

**PROJECT NAME**

**ACTIVITY– INSTALLATION & TESTING FOR FIRE FIGHTING PIPING SYSTEM AND 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 to 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> <li>PTW to be applied and obtained prior to start work</li> </ul>	Low (ALARP)
2	Storage Material	<ul style="list-style-type: none"> <li>Over Loading</li> <li>Improper storing</li> <li>Poor Posture</li> </ul>	<ul style="list-style-type: none"> <li>Crush</li> <li>Slip, trip, fall</li> <li>Property Damage</li> </ul>	2	B	M	<ul style="list-style-type: none"> <li>TBT/DSTI to be conducted by the foreman prior to work commencement</li> <li>Storage of materials in the works structures shall be minimised.</li> <li>Storage should be carried out in good time and in designated places on the site.</li> <li>Task specific safety training to be provided</li> <li>The material should be stored as per the material type and / or quality of the product.</li> <li>Materials that become unstable in bad weather should be covered.</li> <li>Proper PPE to be warned</li> <li>Good housekeeping should be maintained.</li> </ul>	Low (ALARP)
3	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> </ul>	<ul style="list-style-type: none"> <li>Crush</li> <li>Back Injuries</li> <li>Strain and Sprain</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>No employee should be asked to carry loads above his capacity and in any case no load shall exceed 30kg per man.</li> <li>Avoid manual handling where reasonably practical. e.g use mechanical equipment.</li> <li>TBT/DSTI to be conducted by the foreman prior to work commencement</li> </ul>	Low (ALARP)

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				Severity	Probability	Initial Risk		
							<ul style="list-style-type: none"> <li>• Take help if load is large/very heavy.</li> <li>• Check the line of travel. Don't allow the load to obstruct the view</li> <li>• The area should be free from fall, slip and trip hazards.</li> <li>• Training personnel in kinetics of manual lifting.</li> <li>• Use personnel protective equipment as provided. (Safety shoes, helmets, coveralls, hand gloves etc.)</li> </ul>	
4.	Working at Height	<ul style="list-style-type: none"> <li>• Possible falls</li> <li>• Falling material</li> <li>• Untrained, Unauthorized workers</li> </ul>	<ul style="list-style-type: none"> <li>• Slip, trip, fall</li> <li>• Fracture</li> <li>• Fatality</li> </ul>	4	C	H	<ul style="list-style-type: none"> <li>• Scaffolding/ladder to be used as per safe work load.</li> <li>• Working platforms should be clear of men and material when the scaffold is being moved.</li> <li>• Incomplete and non standard scaffold should not be allowed for any work.</li> <li>• The practice of moving rolling scaffolds with workers on the platform is strictly prohibited.</li> <li>• Inspection tagged (by authorized person)/ firmly fixed heavy duty ladders / scaffolding should be used.</li> <li>• Wheels will be locked when the scaffolding is in use.</li> <li>• Proper/Adequate access and egress should be provided to scaffold.</li> <li>• The route should be sufficiently clear of overhead wires.</li> <li>• At the end of each working shift the scaffold should be secured against unauthorised access</li> </ul>	Low (ALARP)

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Serial	Sub-Activities	Hazards Identified	Risks Involved	Severity	Probability	Initial Risk	Control Measures	Residual
							<ul style="list-style-type: none"> <li>• Approved ladders should be used.</li> <li>• No site made wooden ladders should be allowed.</li> <li>• Ladders must be secured before use. In case of any practical difficulties there should be an additional person to hold the ladders.</li> <li>• Ensure that when ladder is used for access to a scaffold, both bottom and top portion of the ladder is secured to prevent displacement.</li> <li>• While ascending or descending, the user shall face the ladder, use both hands and place his feet so that three-point contact is always be used when climbing ladders.</li> <li>• While getting on or off the ladder both hands must Ladders should be inspected prior to use. They must be inspected on a monthly basis by a qualified person.</li> <li>• Destroy any defective ladders immediately or remove them from the site.</li> <li>• Safety harness should be worn if the platform is above 2 metres from the ground level.</li> <li>• TBT/DSTI to be conducted by the foreman prior to work commencement</li> </ul>	
5	Working in excavated area and floor opening area	<ul style="list-style-type: none"> <li>• Material/equipment fall from height</li> <li>• Slip/trip/fall</li> <li>• Workers/ Pedestrians/ fall into excavation</li> </ul>	<ul style="list-style-type: none"> <li>• Serious injury</li> <li>• Fatality</li> <li>• Property Damage</li> </ul>	3	D	M	<ul style="list-style-type: none"> <li>• TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>• Task specific safety training to be provided</li> <li>• Barricade sensitive areas</li> <li>• Ensure falling protection.</li> <li>• Use warning signboards in those areas.</li> </ul>	Low (ALARP)

