



Quality Assurance & Quality Control Procedures



Quality Assurance Plan

Policy Statement

It is the policy of AL- RUBAT AL-KABEER COMPANY, is to be totally committed to qualify fit for the purpose and to design, construct, operate and maintain various projects at a quality level that will meet or exceed contract requirements.

With the established Quality Assurance Plan, we are ensuring that our design, construction processes, products and installation of equipment shall conform to specified requirements of the project.

Responsibilities

The General Manager of AL- RUBAT AL-KABEER COMPANY and its local subsidiaries is responsible for implementation of the Quality Assurance System for all projects under their jurisdiction.

The authority for developing and verifying implementation of the Quality Assurance System is delegated to the Project Director under the direction of the General Manager.

The Head of each Department performing quality-affecting activities is responsible for establishing and identifying duties and responsibilities of personnel who implement quality-affecting activities and planning, and selecting and training personnel to meet the requirement of the Quality Assurance System.

Quality Objectives

The Quality Assurance Plan has been developed and adopted to demonstrate AL- RUBAT AL-KABEER COMPANY' capability to control design and construction processes and satisfying the requirements of the contract documents.

The Project Director shall ensure that this Quality Assurance Plan is understood, implemented and maintained at all levels in the company so that the specified and/or required quality standards are achieved.

The Quality Assurance Plan, as a management tool shall provide guidelines to ensure that all drawings and material submittals comply with the project requirements and all the site works are executed and completed in strict accordance with the approved drawings and specifications.

The Quality Control Program shall describe actions related to the physical characteristics of the approved materials and processes that provide a means to ensure that the quality requirements are complied with and strictly adhered to.

Scope of work under the quality assurance plan

This Quality Assurance Plan provides guidelines for implementation of quality control for the design and construction and is intended to set up procedures and practices, auditing & training outlines that will involve implementation of the contractual requirements

Quality Assurance Program:

As a means of ensuring that drawings, materials and construction processes conform to specified project requirements. This shall include:

Documented quality control procedures and instructions in accordance with the project specifications and applicable to local and National Standard and Codes of Practice:

The effective implementation of the documented quality control procedures and instructions.

Contract Review:

To ensure that the contract requirements are adequately defined and documented; any requirements differing from those in the contract documents are resolved;

The required capacity to meet contractual obligations is clearly defined and adequately exercised.

Document Control:

This control shall ensure that the pertinent issues of appropriate documents are available at locations where operations essential to the effective functioning of the quality systems are performed.

Obsolete documents are promptly removed from all points of issue or use.

Assessment of Suppliers / subcontractors:

Suppliers / subcontractors shall be selected on the basis of their ability to meet the contract requirements, including quality requirements and, where appropriate, on records of their previously demonstrated capability and performance. Project Control will jointly do this and Procurement Departments primarily followed by review of Quality Assurance prior to seeking Client's Concurrence.

The supplier / subcontractor shall ensure that their own in-house quality control systems are effectively implemented and documented in a verifiable manner.

Produce identification:

A list of materials and equipment shall be established and maintained for identifying the products in accordance with applicable specifications, drawings or other documents.

Process Control:

The Quality Control program shall identify and plan inspections of construction processes that directly affect quality and the Quality Control shall ensure that these processes are carried out under controlled conditions. Controlled conditions shall include the following:

Documented work instruction defining the manner of production, construction and installation that are in compliance with the contract specification and required quality standards and codes;

Monitoring and Control of suitable process and product characteristics at all stages of production and site installation.

The approval of processes of materials and equipment:

Criteria for workmanship that shall be as stipulated in the project specifications or by means of representative samples testing.

Inspections & Testing (Quality Control Program):

The Quality Control Program shall stipulate for inspection & testing of material/equipment/performance specified by the contract document. Frequencies and extent of tests shall be in compliance with the Project specification and as required by the applicable standards.

