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Project Construction Quality Management System Procedure



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Project Construction Quality Management System Procedure

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1.0 PURPOSE

The purpose of this procedure is to describe the approach to Construction Quality for construction projects, including Quality Control (QC) activities and the policies, procedures and assigned responsibilities for its achievement.

This procedure applies to works performed under all Government construction projects executed throughout the Kingdom of Saudi Arabia.

For the purposes of the Construction Management Procedures the Project Management Company is the EPMO (Entity Project Management Organization) appointed by the Entity and references prefixed with "Site", such as Site Construction Department, Site Engineering Department, represent the Project Management Company at Project level, on construction sites.

2.0 SCOPE

This procedure applies to management, control, approval and conformance of all construction and field related activities as outlined in respective contract documents.

3.0 DEFINITIONS

Definitions	Description
Quality Assurance (QA)	Part of quality management focused on fulfilling quality requirements. Quality assurance is a way of preventing errors and avoiding problems when delivering solutions or services to customers.
Quality Control (QC)	Part of quality management focused on fulfilling quality requirements. Typically, quality control activities include the physical inspection of systems, structures, and components, during fabrication, installation and turnover regardless of the performing organization
Quality Management Plan	A project document that includes specific contract quality requirements and governing quality codes and standards. It defines the quality assurance processes and quality control monitoring and inspection that will be implemented to achieve verification of the required contract quality standards.
Inspection and Test Plans (ITPs)	A document that outlines specific inspection and testing requirements relevant to a specific process, which is used to monitor the work installation quality. The ITP identifies the items, materials and work to be inspected or tested; by whom, and at what stage or frequency; as well as Hold (H) and Witness (W) points, and references to relevant standards.
Independent Testing Laboratory (ITL)	Provides independent third party evaluation of the Works to confirm the contract quality standards are met. The ITL reports directly to the Site Quality Department.
Enterprise Content Management System (ECMS)	An information management and collaboration platform for managing and controlling Project documents and Entity records
EPMO (Entity Project Management Organization)	An Entity Project Management Organization, this is an integrated team that comprises the Entity and its PMC responsible for managing all the Entity's projects.
Construction Contractor	The Main or Principal Contractor responsible for undertaking the Construction Works on the Project. Individual(s) or firm(s) engaged in the construction of buildings, either residences or commercial structures, as well as construction activities such as paving, highway construction, utility construction and landscape installation.
Site Quality Department	Department within the Project Management Company that provides the approval of and subsequent monitoring of the



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Definitions	Description
	Construction Contractor's Quality Management Plan (QMP). This involves necessary checks of QA processes and approvals of QC inspections and tests in accordance with the Construction Contractor's approved Inspection and Test Plan (ITP)
Site Contracts Department	Department within the Project Management Company that is responsible for administering Contracts.
Site Construction Department	Department within Project Management Company that is responsible for Construction activities/operations.
Site Engineering Department	Department within the Project Management Company that is responsible for Engineering or design activities/operations.
Architect Engineer (A/E) Consultant or Design Firm	Designer appointed by the Project Management Company to undertake the whole or a part of the permanent works design
Material Assignment Schedule (MAS)	A list of approved permanent plant, equipment, materials and services for use on the Project. The Site Engineering Department are usually tasked with the production of this list from the design documentation, specifications and drawings. The Construction Contractor may wish to submit alternative materials for approval or add to the list of approved materials where necessary.

4.0 REFERENCES

1. EPM-KCE-PR-000002 - Project Construction Technical Query Procedure
2. EPM-KCE-PR-000003 - Project Construction Field Change Document Procedure
3. EPM-KCQ-PR-000006 - Project Construction Control of Non-Conforming Items Procedure
4. EPM-KCM-PR-000001 - Project Construction Field Material Management Procedure
5. EPM-KCQ-PR-000004 - Project Construction Control of Material Testing Procedure
6. EPM-KCC-PR-000003 - Project Construction Completions and Turnover Procedure

5.0 RESPONSIBILITIES

5.1 Construction Contractor

The Construction Contractor is responsible for the preparation of a Project specific Quality Management Plan (QMP) to manage Project Quality Assurance (QA) and Quality Control (QC) in accordance with the defined requirements of the contract and the relevant specifications and drawings.

