



SPECIAL PROJECT DOCUMENTS
Lifts & Escalators

HO / SPD / HIRA / 2020
Rev : 000

**HEAD OFFICE -
CHENNAI**

HAZARD IDENTIFICATION & RISK ASSESSMENT

DATE: 13. 06. 2020

SL No	Activity	Routine/non routine	(R/NR) Identified Hazard	Consequences	Legal Concern	Base Risk			Control Measures	Residual Risk			Acceptable / Not Acceptable	Remarks
						Probability	Severity	Risk		Probability	Severity	Risk		
1	Transporting the elevators materials by trucks/van/auto from site entrance to the store location	NR	Unplanned movement of vehicles	Serious accident at site	No	3	3	9	Designated area should be allocated for vehicle parking and offloading of materials. Ensure that a space and firm pathway to truck delivery is available at site. Wheel chocks should be used in addition to the brake, particularly if any slope is present.	1	3	3	A	
			Collision with pedestrians/operatives	Serious accident at site	No	3	3	9	Ensure that no people movement near by the vehicles while Reaching or leaving off loading point. Banks men should be appointed to guide the vehicle driver and to ensure that no pedestrians/operatives are near by the vehicle	1	1	3	A	
			Collision with structures Collision with other vehicles	Damage to structure and serious vehicle accident	No	4	4	16	Visiting drivers should be briefed about the site details through visitor induction prior to taking to site at the entrance. Banks men should be appointed with vehicle to guide the driver while proceeding to the store area. Banks-men will ensure that the drive pathway is clear with other vehicle and give signal whenever approach the structure. Supervisor must ensure the clear route planned and maintained till off loading point. No people allowed to sit on the truck/van/auto unless provided proper seating methods in the vehicle.	1	4	4	A	
			Falling of people	lead to serious injury	No	3	3	9	Vehicle driver should always wear seat belt whole driving in site. Ensure that driver adhere to Speed limits at site. Banks-men signal must be followed during the drive at site . No speed turn taken at site.	1	3	3	A	
			Overturning	Serious accident at site	No	3	3	9	Avoid taking reverse at site. Load should be assessed prior to taking in to site.	1	3	3	A	
	Overloading and falling objects	Serious accident at site	No	3	3	9	Load capacity of the vehicle must be assessed by supervisor, If over load found in the vehicle, must be removed at entrance. If multiple items or loads that may shift are moved, these must be properly secured with straps, bands or other means prior to works commencing	1	3	3	A			

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2	Offloading the lift materials by manually and later stage shifting the elevator materials at desired location/floor	NR	The loads slip, trip sharp edges (uneven floor)	Cuts, abrasions and fractures	Yes	3	3	9	Supervision must present at all times to ensure employees/workers are adhering to manual handling safe working instructions Ensure that clear access & egress is available at the off loading area. Must wear suitable PPE i.e Hand gloves.	2	3	3	A
			Improper manual handling	Ligament and crushed injury ,Slipped disk torn muscle	Yes	3	2	6	Employees are provided with the correct lifting / handling techniques. Frequent breaks should be given to employees during the off loading works Minimize the repetitive works. Follow the BOCW act the weight lifting of Men 45 Kg/n	1	2	2	A
			Slip, Trip& Fall / falling objects from over head	Injury to employees	Yes	3	3	9	Ensure that the working area is clean and tidy No slipping environment present at work place. Wear non slippery safety shoes Remove all potential tripping materials from the work place Manual off loading activity should be carried out where over head falling hazards are minimized	1	3	3	A
			Lifting heavy Objects	Back Injury	Yes	2	2	4	Heavy or frequent manual handling tasks should be carried out by several people The amount that is handled should be reduced or the load split into smaller ones . The time taken to carry out manual handling tasks should be extended by taking breaks,	1	2	3	A
			Not using PPE	Hands injury. Cuts in finger	Yes	3	3	9	Ensure that employees are using task specific PPE during the off loading activity Regular Training should be conducted to employees on usage of PPE	1	3	3	A

