

## Project Name

### ACTIVITY– INSTALLATION OF PLUMBING FIXTURES, SANITARY WARES & ACCESSORIES

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Serial No.	Sub-Activities	Hazards Identified (Generic & Task)	Risks Involved (People & Property)	Risk Rating			Control Measures	Residual Risk
				Severity	Probability	Initial Risk		
1.	Prepare work area	<ul style="list-style-type: none"> <li>Unauthorized, untrained workers</li> </ul>	<ul style="list-style-type: none"> <li>Cuts</li> <li>Abrasions</li> </ul>	2	A	L	<ul style="list-style-type: none"> <li>TBT/DSTI shall be conducted by the foreman/ safety officer prior to work commencement</li> <li>Task specific safety training to be provided</li> <li>Authorized personnel to undertake the job</li> <li>Daily safety inspection should be carried and eliminate the hazard.</li> </ul>	Low (ALARP)
2.	Manual Handling	<ul style="list-style-type: none"> <li>Incorrect lifting of loads</li> <li>Sharp edges.</li> <li>Placing the object while fingers underneath.</li> <li>Slip/trip/fall ( same level )</li> <li>Unsafe posture</li> </ul>	<ul style="list-style-type: none"> <li>Back Injuries</li> <li>Cut to finger</li> <li>Strain</li> <li>Musculoskeletal Injuries</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>Use mechanical aids such as trolley etc.</li> <li>Any lifting tasks shall be carried out by persons those physically capable to do so.</li> <li>Deploy enough number of personnel for lifting depending upon the type of load to be lifted.</li> <li>Load not to be lifted above your shoulder height</li> <li>Keep your fingers away from pinch point while placing the load.</li> <li>Materials shall not be carried through Pedestrian access.</li> <li>Area shall be illuminated with adequate lighting.</li> <li>Appropriate personal protective equipments shall be used while manual handling of materials and loads.</li> </ul>	Low (ALARP)
3.	Stacking and Storing	<ul style="list-style-type: none"> <li>Unauthorized, untrained workers</li> <li>Material fall from height</li> <li>Improper stacking</li> <li>Collapse of materials</li> </ul>	<ul style="list-style-type: none"> <li>Crush</li> <li>Cut and abrasion</li> <li>Damage to property</li> </ul>	3	B	M	<ul style="list-style-type: none"> <li>If the material is too heavy, use hydraulic trolley to shift the material.</li> <li>All materials shall be stored below 2 meters height.</li> <li>No materials shall be stored at work place, only required quantity to be taken for the job.</li> <li>Personnel protective equipment must be worn at all time during the activity. (Helmet, shoe, vest, coverall, gloves, goggles, mask.)</li> </ul>	Low (ALARP)

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				Severity	Probability	Initial Risk		
4.	Unloading and shifting the materials with using crane/ forklift	<ul style="list-style-type: none"> <li>• Unauthorized, Untrained Workers</li> <li>• Lifting failure.</li> <li>• Unsafe lifting.</li> <li>• Swinging of material</li> <li>• Damaged sling/wire rope or a chain</li> <li>• Poor maintenance of vehicle</li> <li>• Speedy operation</li> <li>• Over turn</li> <li>• Over load</li> <li>• Poor communication</li> <li>• Poor lighting</li> </ul>	<ul style="list-style-type: none"> <li>• Fatality</li> <li>• Fractures</li> <li>• Property damage</li> <li>• Injury to personal</li> <li>• Sprain and strain</li> <li>• Crush</li> <li>• Cuts</li> </ul>	4	C	H	<ul style="list-style-type: none"> <li>• Pre check to be carried out by the operator prior to start the work to ensure that no hydraulic leaks, or other visible damages seen.</li> <li>• Ensure the crane, forklift and lifting gears shall have valid certificates and the operators has valid license and approved 3<sup>rd</sup> party certificate.</li> <li>• Trained and third party certified riggers shall be provided.</li> <li>• Colour coded system shall be implemented to all lifting gears as per the month.</li> <li>• Use taglines to control the loads.</li> <li>• The crane must be stopped when the wind speed exceeds 38km/hr.</li> <li>• Never exceed the SWL marked on the crane.</li> <li>• All loads shall be secured prior to lifting.</li> <li>• Vehicle not to be left unattended at site (ie, to be switch off mode if required and keys removed)</li> <li>• Vehicle routes kept free of obstructions (with spillages being cleaned up promptly)</li> <li>• The crane and trucks inspection shall be conducted periodically and record maintained.</li> <li>• Adequate lighting shall be provided for the work location.</li> <li>• Barricade and warning signs shall be provided for the area where lifting operation is carried out restrict to unauthorized entry.</li> <li>• Appropriate PPE shall be worn (Reflective vest, cover all, helmet, shoe.)</li> </ul>	M (ALARP)
5.	Installation of fixtures, sanitary wares and accessories	<ul style="list-style-type: none"> <li>• Untrained, unauthorized Workers</li> <li>• Material Fall</li> <li>• Sharp edges</li> </ul>	<ul style="list-style-type: none"> <li>• Cut and abrasion</li> <li>• Back Injuries</li> <li>• Fatigue</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>• Authorized personnel to undertake the job</li> <li>• Work location shall be inspected by concerned supervisor / foreman.</li> </ul>	Low (ALARP)

