

PROJECT NAME

ACTIVITY– INSTALLATION OF DOMESTIC COLD / HOT WATER SUPPLY PIPING 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"> Unauthorized, untrained workers 	<ul style="list-style-type: none"> Cuts Abrasions 	2	A	L	<ul style="list-style-type: none"> TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement Task specific safety training to be provided Authorized personnel to undertake the job Daily safety inspection should be carried and eliminate the hazard 	Low (ALARP)
2.	Manual Handling	<ul style="list-style-type: none"> Incorrect lifting of loads Sharp edges. Placing the object while fingers underneath. Unsafe posture 	<ul style="list-style-type: none"> Back Injuries Cut to finger Strain 	3	C	M	<ul style="list-style-type: none"> TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement Task specific safety training to be provided Any lifting tasks shall be carried out by persons physically capable to do so No employee should be asked to carry loads above his capacity and in any case no load shall exceed 30kg per man. Mass of the load is more then to be equally shared Deploy enough number of personnel for lifting shall be appointed to the task depending upon the type of load to be lifted. Use easy mode of transport like trolley and crane truck etc. Proper personal protective equipments to be used while manual handling of materials and loads. Load not to be lifted above your shoulder Height Area to be illuminated with adequate lighting 	Low (ALARP)

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3.	Working with Hand tools	<ul style="list-style-type: none"> Slip, trip and fall Damaged worn out hand tools Using incorrect type Mushroom Heads Flying objects 	<ul style="list-style-type: none"> Fatigue Trigger finger Cuts and abrasions 	3	C	M	<ul style="list-style-type: none"> TBT/DSTI to be conducted by the foreman/safety officer prior to work commencement Task specific safety training to be provided Use right tools for the job Use eye / face protection when there is flying material hazard; wear gloves while required to protect the hand Defective tools should not be issued or used to perform the task,to be checked by store keeper Don't extend the spanner by using a pipe as an extension bar Never use a file as a lever Never use a screw driver as a chisel Don't work with oily or greased hands 	Low (ALARP)
4.	Working with power tools	<ul style="list-style-type: none"> Defective equipment Electricity Improper use of equipment Poor maintenance Untrained workers Flying object Noise and vibration Fire 	<ul style="list-style-type: none"> Hearing losses Eye injury Crushing Back injury Burns Electrical Shock 	3	C	M	<ul style="list-style-type: none"> TBT/DSTI to be conducted by the foreman/safety officer prior to work commencement Job related training to be provided PTW to be applied and obtained prior to start, If spark producing activity is performed Defective tools should not be issued or used to perform a task. Monthly inspection should be carried out by the electrician and record to be kept at the store All portable power tools should be fitted with adequate fuse protection either in the tool body or in its electrical plug. The weight, size and type of tool should be selected to suit the job being carried out. Don't lay the cables around the access way, it should be proper routing Industrial distribution board and socket only to be used at site 	M (ALARP)

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Serial	Sub-Activities	Hazards Identified	Risks Involved		Risk Rating		Residual	
						<ul style="list-style-type: none"> • Correct rating of ELCB should be used (Ex:- 30ma only acceptable) • No joints shall be made in electrical cable • Only those persons who have been adequately trained and experienced in the use of the tool should be allowed to use the same. • Tools should be stored and maintained in good working condition. • Appropriate PPE Should use (Goggles, Gloves, Shoe, Helmet, Overall, Vest) 		
5.	Pipe Joining Work With use electro fusion	<ul style="list-style-type: none"> • Fire • Untrained, Unauthorized Worker • Electricity • Hot surface • Lighting and ventilation • Improper identification 	<ul style="list-style-type: none"> • Burns • Property damage • Electrical shock 	3	C	M	<ul style="list-style-type: none"> • TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement • Task specific safety training to be provided • Warning boards should be provided and Barricaded • Proper lighting and ventilation to be provided • Appropriate fire extinguisher should be placed in to the work area (Dry powder, CO2, Fire blanket) • All Flammable /combustible materials should be removed from the area • Trained persons to do the job • Appropriate PPE Should use (Goggles, Gloves, Shoe, Helmet, Overall, Vest) 	Low (ALARP)
6.	Stacking and Storing	<ul style="list-style-type: none"> • Material fall from height • Improper stacking • Collapse 	<ul style="list-style-type: none"> • Crush • Injury to Personnel • Damage to property 	3	B	M	<ul style="list-style-type: none"> • Task specific safety training to be provided • All materials shall be stored below 2 meter height. • Only known person should be there to identify the materials easily. • If the material is too heavy, use hydraulic trolley to shift the material. 	Low (ALARP)

