

HEXATECH ENGINEERING SDN. BHD.	OPERATIONS CONTROL SERVICES	Issue No.: 1	Document Effective Date: 01 Mar 2017	Document Ref: OCS-REC-HIRACC
	HAZARD IDENTIFICATION, RISK ASSESSMENT & RISK CONTROL CHART	Rev. No.: 0		

**HIRARC MASTER FORM**

Company		HIRARCM NO.:	
Process / Location / Project		DATE:	
Approved by MD:		Prepared by	
Project Start Date		(Name, Designation)	

**Job Description : General electrical installation**

1. Hazard Identification				2. Risk Analysis			3. Risk Control		
No	Work Activity	Hazard	Which can cause / effect	Existing Risk Control (if any)	Likelihood	Severity	Risk	Recommended Control Measures	PIC (Due date & status)
	<b>General</b>								
1	Walk around at project site (Project Management team, Visitors) for walkdown, inspection, installation works, commissioning, administrative duties.	Gravity	Fall from Height Slip, Trip and Fall Falling objects	Using appropriate PPE. Conduct Safety induction and daily toolbox briefing	1 1 1	2 2 2	2 2 2		
2	Working at Height with: - Ladder - Mobile scaffold - Scaffold - Scissor Lift	Gravity	Fall from Height Falling objects	Using appropriate PPE Use proper 'A' Frame ladder, buddy system Training for operating scissor lifts and erection of scaffold. (Certified scaffolder)	1 1	2 2	2 2		
	<b>Access site with vehicle</b>								
3	- Lorry - Crane	Vehicle; Gravity	Being caught between, struck by or against vehicles; Falling objects	Using appropriate PPE, licenced vehicle driver, crane certificate of safe usage.	1 1	3 3	3 3		
	<b>Loading/Unloading of material/equipment</b>								
4	- Manual handling (lifting / carrying)	Manual handling Gravity	Muscular Stress Slip, Trip and Fall	Manual lifting procedure Look out for trip hazards, such as uneven floors or trailing cables, and implement housekeeping	2 1	1 1	2 1		
	- Heavy load moving skate / Cargo roller - Trolley - Pallet Jack - Fork Lift - Crane	Vehicle; Gravity	Being caught between, struck by or against vehicles; Falling objects	Using appropriate PPE, licenced vehicle driver, crane certificate of safe usage.	1 1 1 2 1	3 1 1 2 3	3 1 1 4 3		

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	<b>Cable Support / device installation</b>								
5	Excavation for underground cable incl. laying of sleeve & cable	Vehicle	Being caught between, struck by or against vehicles	Barrication, Signage, Backup beeper, Using appropriate PPE	1	3	3		
		Gravity	Falling objects	Using appropriate PPE	1	2	2		
		Electrical	Exposure to underground services or overhead electrical cables	Get the location of existing services and brief the team. Assess the site location for any obstructions.	1	3	3		
		Confined space	Drowning due to water flooding	Check if the wheather conditions are safe to work, prior to start work.	1	3	3		
6	Use of Hand Tools (Hammer, Screw Driver, Plier, Wrench)	Electricity	Electric shock due to contact with energized parts	Use of insulated tools, appropriate PPE	1	3	3		
		Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
7	Use of mechanical conduit bender	Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
8	Drilling/hacking in concrete	Vibration	Damage to your hands and fingers	Check the condition of anti-vibration mounts etc where fitted. Provide sufficient breaks during work.	1	1	1		
		Noise	Hearing loss	Using appropriate PPE	1	1	1		
		Kinetic Energy	Eye injury from flying debris	Using appropriate PPE	1	2	2		
		Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
		Electrical	Electrical shock due to faulty equipment or power cord.	Tool checklist and tags are implemented.	1	2	2		

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9	Drilling, grinding & cutting metal	Vibration	Damage to your hands and fingers	Check the condition of anti-vibration mounts etc where fitted. Provide sufficient breaks during work.	1	1	1		
		Noise	Hearing loss	Using appropriate PPE	1	1	1		
		Kinetic Energy	Eye injury from flying debris	Using appropriate PPE	1	2	2		
		Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
		Electrical	Electrical shock due to faulty equipment or power cord.	Tool checklist and tags are implemented.	1	2	2		
		Fire	Sparks can cause fire.	No flameable material to be near to work area.	1	2	2		
10	Welding	Noise	Hearing loss	Using appropriate PPE	1	1	1		
		Heat	Excessive exposure to hot work environment can cause heat-related illnesses	Whenever possible, scheduling hot jobs for the cooler part of the day. Ensuring that workers are drinking enough water. Adjusting work practices as necessary when workers experience heat stress	1	1	1		
		Fire	Sparks and molten metals created by the arc can cause fire.	No flameable material to be near to work area.	1	2	2		
		Burns	Sparks and molten metals can cause skin injuries.	Using appropriate PPE	1	3	3		
		Electricity	Electrical shock due to contact with material or electrode	Ensure good condition of welding equipment. Welding material to be grounded.	1	2	2		
		Ultraviolet Radiation	ultraviolet light causes inflammation of the cornea	Using appropriate PPE	1	2	2		
		Toxic fumes and gases	Fume produced during welding have potential health effects	Welding to be done in open area (Outside). Welder to be briefed about	1	1	1		

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			health effects	health effects of fumes & gases.					
		Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		