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No.	(Generic & Task)	(People & Property)	Severity	Probability	Initial Risk	Control Measures	Risk	
Serial	Sub-Activities	Hazards Identified	Risks Involved		Risk Rating		Residual	
						<ul style="list-style-type: none"> <li>• Use Head protection with</li> <li>• PTW to be applied and obtained prior to start work</li> <li>• Prevent items falling from scaffolding onto people below- use toe boards and warning signs.</li> <li>• The slab openings should be provided with secure cover.</li> </ul>		
6.	Working with hand held tools/ Power tools	<ul style="list-style-type: none"> <li>•Defective equipment</li> <li>•Improper use of equipment</li> <li>•Poor maintenance</li> <li>•Untrained workers</li> </ul>	<ul style="list-style-type: none"> <li>•Hand, Finger Injury</li> <li>•Eye Injury</li> </ul>	3	C	M	<ul style="list-style-type: none"> <li>• TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>• Task specific safety training to be provided</li> <li>• Defective tools should not be issued or used to perform a task.</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>• The weight, size and type of tool should be selected to suit the job being carried out.</li> <li>• Only those persons who have been adequately trained and experienced in the use of the tool should be allowed to use the same.</li> <li>• Tools should be maintained in good working condition and tested at regular intervals.</li> <li>• All tools &amp; machines should be neatly and correctly stored when not in use.</li> <li>• Appropriate PPE Should use</li> </ul>	M (ALARP)

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Serial	Sub-Activities	Hazards Identified	Risks Involved		Risk Rating		Residual	
7.	Gas Cutting	<ul style="list-style-type: none"> <li>• Fire</li> <li>• Untrained, Unauthorized Worker</li> <li>• Gas Leakage</li> </ul>	<ul style="list-style-type: none"> <li>• Electric Shock</li> <li>• Burns</li> <li>• Skin Effect</li> <li>• Eye Injury</li> </ul>	4	C	H	<ul style="list-style-type: none"> <li>• Hot work permit must be obtained before carrying out any hot works.</li> <li>• All Flammable /combustible materials should be removed from the area where welding &amp; gas cutting operations are carried out.</li> <li>• Signage boards should be provided.</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. Areas below cutting shall be barricaded.</li> <li>• The cylinders should be kept in a trolley always. It should not be laid on floor; it should be in upright position.</li> <li>• TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>• Task specific safety training to be provided</li> <li>• Suitable fire extinguishers should be ready for instant use in any location where hot work is being performed.</li> <li>• Anti flashback arrestor must be provided in all gas cutting set.</li> <li>• Hoses should be of approved type and should be free</li> </ul>	Low (ALARP)
8	Noise atmosphere	<ul style="list-style-type: none"> <li>• Improper maintenance of Tools</li> <li>• PPE awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Deafness</li> </ul>	2	B	M	<ul style="list-style-type: none"> <li>• Noise measurements should be carried out where noise is produced and at other work places where operatives may be subject to higher level than their work generates.</li> <li>• Use of alternative, less noisy tools and equipments or methods.</li> <li>• Appropriate ear protectors must be worn.</li> </ul>	Low (ALARP)

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Serial	Sub-Activities	Hazards Identified	Risks Involved		Risk Rating		Control Measures	Residual
9	Operating with Thread Machine	<ul style="list-style-type: none"> <li>•Defective Machine</li> <li>•Improper use of Machine</li> <li>•Poor maintenance</li> <li>•Untrained, Unauthorized workers</li> </ul>	<ul style="list-style-type: none"> <li>• Cuts</li> <li>• Crush</li> <li>• Skin Effect</li> <li>• Entanglement</li> <li>• Eye, finger injury</li> </ul>	4	C	H	<ul style="list-style-type: none"> <li>• PTW to be applied and obtained prior to start work</li> <li>• TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>• Task specific safety training to be provided</li> <li>• Defective machine should not be issued or used to perform a task.</li> <li>• Only those persons who have been adequately trained and experienced in the use of the machine should be allowed to use the same.</li> <li>• Machine should be maintained in good working condition and tested at regular intervals.</li> <li>• Appropriate PPE Should use</li> <li>• Good housekeeping should be maintained.</li> </ul>	M (ALARP)
10.	While working at night shift	<ul style="list-style-type: none"> <li>• Poor illumination</li> <li>• Fall from height</li> </ul>	<ul style="list-style-type: none"> <li>• Fatality</li> <li>• Slip/trip/fall</li> </ul>	3	B	M	<ul style="list-style-type: none"> <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)

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No.		(Generic & Task)	(People & Property)	Severity	Probability	Initial Risk		Risk
11	Working in hot weather	• Heat	<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>• Proper awareness to be on the symptoms of heat stress</li> <li>• Avoid highly physical tasks during the hottest part of the day</li> <li>• Isotonic drinks to be provided</li> </ul>	Low (ALARP)
12	Work Completion	• Poor housekeeping	<ul style="list-style-type: none"> <li>• Fire</li> <li>• Slip/trip/fall</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)

**RISK MATRIX**

Probability

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					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	<div style="background-color: yellow; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <div style="background-color: red; width: 50%; height: 100%;"></div> <div style="background-color: yellow; width: 50%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p><b>High Risk</b></p> </div> </div>	<div style="background-color: yellow; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <div style="background-color: red; width: 50%; height: 100%;"></div> <div style="background-color: yellow; width: 50%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p><b>Medium Risk (ALARP)</b></p> </div> </div>	<div style="background-color: yellow; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <div style="background-color: red; width: 50%; height: 100%;"></div> <div style="background-color: yellow; width: 50%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p><b>High Risk</b></p> </div> </div>	<div style="background-color: yellow; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <div style="background-color: red; width: 50%; height: 100%;"></div> <div style="background-color: yellow; width: 50%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p><b>High Risk</b></p> </div> </div>	
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>				

MEP Contractor :  
Designation :  
Date :  
Sign :

Main Contractor :  
Designation :  
Date :  
Sign :

Reviewed By:  
MEP Contractor:  
Designation :  
Date :  
Sign :

Main Contractor :  
Designation :  
Date :  
Sign :

<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>