

Element Elevators Inc. Safety Measures and Recommendations

Appendix A – Common Hazards and Recommended Safety Measures for Elevator Maintenance Works, Main Rope Replacement and Lift Major Alteration Works

(Remarks : The purpose of this appendix is to describe the common hazards encountered in lift maintenance works, main rope replacement and lift major alteration works and recommend safety preventive and protective measures associated with the common hazards for reference. Please note that these common hazards and the associated safety measures should not be deemed exhaustive and reference should also be made to the relevant sections of the main text of this Volume. It is highly recommended to consult relevant personnel such as a qualified and competent Registered Safety Officer prior to commencement of Elevator works.

1.1 Maintenance Work in Machine Room

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
Checking / Inspecting / cleaning / adjustment of control equipment	<ul style="list-style-type: none"> - Fall of person - unprotected raised floor - Inadequate strength or unsecured fencing - Defective ladder / staircase - Lack of proper access / working platform - Slippery floor 	<ul style="list-style-type: none"> - Inform and remind "Responsible Person" to rectify any unsafe conditions observed in lift machine room - Fence off unprotected raised floor with barriers of adequate strength - Provide and use a proper access / working platform - Keep lift machine room in clean and tidy condition - Remove waste and debris frequently - Keep passageway free from obstruction 	Competent Personnel & Elevator Workers	Safety Shoes & Gloves	<ul style="list-style-type: none"> - Trade specific training - Employee safety handbook
	<ul style="list-style-type: none"> - Striking against object - Improperly stack or stored materials / tools / equipment - Inadequate lighting 	<ul style="list-style-type: none"> - Properly stack and store materials / tools / equipment - Remove waste and debris frequently - Keep passageway free from obstruction - Provide and maintain adequate lighting - Protect sharp edges 	Competent Personnel & Elevator Workers	Safety Helmet, Safety Shoes & Safety Gloves	

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Falling object - Defective concrete on ceiling / wall - Improperly stacked materials - Improperly handled materials / tools	- Check and inspect before entering into machine room - Fence off the area where defective concrete observed with barrier - Display warning notice - Properly stack material - Equip hand-held tool with hand strap - Provide suitable and adequate toe-boards	Competent Personnel & Elevator Workers	Safety Helmet, Safety Shoes & Safety Gloves	
	Electrocutation - Substandard / Defective electric distribution board - Use damaged electrical tools / equipment - Damaged electric wire / cable - Contact with live parts inside control panel	- Isolate electric power supply before work - Apply Lock-Out Tag-Out mechanism - Check and inspect electrical tools / equipment before use - Properly place electric wire / cable - Use water-proof type socket, plugs and couplers - Use electrical hand-held tools / equipment with double insulation	Competent Personnel & Elevator Workers	Insulated gloves	Tool-box training on LOTO (lock-out tag-out) Tool-box training on electrical safety
	Scald / burn - Contact with hot object	- Display a notice illustrating the part / item which is hot inside control panel	Competent Personnel & Elevator Workers	Heat resistant gloves	
	Contact with moving parts / nip points	- Provide a suitable guarding for dangerous parts of machinery - Isolate power supply before work - Apply a padlock system	Competent Personnel & Elevator Workers		Tool-box training on machine guarding

1.2 Maintenance Work inside Hoistway

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
Checking / Inspecting / cleaning / adjustment / lubricating of machinery / selector on car top / pit	Fall of person - Lack of fencing on car top - Substandard fencing - Lack of anchorage point - Sudden movement of lift car - Slippery / uneven car top - Inadequate lighting - Improper posture	- Provide adequate strength guard-rail on car top - Check and ensure the guard-rail erected on car top is secure. - Check and verify the control / safety switches before access to car top - Lock up "Inspection" (INS) after it has been turned to inspection mode - Develop in-house safety rules and regulations for working on car top - Attach / fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work	Competent Personnel & Elevator Worker	Fall protection harness, Retractable safety device & Safety Shoes	Trade specific safety training Working at heights training, Tool-box training in relation to in-house safety rules and regulations for working on car top
	Contact with moving parts of machinery / nip points - Lack of. Machine guarding - Guarding removed	- Provide a suitable guarding for dangerous parts of machinery - Isolate power supply before work - Apply a padlock system - Press "STOP" Switch - Activate "Inspection" Mode	Competent Personnel & Elevator Worker		Tool-box training on machine guarding
	Striking against object - Improperly stack or store materials / tools / equipments - Inadequate lighting	- Properly stack and store materials / tools / equipments - Remove waste and debris frequently - Keep access / passageway free from obstruction - Provide and maintain adequate lighting - Protect sharp edges	Competent Personnel & Elevator Worker	Safety helmet (Hard Hat) & Safety Shoes	Tool-box training in relation to in-house safety rules and regulations for working on car top
	Falling Object - Improperly stacked material - Improperly handle materials / tools - Carry out task at multi-level	- properly stack and store material / tools / equipment - Equipment hand-held tool with hand strap - Provide suitable and adequate toe-boards - Apply permit-to-work system to control task carried out at multi-level (If applicable)	Competent Personnel & Elevator Worker	Safety helmet (Hard Hat) & Safety Shoes	