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		<ul style="list-style-type: none"> <li>• Unsafe posture</li> <li>• Slip, trip and fall</li> </ul>	<ul style="list-style-type: none"> <li>• Musculoskeletal Injuries</li> </ul>				<ul style="list-style-type: none"> <li>• Installation procedures shall be done as per manufacturer recommendation.</li> <li>• Deploy enough number of personnel for material lifting shall be appointed to the task depending upon the distance</li> <li>• Materials should not kept in walkways, edge of the opening.</li> <li>• Maintain a good housekeeping policy to prevent from slip, trip, and fall hazards.</li> <li>• Proper communication shall be maintained between the workers while doing the installation</li> <li>• Close supervision shall be done at all times</li> <li>• Emergency procedure shall be briefed to all personnel prior to start the activity.</li> <li>• Emergency evacuation plan shall be readily available according to site condition and briefed to the workforce prior to start.</li> <li>• Trained first aider, fire warden and emergency vehicle to be available at the site during the activity.</li> <li>• Emergency contact numbers shall be displayed at work location for easy communication</li> <li>• PPE shall be worn at all times( Gloves, goggles, mask, helmet, shoe, vest, overall)</li> </ul>	
6.	Working with Hand tools ( Hack saw, pipe wrench)	<ul style="list-style-type: none"> <li>• Slip, trip and fall</li> <li>• Damaged warn out hand tools</li> <li>• Flying objects</li> <li>• Mushroom Heads</li> <li>• Using incorrect type</li> </ul>	<ul style="list-style-type: none"> <li>• Fatigue</li> <li>• Trigger finger</li> <li>• Cuts and abrasions</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>• Defective tools should not be issued or used to perform the task, to be checked by store keeper</li> <li>• Use right tools for the job.</li> <li>• Don't extend the spanner by using a pipe as an extension bar.</li> <li>• Chisel's head shall have safety cap to avoid finger injury.</li> <li>• Never use a file as a lever.</li> </ul>	Low (ALARP)

