

	PROJECT DETAIL	
TITLE	METHOD STATEMENT FOR INSTALLATION, TESTING & COMMISSIONING OF FIRE FIGHTING EQUIPMENT (FIRE EXTINGUISHERS, FIRE HOSE REEL & FIRE HOSE CABINETS)	Ref. No. :
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PROJECT NAME & DETAILS

METHOD STATEMENT FOR

**INSTALLATION, TESTING & COMMISSIONING OF FIRE FIGHTING EQUIPMENT (FIRE
HOSE REEL, FIRE HOSE CABINET & FIRE EXTINGUISHERS)**

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REVISION RECORD

This cover page is a record of all revisions of the document identified above by number and title. All previous cover pages are hereby superseded and are to be destroyed.

Rev. No.	Date	By	Chkd.	Approvals	Description and Page Numbers of Revisions

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1.0 PURPOSE

- This method statement is applicable for the Installation, Testing & Commissioning of Fire Fighting Equipment (Fire Hose Reel, Fire Hose Cabinets & Fire Extinguishers) for the project as mentioned in the Specifications & Approved Shop Drawings.

2.0 SCOPE

- This method Statement shall cover the Supply, Installation, Testing & Commissioning of Fire Fighting Equipment (Fire Hose Reel, Fire Hose Cabinets & Fire Extinguishers), in line with project requirements as indicated in the Approved Shop Drawings, specifications & manufacturer's instructions.

3.0 REFERENCE

- 3.1 Latest Approved shop drawings intended for Fire Fighting System
- 3.2 Specification:
- 3.3 ISO 9001:2008.
- 3.4 Project Quality Plan
- 3.5 Project HSE Plan
- 3.6 Material Approvals

4.0 DEFINITIONS

- PQP : Project Quality Plan
- PSP : Project Safety Plan
- QCP : Quality Control Procedure
- HSE : Health, Safety and Environment
- MS : Method Statement
- ITP : Inspection Test Plan
- QA/QC : Quality Assurance / Quality Control Engineer.
- WIR : Work Inspection Request
- MIR : Material Inspection Request
- UPVC Class E : Ultrapolyvinyl chloride
- UPVC : Ultrapolyvinyl chloride
- HDPE : High density polyethylene
- PEX PIPE : Cross-linked Polyethylene
- G.I. Pipe : Galvanized Iron Pipe

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5.0 RESPONSIBILITIES:

Responsibilities for ensuring that the steps in this procedure shall be carried out are specified at relevant steps in the procedure:

- Project Manager
- Construction manager
- QA/QC Engineer
- Site Engineer
- HSE officer
- SK

5.1 Project Manager

- The work progress shall be carried out as per planned program and all the equipment's required to execute the works shall be available and in good condition as per project planned.
- Specific attention is paid to all safety measures and quality control in coordination with Safety Engineer and QA/QC Engineer and in line with PSP and PQP.

5.2 Construction Manager

- Construction Manager is responsible to supervise and control the work on site.
- Coordinating with QA/QC Engineers, Site Team & Foremen for all activities on site.
- Control and sign all WIRs before issuing to Consultant approval.

5.3 Site Engineer

- The method of statement to the system shall be implemented according to the Consultant project specifications and approved shop drawings.
- Provision of all necessary information and distribution of responsibilities to his Construction team.
- The work progress shall be monitored in accordance with the planned work program and he will provide reports to his superiors.
- The constant coordination with the Safety Engineer to ensure that the works are carried out in safe working atmosphere.
- The constant coordination with the QA/QC Engineer for any works to be carried out and initiate for the Inspection for the finished works.
- He will ensure the implementation of any request that might be raised by the Consultant.
- Efficient daily progress shall be obtained for all the equipment and manpower.
- He will engage in the work and check the same against the daily report received from the Foremen.
- The passage of all the revised information to the Foremen and ensure that it's being carried out properly.

5.4 QA/QC Engineer (MEP):

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- The monitoring of executions of works at site and should be as per the approved shop drawings and project specifications.
- Ensure WIRs and MIRs are being raised for activities in timely manner and inspected by the Consultant.
- He will follow and carries out all the relevant tests as per project specifications.
- Obtain the required clearance prior to Consultant's inspections.
- Should acquire any necessary civil works clearances and coordination.
- QA/QC Engineer will assist the Consultant Engineer/ Inspector during Inspection.
- Check & ensure work is completed prior to offer Consultant for inspection.
- Coordination with site construction team.
- He will assist the Consultant Engineer/ Inspector during the inspection.