The Construction Contractor must submit his QMP to the Site Quality Department for approval before construction works commence at site.

The Construction Contractor is responsible for administering the construction phase of the Project in accordance with his QMP and for the retention of relevant documentation in line with the quality management requirements.

5.2 Site Quality Department

The Site Quality Department is responsible for the approval of the Construction Contractor's Quality Management Plan. The contents of a Quality Management Plan are provided in Section 6.1.2 below and the Site Quality Department shall ensure that all these components are detailed in the Quality Management Plan submitted for approval by the Construction Contractor

The Site Quality Department is responsible for the overall quality program and for initiating an audit plan for the Construction Contractor's Quality Management Plan (QMP).

The Site Quality Department shall ensure that construction quality control requirements, as detailed in the contract specification, are emphasized in the pre-construction (or "kick off") meeting so that the Construction Contractor provides for qualified Quality Control personnel on the construction project.



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The Site Quality Department shall:

- Undertake the routine duties of monitoring the Construction Contractor's Quality Control (QC) activities for compliance with the drawings, specifications and the approved Construction Contractor QMP.
- Monitor the implementation of the Construction Contractors QMP including:
 - a. All technical decisions related to the acceptability of materials and work methods are incorporated into the final work product.
 - b. The assurance that all relevant resources are properly trained and familiarized with standard project procedures, applicable specifications and testing requirements. Verify that they understand their responsibilities in applying these to their work assignments.
 - c. The use of the Inspection and Test Plans (ITPs) and Construction Inspection Checklists based on the contractor's scope for a specific project.
 - d. Inspection and release of hold points established in the Construction Contractor's Method Statements and QMP.
 - e. Coordination of the activities of the contracted Independent Testing Laboratories (ITL), if applicable, to confirm the Construction Contractor's test results for materials incorporated into the project.

5.3 Site Construction Department

The Site Construction Department is responsible for providing any necessary support to the Site Quality Department, particularly in respect to inspection of the works upon receipt of a Request for Inspection (RFI) from the Construction Contractor

6.0 PROCESS/INSTRUCTIONS

6.1 General

6.1.1 General

The Construction Contractor is responsible for delivering a product to the quality standards specified in the contract requirements. To ensure the requirements are consistently met, the Site Quality Department will undertake a system of checks and balances at each stage of the works to provide assurance that the specification requirements will be met.

All concerns noted during routine quality activities are expected to be resolved at the lowest tier of authority possible. Issues that cannot be resolved at a lower supervisory tier will be referred to the Construction Contractor's senior management by the Site Construction Department. The respective party will resolve these issues in accordance with the terms of the contract, including Stop Work Action, if necessary.

6.1.2 Quality Management Plan

The Quality Management Plan defines the acceptable contract quality standards and describes how this level of quality of deliverables and work processes will be achieved. The Quality Management activities will ensure that:

- The Works are built to meet the required contract quality standards
- Work processes are performed efficiently and as documented
- Non-conformances found are identified and appropriate corrective actions are taken

Quality Management Plans apply to project work processes and project deliverables. Quality Assurance activities monitor and verify that the processes used to manage and create the deliverables are followed



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and are effective. Quality Control activities monitor and verify that project deliverables meet defined quality standards.

The Quality Management Plan describes the following quality management components:

- Quality objectives and requirements
- Key project deliverables and processes to be reviewed for satisfactory quality level
- Quality standards
- Quality Assurance activities
- Quality Control activities
- Quality roles and responsibilities
- Quality tools
- Plan for reporting quality assurance and control problems

The purpose of developing a Quality Management Plan is to confirm “Customer’s” expectations in terms of quality and prepare a proactive quality management plan to meet those expectations.

