

Guidelines for PS Clause EMS02

1. PS Clause EMS02 requires that for new works and other minor alteration, addition and installation (AA&I) works under project works contracts and term works contracts, all works inside ceiling void with energized electrical installations (Specific Ceiling Void Works) shall be subject to a permit-to-work system. EMS02 does not apply to E&M maintenance contracts.
 - (a) For new works involving E&M installations in a dedicated construction site (i.e. in a newly-built building under project works contracts or on a building floor undergoing complete renovation under term works contracts), the Contractor shall liaise with the electrical contractor of the site to ascertain the time of energization of the permanent electricity supply in full or partially, and the permit-to-work system for Specific Ceiling Void Works shall be applied from that time onwards. (Note: If the Contract awarded by EMSD is for installing certain E&M systems in a dedicated construction site of ArchSD, for example installing CCTV system in a boundary control facility, then the Contractor shall liaise with the ArchSD electrical contractor of the site. If the Contract awarded by EMSD covers also the electrical installation of the site, then the Contractor is also the “electrical contractor of the site”.)
 - (b) For other minor alteration, addition and installation (AA&I) works in an existing venue under project works contracts or term works contract, the permit-to-work system for Specific Ceiling Void Works shall be applied from the time of commencement of site work onward.
2. The Contractor shall establish the permit-to-work system to the satisfaction of the Engineer's Representative before implementation. The Contractor shall design the permit certificates, permit request procedure, permit issue and cancellation procedure, and checklists. The Contractor shall be responsible for the overall control of the permit-to-work system. The Contractor shall employ Registered Electrical Worker(s) (REW(s)) of the appropriate grade under the Electricity Ordinance for the implementation of this permit-to-work system. The Contractor shall inform and update the Engineer's Representative of the name(s) of REW(s) so appointed.
3. Permit-to-work for Specific Ceiling Works differs somewhat from usual permit-to-work for electrical work. Permit-to-work for Specific Ceiling Works covers both non-electrical works and electrical works. When applied to non-electrical works, it deals with the potential electrical hazards of the surroundings of work. When applied to electrical works, the permit deals with the work on end-use electrical equipment (e.g.

lighting fitting, fan), while usual permit-to-work for electrical work seldom deals with work on end-use electrical equipment.

4. The purposes of permit-to-work system for Specific Ceiling Void Works include, but not limited to the following
 - (a) For non-electrical works in ceiling void - to eliminate potential electrical hazards within the working area inside the ceiling void, such as: casing of electrical equipment being energized due to internal fault, electrical hazard arising from improper installation of electrical equipment, exposed conductive ends of uncovered cables.
 - (b) For electrical works without live work elements - to ensure that proper electrical isolation procedures (switching off, displaying warning sign, and locking off where appropriate) are followed.
 - (c) For electrical works with live work elements (e.g. measuring currents of fan-coil unit using clamp on meter during fault finding) - to ensure that the work safety precautions requirements given in Code 4 and Appendix 15 of the Code of Practice for the Electricity (Wiring) Regulations are followed.
5. A sample permit certificate for Specific Ceiling Void Works is given in **Annex 1**. The Contractor should adopt the sample permit certificate, unless further enhancements are considered necessary by the Contractor.
 - (a) The Contractor shall appoint a Person-in-charge for the Specific Ceiling Void Works. The Person-in-charge shall have minimum 3 years relevant experience in site supervision.
 - (b) The Person-in-charge shall complete Part 1 of the permit certificate, and make a request to the Safety Officer to issue the permit.
 - (c) The Person-in-charge shall then arrange REW to conduct the electrical safety checks. The REW shall complete Part 2 after completing the electrical safety checks. The Safety Officer or Safety Supervisor shall then check the other conditions (such as work-at-height, work location illumination), complete Part 3 to issue the permit.
 - (d) The Person-in-charge shall acknowledge receipt of the permit in Part 4, and shall notify the inspectorate officer appointed by the Engineer's Representative on the same day. The issued permit shall be kept at the site for inspection during the course of the works.