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							<ul style="list-style-type: none"> <li>• Never use a screw driver as a chisel</li> <li>• Hand tools shall be free from oil, grease &amp; etc.</li> <li>• Use eye/ face protection when there is flying materials hazard, wear gloves while required to protect the hands</li> </ul>	
7.	Use of power tools ( Drill machine )	<ul style="list-style-type: none"> <li>• Defective equipment</li> <li>• Electricity</li> <li>• Improper use of equipment</li> <li>• Poor maintenance</li> <li>• Untrained workers</li> <li>• Flying object</li> <li>• Noise and vibration</li> <li>• Fire</li> <li>• Dust</li> </ul>	<ul style="list-style-type: none"> <li>• Hearing losses</li> <li>• Eye injury</li> <li>• Crushing</li> <li>• Back injury</li> <li>• Burns</li> <li>• Electrocutation</li> <li>• Ringing in the ear / Deafness</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>• PTW shall be applied and obtained prior to start, If spark producing activity is performed.</li> <li>• Operators must be having their training card.</li> <li>• Defective tools should not be issued or used to perform a task.</li> <li>• Monthly inspection should be carried out by the electrician and record to be kept at the store.</li> <li>• All portable power tools should be fitted with adequate fuse protection either in the tool body or in its electrical plug.</li> <li>• Don't lay the cables around the access way, it should be routed properly.</li> <li>• Industrial distribution board and socket only shall be used at site.</li> <li>• No joints shall be made in electrical cable.</li> <li>• Cable hangers shall be used to avoid the direct contact of power tools cable with the scaffolding members.</li> <li>• Electrical connection shall be routed through ELCB only ( Eg. 30ma )</li> <li>• Tools should be stored and maintained in good working condition.</li> <li>• Appropriate PPE Should be use ( Goggles, Mask, Ear plug, Gloves, Shoe, Helmet, Overall, Vest )</li> </ul>	M (ALARP)

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8.	Welding work (arc)	<ul style="list-style-type: none"> <li>• Fire</li> <li>• Untrained, Unauthorized Worker</li> <li>• Poor signage and barricade</li> <li>• Lighting and ventilation</li> </ul>	<ul style="list-style-type: none"> <li>• Electric Shock</li> <li>• Burns</li> <li>• Skin Effect</li> <li>• Eye Injury</li> <li>• Property damage</li> </ul>	4	C	H	<ul style="list-style-type: none"> <li>• PTW shall be applied and obtained prior to start.</li> <li>• Certified person only to undertake the welding Job.</li> <li>• All Flammable /combustible materials should be removed from the area where welding carried out.</li> <li>• Fire blankets should be used to contain sparks and molten metal's within the floor and should not be allowed to fall from height.</li> <li>• Appropriate fire extinguisher should be placed the the work place ( Dry powder, CO2, Fire blanket )</li> <li>• Adequate lighting and ventilation shall be provided.</li> <li>• Close supervision shall be available at all times.</li> <li>• Warning signs and boards should be provided and area to be well barricaded</li> <li>• Appropriate PPE Should be use ( Welding helmet, Dust mask, Goggles, Gloves, Shoe, helmet, Overall, Vest )</li> </ul>	Low (ALARP)
9.	Handling chemicals (Solvent cement)	<ul style="list-style-type: none"> <li>• Unauthorized, untrained workers</li> <li>• Spillage</li> <li>• Poor ventilation</li> <li>• Fire</li> </ul>	<ul style="list-style-type: none"> <li>• Skin injury</li> <li>• Ingestion</li> <li>• Eye injury</li> <li>• Environment affect</li> <li>• Property damage</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>• Ensure the chemicals are stored as per the manufacturer recommendation and identification.</li> <li>• Trained and authorized person to do the job.</li> <li>• MSDS to be referred prior and to follow the manufacturer instruction.</li> <li>• Container should check for leakage before handling.</li> <li>• Only required quantity to take for the work</li> <li>• Do not store chemicals at non designated areas.</li> </ul>	Low (ALARP)