The Quality Management Plan assists the Site Quality Department to determine if deliverables are being produced to an acceptable quality level and if the project processes used to manage and create the deliverables are effective and properly applied.

6.2 Construction Materials

6.2.1 Materials Receipt

Prior to the start of construction, the Site Construction Department shall verify that the Construction Contractor has, as a part of his approved Quality Management Plan (QMP), method statements, procedures, and the necessary forms for the receipt, handling and storage of materials. These documents shall satisfy the requirements of the contract and specifications.

6.2.2 Materials Approval

Prior to placement of firm procurement orders for materials, the Construction Contractor shall submit necessary documents for approval of materials that are not included on the Materials Assignment Schedule (MAS). This approval must be given by the Site Engineering Department / A/E Consultant / Design Firm. Once approved the material will be included in the MAS. The information should be submitted to Site Document Control to be recorded in the Enterprise Content Management System (ECMS) and distributed to the Site Construction Department and Site Quality Department accordingly.

After material is received and delivered on site, the Site Quality Department shall inspect materials to confirm compliance with the approved MAS. A Materials Receipt Inspection Report form for the inspection of received materials can be found under Attachment 1- EPM-KCQ-TP-000004 Project Construction Material Receipt Inspection Report Template (Sample)

6.3 Construction Verification

6.3.1 Inspection and Test Plans (ITPs)

The Construction Contractor must prepare and submit Inspection and Test Plans (ITPs) for all elements of the Works, prior to work commencement. Details of an ITP form and instructions on how to complete it are provided in Attachment 3 - Project Construction Inspection and Testing Form Template (Sample) completing ITP Forms.

ITPs shall document the quality steps that the Construction Contractor will undertake, including any hold points established and agreed with the Site Quality Department / Site Construction Department or any other Third Party that will be involved with the monitoring of the performance of the Works.



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The Construction Contractor works with the Site Quality Department to define all the verification activities to be included in ITPs as a part of the Construction Contractor's QMP.

When determining the type, timing, and frequency of inspections and tests, the Site Quality Department / Site Construction Department will consider the following items:

- The complexity of the scope
- The accessibility of the installation for inspections and sampling
- Timeliness of inspections and tests to avoid
- Increase safety risks
- Rework
- Negative impact on construction schedule
- Loss of accessibility for rework
- Consequential damage to other elements

ITPs submitted for review and acceptance should include a checklist for each step, containing the information detailed as shown in Attachment 3 - Project Construction Inspection and Testing Form.

6.3.2 Inspections

Where the ITP defines Witness or Hold Point inspections, the Construction Contractor shall prepare and submit a Request For Inspection (RFI) form. Attachment 4 EPM-KCQ-TP-000007 Project Inspection Request Form Template (Sample) provides an illustration. Request for Inspection Forms should be submitted through the Enterprise Content Management System (ECMS) within seven days, or per the contract, prior to the inspection.

Note: Planned inspections by the Site Quality Department / Site Construction Department for all routine construction activities should take place after the Construction Contractors internal inspection has been completed. The Construction Contractor should only submit the RFI after he has undertaken his own initial successful inspection

The Site Quality Department may arrange for an independent testing agency, if required, to participate with inspection, sampling, or testing.

6.3.3 Surveillance

The Site Quality Department will perform Surveillance of field activities by recording quality observations daily, weekly, monthly, upon completion of work, or as determined to ensure compliance with Construction Contractor's Quality Assurance. This Surveillance does not require the issue of a Request for Inspection Form (RFI) from the Construction Contractor. A Site Surveillance Report is shown in Attachment 2-EPM-KCQ-TP-000005 Project Construction Contractors Surveillance Report Template (Sample)

As part of their Surveillance activities, the Site Quality Department will review the Construction Contractor's records for completeness during the installation of the Works and in preparation for construction handover/completion and certification. Such records may include:

- Document control procedures
- Certification compilations
- Non-conformance Reports (NCRs)
- Technical Queries (TQ)
- Field Change Documents (FCDs)
- Training activities
- Warehouse/storage control
- Handling and storage of materials



6.4 Punch list

The Site Construction Department shall prepare and maintain a Punchlist for outstanding works and actions, as the Works progress. The Site Construction Department shall follow the requirements of Procedure EPM-KCC-PR-000003-Project Construction Completions and Turnover Procedure.

