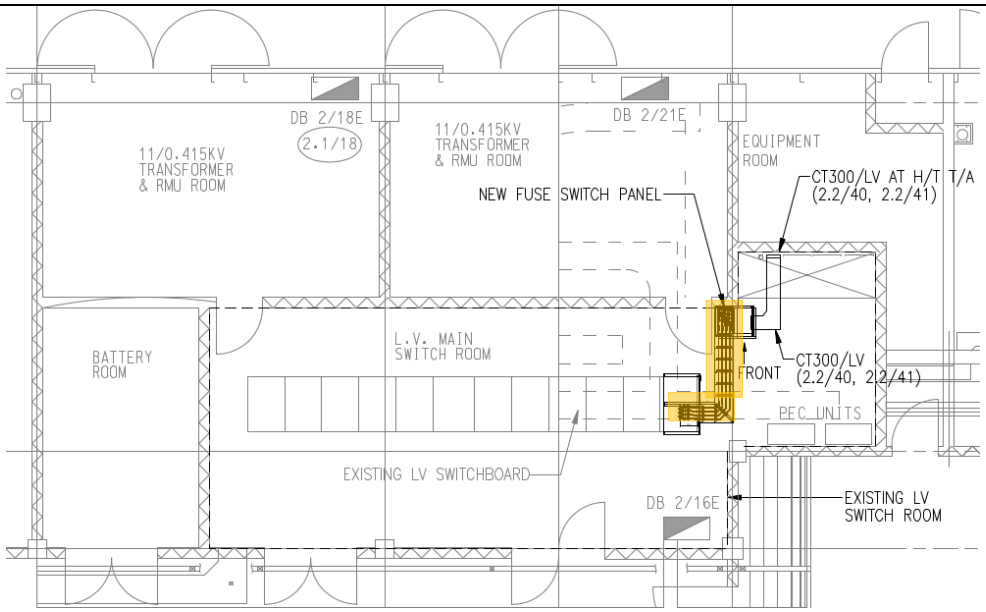


Photo of Proposed Fuse Switch Panel and Busbar Installations

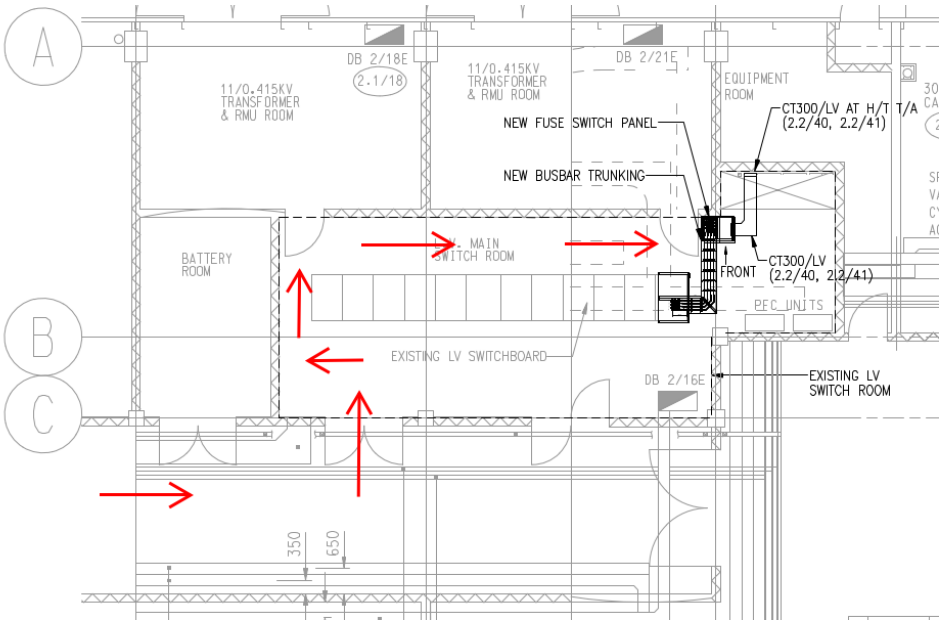
The above sketch and photo indicate the proposed installation of new fuse switch panel adjacent to existing MSB-2.2 and the routing of connecting busbar and associated containment extending from Panel 12. The clearance between new fuse switch panel and opened access door to Transformer Room have been considered while taking place, so the new panel will not obstruct the opening of access door to Transformer Room. Also, there should be a minimum height clearance of 2200mm between ground and bottom of new busbar to ensure the sufficient access space under the busbar section.



Routing of New Busbar Trunking Layout

The new busbar will be tee-off from riser busbar in Panel 12 of MSB-2.2 and extended from the opening on MSB-2.2 to the top of proposed fuse switch panel as shown on above sketch. All busbar run and connecting point will be completely enclosed in the busbar trunking.

The new fuse switch panel will be in floor stand type and fabricated by LVSB sub-contractor. After the fabrication, the new fuse switch panel will be delivered to the LV switch room. The delivery routing has indicated in below layout. Also, the new busbar trunking will be installed accordingly.