AL- RUBAT AL-KABEER COMPANY' Project Quality personnel, to ensure implementation of contract requirements, shall carry out all inspections.

AL- RUBAT AL-KABEER COMPANY' Site Testing Laboratory (STL) shall conduct routine sampling and testing as relevant to materials and their performance. The results, their interpretation and evaluation shall be done by Project Quality Professionals and reported to the Client Representative, as specified. The list of such tests is presented at Section 14.

Responsibilities of Various Organizations:

General Contracting (Prime Contractor)

Comply with contract and specification documents.

Perform in accordance with the approved QA/QC Program of a level required by the project specifications.

Require and verify subcontractors and suppliers strict adherence to the contract documents.

Verify that inspections and tests are performed to specified requirements.

Subcontractors:

Comply with the contract documents.

Perform and document their internal QA/QC System of a level suitable for the Project.

Co-ordinate all their works with AL- RUBAT AL-KABEER COMPANY, and interface with other subcontractors.

Suppliers:

Supply materials in accordance with the contract documents and approved drawings.

Perform and document an internal QA/QC Program of a level suitable for the Project.

5. Independent Testing Laboratory (ITL)

Perform the assigned testing as specified and defined by the relevant project specifications.

Conduct all testing in accordance with the contract documents and applicable standards methods, as enumerated at 4.7 (e).

Provide evaluation and interpretation of the results of tests conducted by them including recommended actions.

Quality Assurance Program

Objective:

The Program includes details of procedures, practices that shall be implemented to perform required and specified inspections and tests, as Project Quality Control Program. This when implemented as part of and in conjunction with over all Quality Assurance Program (repeated hereafter for sequential presentation) will ensure full compliance with approved drawings, specifications and applicable codes and standards.

This Program shall be strictly implemented and maintained by personnel who manage, perform and verify works affecting quality at all levels within AL- RUBAT AL-KABEER COMPANY' CO.

Scope:

The Program defines procedures and practices to comply with the contractual requirements for the following activities: -

- On-site inspections of delivered material and equipment to assure product conformance to the specification requirements
- Assessment of subcontractors and suppliers
- Day-to-Day control and monitoring of construction processes which directly affect quality to ensure that these processes are carried out in compliance with approved drawings and contract documents/specifications.
- Review of shop drawings and material submittals.
- Off-site inspections at the point of manufacture of various products
- Field testing and sampling as required by the project specifications or applicable building codes
- Off-site testing performed by Independent testing Laboratory as required by the contract documents
- Maintain daily record of information of As-built drawings.
- Maintain daily record of all Quality Assurance activities.

Project Quality Manager:

He is the head of the Quality Assurance and his duties are to ensure that all aspects of quality control in relation to the contract documents are clearly defined and implemented.

Quality Inspector – Civil:

He will be in charge of required quality control activities for the External Civil and Landscaping works on the Site and the corresponding daily report preparation.

Quality Inspector – Architectural:

He will be in charge of Architectural works and be responsible for corresponding daily reports.

Quality Inspector – Structural:

He will be in charge of all Structural works and be responsible for corresponding daily reports.

Quality Inspector – Electrical:

He will be in charge of required quality control activities for the electrical works and responsible for the Daily Report of electrical activities at the site.

Quality Inspector – Mechanical:

He will be in charge of required quality control activities for the mechanical works and responsible for the Daily Report of mechanical activities at the site.

Quality Inspector – Site Laboratory:

He will ensure that all tests specified or required shall be conducted in accordance to Project specifications and applicable standard method of testing.

He will also be responsible for the Daily Report of the laboratory's activities and for co-ordination with Independent Testing Laboratory to ensure full compliance with project requirements and applicable testing methods.

Authority of Quality Assurance Personnel:

All Quality Assurance personnel are granted full authority within their assigned areas of responsibility to implement Quality Assurance Program related to materials and workmanship, to ensure total compliance to contract requirements. They shall deal with Site Supervisors to correct identified deficiencies and notify the Project Quality Manager of non-confirming materials and/or workmanship.