6.5 Records Retention

As a part of the Quality Assurance process, the Site Quality Department will undertake reviews of the Contractor Quality Management Plan (QMP), Procurement Plans, ITPs and other quality related documents.

The Site Quality Department will carry out a program of audits and surveillances to the above documents to verify compliance by the Construction Contractor and provide feedback to the Site Construction Department on the status of compliance in accordance with project procedures.

The Site Quality Department will ensure that the Construction Contractor's Quality Control activities and Inspection and Test Plans are implemented effectively to ensure required contract quality standards

The Site Quality Department shall confirm the effective operation of the Quality Assurance and Quality Control systems by establishing and maintaining a "Records Control System" to provide evidence of conformity to the above requirements. All records shall be stored in the Enterprise Content Management System (ECMS)

7.0 ATTACHMENTS

1. EPM-KCQ-TP 000004 - Project Construction Material Receipt Inspection Report Template
2. EPM-KCQ-TP-000005 - Project Construction Site Surveillance Report Template
3. EPM-KCQ-TP-000006 - Project Construction Inspection and Testing Form Template
4. Instructions for Completing ITP Forms
5. Inspection and Test Plan
6. EPM-KCQ-TP-000007 - Project Construction Inspection Request Form Template



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Attachment 1 - EPM-KCQ-TP 000004 - Project Construction Material Receipt Inspection Report Template

Receipt No.		Receipt Date:		PO No.		MAS No.			
Vendor:				PO Title:					
Notes:									
Package No.	Item No.	Material Code	Tag No.	Item Description	Supplier Part No.	UoM	Quantity	Location of Storage	Remarks

Received by:

(Site Quality Department)

(Site Quality Department)

(Site Construction Department)

(Site Construction Department)



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Attachment 2 - EPM-KCQ-TP-000005 - Project Construction Site Surveillance Report Template

SITE SURVEILLANCE REPORT		
CONTRACTOR:	JOB No.	DATE:
REPORT No.	REF. SPEC. / PROC. / DWGS:	SHEET: OF
DESCRIPTION OF ACTIVITY BEING MONITORED:		
LOCATION:		
OBSERVATIONS / COMMENTS:		
NCR GENERATED: ☐ YES ☐ NO NCR No. _____		
REPORT Prepared by: _____ (Print Name) Site Quality Department (Signature) Site Quality Department (Date)		
REVIEWED by: _____ (Print Name) Site Quality Department (Signature) Site Quality Department (Date)		



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Attachment 3 - EPM-KCQ-TP-000006 - Project Construction Inspection and Testing Form Template

Logo 1		Title/Description: 2				ITP No. _____ Rev. No. _____ Page _____ of _____			
Unit/Area: 4	Discipline: 5	Description: 7				Equipment/Tag No. 6			
Activity No. 8	Activity Description 9	Inspection/Test Requirements		Reference Documentation		Method of Verification (see Legend)			Demonstrated Evidence Report/Checklist Reference No 13
		Test or Inspection Performed	Stage/Frequency 10	Code/Spec/Etc.	Acceptance Criteria 11	Construction Contractor QC	Construction Contractor 12	Site Quality Department	
14 Legend: I – Inspection; T – Test; W – Witness Inspection Point; H - Mandatory Hold Point For Inspection; R - Document Review									
Construction Contractor (Date & Signature/Stamp No.)		Site Quality Department (Date & Signature /Stamp No.) 15				Other (Customer, Third Party) (Date & Signature/Stamp No.)			