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
Cleaning and adjustment of landing doors / landing sills	Dermatitis / eye injury - Contact with chemical substances - Falling particles / dust	<ul style="list-style-type: none"> - Conduct a survey to identify chemicals substances to be used - Identify the health risk and the associated precautions with relevant MSDS / WHMIS - Properly store containers holding chemical substances 	Competent Personnel & Elevator Worker	Chemical resistant gloves & Safety glasses	
	Fall of person - Lack of fall protection - Lack of anchorage point - Sudden movement of lift car - Slippery / uneven floor - Inadequate lighting - Improper posture	<ul style="list-style-type: none"> - Provide and use retractable safety device - Erect barrier at elevator shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned on inspection mode - Attach / fix lanyard on a designated anchorage point - Provide and maintain adequate lighting - Avoid improper posture at work 	Competent Personnel & Elevator Worker	Safety Harness, Fall arrest, Retractable safety device & Safety Shoes	Trade specific safety training & Working at heights training
	Striking against object - Improperly stacked or stored materials / tools and equipment - Inadequate lighting	<ul style="list-style-type: none"> - Properly stack and store materials / tools and equipments - Remove waste and debris frequently - Keep access / passageway free from obstruction - Provide and maintain adequate lighting - Protect sharp edges 	Competent Personnel & Elevator Worker	Safety helmet (Hard Hat) & Safety Shoes	

2.0 Main Rope Replacement (1:1 Roping - Mid rise)

(Remarks : It is highly recommended to well plan and take appropriate preparation works prior to commencement of rope replacement including:

- Check tool and P.P.E.;
- Determine the position to secure lift car and counterweight
- Well consider and adopt suitable fall protection before allowing workers accessing to and egressing from counterweight
- Provide adequate and suitable fire-fighting equipment on spot;
- Check to ensure lifting appliances and lifting gear are in good working order and help with valid statutory certifications.

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
2.1 Positioning of elevator car and counterweight	Fall of person - Lack of fall protection - Lack of anchorage point - Sudden movement of Elevator Car - Inadequate lighting - Improper posture	- Provide and use retractile safety device - Erect barrier at lift shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned to inspection mode - Attach / fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work	Competent Personnel & Elevator Workers	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores	Trade specific safety training & Working at heights training
	Falling object - Improper stacked materials - Improper handle materials / tools - Carry out task at multi-level	- Properly stack and store materials / tools / equipment - Equip hand-held tools with straps - Provide suitable and adequate toe-boards - Well study and understand the procedures recommended by the manufacturer of the lift to replace main rope - Strictly follow the procedures to replace main rope	Competent Personnel & Elevator Workers	Safety Helmet (Hard-Hats)	Tool-box training on replacement of main rope
	Back injury - Lack of sufficient mechanical aids - Improper posture	- Carry out manual handling assessment by a competent personnel - Provide mechanical aids to assist in moving material and equipment - Adopt correct posture to handle material and equipment - Supervise manual handling activity by a competent personnel	Competent Personnel & Elevator Workers		Tool-box training on manual handling

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
2.2 Hoist up and secure elevator car to release the tension of the rope	Fall of person - Lack of fall protection - Lack of anchorage point - sudden movement of elevator car - Slippery / uneven floor - Inadequate lighting - Improper posture	<ul style="list-style-type: none"> - Provide and use retractable safety device - Erect barrier at elevator shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned to inspection mode - Press "Emergency Stop" device - Turn off and play LOTO mechanism to the main disconnect - Attach / fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work 	Competent Personnel & Elevator Workers	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores	Trade specific safety training & Working at heights training
	Failure of lifting appliances or lifting gear - Overloading - Not conform to the method statement - Normal or abnormal wear and tear - Slipping/displacement of load	<ul style="list-style-type: none"> - Well consider and estimate the loads to be applied - Prepare a method statement by a qualified and experienced Engineer - Communicate the method statement to the parties concerned - Select, provide and use suitable lifting appliances and lifting gear - Strictly follow the method statement to install the lifting appliances and lifting gear - Thoroughly examine and test the installed lifting appliances and lifting gear - Regularly check and inspect the lifting appliances and lifting gear - Verify statutory certificates are valid - Display statutory certificates of lifting appliances and lifting gear - Safely secure the load 	Engineer & Elevator worker		Tool-box training on replacement of main ropes