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Serial	Sub-Activities	Hazards Identified	Risks Involved		Risk Rating	Control Measures	Residual	
7.	Working in near floor openings	<ul style="list-style-type: none"> • Material/equipment fall from height • Slip/trip/fall 	<ul style="list-style-type: none"> •Fatality •Property Damage • Fracture 	3	D	M	<ul style="list-style-type: none"> • TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement • Task specific safety training to be provided • PTW to be applied and obtained prior to start work • Rigid barrication to be provided to all external Edges and where a fall can occur •Warning signboards to be provided in those areas. • PPE to be used at all times (Helmet, Shoes, Vest, Overall, Harness) 	Low (ALARP)
8.	Working with ladder	<ul style="list-style-type: none"> • Fall from height • Over reaching • Over loading • Obstructing the access way • Slippery or uneven surface 	<ul style="list-style-type: none"> • Sprain and strain • Fracture • Spinal cord damage 	3	C	M	<ul style="list-style-type: none"> • TBT/ DSTI and Visual inspection to be done before using the ladder • Jobs specify training to be provide • The ladder should extend minimum one meter from the top for safe movement • Heavy materials should not be carried • Do not erect in slippery, uneven surface • Should be set up with a 4 vertical to 1 horizontal slope (4:1) • Inspection carried out by competent person on a regular basis • Step ladder must fully open and lock and the devices to be as per manufacturer • Defective ladder should not be used and report it immediately • Do not work from the top of two rungs • Remember the 3 point contact • Do not work in front of the door. If work is carried then locked the door or blocked off • Ladder to be used for short duration works only limited to 15 min. • Colour coded system to be implemented 	Low (ALARP)

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Serial	Sub-Activities	Hazards Identified	Risks Involved		Risk Rating		Control Measures	Residual
9.	Working on mobile scaffold	<ul style="list-style-type: none"> • Uneven surface • Overhead structure and cable • Materials and worker fall from height • Untrained, unauthorized Workers • Collapse of scaffold 	<ul style="list-style-type: none"> • Sprain and strain • Fracture • Spinal cord damage • Musculoskeletal Injury • Fatality 	3	C	M	<ul style="list-style-type: none"> • TBT/ DSTI to be provided prior to start work • Jobs specify training to be provide • Do not stack materials at the edges • Visual inspection should carry before use • Out rigger fitted and breaks are locked on • Only certified erection person do the alteration and Modify • No person to be on the scaffold while it is being moved • Scaffold only use in on level and surface area • Use safety harness to protect from falling above 2 meter height • Mobile scaffold height should be restricted to 3.5 to 4 times the shortest base width, If height of scaffold exceeds raker supports or it should be tied to the structure properly • Tagging system to be implemented (ie.,all safe scaffolds shall be provided with green tags and unsafe scaffolds with red tag) • Keep walkways free of obstacles, tools and Equipment • Never stand and sit on the hand rails 	Low (ALARP)
10.	Working in excavated area	<ul style="list-style-type: none"> • Material/equipment fall from height • Slip/trip/fall • Workers in the vicinity 	<ul style="list-style-type: none"> • Fatality • Property Damage 	3	D	M	<ul style="list-style-type: none"> • TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement • Task specific safety training to be provided • PTW to be applied and obtained prior to start work if the excavated depth is more than 1.2 mtr • Barricade and signage to be provided • Ensure falling protection. • Use warning signboards in those areas. • PPE to be used at all times 	Low (ALARP)

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Serial	Sub-Activities	Hazards Identified	Risks Involved		Risk Rating	Control Measures	Residual	
11	Hydrostatic testing	<ul style="list-style-type: none"> • Untrained, unauthorized Workers • Pressure pump hazards • Blind flanges • Bursting • Poor lighting • Improper identification 	<ul style="list-style-type: none"> • Fatality • Property damage • Fractures • Full body injury 	4	B	M	<ul style="list-style-type: none"> • TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement • Task specify safety training to be provided • PTW to be applied and obtained prior to start work • Follow approved procedure & method Statement. • Engage experienced employees for installation of gauges & flanges. • Never exceed the testing limit • Increase the pressure gradually with holding period. • Never position in front of blind flanges during pressurized condition. • Calibrated pressure gauge only to be used for pressure testing • Close supervision to be done at all times • Proper lighting to be provided in around the working area • Warning boards should be provided and Barricaded 	Low (ALARP)
12.	While working at night shift	<ul style="list-style-type: none"> • Poor illumination • Slip/trip/fall 	<ul style="list-style-type: none"> • Fatality • Cuts 	3	B	M	<ul style="list-style-type: none"> • Proper illumination to be provided • light post to be secured from fall • Proper cable management system to be Followed • All materials to be staged in proper manner without obstacles 	Low (ALARP)
13.	Working in hot weather	<ul style="list-style-type: none"> • Heat 	<ul style="list-style-type: none"> • Dehydration • Sunburn • Skin Cancer 	2	B	M	<ul style="list-style-type: none"> • Drink plenty of water • Proper awareness of heat stress symptoms • Avoid highly physical tasks during the hottest part of the day • Isotonic drinks to be provided 	Low (ALARP)

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14.	Work Completion	<ul style="list-style-type: none"> • Poor housekeeping • Slip/trip/fall 	<ul style="list-style-type: none"> • Fire 	2	A	L	<ul style="list-style-type: none"> • General housekeeping, Remove all surface, unwanted waste materials from the building • All necessary precautions will be adopted to prevent fire 	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-Catatrophic	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>High Risk</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>High Risk</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>High Risk</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>High Risk</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>High Risk</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					
					<p>Medium Risk (ALARP)</p>				
					<p>Low Risk</p>				

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