5.5 Site Foreman

- The carrying-out of work and the proper distribution of all the available resources in coordination with the Site Engineer on a daily basis.
- Daily reports of the works are achieved and coordinated for the future planning with the Site Engineer.
- Incorporate all the QA/QC and Safety requirements as requested by the concerned Engineer.
- Meeting with any type of unforeseen incident or requirement and reporting the same to the Site Engineer immediately.

5.6 Safety Officer

- The implementation of all safety measures in accordance with the HSE plan and that the whole work force is aware of its proper implementation.
- The implementation of safety measures is adequate to maintain a safe working environment on the work activity.
- Inspection of all the site activities and training personnel in accident prevention and its proper reporting to the Construction Manager and the Project Manager.
- The site is maintained in a clean and tidy manner.
- Ensure only trained persons shall operate the power tools.
- Ensure all concerned personals shall use PPE and all other items as required.
- Ensure adequate lighting is provided in the working area at night time.
- Ensure high risk elevated areas are provided are barricade, tape, safety nets and provided with ladders.
- Ensure service area/inspection area openings are provided with barricade, tape, and safety nets.
- Ensure safe access to site work at all times.

5.7 Store Keeper (SK)

- Responsible for overall Store operations in making sure to store the material delivery to the site and keep it in suitable area that will keep the material in safe from rusty and damage.
- One who will acknowledge the receiving of materials at site in coordination with QA/QC & concerned Engineer.

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6.0 EQUIPMENTS

Following tools shall be arranged before starting the job.

- a. Tool Box.
- b. Measuring Tape.
- c. Hack Saw Blade
- d. Spirit Level
- e. Electric Drill Machine
- f. Step Ladders
- g. Threading Machine
- h. Solvent Cement
- i. Electric welding machine. (if required)
- j. Torque Wrench
- k. Pipe Cutting Machine
- l. Grinding Machine
- m. Pressure Gauge
- n. Hammer
- o. Water Level Marker
- p. Mobile Scaffolds
- q. Staging Platforms

7.0 PROCEDURE

- Work Sequence/Procedure

7.1 General Requirements

- All the materials received at site shall be as per the approved technical material submittal: Fire Fighting Equipment to be inspected upon receipt & approved by the engineer prior in proceeding with the installation through MIR. Any discrepancies, damages etc., should be reported to the supplier for rectification or replacement & to be removed from site immediately.
- All construction/inspection/testing works shall be carried out in accordance with the specifications & to be done by qualified Mechanical Engineers and shall be checked and approved by MEP Subcontractor Construction Manager along with QA/QC Engineer.

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- Contractor has to clarify the procedure for material delivery to the site through Consultant Engineer at site.

7.2 Delivery & Storage

7.2.1 Material Transport/ Delivery

- During transportation ensure that the equipment & its components (if any) are delivered in a shipping package and or shall be at least in a box covered with plastic. Extra care in unloading the equipment is required to avoid scratching or denting of finished surfaces of the Fire Fighting Equipment.
- Where ever possible the loading and offloading of the Fire Fighting Equipments shall be carried out by hand.
- Equipment shall not be dropped onto hard surfaces & should not be dragged along the ground.
- All the received units shall be checked & inspected to ensure that it is complying with the approved material submittals prior to site storage.

7.3 Storage

7.3.1 Storage on Site Store

- To ensure that deterioration of the Fire Fighting Equipment does not occur during storage, it is recommended to store the equipment & its components in sheltered conditions that are protected from weather elements and accidental damage.
- Fire Fighting Equipment & its components shall be protected with plastic/ tarpaulin or shall not be removed from the shipping package unless otherwise instructed to do so.
- All packages for the equipment reaching the site shall be identified as per package list.

7.4 Sequence of Installation for the Fire Fighting Equipment:

7.4.1 Safety

- All site safety rules & regulations shall be complied with.
- Supervisors will deliver tool box talks, relevant to these activities to all operatives involved in the installation, testing & commissioning and shall be recorded.
- All operatives will be equipped with minimum personnel protective equipment; hard hat, coveralls, safety boots, safety glasses.
- The persons using cleaning fluid and solvent cement have to wear hand gloves.
- Ensure only qualified personnel shall install, test & commissioned the equipment.
- During Testing & Commissioning, display warning sign boards necessarily provided and

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barricade the area whenever necessary.

- Ensure that all operatives fully understand the method of these activities.