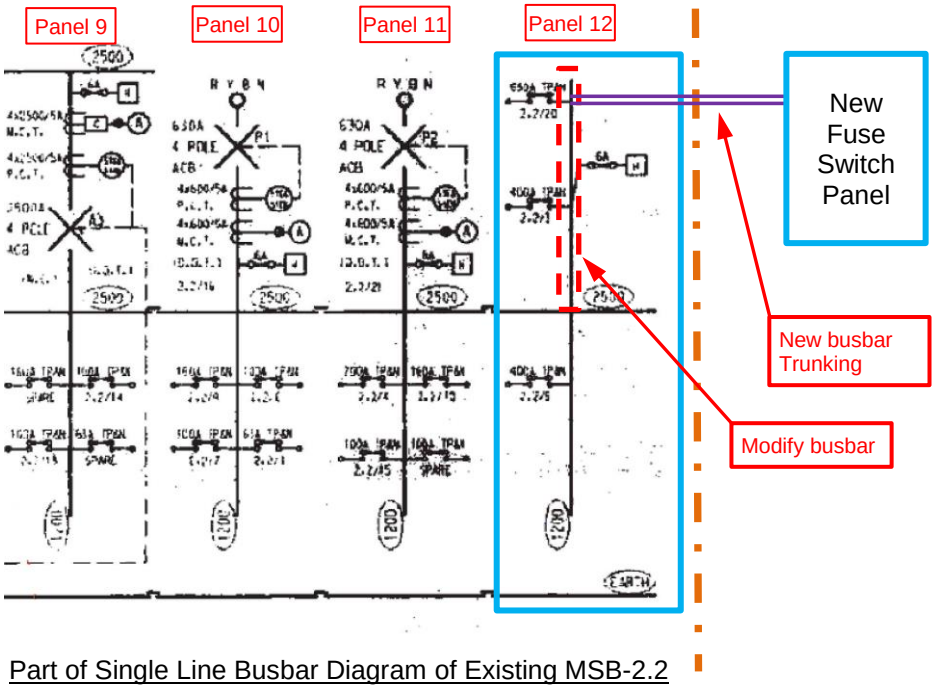


Delivery Routing of New Fuse Switch Panel

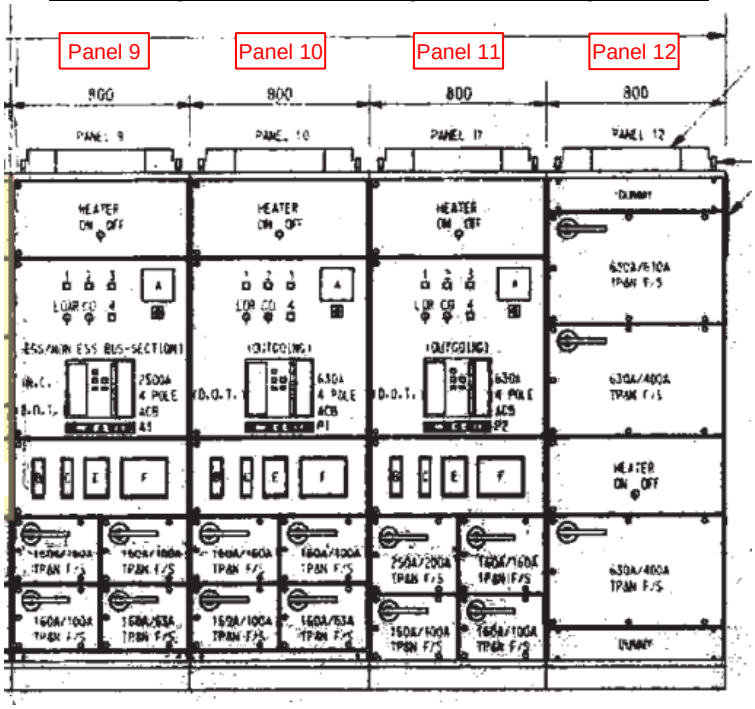
7.2 – Modify Busbar in Panel 12

The existing LV switchboard was planned to modify riser busbar for the connection of new busbar trunking on power supply to new fuse switch panel. The following diagram indicates the busbar

arrangement for reference.



Part of Single Line Busbar Diagram of Existing MSB-2.2



Elevation of LV Switchboard MSB-2.2

During the modification works, temporary power suspension is required. The works will split into four (3) nightworks. The works schedule refers to the **Appendix A** for details.

Preparation:

1. Registration on Engineering Works and Traffic Information Management System (ETMS) shall be submitted by CSCE.
2. Working period will be further coordinated with relevant parties in advance before implementation.