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3	Offloading or shifting the elevator materials by mechanical equipment i.e. Hydra, Cranes etc.	NR	Failure of mechanical lifting equipments	Serious accident at site	Yes	3	4	12	Designated area unloading the load should be assigned lifting equipment should not place at unlevelled/ramp ground surfaces. prior to start the work activity ,PTW must be obtained Thoroughly inspections should be carried by operator. Ensure that the 3rd party certificates of the lifting equipments are valid and cross checked prior to commerce the work activity	1	4	4	A
			Over loading/exceeding SWL	Serious accident at site	Yes	3	3	9	Ensure that the machine is not exceeding the SWL by close monitoring by the supervisor. Try to engage the fitted ASLI machine for the lifting activity	1	3	3	A
			Incompetent/untrained operator	Serious accident at site	Yes	3	4	12	Only a valid driving license/3rd party competency operator should be assigned for the job	1	4	4	A
			Tandem lift	Over turn of the lifting equipment's	Yes	2	3	6	Work Place at Tandem lift area should be well leveled and compacted lifting loads should be assessed and special Lifting plan should be prepared by considering the both machinery DATA	1	3	3	A
			Failure of lifting tools&tackles i.e wire ropes/web slings etc	Serious Lifting incident and lead to accident	Yes	3	4	12	All the lifting tools and tackles should have a valid 3rd party certificates prior to use at site Ensure that color code /tag has been applied on the tool & Tackles	1	4	4	A

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4	Scaffolding Erection & Dismantling	R	Material & people fall from height	Serious accident at site	No	3	3	9	<p>Authorized and competent supervisor must be present during the erection progress</p> <p>Scaffolding erection area should be isolated and proper signage to be placed to ward near by people about the activity</p> <p>Unauthorized entry to be avoided and limited persons to be allowed at erection area</p> <p>Ensure that only trained workers assigned for the erection & Dismantling works</p> <p>Unwanted materials should not be stacked on the scaffold. Employees working for scaffolding erection & Dismantling must wear the Full body harness and anchored to a rigid point always.</p>	1	3	3	A
			Stuck against	Cuts, abrasions and fractures	No	3	3	9	<p>employees must be trained on the works activity. While shifting the standards and ledgers to erect the scaffold ensure that proper communications and coordination in between the team.</p>	1	3	3	A
			Awkward position/repeated posture while erection works	sprains, strains ,over exertion in shoulders, arms and crushed fingers for repeated works activity	No	3	3	9	<p>Employees are provided with the correct lifting / handling techniques. Frequent breaks should be given to employees during the off loading works Minimize the repetitive works.</p>	1	3	3	A
			Poor lighting,	Eye irritation ,fatigue,	No	3	3	9	Adequate lighting arrangements must be done in the lift shaft prior to start the works	1	3	3	A
			collapse of scaffolding structure	Serious accident at site	No	3	3	9	<p>Ensure that scaffold structure to be erected and supported rigidly.</p> <p>The required supports should be provided to prevent collapse the scaffolding in a manner of Box tie, Lip Tie, anchor support etc.. Follow the Scaffag System. Scaffolding working platform should note over load approved and standard scaffolding standards and ledger</p>	1	3	3	A
			Failure of usage of PPE i.e. full body harness.	Serious accident at site	No	3	3	9	<p>Only approved Full body harness should be used Basic checks should be conducted by user before starting the works in each shift.</p>	1	3	3	A