7.4.2 Pre- Installation Procedure

- Before commencement of installation activity, the supervisor must ensure that:
 - Delivered Fire Fighting Equipment shall have been inspected & approved via MIR by the Consultant prior to installation at site.
 - All Installations & Pressure Testing of Fire Fighting Pipe works shall be completed & approved by the Consultant.
 - Relevant documents or certificates shall be presented at the time of inspection if required by the Consultant.
 - Permission to start or Civil Clearances prior to installation has been given by the main contractor.
 - All relevant Shop drawings for the installation of the equipment shall be available & approved by the Consultant. No installation shall be done without Approved Shop Drawings.
 - Installation activities shall only commence when all associated works by the Civil such as clearing of work place, water proofing, painting of walls etc. have been verified & completed.
 - Safe access shall be provided by the Main Contractor thru Work Permit in coordination with the Safety in charge at site.
 - Inspect the relevant area for any possible clashes with other services.
 - Check for other services making sure that there is no interference between each service & adequate access to work and for future maintenance can be maintained.

7.4.3 Installation Procedure for Fire Hose Reel& Fire Hose Cabinet

- Prior to installation, ensure that all the Fire Hose Reel& Cabinetis equipped with associated appurtenances as per manufacturer standard & supply according to the approved material submittal.
- All Fire Hose Reels& Fire Hose Cabinets shall be covered & protected for moisture, corrosion, dust & any deterioration before & after the installation.
- Ensure that the installations (wall mounting/ Recessed Type) whichever is applicable shall be on the exact locations as mentioned on the Approved Shop drawings.
- Mark the final location of the Fire Hose Reels with exact bolts holes dimension on the wall/ block wall with reference to the manufacturer's product catalogue. It is much recommended to check physically & measure the actual dimensions on site.
- Any additional steel structure supports, such as steel channels or angle bar supports shall be installed.
- Make sure all bolts & nuts are properly tightened, supports are aligned & secured.
- Fire Hose Reels shall not be installed in fire-isolated exits unless approval has been obtained to local authorities.
- The Fire Hose Reel Assembly& Fire Hose Cabinets shall be mounted enable that the full diameter of the drum is facing the access point.

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- The Fire Hose Reel Assembly shall be mounted at a height of 300mm from F.F.L.
- After fixing the equipment, re-check & ensure that the Fire Hose Reel & Fire Hose Cabinets are properly fixed & all supporting materials are fastened & fixed.
- Ensure that the stop valve assembly & operating instructions shall be visible. A clearance shall be provided around the valve hand wheel.
- Wherever the Hose Reel & cabinet is mounted, there shall be a radial clearance between the reel rim & any obstructions which do not form part of the hose assembly.
- Connect the piping with the necessary PRV's & lock shield valves to the hose reel & landing valves as per the approved shop drawing or manufacturers' recommendations.
- Provide all nozzles for the hoses along with Fire Extinguishers inside the FHC.
- After completion of installation, raise an inspection request thru WIR to the Consultant for acceptance or Approval. Keep record for reference.
- Once installation has been accepted & approved by the Consultant, provide covering material to the Installed Fire Hose Reel & Cabinets to avoid entry of dirt and dust.
- Testing & Commissioning shall commence after final approval by the Consultant.

7.4.4 Installation Procedure for Fire Extinguishers

- Prior to installation of Fire Extinguishers, ensure that all parameters mentioned in Item 7.4.2 have been complied.
- Ensure that the fire extinguishers have been selected as per the type & capacity as mentioned on the Approved MAR.
- Prior to installation, check the exact location for the Fire Extinguishers as mentioned on the approved shop drawings.
- Ensure that the Fire Extinguishers have been distributed in such a way that they are available from any point of area protected.
- Mark the location of the Fire Extinguishers & mount the bracket as per approved shop drawings.
- After fixing / mounting the brackets, place the Fire Extinguishers into the brackets. Ensure that the elevation is correct as mentioned on the approved shop drawings.
- Install 1 no. each of Dry Powder extinguisher & CO₂ extinguishers in each area of location mentioned on the approved drawings.
- Re-check for any misalignment & level shall be as per the approved shop drawings.
- After all installation has been proper done & internal inspections, raise an inspection for Consultant approval for the Installation.

7.4.4. Testing & Commissioning Procedures

7.4.4.1 Visual Inspection & Testing Procedure

- After all installation has been made & cleared by the Consultant, Preliminary Testing shall take place prior to commissioning of the Fire Fighting Equipment. Following procedure shall be followed:
 - Ensure all pipe works has been tested & completed with the right connection to the fire hose reel & cabinets. All installation inspections shall be cleared by the Consultant
 - All supporting system has been completed, properly installed & fixed.