- (e) After completion of the works, the Person-in-charge shall inform the Safety Officer or Safety Supervisor
 - For electrical works, the Person-in-charge shall arrange the REW to conduct restoration of electricity supply. The REW shall check that no electrical hazards remain from the electrical works carried out and that the metallic casings of electrical equipment worked upon have been earthed, shall perform restoration of supply and confirm in Part 5. The Safety Officer or Safety Supervisor shall complete Part 6 for cancellation of the permit, and the Person-in-charge shall keep the cancelled permit in file until the end of the Contract. The Safety Officer or Safety Supervisor shall keep a copy of the cancelled permit (e.g. by taking a photograph) and file in his own record.
 - For non-electrical works, the Safety Officer or Safety Supervisor shall directly complete Part 6 for cancellation of the permit, and the Person-in-charge shall keep the cancelled permit in file until the end of the Contract. The Safety Officer or Safety Supervisor shall keep a copy of the cancelled permit (e.g. by taking a photograph) and file in his own record.
 - (f) For new works as specified in sub-clause (1)(a) above, Safety Officers shall issue and cancel the permit for any Specific Ceiling Void Works when required. Should there is no contractual requirement in employing a dedicated Safety Officer, Safety Supervisors (with at least three years relevant experience) shall issue and cancel the permit. For the minor AA&I works as specified in sub-clause (1)(b) above, Safety Supervisors (with at least three years relevant experience) shall issue and cancel the permit for any Specific Ceiling Void Works when required.
 - (g) If in the course of work there are changes in the circumstances of the site causing uncertainty in the electrical safety of the ceiling void, the Person-in-charge shall request the Safety Officer or Safety Supervisor to cancel the existing permit and issue a new permit.
6. If the REW considers it necessary to implement temporary safety measures (e.g. temporary bonding connection), such measures shall be implemented and the REW shall make a report to the Person-in-charge.
 7. If there are other works being carried out in the works area, for example the permit of concern is for CCTV installation while another contractor is carrying out communication system installation, the Person-in-charge shall liaise with the other relevant persons, to ensure that the works of one party will not cause hazard to the other party.
 8. In the Defects Liability Period, the Contractor shall either adopt the above

permit-to-work system, or adopt the following alternative approach so as to meet the fault attendance time requirements.

- (a) The Contractor shall appoint a Person-in-charge for the ceiling void works.
- Before commencing works inside the ceiling void, the Person-in-charge on site shall arrange a person trained in the use of non-contact voltage tester to wear electrician's gloves and use non-contact voltage tester to check all false ceiling frame and all metallic objects that are within arm's reach throughout the works area. The checking person should remove all metallic ornaments (e.g. bracelet) that may get in touch with other metallic objects in the work surroundings.
 - In case of non-safety-side indication of the tester or in case of any doubt (e.g. uncovered cable with exposed conductive end is found inside the ceiling void) during such checking, a REW shall be summoned. If the REW considers it necessary to implement temporary safety measures (e.g. temporary bonding connection), such measures shall be implemented and the REW shall make a report to the Person-in-charge.
 - Proper work-at-height provisions, work location illumination, and electric tools shall also be checked.
 - The Contractor shall produce the specification of the non-contact voltage tester and the usage guidelines to the satisfaction of the Engineer's Representative.
- (b) Electrical works on equipment connected to power supply and inside ceiling void shall be undertaken by a REW.
- Proper electrical isolation procedures (switching off, displaying warning sign, and locking off where appropriate) shall be followed.
 - If live electrical work is unavoidable as assessed by the REW (e.g. measuring currents of fan-coil unit using clamp on meter during fault finding), the work safety precautions requirements given in Code 4 and Appendix 15 of the Code of Practice for the Electricity (Wiring) Regulations shall be followed.
- (c) The Person-in-charge on site shall confirm that the above are fulfilled, record such confirmation before allowing works to commence inside the ceiling void.
- The Person-in-charge shall immediately send confirmation notice to his/her supervisor and the Safety Officer or Safety Supervisor of the Contractor using

mobile device with copy to the inspectorate officer appointed by the Engineer's Representative, unless the signal strength at the site is insufficient and under such case the confirmation notice shall be sent once the Person-in-charge moves to a location where signal strength becomes sufficient.

- His/her supervisor and Safety Officer or Safety Supervisor shall review the confirmation notice and follow up if necessary.
- Upon completion of the works, the Person-in-charge shall notify his/her supervisor and Safety Officer or Safety Supervisor of the Contractor using mobile device.
- The Contractor shall adopt proper recording format and procedure of sending confirmation notice and completion notice by mobile device¹ to the satisfaction of the Engineer's Representative.

9. If only visual inspection is to be carried out inside a ceiling void, a permit is not required but the person conducting the visual inspection shall wear electrician's gloves and use non-contact voltage tester to check the false ceiling frame within the work area before commencing inspection. If he/she may come into contact with nearby metallic objects inside the ceiling void in the course of inspection, those objects shall also be checked using non-contact voltage tester. The checking person should remove metallic ornaments (e.g. bracelet) that may get in touch with other metallic objects in the work surroundings. In case of non-safety-side indication of the tester or in case of any doubt (e.g. uncovered cable with exposed conductive end is found inside the ceiling void) during such checking, a REW shall be summoned.
10. Temporary lighting and electric tools to be used inside ceiling void shall be 110V center-tapped-to-earth or battery-powered.
11. All electrical workers working on lighting fittings shall pay attention to the electrical hazard. For electrical works on a lighting fitting of a permanent lighting circuit, the circuit should be switched off at MCB and not at lighting switch. If loss of illumination for a wide area is not allowable for the venue and the circuit has to be switched off at lighting switch, then the worker shall wear electrician's gloves and use insulated tools when working on the lighting fitting.
12. When choosing electrician's gloves for ceiling void works, 500V-grade gloves are

¹A mobile app is available to contractors for use during DLP. The Person-in-charge can make use of that mobile app to send out confirmation notice and completion notice. Please approach Project Engineers to obtain more details.

recommended. Compared to 1000V-grade gloves, it is more dexterous wearing 500V-grade gloves.

