CONSTRUCTION OF NAVAL TECHNICAL TRAINING, TINS AND MARINA FACILITIES		
CONSTRUCTION CONTRACTOR:	PRIME CONTRACTOR:	CLIENT:

METHOD STATEMENT

Title: INSTALLATION OF WET FIRE FIGHTING SYSTEM	MS No.:	NTT-GEN-MS-M-002-R00
	Revision:	00
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Method Statement

INSTALLATION OF WET FIRE FIGHTING PIPING SYSTEM

DOCUMENT REVIEW STATUS

☐ STATUS 1: WORK MAY PROCEED.

☐ STATUS 2: REVISE & RESUBMIT. WORK MAY PROCEED SUBJECT TO INCORPORATION OF COMMENTS INDICATED.

☐ STATUS 3: REVISE & RESUBMIT. WORK MAY NOT PROCEED.

☐ STATUS 4: REVIEW NOT REQUIRED. NO ACTION TO BE TAKEN

ENGINEER'S REVIEW AND PERMISSION TO PROCEED DOES NOT CONSTITUTE ACCEPTANCE OR APPROVAL OF SUBMITTALS INCLUDING, BUT NOT LIMITED TO, DESIGN DETAILS, CALCULATIONS, ANALYSIS, TEST METHODS, CONSTRUCTION MEANS AND METHODS, CERTIFICATES, OR MATERIALS DEVELOPED OR SELECTED BY CONTRACTOR AND DOES NOT RELIEVE CONTRACTOR FROM FULL COMPLIANCE WITH THE CONTRACT REQUIREMENTS.

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Client Representative Date

Issued by:

Rev.No.	Date	Description	Prepared	Checked			Approved
00		Issued for Approval	Mechanical Engineer	Engineering Mgr. (EM)	Chief QC (CQC)	Safety Mgr. (SM)	Project Manager

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1.0 SCOPE OF WORK

The works covered by this method statement sets out the procedures for the delivery, installation, inspection and testing of the new and existing wet fire-fighting system in Building 17,Welding Annexe, Mechanical Building, NST Facility, Academic Building, Learning Resource center and Marina Support Facility wherever applicable. The method statement includes installation and testing of firefighting piping system, Fire Hose cabinets, Fire Hydrants, Fire pumps etc.

2.0 REFERENCES/ STANDARDS/CODES

- RSAF Construction Specification, Section 29.
- CDD01, CDD02, CDD03, CDD04.
- NFPA 13- Standard for the Installation of Sprinkler Systems.
- NFPA 14- Standard for the Installation of Standpipe and Hose System.
- NFPA 24- Standard for the Installation of Private Service Mains and Their Appurtenances.

3.0 RESPONSIBILITIES & SUPERVISIONS

Project Manager	Planning the works and organizing the resources in order to meet the project technical and timely target. Lead the implementation of AGC HSE policies, procedures and plan across the project. The project Manager shall review all accident reports to ensure that all the necessary corrective action has been taken and that he has addressed any items that may require action on his part.
Construction Manager	Preparing civil plans, defining the construction procedures, scheduling the activities and ensuring the performance of works.

	Development and implementation of the associated Risk Assessments of high risk activities where required. To design and plan work and systems to be performed in a safe manner. Provide competent persons to perform their assigned duties in compliance with HSE policies and procedures. Design and maintain welfare facilities in appropriate capacity and effectiveness for the intended workforce.
Site Engineer	Executing the construction plans and ensure the activities are as per construction procedures, approved drawings and specifications. Ensure optimum utilization of resources and measurement of the same. To communicate risk assessments and mitigation requirements to supervisors and foremen in his area of control. To ensure that plant, equipment and tools are properly matched and used for their intended purposes. To attend and participate in Tool Box safety talks regularly and other HSE programs To monitor operations to ensure that they are performed in accordance with the HSE Plan and relevant procedures
QC Engineer	QC Engineer is responsible to ensure work has been done as per the approved method statement; inspections are done as per Quality Control Procedure and as per QA/QC Checklist.
Chief QC	Ensure the necessary technical/quality information and measures are implemented during the execution of the work.
HSE Manager	Ensure that the work is completed as per the project HSE requirements and the approved Project Health, Safety & Environmental Management Plan. The HSE Manager shall ensure that the HSE control measures listed in the Method statement and its respective Risk Assessment are discussed to the workers and that all hazards associated with work and its preventive measures are understood and complied. He shall Inspect the work site daily to report and correct unsafe methods, conditions and behaviors.