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5	Template Fixing	R	Fall of person from height	Serious accident at site	3 3 9	<p>Ensure that scaffold structure to be erected and supported rigidly.</p> <p>Full deck platform to be provided for each floor of lift shaft and ensure no gap on working platform.</p> <p>PTW must be obtained prior to start the works</p> <p>Don't left the Lift shaft open condition</p> <p>Lift shaft barricades should closed prior to leave from that location.</p> <p>Safety harness is mandatory for all personal whoever entering inside of lift shaft.</p>	1 3 3	A
			Falling of materials/ tools	Serious accident at site	4 2 8	<p>Never allowed any one to work above and below floor at a time.</p> <p>Make sure all hand tools to be secured with guide rope properly.</p> <p>Never stack any loose material on the working platform. Provide tools box to keep all loose materials on it.</p> <p>Make sure plumb lines are fasten by the taping screws and sent down to the bottom floor.</p> <p>Lift shaft handrail should close prior to leave from that location.</p>	2 2 4	A
			Fall of fixed template due to improper fixing method	Serious accident at site	3 3 9	<p>Standardize anchor fastener to be used to fix the brackets.</p> <p>Make sure all the entrance/access to the lift shaft is closed during fixing templates.</p> <p>Make sure two numbers of template support angle to be fixed with new bracket.</p> <p>Make sure three trained persons are engaged to fix templates in the shaft.</p>	1 3 3	A

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6	Bracket fixing	R	Fall of materials and person from height	Serious accident at site	3 3 9	<p>Make sure scaffold structure to be supported properly & rigidly Make sure completely hard barricaded with warning signage in below area. Make sure no one allowed to work above while bracket fixing. Ensure that all workers to be used safety harness while working inside of lift shaft. Don't stack any brackets on the working platform All hand tools to be secured with guide rope.</p>	1	3	3	A
			Brackets may come out or fall from fixed location	Serious accident at site	3 2 6	<p>Make sure two numbers of anchor fastener are used to fix the wall brackets. Need to fix the brackets with spring, plate washers and nut properly. Ensure the horizontal brackets are placed over the wall brackets and fix with "C" clamp at both ends.</p>	1	2	2	A
			Defective power tools used for task/Electrical shock	Serious accident at site	3 3 9	<p>All electrical tools should be inspected by site safety team and to tagged with relevant color code if any Defective electrical tools not allowed for task Industrial male & female socket to be used for task. Electrical connection should be taken from ELCB fitted DB. Standard Electrical cable to be used and ensure no maximum joint on cables. only authorized person/trained person to be allowed to use the power tools . Electrical cable routing should be done properly by routing at height levels Make sure pre use check to be done prior to use. Ensure that appliances are double insulated Do not handle electric tools in wet environments / wet hands / oily hands</p>	2	3	6	A

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7	Guide Rail Hoisting & Alignment	R	Fall of rails due to rope cut /failure	Serious accident at site	2	3	6	<p>Proper Manual Handling techniques must be given to employees. Rope shall be adequate to lift the guide rails . Employees must anchor their full body harness to the solid point during pulling the guide rails</p> <p>Guide rail should be tied properly by rope Clear communication is required in between the team members Close supervision is mandatory during the works activity Ensure sufficient manpower to be engaged for this rail hoisting including one supervisor.</p> <p>Ensure no parallel work in below or top levels. Entry to working platform access to be full decked Check and estimate the guide rail weight prior to hoisting</p>	1	3	3	A
		R	Fall men or material in lift shaft	Serious accident at site	3	4	12	<p>Make sure full deck platform with adequate hand & mid rail To be provided Ladder access with landing platform to be provided and safety harness must be wear by employees and anchor to rigid point Ensure frames clamps fixed properly.</p>	1	4	4	A
8	Landing sill & Frame fixing		Electric shock by power tools	Burns,Electrocution	3	4	12	<p>Ensure Electrical appliances are used with industrial sockets Ensure that appliances are double insulated Do not handle electricity in wet environments / wet hands / oily hands Ensure power tools pre use inspection done before using it. only trained employees permitted to use electrical tools Do not tamper any guards use task specific PPE i.e Hand gloves, Eye protection</p>	2	4	8	A