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Attachment 4 - Instructions for Completing ITP Forms

The following list refers to the annotation numbers illustrated on the ITP Form (Page 1 of 3).

Number	Description
1.	Standard header for ITPs. Appropriate logo and Project Name to be shown here
2.	Title or description of the activity covered by the ITP, e.g., "Installation and Testing of Concrete"
3.	Refers to the following: • ITP No. • Revision No. • Page No.
4.	The unit or area number the ITP belongs to
5.	The applicable disciplines, e.g., Civil, Structural, Piping, etc.
6.	The equipment or tag number the ITP belongs to.
7.	A description of the item, equipment, placement type, etc. number(s)
8.	A sequential number starting with 1.0
9.	A brief description of the construction activity to be performed, e.g., Pre-pour activities
10.	The inspection/test activity to be performed, e.g., installation of rebar, forms, survey, slump test, etc., and frequency
11.	The document that requires the activity, e.g., code, standard, specification, procedure and the number and acceptance criteria
12.	Construction Contractor QC, Construction Contractor, Site Quality Department inspection/test points (refer to Legend #14).
13.	Specific inspection/test/checklist forms associated with this ITP Inspection/test. Reference the form report number
14.	Legend defining the various inspection points (see page 3 of 3)
15.	Signatures by responsible parties signifying that all inspection and tests associated with this ITP activity have been identified



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Attachment 5 - Inspection and Test Plan

C.1	The Construction Contractor has the primary responsibility for performing verification activities for their scope of work.
C.2	The Construction Contractor, Site Quality Department, Site Construction Department, Others can assign Hold and Witness points and the verification method to ITPs to provide objective evidence that the project requirements were met. H and W points are normally assigned when verification cannot be performed due to subsequent work processes.
C.3	When an H point is identified on the ITP, the Construction Contractor cannot proceed with the relevant activity until documented approval is provided on the associated form. A minimum 7-days notification, or per contract , is required in advance of reaching the H point.
C.4	When a W point is identified on the ITP, the Construction Contractor cannot proceed with the relevant activity until documented approval is provided on the ITP (Refer to Attachment 4 EPM-KCQ-TP-000007 - Project Construction Request for Inspection Form Template (Sample)). A minimum 7-days notification, or per contract , is required in advance of reaching the W point unless approved by the inspector.

HOLD POINT AND WITNESS POINT	
Hold (H)	Hold points are designated as "H" plus the verification method.
Witness (W)	Witness points are designated as "W" plus the verification method.
VERIFICATION METHODS	
Review (R)	Review is designated as "R." Review is the act of verifying that documentation is , in compliance with project requirements.
Inspect (I)	Inspect is designated as "I." Inspection is the act of verifying (such as, examining, measuring, observing, reviewing, recording, etc.), that activities are in conformance with project requirements.
Test (T)	Test is designated as "T." Testing is the act of verifying (such as, Compaction, Non-Destructive Examination (NDE), Hydrostatic, Megger, etc.), to pre-defined values that activities are in compliance with project requirements.

Note: H and W points are identified as HR, HI, HT, WR, WI, and WT on the ITP. R, I, and T may be indicated alone, as appropriate, on the ITP if no H or W point is identified.



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Attachment 6 - EPM-KCQ-TP-000007 - Project Construction Request for Inspection Form Template

REQUEST FOR INSPECTION FORM		
RFI No.	REV No.	DATE:
CONTRACTOR NAME:		CONTRACT No.
AREA:	REFERENCE DOC/DWG No.	ITP NO. & ACTIVITY No.
ITEM TO BE INSPECTED:		
LOCATION:		
TYPE OF INSPECTION:	WITNESS:	HOLD:
ADDITIONAL INFORMATION/COMMENTS:		
REQUESTOR: _____ (Print Name) Construction Contractor (Signature) Construction Contractor (Date)		
RECEIVED by: _____ (Print Name) Site Quality Department / Site Construction Department		