	Before Modification: 1. To ensure the Work Notice Form and ETMS registration have been accepted. 2. To ensure method statement and risk assessment have been accepted by MTR. 3. To ensure Permit-to-Work (PTW) has been issued by REW before carrying out works. 4. Warning labels should be displayed to remind that electrical works is in progress. 5. To ensure detail schedule of work activities have been accepted as attached in **Appendix A**. 6. To ensure emergency communication lines have been established. 7. If necessary, the F.S. systems, such as direct link and FM200 protected room, will be isolated before any switching. 8. CP is responsible to supervise and brief to the workers about LV switchboard to be inspected and the potential risks. 9. CP shall ensure all team members well understand their corresponding accountabilities and responsibilities for the tasks. 10. Temporary earthing bonding shall be provided and connected between existing LV switchboard and earthing terminal in advance. 11. A live line test should be conducted before applying earthing, and electrical insulating gloves should be worn during the installation of temporary earthing. 12. Temporary barriers and warning signage should be placed. 13. CP and workers shall sign the briefing record for identification as attached in **Appendix B**. 14. CP & WPIC shall ensure all workers and team members are well equipped with personal protection equipment (PPE) including hard helmets, safety shoes, reflective vests, and insulating gloves for the tasks. 15. CP & WPIC shall notify the depot / yard master prior the work. 16. Power shut down of the LV switchboard will be arranged, implementation of Lock-Out Tag-Out (L.O.T.O.) procedure as attached in **Appendix C**. Incoming ACB SHD504 and Section ACB 554 will be switched off by remote control from Power System Controller (PSC). These ACBs will be also locked by REW to prevent re-energisation. The key of the padlocks for ACBs will be kept by the REW. 17. Check the all live parts have been shut down, isolation, proofing dead by using of meter, applying of portable earth lead(s) of circuit in order to fulfil operational needs or facilitate electrical works. During Modification: 1. Ensure electrical power of ACB is isolated in remote control by Power Supply Controller (PSC) before carrying out work. 2. Open the rear of Panel 12 of MSB-2.2. 3. Carry out the modification works in Panel 12. Detail procedures of modification work refer to **Appendix A**. 4. Photos shall be taken for record while carrying out works. After Modification: 1. Make sure all tools and equipment are removed and cleared away from Panel no. 12 of Switchboard MSB-2.2. 2. Reinstate the rear of Panel no. 12 of MSB-2.2 and check that the panel is fully enclosed. 3. The LV switchboard will be re-energised, in accordance with the Lock-Out Tag-Out procedure. The incoming ACBs will be drawn into the cradle and switched on by remote control from Power System Controller (PSC).

	4. Check whether the power supply to each area is normal. If there are any abnormalities with the electrical installation, switchboard sub-contractor will provide technical support for the LV switchboard within 30 minutes after re-energisation. 5. Confirm the whole system has returned normal and Permit-to-Work shall be cancelled by PIC and RP afterwards. <u>7.3 – Functional Test after Completion of Installation</u> After the new busbar connection between Panel 12 of MSB-2.2 and new fuse switch panel, on-site T&C shall be carried out simultaneously. - Contact Resistance Test (Ductor Test) - Torque Wrench Test Once T&C result is accepted, WR1 certificate shall be issued by REW as the proof of works completion. The new fuse switches should thus be remained off and padlocked until the outgoing sub-circuit between fuse switch panel and MCCB boards installed in 1/F Kitchen Dry Store can be terminated and energised.
8.	**Safety** (Risk Assessments)
	Risk Assessment attached in **Appendix D** has been prepared for all general activities. Specific safety procedures and precautions have been developed for all site operatives to follow. The Construction Team Leader together with the RSO will supervise the implementation and make adjustment subject to the actual site operations, in order to maintain a safe and amicable working environment. **<u>General Site Safety</u>** With reference to the Project Safety Plan, the following items need to be instituted through the course of the works described within this method statement. **Prevention of Fire** - Do not smoke or light fires near flammable equipment and fire exits. - Familiarise yourself where to find firefighting equipment and fire exits. - Know how to use the firefighting equipment. - Keep means of escape clear and unobstructed. - Do not obstruct access to fire extinguishers. - Learn the operation and limitations of the fire extinguishers in your area. - Do not hang clothing over or near heating equipment and no debris is allowed. - Report smoke or fire to your supervisor immediately. **PPE** - All workers and site personnel shall wear safety helmet, reflective jacket and safety boots on site. - Depending on work nature, different PPE will be required.

	- CP(NT) or WPIC will ensure the workers are wearing suitable PPE while working in Depot Area. **Warning Signs** - Warning labels with emergency contact list will be provided during works. - Temporary fence-off for working area should be provided if necessary. **Risk Assessment** All the potential hazards, consequences and mitigations will be analysed in the risk assessment attached in the **Appendix E**. **<u>Plant & Equipment</u>** **1 Hand Tools** - All hand tools shall be taken away from working area after work completion. - No damaged hand tools shall be used during works.
9.	**Environmental** (Environmental aspect & impact identification as well as mitigation measures)
	The following mitigation measures will be followed: - The works shall follow relevant mitigation measures as required under the Environmental Permit (EP) / EP submission and Contractor's Environmental Management Plan (EMP). - General works shall be carried out during normal working hours (08:00 to 18:00). No works using PME will be carried out after 07:00pm on Sunday and public holiday without a valid construction noise permit.
10.	**Appendices** (Identify and include additional information in the submission package)
	Appendix A – Works Schedule Appendix B – Works Proposal by LV Switchboard Sub-contractor Appendix C – Briefing Record Form Appendix D – Lock-out Tag-out Procedure Appendix E – Sample of Permit-to-Work for Electrical Work Appendix F – Risk Assessment Appendix G – Inspection and Test Plan