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9	Fixing of Chain pulley on load hook	NR	Failure of load hook	Serious accident at site	2	3	6	Ensure design approved load hook installed on slab for lifting point. Ensure lifting hook should be free from any damage.	1	3	3	A	
			Defective chain pulley block/chain pulley failure	Serious accident at site	3	3	9	Ensure standardize third party certified chain pulley using for task. Ensure all chain pulley physically inspected prior to anchor. Ensure SWL clearly mention on chain pulley block.	1	3	3	A	
10	Lifting of heavy materials like machine drive unit, counter weight frame, car sling by using chain pulley block	NR	Fall of material due to failure of chain pulley.	Serious accident at site	yes	3	3	9	Ensure standardize inspected chain pulley block using for task. Ensure SWL with current color code (if Any by CLIENT) clearly mention on chin pulley. Ensure design approved lifting point provided for chain pulley hanging. Ensure the lifting load should not exceed the SWL of chin pulley. Ensure competent person physically inspected chain pulley block Ensure underneath the lifting area should be hard barricaded to prevent unauthorized personal entry Ensure all lifting tools& Tackles should be inspected and have a third party certificate at site Ensure material properly secured before lifting. Ensure no one stand underneath or near by lifting load area. Ensure competent supervisor engaged for the task.	1	3	3	A

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11	CAR sling, "C" channel fixing and counter weight Assembly	R	Improper fixing method of C beam and car sling assemble	Serious accident at site	NO	3	3	9	<p>Ensure "C" channel should be fixed as per the GAD drawing. Ensure CAR sling propel assembled with C channel by trained persons. Make sure during this process below and above persons not allowed to entry to the shaft.</p> <p>Make sure full deck working platform with overhead protection provided to assemble the parts in pit.</p> <p>Provide safe ladder access to the working platform. Vertical Counter weight frame to be placed inside of Counter weight base frame and one person hold the frame untill to fix the nut bolts. Competent supervisor must present at the workplace to monitor the task.</p>	1	3	3	A	
			Fall of C channel due to improper fixing	Serious accident at site	NO	3	3	9	<p>Ensure design approved anchor fastener using for fixing C channel at top floor.</p>	1	3	3	A	
			Improper assemble of counter sling. Fall of person	Serious accident at site	NO	3	3	9	<p>Ensure the C channel properly secured by anchor fastener. Ensure all workers are aware about pinch point while manual lifting components of car sling. Make sure total competent technicians and one supervisor to be deployed for this task.</p>	1	3	3	A	
12	Buffer Installation	R	slip, trip sharp edges of the civil works	Cuts, abrasions	NO	2	1	2	<p>Ensure job specific PPEs shall be used. place should be clean and tidy</p>	Work	1	1	1	A

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13	Fixing of Traveling Cable	R	Fall of person and cable from height	Serious accident at site	NO	2	2	4	<p>Ensure proper working platform with suitable access</p> <p>Ensure suitable fall arrester system with suitable anchoring point.</p> <p>Ensure no one stand underneath the cable fixing area.</p> <p>Ensure trained person with competent supervisor engaged for the task.</p> <p>Ensure all workers are using job specific PPEs(Hand glove, Harness..etc.)</p>	1	2	2	A
14	Car Frame Assembly	R	Material falling & contact with rough edges	Serious accident at site	NO	3	3	9	<p>Make sure full deck working platform be provided in below frame assembly location inside of lift shaft. Access to to working platform to be provided.</p> <p>All workers to use safety harness, safety goggle and hand gloves</p> <p>Ensure proper method to be adopted for manual handling</p> <p>Ensure that the personnel are not positioned in corners.</p>	1	3	3	A
		R	Fall of car/frames on to the working crews	Serious accident at site	NO	3	3	9	<p>Ensure the car platform hooked with chain pulley and tied with additional rope.</p> <p>supervisor must be in work place</p> <p>Make sure engaged persons follow safe manual handling practices and good communication.</p> <p>Provide safe working platform and access on car top.</p>	1	3	3	A
15	Roping	R	Fall of person and materials from height	Serious accident at site	NO	3	3	9	<p>Make sure full deck working platform be provided in below frame assembly location inside of lift shaft.</p> <p>Sufficient counter weight to be placed to bear the load/weight of car platform, scaffold platform, canopy & working crews, etc.</p> <p>All workers to use safety harness, safety goggle and hand gloves</p> <p>Make sure proper communication to be maintained</p> <p>Make sure roping should be done as per manufacture instruction</p> <p>Don't stack any material near to edges of working platform</p> <p>Use proper PPEs cotton hand gloves, safety goggles and safety harness.</p>	1	3	3	A