Stop work when conditions present imminent risks to people's life.

4.0 MANPOWER AND TOOLS REQUIREMENT

The following types of equipment and manpower will be employed for removal of wall and ceiling. The number is indicated and shall be adapted to suit the required works. The tools and equipment shall be operated only by operator.

MANPOWER

1	Site Engineer
2	QA/QC Engineer
3	Foreman
4	Lead man
5	Skilled laborers
6	helpers

TOOLS REQUIRED

1	Standard Plumber Tool Kit
2	Pipe Cutter
3	Steel Brush
4	Scaffolding
5	Portable Electric Drill
6	Grinder power Machine
7	Pipe grooving Machine
8	Pipe Threading Machine
9	Measuring tape

5.0 CLEARANCE AND PERMITS

Clearance and permit shall be obtained from BAE & Operation and Maintenance of RSAF prior to the commencement of the work.

6.0 Reference Drawings

Approved drawings.

7.0 DELIVERY, HANDLING AND STORAGE

- All permanent materials will be protected from damages during the transportation and storage on site.
- Materials will always be stored in such a way that deterioration does not occur. During storage, the pipes must be protected from direct sunlight and contamination from dirt and dust.
- Storage of the pipes shall be arranged to facilitate the removal of the individual pipes so that the damages such as scratches, dents etc. are avoided.
- Storage area must be clean and the ground must not be marshy or unstable and it must not contain any corrosive material
- Pipes of different sizes will be stacked separately or where it is not possible, pipes with larger diameters and /or thicker walls should be placed at the bottom of the stack
- Suitable mechanical lifting equipment will be used for lifting and installation of heavy pipes at high level.
- When mechanical lifting equipment is to be used, no metallic slings, hooks or chains should be used in direct contact with the pipe. Ropes or web slings are preferred, as they will not damage the pipe wall

8.0 Construction Methodology

8.1 Installation of Fire Fighting Pipes, Fittings and Valves.

- Check that pipes and equipments are delivered pre packed in standard quantities
- works Check work area is clean and safe to proceed the installation
- Check that the installation drawings and materials submittals are approved and verify the material as per the approved material submittal
- Check the coordination of piping layout with other services and reflected ceiling and resolve problems, if any.
- Sleeves of suitable sizes shall be provided at wall crossings and fire stopping with approved material shall be completed.
- Only approved fittings shall be used.
- Valves shall be installed according to the approved shop, P &ID drawings.
- Flow direction indicator shall be checked before installing Check valves

8.2 Pipe Joining Methods

- All pipes shall conform to ASTM A 53 Grade A, B SCH 40.
- Pipes below 2 ½" dia. shall be joined by mechanical threading.
- Pipes above 2 ½" dia. shall be joined either by welding or by grooving.
- In case of welding, combination of GTAW+ SMAW process shall be used.
- Welders shall be approved.
- Proper groove shall be made before welding. The joints shall have complete penetration
- Approved Grooved couplings shall be used.

8.3 Paint Application

- Firefighting pipes shall be painted in red.

- Approved paint system shall be used.
- All dirt, oils shall be removed form pipe surface before painting.
- Painted pipe shall be free of defects and contaminants.
- Any defects found shall be removed and the area to be recoated.
- Paint manufacturer instructions shall be followed during painting.
- Painting shall not be done if the relative humidity exceeds the range specified by manufacturer and the if temperature of the substrate falls below 5^{o}C.
- Painted pipe shall only be used after proper curing time.