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- Ensure all instruments (if required) to be used during the testing shall be calibrated & records shall be available.
- Ensure that the all Fire Fighting Equipment are in their proper location as mentioned on the Approved Shop Drawings.
- After documentations & visual checks, Testing shall proceed further.
- Open the Cabinet that conceals the fire hose reel. Un hook the nozzle from the pipe below the reel. Check the end of the nozzle to ensure there are no tears where the hose meets the nozzle.
- Grasp the nozzle of the hose in one hand & the slack of the hose in the other hand.
- Drag the hose as far as it reach the maximum distance hose can reach. Ensure that it has the full range of motion needed in case of a fire.
- Examine the length of the hose for tears & stress marks. The hose cannot operate properly with a broken hose. If found any tears or stress marks, replace immediately prior to commissioning.
- After checking for the length, turn the reel in the opposite direction to reset the hose.
- Ask one assistant to run across a room with the hose until it fully extends. Watch the reel to ensure it rotates smoothly.
- After testing, return the hose to its proper position. Lubricate the rotating sections on the wheel with oil if the reel catches or jams.
- After testing, take approval or acceptance to the Consultant & keep all records of inspections.

7.4.4.2 Commissioning Procedure

- This is a general procedure to suit requirement of the Fire Fighting Equipment. In performing this activity, only trained & qualified personnel shall carry out the commissioning.

7.4.4.2.1 Fire Hose Reel & Fire Hose Cabinets

- Prior to commissioning, ensure that all instruments (if any) to be used during the commissioning shall be calibrated. Calibration certificates shall be available.
- Ensure that all installed Fire Hose Reel & Cabinets & its components have been installed as per the approved shop drawings, manufacturers' recommendation & piping system have been tested for leaks. Approval for all preliminary inspections shall be available during the commissioning stage.
- After satisfactorily verification of installation & testing records & visual checks for the Fire Fighting Equipment, commissioning shall commence.
- Ensure firmness & tightness of supports prior to Commissioning of the equipment.
- Ensure Fire Hose Cabinets are not broken, cloudy or cracked glazing.

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- Ensure Fire Hose Cabinets are easily accessible.
- Check over all condition of cabinet metal.
- Ensure the Fire Hose Cabinet lock is functioning properly.
- Open the fire hose cabinet. Ensure that it will open for about 180°.
- Ensure that all folds of the hose are correctly placed over the pins, inside the hose rack.
- Ensure nozzle hose clip is in place & the nozzle is correctly mounted.
- Ensure that the fire hose rack will swing out of the cabinet, if enclosed, at least 90°.
- Ensure that the hose can be withdrawn easily in any direction. The hose shall be capable of being unwound when subject to an initial horizontal pull.
- Ensure that all that all angle hose valves & discharge nozzles are closed.
- Open the nozzle to release an amount of water to an open area if possible or in a drum.
- Ensure that the flow rate with the nozzle in the jet mode is operational. The rate of flow shall be not less than 0.33 liters/ second.
- After full satisfaction, close the nozzle immediately. Ensure that leakage of water does not exceed 5ml in 3- 5 minutes from the valve gland or discharge nozzle assembly with the hose pressurized & the nozzle close.
- Before being rewound in even layers, ensure that the hose is fully charged. The nozzle is re-engaged correctly in the interlock. The valve shall be shut-off.
- Any defects found during the commissioning shall be corrected immediately.

7.4.4.2.2 Fire Extinguishers

- Verify that the safety pin/ clip for the fire extinguisher are still intact & has not been operated.
- Examine the fire extinguisher body externally for any corrosion or damage that could impair the safe function of the extinguisher.
- Check the condition of the discharge hose making sure that it meets the manufacturer's specifications.
- Examine the gas cartridge and if safe to do so, remove from the head cap.
- Unscrew the head cap assembly to not more than one third of extent necessary for full disengagement. This allows any pressure still remaining to escape through the automatic means of venting.
- Remove the safety pin/ clip and tamper indicating device.
- Check for free movement of the safety pin/ clip & replace if necessary. Check that the operating lever freely operates and is not damaged.
- Open the fire extinguisher slowly.
- Check the firing pin is in place & operates correctly.
- Fire some amount to an open area or to a drum.
- Refit the safety pin/ clip to the head cap & seal with tamper indicator. Replace

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the pin/ clip if it is designed to show that the extinguisher has been operated.

- After successful commissioning, checklist shall be approved & signed by the Consultant.

8.0 ATTACHMENTS

- 8.1 Inspection & Test Plan
- 8.2 Installation Check Sheet
- 8.3 Testing & Commissioning Check Sheet
- 8.5 Risk Assessment