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16	Landing Door Fixing	R	Fall of person and fall of materials through opening	Serious accident at site	NO	3	3	9	<p>Inside of lift shaft should be fully decked with steel jallies, make sure no gap between floor and shaft. All persons to use safety harness to be anchored at the scaffolding at two separate ledgers.</p> <p>Make sure door frame to be hold by two workers until to support properly. Door frame install and connected with block work for casting as per design.</p>	1	3	3	A
			Improper fixing of entrance door & Fall of door	Serious accident at site	NO	3	3	9	<p>Permit system to be followed on the site if any of customer Only mly one activity allowed for each lift shaft. Ensure properly close the shaft opening before leaving the place. Ensure the cleats are securely installed on wall and tied with anchor fastener, washer and nut. Make sure angles are securely fixed with brackets Make sure three trained persons to be engaged to fix the door. One will be in the scaffolding on the full deck platform and the other persons will be on the lobby area while fixing of entrance door. Make sure door to be fixed from bottom to top in sequence wise. No one allowed below or above working area while fixing of door</p>	1	3	3	A
17	CAR Top Wiring and Door Operation	R	Fall of Men Material from height	Cuts, abrasions	NO	2	3	6	<p>Ensure proper access and working platform provided on the tap of CAR. Ensure proper handrail fixed on the CAR TOP all the tools must be secured with guide rope. Ensure underneath area barricaded with warning signage. Ensure trained person with competent supervisor engaged for the task.</p>	1	3	3	A

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18	Weight filling in Counter-sling	R	The weights slip, sharp edges of the weights	Cuts, abrasions and fractures	NO	3	3	9	Supervision must present at all times to ensure employees/workers are adhering to manual handling safe working instructions Ensure that clear access & egress is available at the weights filling area. Must wear suitable PPE i.e Hand gloves.	1	3	3	A
			Improper manual handling	Ligament and crushed injury, Slipped disk torn Muscle	NO	3	2	6	Employees are provided with the correct lifting / handling techniques. Frequent breaks should be given to employees during the off loading works Minimize the repetitive works.	1	2	2	A
19	Testing and commissioning	NR	Electric shock	Fire, burn, electrocution	NO	3	3	9	Make sure all electrical connection to be checked by megger meter prior to give power supply on it. Make sure all standard Jonson box/contractor and DB with proper locking system to be fixed as per manufacture instruction prior to give power supply on it. Make sure all lift gates to be proper installed Make sure electrical resistance hand gloves to be provided to concerned engineer/electrician. Make sure live testing power supply area to be completely hard barricaded with warning signage.	1	3	3	A

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Probability	Score	Severity	Score	Risk	Risk Response Criteria
Very Likely	4	Negligible (no injury, First aid)	1	Less than (<8)	Accept the risk with no further control required. Normal precautions to be adhered.
Likely	3	Minor(Non Reportable)	2	Greater than or equal (>=8)	Risk is not acceptable. Mitigate the risks by imposing additional management controls and actions at the functional level to reduce the risk before resumption of activities
Unlikely	2	Severe (Reportable)	3	Legal	Risk associated with legal concern is considered Un acceptable and the activities continues after assuring total compliance to the requirements
Very unlikely	1	Extreme(Fatalities)	4		

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