8. 4 Hanger and Support Installation

- Pipe hangers and supports shall be installed between each branch line, or on each section of pipe or per each length mentioned in the approved drawings.
- Clevis hanger shall be installed for horizontal runs. Spacing shall be as per manufacturer load calculations.
- Wall support and threaded rods shall be installed by approved throughbolt and drop in anchor. Installation shall follow manufacturer recommendations.

8.5 Sprinkler Installation

- Confirm location sprinkler head according to the approved material and ensure that the sprinkler head positions and spacing are based on the relevant shop drawings.
- Ensure the ceiling tee is installed and levelled.
- Install the dropper pipe to the sprinkler range pipe.
- Clean the screw fitting and sprinkler tee joint;
- Ensure these fittings are free of dust. Wrap the screw joint of the sprinkler head with Teflon tape to prevent leaking
- Install the sprinkler head to screw joint of the dropper pipe. Then, tighten the sprinkler head into the screw fitting by using wrench
- The maximum distance permitted shall be based on the center line distance between the sprinklers on the branch line.
- Sprinklers shall be installed only after hydro testing and flushing of the system has been completed.

- The distance of the sprinkler head from the ceiling and walls shall be as NFPA 13.

8.6 Installation of Fire Hose cabinets, Fire Hydrants, Fire Extinguishers

- Ensure that the location & wall opening of the fire hose cabinet is as per the approved structural drawing & manufacturer's recommendation
- Make sure that the civil finishing work is done prior to the installation of the fire hose cabinet
- For wall/surface mounting, drill the holes for fixing the anchors bolts
- Mount the cabinet ensuring vertical and horizontal alignments
- For recessed FHRC, ensure that the wall around the cabinet has been painted & then proceed with the installation
- Once the cabinet is mounted, install the pressure reducing valve and hose reel as per manufacturer recommendations.
- Fire extinguishers shall be placed according to the approved drawings. Extinguishers shall be placed so that it can be easily accessible in case of fire.
- Fire hydrants shall be placed as per approved drawing and also in accordance with NFPA 24.

8.7 Installation of Fire Pump

- Fire Pumps shall be installed as per approved drawings, manufacturer recommendations and structural drawings
- Proper mobile crane shall be used for pump erection.
- Ensure the suction and delivery side are in correct position.
- Insert the foundation bolt in to the bolt holes
- Check possible movements during the fixing of suction and discharge manifolds. ; level and adjust accordingly wherever is required.
- Insert shims to align with the pipe level.
- Fill the pocket holes with grout. Tight the bolts after curing of grout.
- Tighten the bolt to the required torque as per manufacturer recommendation.

8.8 Hydro Testing Of Fire Fighting Pipe Network

- All piping installations shall be completed before hydro testing.
- Install test plug in sprinkler locations.
- Test water shall be clean and shall be of such quality as to minimize promoting corrosion caused by contaminated water with the piping material
- Firefighting pipework shall be hydrostatically tested at 200 psi (13.8 bar) or where portions of the pipework normally subjected to system working pressures in excess of 150 psi (10.3 bar) shall be tested at a pressure of 50 psi (3.4 bar) in excess of the system working pressure in accordance with NFPA 13 Clause 25.2.1.
- Test duration shall be 2 hours. If there is no loss in pressure the test is passed.
- Temporary Air Vent points could be provided for each zone lines to confirm the air purging from the pipes
- Ensure that air is vented from the pipe system and the whole pipework section being subjected to the pressure testing is completely filled / flooded with water.
- Only calibrated pressure gauges shall be used.

- Hand pump or a pressure pump should be used like in Fig.1
- Pressure shall be applied gradually. Once the test is over the pressure shall be released slowly.