13. Other than the permit-to-work system for Specific Ceiling Void Works, the Contractor shall also implement permit-to-work system for Specific Other Works.

(a) At the commencement of the Contract, the Contractor shall conduct a comprehensive risk assessment to identify other types of works for which the permit-to-work system shall be applied after the energization of the permanent electricity supply in full or partially (Specific Other Works), including but not limited to

i) Wet trade works (e.g. painting or plastering of walls) near energized electrical installations (such as lighting fitting or socket outlet) within 1.5 meters horizontal distance from, or 1.5 meters vertical distance below, the works area.

ii) Arc welding under rainy environment

(b) The Contractor shall design the permit-to-work system for the Specific Other Works to the satisfaction of the Engineer's Representative. The recommended safety measures of the risk assessment shall be included as appropriate in the permit certificates for the Specific Other Works.

Annex 1 Sample permit-to-work certificate

Guidelines for PS Clause EMS02 (revised in March 2017)

PERMIT-TO-WORK (SPECIFIC CEILING VOID WORKS) (ver. May 2016)

Important Notes

- (1) Items marked # only apply to electrical works.
- (2) This permit-to-work is for complying with EMSD-specific clause EMS02 in the contract. Please refer to clause 5(f) of these guidelines for the issuing/canceling authority in Part 3 and Part 6.
- (3) This permit-to-work shall be kept at site for inspection during the course of the works.

PART 1: Details of the works (to be completed and signed by Person-in-charge)			
Contract Number		Contractor	
Location and area of the works		#Electrical equipment to be worked upon	
Details of the works to be done		#Location of electrical equipment	
Date of the works		Time of the works	
#Name of REW(s)			
1.		2	
Name of workers(s)			
3		4	
Name of Person-in-charge		Post	
Signed		Date	

PART 2: Electrical checks (to be completed and signed by REW)		
I have identified those electrical equipment items within and in the vicinity (within 1.5m) of the works area, that may pose electrical hazard to the workers. I have checked and confirm that there is no electrical hazard.		
# (If live electrical work is involved) I confirm that work safety precautions requirements given in Code 4 and Appendix 15 of the CoP on Electricity (Wiring) Regulations have been followed. Actual precautionary measures implemented are as follows:		
# I confirm that I have switched off, tagged off, and locked off where appropriate, those electrical sources that need to be isolated. Locations of switching off (and tagging off / locking off) are:		
Name and Registration Number of REW	Signed	Date and time

PART 3: Other checks and issue of permit (to be completed by issuer – Safety Officer or Safety Supervisor)		
Facilities for working-at-height checked to be appropriate	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Illumination checked, temporary lighting and electric tools checked to be 110 CTE or battery operated	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Confirm Part 2 above has been signed by REW	<input type="checkbox"/> Yes <input type="checkbox"/> No	
In accordance with the above assessment by the undersigned, this permit <u>is / is not approved*</u> . This permit is valid over the date and time of the works given in Part 1 above.		
Issuer – Safety Officer/Safety Supervisor	Signed	Date and time

* delete as appropriate

PART 4: Receipt (to be signed by Person-in-charge)		
I confirm receipt of this permit. The works that will be undertaken by me and the persons under my control will not exceed the scope described in Part 1 above. During the time of the works given in Part 1 above, I will keep this permit at site. I will return this permit to the issuer upon completion/termination of the works.		
Person-in-charge	Signed	Date and time of receipt

#PART 5: Electrical restoration (to be signed by REW)		
I have checked and confirm that no electrical hazards remain from the electrical works carried out according to Part 1 above, and that the metallic casings of electrical equipment worked upon have been earthed. I have removed the tags and locks at the locations of tagging off/locking off described in Part 2 above.		
Name and Registration Number of REW	Signed	Date and time

PART 6: Cancellation (to be signed by Safety Officer or Safety Supervisor)		
I confirm that the Person-in-charge has returned this permit. The works described in Part 1 above has been completed or terminated. (For electrical works only) I confirm that Part 5 above has been signed by REW. This permit is hereby cancelled, and returned to the Person-in-charge for filing. I will also keep a copy.		
Issuer – Safety Officer/Safety Supervisor	Signed	Date and time