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11	Install support (Trunking, Ladder, Conduit ) at height	Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
		Gravity	Fall from Height; Slip, Trip and Fall; Falling objects	Using appropriate PPE, Safety net if applicable, barrication, signage.	1	2	2		
		Ergonomics	Fatiguen Stress and Errors, due to wokplace design.	Provide sufficient breaks during work.	1	1	1		
		Electricity	Electrical shock due to contact with energizes cables in adjacency	Avoid contact with energized equipment, Insulated safety shoes,	1	2	2		
12	Install support (Trunking, Ladder or Conduit) below raise floor	Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
		Gravity	Slip, Trip and Fall	Barrication, signage, housekeeping	1	1	1		
		Ergonomics	Fatiguen Stress and Errors, due to wokplace design.	Provide sufficient breaks during work.	1	1	1		
		Electricity	Electrical shock due to contact with energizes cables in adjacency	Avoid contact with energized equipment, Insulated safety shoes,	1	2	2		
<b>Cable installation</b>									
13	Cable cutting (Hydraulic Cable Cutter)	Penetrating sharp object	Hand injuries due to wrong handling of tool	Skilled workers to give briefing and to monitor the handling of tools.	2	2	4		
		Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
14	Cable pulling	Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
		Gravity	Fall from Height; Slip, Trip and Fall; Falling objects	Using appropriate PPE, Safety net if applicable	1	2	2		
		Ergonomics	Fatiguen Stress and	Provide sufficient breaks during work.	1	2	2		

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			Errors, due to workplace design.						
15	Install cable gland (Drill hole into MSB cover plate, using powered tool)	Vibration	Damage to your hands and fingers	Check the condition of anti-vibration mounts etc where fitted. Provide sufficient breaks during work.	1	1	1		
		Noise	Hearing loss	Using appropriate PPE	1	1	1		
		Kinetic Energy	Eye injury from flying debris	Using appropriate PPE	1	2	2		
		Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
		Electrical	Electrical shock due to faulty equipment or power cord.	Tool checklist and tags are implemented.	1	2	2		
16	Cable marking	Communication	Wrong labeling can cause electrical shock due to wrong circuit is energized.	Always verify the labeling with routing and schematic drawing. Continuity test for verification.	2	2	4		
	<b>Cable termination &amp; Commissioning</b>								
17	Cable cutting & stripping (Handsaw, cable cutter & stripping tool)	Penetrating sharp object	Hand injuries due to wrong handling of tool	Skilled workers to give briefing and to monitor the handling of tools.	2	2	4		
		Manual handling	Muscular Stress	Provide sufficient breaks during work.	1	1	1		
18	To install cable lug	Manual handling	Muscular Stress	Provide sufficient breaks during work. Use hydraulic cable press for big cable lugs.	1	1	1		
		Mechanical	Hand injuries due to wrong handling of cable press	Skilled workers to give briefing and to monitor the handling of cable press.	1	2	2		
		Electricity	Electric shock due to wrong labeling / breaker termination or missing LOTO	Test the cable before start work. LOTO procedure.	1	2	2		

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			LOTO						

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19	Cable bending	Manual handling	Muscular Stress	Provide sufficient breaks during work. Provide sufficient manpower.	1	1	1		
		Electricity	Electric shock due to wrong labeling / breaker termination or missing LOTO	Test the cable before start work. LOTO procedure.	1	2	2		
20	Termination	Electricity	Electric shock due to wrong labeling / breaker termination	Test the cable before start work.	1	2	2		
		Arc Flash /Arc Blast	Skin burns, damage to eyesight, Hearing loss, wounds from flying metal parts	Use of insulated tools, Test the point of termination before work, PPE, standby fire extinguisher.	1	4	4		
21	Cable labeling	Communication	Wrong labeling can cause electrical shock due to wrong circuit is energized.	Always verify the labeling with routing and schematic drawing. Continuity test for verification.	2	2	4		
22	Energization	Electricity	Electric shock due to faulty equipment or cable	Test the equipment and cable before start work. Operate remotely if available. Ensure proper grounding of equipment. T&C procedure.	1	2	2		
		Heat / Cable burn	Fire due to loose termination, wrong cable specs or faulty cable	Verify the point of termination and cable specs with schematic diagram/equipment drawing. T&C procedure.	1	2	2		
		Arc Flash /Arc Blast	Skin burns, damage to eyesight, Hearing loss, wounds from flying metal parts	Use of insulated tools, T&C procedure, PPE, standby fire extinguisher. Operate remotely if available	1	2	2		

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	<b>Maintenance at energized switchgear</b>								
23	Maintenance at energized switchgear (Install additional devices & cable)	Electricity	Electric shock due to contact with energized parts	Use of insulated tools, appropriate PPE. Briefing on switchgear design and energized sections. Skilled workers to do the job with chargin man monitoring execution.	1	4	4		
		Arc Flash /Arc Blast	Skin burns, damage to eyesight, Hearing loss, wounds from flying metal parts	Use of insulated tools, appropriate PPE, standby fire extinguisher and pull rope. Briefing on switchgear design and energized sections. Skilled workers to do the job with chargin man monitoring execution.	1	4	4		
		Ergonomics	Fatigue Stress and Errors, due to workplace design.	Provide sufficient breaks during work.	1	2	2		