FIG.1

8.9 Flushing

- Ensure the entire system (headers and braches) are Hydrostatic tested and approved through RFI's
- After the Hydraulic Pressure Test the water shall be gravity drained from the drain points / landing valves / fire hose reels.
- Temporary flushing / drain points should be provided for each main end of the zone line to confirm the dynamic flushing quality

9.0 Environment, Safety & Health, Risk Assessment

Safety induction and toolbox talks will be conducted by the assigned supervisors and /or safety personnel prior to commencement of work activities.
Warning Tape and barricade shall be provided along the working Area.

Dust suppression shall carried out in all the place, where necessary.

Adequate supervision by Safety Officer and Site Supervisor will be carried out to ensure that all work is being done safely.
Qualified First Aider should be there for the provision of First aid.

Members of the construction team will be issued with Personal Protective Equipment (PPE) such as cover all, safety vest, safety shoes, safety glass, hard hat, safety gloves. Additional protective equipment shall be issued as and when required.

Sufficient welfare facilities including cool drinking water and toilets shall be provided in close proximity to the workers.

Fire extinguishers will be place near the equipment. Periodic check of the expiry date shall be done.

Emergency Response Plan

All applicable requirements of the corporate Emergency Preparedness and Response procedure HSE-CP-07R0 will be applied.

The project Emergency Preparedness and Response Plan will be communicated to all concerned parties and site personnel involved in this activity, will be taught how to act in case of emergencies.

In the event of an emergency, all workers will be asked to evacuate and assemble at the designated assembly area and wait for further instructions from supervisors.

10.0 QUALITY CONTROL, & ACCEPTANCE CRITERIA

All activities shall be closely monitored and checked according to the approved method of statement.

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Request for Inspection (RIW) as per the approved Method of Statement for this activity will be submitted 24 hours before to the Client Consultant for approval. Any comments must be rectified immediately.

All activities will be report to Employer/Engineer for review and approval.

Hazard Identification and Risk Assessment Form

Description of Activity	Installation of HAVC Duct System and Split AC Unit	Project	NTT Project, Dammam	Risk Assessment Ref#	HSE-NTT-RA-003

Item	Activity/Process	Hazard	Risk Assessment			Controls	Risk Assessment (Residual Risk)		
			P	S	R		P	S	R
1	Material loading and transportation	• Fall of material • Loss of control while carry • Inadequate handling	2	3	06	• Trained personnel should only involve in loading of material. • Personnel should carry the load as per strength. • Secure the material at transporting vehicle with ties or belts. • Material should load on transporting vehicle in balanced way. • Transporting vehicle should follow the speed and traffic rule with loading material.	1	2	02
2	Storage / stacking	• Inadequate stack • Struck by / struck against • Slip, trip and fall	2	3	06	• Material should be store in designated area. • Stack it in balanced way according to size and dimensions. • Sign must be display around storage area. • Material should be stack away from the walking route at aside. • Electrical cable shall be placed out of walkways.	1	2	02
3	Loading / Unloading	• Fall of material • Struck by / struck against • Inadequate handling	2	4	08	• Must communicate the hazard involve on activity with all personnel. • Only train and experience operator & rigger should involve in activity. • Forklift, boom truck and all the lifting gears must be inspected and approved for lifting. • Barricade the lifting area and secure from unauthorized entry.	1	2	02

Hazard Identification and Risk Assessment Form

Description of Activity	Installation of HAVC Duct System and Split AC Unit	Project	NTT Project, Dammam	Risk Assessment Ref#	HSE-NTT-RA-003

Item	Activity/Process	Hazard	Risk Assessment			Controls	Risk Assessment (Residual Risk)		
			P	S	R		P	S	R
						• Warning signs of "lifting in progress" must be display. • Attach the tag line with lifting material to control swings. • Use mechanical Aid to reduce manual handling.			
4	Power tools and hand tools	• Struck by / struck against parts • Electrical shock /Electrocution from damage wire • Dust and flying debris	3	3	09	• Tools must be used by experience and competent persons. • Power tools must be inspected and color coded. • Inspection must be done regarding any damage to safety locks. • Tools must tagged after inspection by competent electrician. • Proper training must be conducted for use of hand tools and power tools. • Use gloves, mask and goggles for protection from debris.	1	4	04
5	Working at Height • By using scaffold • By using ladder	• Falling from height • Struck by falling objects	3	4	12	• Tool box talk should be delivering at the start of work. • Scaffolding must be erected by competent person as per AGC “Scaffold Procedure”. • Must be inspected and tagged by competent person time to time. Only Green tag scaffold used for working.	2	2	04