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
2.3 Cut and remove existing rope on car top / counterweight	Fall of person - Lack of proper access / egress - Lack of fall protection - Lack of anchorage point - Sudden movement of elevator car - Slippery / uneven floor - inadequate lighting - Improper posture	- Provide safe access and egress - Provide suitable and adequate guard-rails and toe-boards - Provide and use retractable safety device - Erect barrier at elevator shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned to inspection mode - Press "Emergency Stop" device - Turn off and apply LOTO mechanism to the main disconnect - Securely and adequately support the counterweight and elevator car - Attach / Fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work	Competent Personnel & Elevator Workers	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores	Trade specific safety training & Working at heights training
	Falling object - Improper stacked materials - Improper handle materials / tools - Fall of disconnected or dismantled ropes - Carry out task at multi-level - Existing rope not firmly and securely fixed - Detachment of elevator car - Strike or trap by a elevator car while working in a common elevator shaft	- Well study and understand the procedures recommended by the manufacturer of the elevator to replace main rope - Strictly follow the procedures to replace main rope - Select appropriate type of rope connection method - Properly delivery old ropes down to the ground - Collect and place the existing rope at landing - Properly and securely fix the existing rope - Properly stacked store materials / tools / equipment - Equip hand-held tool with hand strap - Provide suitable and adequate toe-boards		Safety Helmet (Hard-Hats)	
	Trapping Hazard	- Provide barriers at the bottom of elevator pit (For common elevator shaft)			

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Fire (related to hot work involving babbitt type socket) - Use of flammable substances	<ul style="list-style-type: none"> - Develop and implement hot-work-permit system - Provide and maintain adequate fire fighting facilities on site - Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out - Place suitable protective screens of the retardant nature at the work spot - Check to ensure fire doors should be kept close - Do not use flammable substances nearby and properly store flammable substances - Provide suitable and sufficient ventilation 	Competent Personnel & Elevator Workers	Heat Resistant gloves & eye and face protection	Tool-box training on fire prevention and fighting
	Back injury - Lack of / insufficient mechanical aids - Improper posture	<ul style="list-style-type: none"> - Carry out manual handling assessment by a competent personnel - Provide mechanical aids to assist in moving material and equipment - Adopt correct posture to handle material and equipment - Supervise manual handling activity by a competent personnel 	Competent Personnel & Elevator Workers		Tool-box training on manual handling

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
2.4 Fix new rope on Car top / Counterweight	<ul style="list-style-type: none"> Fall of Person - Lack of proper access / egress - Lack of fall protection - Lack of anchorage point - Sudden movement of Elevator car - Slippery / uneven floor - Inadequate lighting - Improper posture 	<ul style="list-style-type: none"> - Provide safe access and egress - Provide suitable and adequate guard-rails and toe-boards - Provide and use retractable safety device - Erect barrier at elevator shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned to inspection mode - Press "Emergency Stop" device - Turn off and apply LOTO mechanism to the main disconnect - Securely and adequately support the counterweight and elevator car - Attach / Fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work 	Competent Personnel & Elevator Workers	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores	Trade specific safety training & Working at heights training
	<ul style="list-style-type: none"> Falling object - Improper stacked materials - Improper handle materials / tools - Fall of disconnected or dismantled ropes - Carry out task at multi-level - Existing rope not firmly and securely fixed - Detachment of elevator car - Strike or trap by a elevator car while working in a common elevator shaft 	<ul style="list-style-type: none"> - Well study and understand the procedures recommended by the manufacturer of the elevator to replace main rope - Strictly follow the procedures to replace main rope - Select appropriate type of rope connection method - Collect and place the existing rope at landing - Properly and securely fix the existing rope - Properly stacked store materials / tools / equipment - Equip hand-held tool with hand strap - Provide suitable and adequate toe-boards - Keep clear of the elevator pit 	Competent Personnel & Elevator Workers	Safety Helmet (Hard-Hats)	Tool-box training on replacement of main rope


Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Fire (related to hot work involving babbitt type socket) - Use of flammable substances	<ul style="list-style-type: none"> - Develop and implement hot-work-permit system - Provide and maintain adequate fire fighting facilities on site - Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out - Place suitable protective screens of the retardant nature at the work spot - Check to ensure fire doors should be kept close - Do not use flammable substances nearby and properly store flammable substances - Provide suitable and sufficient ventilation 	Competent Personnel & Elevator Workers	Heat Resistant gloves & eye and face protection	Tool-box training on fire prevention and fighting
2.5 Resume lift to normal services	Fall of person - Lack of fall protection - Lack of anchorage point - Sudden movement of elevator car - Slippery / uneven floor - Inadequate lighting - Improper posture	<ul style="list-style-type: none"> - Provide and use retractable safety device - Erect barrier at elevator shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned to inspection mode - Attach / Fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work 	Competent Personnel & Elevator Workers	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores	Trade specific safety training & Working at heights training

3.0 Elevator Major Alteration Work

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
3.1 Project planning, management and control	<p>Safety and Health Risk and Potential Hazards may not be properly addressed due to underestimate of the project complexity</p> <ul style="list-style-type: none"> - Project management and supervisory staff awareness and emphasis on safety and health may not be sufficient - Risk assessment or impact and aspect analysis may not be properly carried out and written down - Safety and health measures may not be properly implemented on a construction site - Implementation of safety and health measures may not be properly monitored 	<ul style="list-style-type: none"> - Develop and endorse policy to state safety and health commitments and objectives - Establish a steering committee to review and monitor safety and health performance and give advices to keep continuous improvement - Formulate a working group with project management and supervisory staff as well as safety personnel to conduct a comprehensive risk assessment with associated safety preventative and protective measures - Compile a method statement to describe the work procedure and safety measures required in accordance with the risk assessment - Carry out regularly site safety inspection to monitor safety preventive and protective measures are in place - Engage a registered safety auditor to conduct safety and health management audit 	<ul style="list-style-type: none"> - Project Manager - Construction Manager - Front-line supervisory staff - Registered safety officer (where necessary) - Registered safety auditor (where necessary) 	<p>Safety Shoes & Gloves</p>	<ul style="list-style-type: none"> - Modern safety management - Risk Assessment and Hazard Identification - Safety Supervisor - Basic Accident Prevention and Investigation - Safe Working Cycle - Fire Prevention and Fire Fighting - Working at Height Safety - Occupational Safety and Health Trainer
3.2 Dismantle landing fixtures, guide rails, equipment and the associated accessories inside elevator shaft	<p>Fall of person</p> <ul style="list-style-type: none"> - Lack of fall protection - Lack of anchorage point - Lack of proper access / working platform - Inadequate strength or insecure fencing - Sudden movement of lift car - Slippery / uneven car top - Inadequate lighting - Improper posture 	<ul style="list-style-type: none"> - Provide and use a proper access / working platform - Provide fencing of adequate strength - Provide and use retractable safety device - Erect barrier at elevator shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned to inspection mode - Attach / Fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work 	<ul style="list-style-type: none"> - Foreman - Safety Supervisor - Competent Personnel - Elevator Worker 	<p>Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores</p>	<p>Trade specific safety training & Working at heights training</p>

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Falling object - Improper stacked materials - Improper handle materials / tools - Carry out task at multi-level	- Properly stacked store materials / tools / equipment - Equip hand-held tool with hand strap - Provide suitable and adequate toe-boards	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Helmet, Safety Shoes & Safety Gloves	Trade specific training & Training of major alteration work
	Striking against object - Improperly stacked or stored materials / tools and equipment - Inadequate lighting	- Properly stack and store materials / tools / equipment - Remove waste and debris frequently - Keep passageway free from obstruction - Provide and maintain adequate lighting - Protect sharp edges	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Helmet, Safety Shoes & Safety Gloves	Trade specific training & Training of major alteration work
	Failure of lifting appliances or lifting gear - Overloading - Not conform to the method statement - Normal or abnormal wear and tear - Slipping/displacement of load	- Well consider and estimate the loads to be applied - Prepare a method statement by a qualified and experienced Engineer - Communicate the method statement to the parties concerned - Select, provide and use suitable lifting appliances and lifting gear - Strictly follow the method statement to install the lifting appliances and lifting gear - Thoroughly examine and test the installed lifting appliances and lifting gear - Regularly check and inspect the lifting appliances and lifting gear - Verify statutory certificates are valid - Display statutory certificates of lifting appliances and lifting gear - Safely secure the load	- Engineer - Foreman - Elevator Worker		Training on rigging and hoisting