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							<ul style="list-style-type: none"> <li>All spillage shall be clean by sand or other absorbent materials</li> <li>Old/ empty container return to store for proper dispose.</li> <li>Adequate lighting and ventilation to be provided.</li> <li>Personnel hygiene to be maintained while after use of chemicals</li> <li>Rubber gloves, overall, helmet, vest, shoe, goggles, mask to be worn while during the activity.</li> </ul>	
10.	Use of ladder/ scaffold	<ul style="list-style-type: none"> <li>Person/ material falling from height</li> <li>Over reaching</li> <li>Over loading</li> <li>Obstructing the access way</li> <li>Slippery or uneven surface</li> <li>Overhead structure and cable</li> <li>Untrained, unauthorized Workers</li> <li>Collapse of scaffold</li> </ul>	<ul style="list-style-type: none"> <li>Sprain and strain</li> <li>Fracture</li> <li>Spinal cord damage</li> <li>Musculoskeletal Injury</li> <li>Fatality</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>Visual inspection should be carried out before use (i.e., hand rails, toe board, on the platform and any opening are there).</li> <li>Only trained scaffolders shall be involved in erection &amp; dismantling activities.</li> <li>The ladder should extend minimum one meter from the top for safe movement</li> <li>Do not erect in slippery, uneven surface</li> <li>Should be set up with a 4 vertical to 1 horizontal slope ( 4:1 )</li> <li>Step ladder must fully open and lock the devices as per manufacturer recommendations.</li> <li>Do not work from the top of two rungs of step ladders.</li> <li>Remember the 3 point contact.</li> <li>Ladder shall be used for short duration works Only limited to 15 min.</li> <li>Colour code system shall be implemented.</li> <li>Do not stack materials on to the scaffold.</li> <li>Keep walkways free of obstacles, tools and equipment.</li> <li>Work at height is restricted during adverse weather condition.</li> </ul>	Low (ALARP)

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							<ul style="list-style-type: none"> <li>Adequate lighting shall be provided while working at night.</li> <li>Safety harness shall be used above 2mtr height and anchored in above shoulder height at all time.</li> </ul>	
11.	While working at night shift	<ul style="list-style-type: none"> <li>Poor illumination</li> <li>Slip/trip/fall</li> </ul>	<ul style="list-style-type: none"> <li>Fatality</li> <li>Cuts</li> </ul>	3	B	M	<ul style="list-style-type: none"> <li>Work notification to be applied and obtained prior to start the night work from contractor.</li> <li>Proper illumination to be provided</li> <li>light post to be secured from fall</li> <li>Proper cable management system to be Followed</li> <li>All materials to be staged in proper manner without obstacles.</li> </ul>	Low (ALARP)
12.	Working in hot weather	<ul style="list-style-type: none"> <li>Heat Stress</li> </ul>	<ul style="list-style-type: none"> <li>Dehydration</li> <li>Sunburn</li> <li>Skin Cancer</li> </ul>	2	B	M	<ul style="list-style-type: none"> <li>Drink plenty of water</li> <li>Employees shall be trained about heat stress symptoms &amp; first aid measures.</li> <li>Avoid highly physical tasks during the hottest part of the day</li> <li>Isotonic drinks to be provided</li> <li>Provide sufficient rest breaks based on the humidity &amp; temperature conditions</li> <li>Heat stress management plan shall developed and implement during the activity.</li> </ul>	Low (ALARP)
13.	Work Completion	<ul style="list-style-type: none"> <li>Poor housekeeping</li> <li>Slip/trip/fall</li> </ul>	<ul style="list-style-type: none"> <li>Fire</li> </ul>	2	A	L	<ul style="list-style-type: none"> <li>General housekeeping, Remove all surface, unwanted waste materials from the building</li> <li>All necessary precautions will be adopted to prevent fire</li> </ul>	Low (ALARP)

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**RISK MATRIX**

					Probability				
					A	B	C	D	E
Severity	People	Assets	Environment	Reputation	Improbable 1 in 100,000 Years	Remote 1 in 10,000 Years	Occasional 1 in 1000 years	Probable 1 in 100 years	Frequent 1 in 10 years
5-Catstrophic	Multiple fatalities or permanent total disabilities	Extensive damage	Massive effect	International impact	<b>Medium Risk (ALARP)</b>	<b>High Risk</b>			
4-Severe	Single fatalities or permanent total disabilities	Major damage	Major effect	National impact					
3-critical	Major injury or health effects	Local damage	Localised effect	Considerable impact					
2-Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact					
1-Negligible	Slight injury or health effects	Slight Damage	Slight effect	Slight impact					
					<b>Low Risk</b>				

<b>HIGH</b>	<b>3-E</b> <b>4-C,D,E</b> <b>5-B,C,D,E</b>
<b>MEDIUM</b>	<b>1-D,E</b> <b>2-B,C,D,E</b> <b>3-A,B,C,D</b> <b>4-A,B</b> <b>5-A</b>
<b>LOW</b>	<b>1-A,B,C</b> <b>2A</b>