Hazard Identification and Risk Assessment Form

Description of Activity	Installation of HAVC Duct System and Split AC Unit	Project	NTT Project, Dammam	Risk Assessment Ref#	HSE-NTT-RA-003

Item	Activity/Process	Hazard	Risk Assessment			Controls	Risk Assessment (Residual Risk)		
			P	S	R		P	S	R
						• Ladder use for the activity must be inspected prior to work and will be in good condition. • Ladder should be placed on balance ground and supported. • Full body harness must be used.			
6	Lifting of material	• Falling of material • Damage accessories • Struck by / struck against	3	3	09	• Must obtain work permit before start of activity. • Must communicate the hazard involve on activity with all personnel. • Only train and experience operator & rigger should involve in activity. • Crane and all the lifting gears must be inspected and approved for lifting. • Designate the route for loading truck and boom truck or fork lifter. • Barricade the lifting area and secure from unauthorized entry. • Warning signs of "lifting in progress" must be display. • Attach the tag line with lifting material to control swings.	1	4	04
7	Insulation of ducts	• Fumes • Skin allergy • Fire hazard	2	3	06	• Experience and train person should do the job. • MSDS and HAZMAT must be available at site. • Personnel should wear full body clothe to avoid direct contact with epoxy and resins.	2	2	04

Hazard Identification and Risk Assessment Form

Description of Activity	Installation of HAVC Duct System and Split AC Unit	Project	NTT Project, Dammam	Risk Assessment Ref#	HSE-NTT-RA-003

Item	Activity/Process	Hazard	Risk Assessment			Controls	Risk Assessment (Residual Risk)		
			P	S	R		P	S	R
						• Proper PPEs should be worn by the all personnel's i.e. mask, goggles, hand gloves and safety shoes. • Proper ventilation should be provided to avoid accumulation of fumes. • Remove the flammable material from site immediately. • Make sure fire extinguishers and fire blankets available.			
8	Air Testing	• Flying debris / material • Bursting of duct assemble	2	3	06	• Restrict access to the immediate area involving the pressure test. • Verify that all supply line and connection are rated to withstand the test pressure. • Visual inspection and ensure soundness and proper installation of ducts. • Emergency kit and fire extinguisher must be readily available at site. • Person should not be directly stood in the pressure testing area. • Place the pressure regulatory gage to maintain the pressure. • Personnel should wear the appropriate PPEs during testing.	2	2	04

Hazard Identification and Risk Assessment Form

Description of Activity	Installation of HAVC Duct System and Split AC Unit	Project	NTT Project, Dammam	Risk Assessment Ref#	HSE-NTT-RA-003

Item	Activity/Process	Hazard	Risk Assessment			Controls	Risk Assessment (Residual Risk)		
			P	S	R		P	S	R
8	Welding	• Fumes • Eyes infection & Burns • Fire	3	4	12	• Obtain hot work permit for welding activity. • Communicate the hazard involve in activity with all personnel. • Provide proper ventilation in the welding area. • Use of proper PPEs for the job including welding shield and apron. • Do not stand in the line of flame. • Remove the all flammable material from the welding area. • Make sure flash back arrestor and whiplash arrestors are attached with cylinders. • Install suitable Fire extinguisher near the welding area / Set. • Barricade the area for unauthorized person's entry.	1	4	04
9	Installation and Gas Filling to AC units	• Inadequate handling • Slip, trip, fall • Cold burn • Environmental Hazard	3	3	09	• Use of mechanical Aid to reduce manual handling. • Do not lift the gas cylinder while working on height. • Always have 3 point of contact while on staircase. • Remove the all hurdle from staircase and walk ways. • Place the material at secure place at height if required.	2	2	04