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Fire hazard to occupant / user / worker - Flame cutting - Smoking - Use of flammable substances - Dismantling the existing fire safety measures.	- Caution should be taken such that dismantling activities would not jeopardize the existing fire safety measures. - Check and ensure that fire doors and fire separation are painted in good working order - Provide training to enhance fire safety awareness of workers - Develop and implement hot-work system - Provide and maintain adequate fire fighting facilities on site - Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out - Place suitable protective screens of the retardant nature at the work spot - Check to ensure fire doors should be kept close - Properly store flammable substances - Develop and implement "No Smoking" policy - Display "No Smoking" sign	- Construction Manager - Foreman - Safety Supervisor - Competent Personnel - Elevator Worker		Tool-box training on fire prevention and fighting
3.3 Dismantle car cage, counterweight and equipment installed at elevator pit inside shaft	Fall of person - Lack of fall protection - Lack of anchorage point - Lack of proper access / working platform - Inadequate strength or insecure fencing - Sudden movement of lift car - Slippery / uneven car top - Inadequate lighting - Improper posture	- Provide and use a proper access / working platform - Provide fencing of adequate strength - Provide and use retractable safety device - Erect barrier at elevator shaft opening - Check and verify the control / safety switches before work - Lock up the "INS" switch after it has been turned to inspection mode - Attach / Fix lanyard on a designated anchorage point or an independent lifeline - Provide and maintain adequate lighting - Avoid improper posture at work	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores	Trade specific safety training & Working at heights training
	Falling object - Improper stacked materials - Improper handle materials / tools - Carry out task at multi-level	- Properly stacked store materials / tools / equipment - Equip hand-held tool with hand strap - Provide suitable and adequate toe-boards	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Helmet, Safety Shoes & Safety Gloves	Trade specific training & Training of major alteration work

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Failure of lifting appliances or lifting gear - Overloading - Not conform to the method statement - Normal or abnormal wear and tear - Slipping/displacement of load	<ul style="list-style-type: none"> - Well consider and estimate the loads to be applied - Prepare a method statement by a qualified and experienced Engineer - Communicate the method statement to the parties concerned - Select, provide and use suitable lifting appliances and lifting gear - Strictly follow the method statement to install the lifting appliances and lifting gear - Thoroughly examine and test the installed lifting appliances and lifting gear - Regularly check and inspect the lifting appliances and lifting gear - Verify statutory certificates are valid - Display statutory certificates of lifting appliances and lifting gear - Safely secure the load - Supervise the lifting operation 	<ul style="list-style-type: none"> - Engineer - Foreman - Elevator Worker 		Training on rigging and hoisting

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Fire hazard to occupant / user / worker - Flame cutting - Smoking - Use of flammable substances - Dismantling the existing fire safety measures.	- Caution should be taken such that dismantling activities would not jeopardize the existing fire safety measures. - Check and ensure that fire doors and fire separation are painted in good working order - Provide training to enhance fire safety awareness of workers - Develop and implement hot-work system - Provide and maintain adequate fire fighting facilities on site - Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out - Place suitable protective screens of the retardant nature at the work spot - Check to ensure fire doors should be kept close - Properly store flammable substances - Develop and implement "No Smoking" policy - Display "No Smoking" sign	- Construction Manager - Foreman - Safety Supervisor - Competent Personnel - Elevator Worker		Tool-box training on fire prevention and fighting
	Striking against object - Improperly stacked or stored materials / tools and equipment - Inadequate lighting	- Properly stack and store materials / tools / equipment - Remove waste and debris frequently - Keep passageway free from obstruction - Provide and maintain adequate lighting - Protect sharp edges	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Helmet, Safety Shoes & Safety Gloves	Trade specific training & Training of major alteration work
3.4 Dismantle controller, traction machine, suspension ropes inside elevator machine room	Fall of person - Unprotected raised floor - Inadequate strength or insecure fencing - Defective ladder / staircase - Lack of proper access / working platform - Slippery floor	- Fence off unprotected raised floor with barriers of adequate strength - Provide and use a proper access / working platform - Keep elevator machine room in clean tidy condition - Remove waste and debris frequently - Keep passageway free from obstruction	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shores	Trade specific safety training & Working at heights training