Hazard Identification and Risk Assessment Form

Description of Activity	Installation of HAVC Duct System and Split AC Unit	Project	NTT Project, Dammam	Risk Assessment Ref#	HSE-NTT-RA-003

Item	Activity/Process	Hazard	Risk Assessment			Controls	Risk Assessment (Residual Risk)		
			P	S	R		P	S	R
						• Only train personnel should involve in activity. • Use of proper PPEs as per task requirement. • Use the environmental friendly gas for AC split Unit.			
10	Post-work house keeping	• Slip, trip and fall • Sharp edges • Obstruction in walk ways	2	3	06	• Remove the all material from site after finishing the job. • Store the use and waste material separately. • Use of proper PPEs during doing housekeeping. • Clear the walkways from excessive material.	1	2	02
11	Waste Disposal	• Inadequate handling • Fire Hazard • Environmental	3	3	09	• Use of cut resistance gloves while handling with waste. • Waste must be segregated and place in designated container. • Mark / color code the each waste collecting skip according to waste category i.e. like steel or electrical waste (Blue) must be separated from general waste (Green). • Flammable material must remove from the site immediately and secure properly. • Store and dispose of infected waste as per standard.	2	2	04
12	Emergency Preparedness	• Medical emergencies due to Injuries and illness • Fire Emergencies	4	4	16	• Project Emergency Preparedness Plan shall be communicated and implemented • Employees shall be trained how to act in	1	4	04

Hazard Identification and Risk Assessment Form

Description of Activity	Installation of HAVC Duct System and Split AC Unit	Project	NTT Project, Dammam	Risk Assessment Ref#	HSE-NTT-RA-003

Item	Activity/Process	Hazard	Risk Assessment			Controls	Risk Assessment (Residual Risk)		
			P	S	R		P	S	R
		• Environmental Emergencies				case of Emergency • Assemble point and direction sign should be displayed on site. • Emergency vehicle shall be available • Competent First Aid providers shall be in proximity to the work location • Emergency contact numbers shall be posted in various locations			

Preparation Date	19 September 2018		
Assessment Carried Out By		Position	
Assessment Approved By		Position	

Risk Assessment Matrix					Low/Unlikely	Medium	High	
					1-4	6-9	12-16	
Probability (P) X Severity (S) = Risk					Risk Level (P/S)			
						S1	S2	S3	S4
1	=	Unlikely	1	= Negligible	P1	1	2	3	4
2	=	Low	2	= Minor Injury	P2	2	4	6	8
3	=	Medium	3	= Severe Injury	P3	3	6	9	12
4	=	High	4	= Fatal	P4	4	8	12	16

PRIME CONCTRACTOR:	CLIENT:	CONSTRUCTION CONTRACTOR:	PROJECT:	Project No.: HLD7NS-4VTI-0E0-QD
BAE SYSTEMS	SBDCP RSNF	almabani	CONSTRUCTION OF TECHNICAL INSTITUTE OF NAVAL STUDIES AND DAMMAM MARINA FACILITIES	ITP Ref. No.: 'TINS-GEN-ITP-M-002-R00 Date Issued:

INSPECTION AND TEST PLAN FOR INSTALLATION OF FIRE FIGHTING SYSTEM

Item No.	Activity Description	Survey, Test or Inspection Method	Acceptance Criteria	Specification and/or Drawing No.	Frequency	Verification Personnel	Action			Verifying Document
							CC	E	C	
1	**DOCUMENTATION**									
1.1	Verify the availability of approved IFC Drawing,Method Statement and Risk assessment (Wherever Applicable).	Document and Drawing Submittal	Documents are latest revision and approved by Authority	Proj. Specifications /Quality Control Manual	Start of submittal	Engineer/ AGC QC	H	R	R	Shop Drawing and technical document submittal
2	**Materials**									
2.1	Check materials delivery		Conform with approved material approval request	Proj. Specifications / Proj. Quality Plan /Material Approval	Every Delivery	Engineer/ AGC QC	H	W	R	Inspection of Material delivered to Site(MIR)
3	**Inspection Tools and Equipments**									
3.1	Verify the validity of inspection tools calibration certificate	Document Submittal	Valid calibration certificate	Proj. Quality Plan / Quality Manual	Start of project and as per Validity period	Engineer/ AGC QC	H	H	R	Approved Calibration Certificate
4	**SURVEY**									
4.1	Elevation and survey coordinates of Pipe	Visual Inspection and Survey	Approved Drawing	Proj.Specification	Every Request for Inspection of Works (RIW)	Engineer / AGC QC	H	H	R	Request for Inspection (RIW), Survey Report
5	**Installation Work**									
5.1	Verify pipe type and size	Visual Inspection	As indicated in the approved drawing	Proj. Specification /Approved Drawing	Every Pipe	Engineer/ AGC QC	H	W	R	Request for Inspection (RIW), Form QC-ME-013
5.2	Verify lay-out and location of the pipeline and sprinkler heads as per approved P & ID and isometric drawings	Visual Inspection and Survey	Dimension as indicated in the approved drawing	Proj. Specification /Approved Drawing	Every line	Engineer/ AGC QC	H	W	R	Request for Inspection (RIW), Form QC-ME-013

Legend: **H** - Hold Point (Signature required to proceed)
W - Witness (attendance expected, signature on check sheet)
S - Surveillance (random attendance, no signature)
R - Record review
E - ENGINEER
CC -CONSTRUCTION CONTRACTOR (AGC))
PC - PRIME CONTRACTOR (BAE SYSTEM)
C - CLIENT (ROYAL SAUDI NAVAL FORCE)

PRIME CONCTRACTOR:	CLIENT:	CONSTRUCTION CONTRACTOR:	PROJECT:	Project No.: HLD7NS-4VTI-0E0-QD
BAE SYSTEMS	SBDCP RSNF	almabani	CONSTRUCTION OF TECHNICAL INSTITUTE OF NAVAL STUDIES AND DAMMAM MARINA FACILITIES	ITP Ref. No.: 'TINS-GEN-ITP-M-002-R00 Date Issued:

INSPECTION AND TEST PLAN FOR INSTALLATION OF FIRE FIGHTING SYSTEM

Item No.	Activity Description	Survey, Test or Inspection Method	Acceptance Criteria	Specification and/or Drawing No.	Frequency	Verification Personnel	Action			Verifying Document
							CC	E	C	
5.3	Fit-up inspection	Visual Inspection	As per joint details in approved drawing	Proj. Specification /Approved Drawing	Before Welding	Engineer/ AGC QC	H	W	R	Request for Inspection (RIW), Form QC-ME-013
5.4	Welding visual inspection	Visual Inspection	Free from weld defects	Proj. Specification /Approved Drawing	Each Joint	Engineer/ AGC QC	H	H	R	Request for Inspection (RIW), Form QC-ME-013
5.5	Check pipe penetration through walls or floor	Visual Inspection and Survey	As indicated in the approved drawing	Proj. Specification /Approved Drawing	Every Location	Engineer/ AGC QC	H	W	R	Request for Inspection (RIW), Form QC-ME-013
5.6	Check valves, gaskets, bolts tightening, free closing and opening and direction of flow	Visual Inspection	Dimension as indicated in the approved drawing	Proj. Specification /Approved Drawing	Every Location	Engineer/ AGC QC	H	S	R	Request for Inspection (RIW), Form QC-ME-013
5.7	Check hangers and supports spacing and installation	Visual Inspection and Survey	Dimension as indicated in the approved drawing	Proj. Specification /Approved Drawing	Every Supports	Engineer/ AGC QC	H	S	R	Request for Inspection (RIW), Form QC-ME-013
5.8	Installation of Fire Pumps,Water and Fuel Storage Tanks	Visual Inspection	Dimension as indicated in the approved drawing	Approved Drawing	Each Item	Engineer/ AGC QC	H	W	R	Request for Inspection (RIW), Form QC-ME-013
5.9	Piping Pressure Test	Visual Inspection	No leak at pressure test	Proj. Specification	Each Segment of piping	Engineer/ AGC QC	H	H	S	Request for Inspection (RIW), Form QC-ME-005
5.1	Flushing and cleaning of sprinkler piping system	Visual Inspection	Flushing water are already clear	Proj. Specification	Each Segment of piping	Engineer/ AGC QC	H	H	R	Request for Inspection (RIW), Form QC-ME-006
5.11	Re-instatement of piping system after hydro-test	Visual Inspection	As indicated in the approved drawing	Proj. Specification	Each Segment of piping	Engineer/ AGC QC	H	W	R	Request for Inspection (RIW), Form QC-ME-006
5.12	Verify correct connection of building sprinkler system to fire ring main	Visual Inspection	As indicated in the approved drawing/ material approval	Proj. Specification	Every connection	Engineer/ AGC QC	H	H	R	Request for Inspection (RIW), Form QC-ME-006
5.13	Final Inspection and release for pre-commissioning	Visual Inspection	As indicated in the approved drawing	Proj. Specification	Complete line	Engineer/ AGC QC	H	H	R	Request for Inspection (RIW), Form QC-ME-013/Form QC-ME-005