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Failure of lifting appliances or lifting gear <ul style="list-style-type: none"> - Overloading - Not conform to the method statement - Normal or abnormal wear and tear - Slipping/displacement of load 	<ul style="list-style-type: none"> - Well consider and estimate the loads to be applied - Prepare a method statement by a qualified and experienced Engineer - Communicate the method statement to the parties concerned - Select, provide and use suitable lifting appliances and lifting gear - Strictly follow the method statement to install the lifting appliances and lifting gear - Thoroughly examine and test the installed lifting appliances and lifting gear - Regularly check and inspect the lifting appliances and lifting gear - Verify statutory certificates are valid - Display statutory certificates of lifting appliances and lifting gear - Safely secure the load - Supervise the lifting operation 	<ul style="list-style-type: none"> - Engineer - Foreman - Elevator Worker 		Training on rigging and hoisting
	Electrocutation <ul style="list-style-type: none"> - Substandard / Defective electric distribution board - Use damaged electrical tools / equipment - Damaged electric wire / cable - Contact with live parts inside control panel 	<ul style="list-style-type: none"> - Isolate electric power supply before work - Apply Lock-Out Tag-Out mechanism - Check and inspect electrical tools / equipment before use - Properly place electric wire / cable - Use water-proof type socket, plugs and couplers - Use electrical hand-held tools / equipment with double insulation 	<ul style="list-style-type: none"> - Licensed Electrical Worker - Competent Personnel & - Elevator Workers 	Insulated gloves	Tool-box training on LOTO (lock-out tag-out) Tool-box training on electrical safety

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
3.5 Remove dismantled material, machinery and equipment	Fire hazard to occupant / user / worker - Flame cutting - Smoking - Use of flammable substances - Dismantling the existing fire safety measures.	- Caution should be taken such that dismantling activities would not jeopardize the existing fire safety measures. - Check and ensure that fire doors and fire separation are painted in good working order - Provide training to enhance fire safety awareness of workers - Develop and implement hot-work system - Provide and maintain adequate fire fighting facilities on site - Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out - Place suitable protective screens of the retardant nature at the work spot - Check to ensure fire doors should be kept close - Properly store flammable substances - Develop and implement "No Smoking" policy - Display "No Smoking" sign	- Construction Manager - Foreman - Safety Supervisor - Competent Personnel - Elevator Worker		Tool-box training on fire prevention and fighting
	Striking against object - Improperly stacked or stored materials / tools and equipment - Inadequate lighting	- Properly stack and store materials / tools / equipment - Remove waste and debris frequently - Keep passageway free from obstruction - Provide and maintain adequate lighting - Protect sharp edges	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Helmet, Safety Shoes & Safety Gloves	Trade specific training & Training of major alteration work
	Fall of person - Unprotected raised floor - Inadequate strength or insecure fencing - Defective ladder / staircase - Lack of proper access / working platform - Slippery floor	- Fence off unprotected raised floor with barriers of adequate strength - Provide and use a proper access / working platform - Keep elevator machine room in clean tidy condition - Remove waste and debris frequently - Keep passageway free from obstruction	- Foreman - Safety Supervisor - Competent Personnel - Elevator Worker	Safety Harness, Fall Arrest, Retractable Safety Device & Safety Shoes	Trade specific safety training & Working at heights training

Activities/ Locations	Common Hazards	Safety Measures	Action Parties	PPE	Training
	Fire hazard to occupant / user / worker - Flame cutting - Smoking - Use of flammable substances - Dismantling the existing fire safety measures.	<ul style="list-style-type: none"> - Caution should be taken such that dismantling actives would not jeopardize the existing fire safety measures. - Check and ensure that fire doors and fire separation are painted in good working order - Provide training to enhance fire safety awareness of workers - Develop and implement hot-work system - Provide and maintain adequate fire fighting facilities on site - Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out - Place suitable protective screens of the retardant nature at the work spot - Check to ensure fire doors should be kept close - Properly store flammable substances - Develop and implement "No Smoking" policy - Display "No Smoking" sign 	<ul style="list-style-type: none"> - Construction Manager - Foreman - Safety Supervisor - Competent Personnel - Elevator Worker 		Tool-box training on fire prevention and fighting
	Back injury - Lack of / insufficient mechanical aids - Improper posture	<ul style="list-style-type: none"> - Carry out manual handling assessment by a competent personnel - Provide mechanical aids to assist in moving material and equipment - Adopt correct posture to handle material and equipment - Supervise manual handling activity by a competent personnel 	Competent Personnel & Elevator Workers		Tool-box training on manual handling