Legend: **H** - Hold Point (Signature required to proceed)
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C - CLIENT (ROYAL SAUDI NAVAL FORCE)

PRIME CONTRACTOR:	CLIENT:	CONSTRUCTION CONTRUCTOR:
BAE SYSTEMS	SBDCP RSNF	almabani

PROJECT :	CONSTRUCTION OF TECHNICAL INSTITUTE OF NAVAL STUDIES AND DAMMAM MARINA FACILITIES	Project No. HLD7NS-4VTI-0E0-QD

FIRE FIGHTING SYSTEM INSTALLATION CHECKLIST

ITP Ref. No.:	**RFI Ref No.:**
System:	**Date:**
Drwg no. / Line No.:	**Description :**

Item	Activity	AGC QC	ENGINEER	Remarks
	Installation Conditions			
	Portable Fire Extinguisher			
1	Verify type and location			
2	Check support and brackets			
	Sprinkler system			
3	Piping lay-out and sprinkler location			
4	Sprinkler system hangers and supports			
5	Fit-up works and alignment			
6	Valve gasket & bolt tightening			
7	Valve stem closing and opening			
8	Check wall / floor penetration			
9	Check tightness of threaded connection			
	Fire Hose Reel System			
10	Piping lay-out and hydrant cabinet location			
11	Hydrant system hangers and supports			
12	Fit-up works and alignment			
13	Valve gasket & bolt tightening			
15	Check wall / floor penetration			

PRIME CONTRACTOR:	CLIENT:	CONSTRUCTION CONTRUCTOR:
BAE SYSTEMS	SBDCP RSNF	almabani

PROJECT :	CONSTRUCTION OF TECHNICAL INSTITUTE OF NAVAL STUDIES AND DAMMAM MARINA FACILITIES	Project No. HLD7NS-4VTI-0E0-QD

FIRE FIGHTING SYSTEM INSTALLATION CHECKLIST

16	Check tightness of threaded connection			
	Clean Gas Agent Fire Suppression System Main			
17	Piping lay-out and nozzles location			
18	System hangers and supports			
19	Fit-up works and alignment			
20	Weld Visual			
21	Valve gasket & bolt tightening			
22	Check wall / floor penetration			
23	Check tightness of threaded connection			
24	Check rack and cylinders type and location			
	Reinstatement			
25	Reinstatement of piping system after hydrotest			

	CONTRACTOR	ENGINEER
Sign:		
Name:		
Position:		
Date		