In case of non-conformance and in situations where the Project Quality Manager is satisfied that stoppage has become inevitable, he is authorized to stop the works in progress or reject materials, which do not comply with the contract requirements.

Interface with Other company departments:

The Quality Assurance may whenever required avail, specialist professional assistance for elaboration of designs or drawings, aimed at facilitating desired level of comprehension of the intended designs and/or quality standards. Such assistance may be as in house available expertise on site or any off site department of AL- RUBAT AL-KABEER COMPANY. Preparation of submittals is the responsibility of both the Engineering Department and subcontractors including necessary input from Procurement and Contracts Manager.

Review of submittals is the responsibility of both the Engineering and the Contracts Department, which will be checked, for completeness and Contract requirements by the Quality Assurance prior to submittal to the Client's Representative.

Responsibilities of Project Quality Personnel:

- Project Quality Manager (PQM)
- Project Quality Manager will perform on behalf of AL- RUBAT AL-KABEER COMPANY, the following functions:-
- Ensure that the Quality Assurance Plan is understood, implemented and maintained at all levels of the organization.

- Ensure that all material / equipments fabricated outside or on site or received on site are inspected for contract compliance and are properly stored.
- Ensure that preliminary inspections carried out before commencement of any new activity.
- Ensure that all testing is performed as required under the technical provisions of the contract specification and ensure that the Client's representative is notified in accordance with Contract provisions.
- Ensure maintenance of records of all quality control activities and that said records are always available for the Client's use.
- Ensure that O & M data is reviewed for completeness prior to submittal to the Client.
- Ensure that as-built information is recorded daily on the Quality Assurance Section's set of drawing.
- Ensure the adherence to all rules, regulations and by-laws laid down by the Project Manager and the Client Representatives in line with Contract provisions and pertaining to the manner, method and procedure of the execution of the works.
- Shall have no job related responsibilities other than quality assurance.

Quality Inspector Civil:

Shall work under the directions of PQ Manager, and will perform the following functions:-

- Ensure that on-going civil works conform to the approved drawings and contract specifications.
- Inspect corresponding building materials received onsite.
- Inspect proper storage of materials.
- Prepare hold points table for civil work and submit to PQ Manager for approval.
- Prepare daily concrete pouring report for Civil Works.
- Prepare daily inspection requests that must be submitted to the Client Representative at least 24 hours before inspection is carried out.
- Prepare daily report for building and civil works.
- Coordinate with Site Laboratory or Independent Testing Laboratory for the required testing for civil construction activities.

Quality Inspector – Architectural:

Shall work under the directors of PQM and will perform the following functions:-

- Ensure that ongoing architectural and finishing works conform to the approved drawings and contract specifications.
- Inspect architectural and finishing materials received at site.
- Inspect for proper storage of materials.
- Prepare hold points table for architectural works and submit to PQM for approval.
- Prepare daily architectural installations report.
- Prepare daily inspection request that must be submitted to The Client Representative at least 24 hours before inspection is carried out.
- Prepare daily report for architectural work activities.
- Coordinate with Site Laboratory or Independent testing Laboratory for required tests.

Quality Inspector – Structural:

Shall work under the directions of PQM and will perform the following functions: -

- Ensure that ongoing structural works conform to the approved drawings and contract specifications.
- Inspect structural materials received at site.
- Inspect for proper storage of material.
- Prepare hold points table for structural works and submit to PQ Manager for approval.
- Prepare daily concrete pouring report for structural works.
- Prepare daily inspection request that must be submitted to The Client Representative at least 24 hours before inspection is carried out.
- Prepare daily report for structural works.
- Coordinate with Site Laboratory or Independent testing Laboratory for required tests.

Quality Inspector – Mechanical:

He shall work under the direction of PQ Manager. Mechanical works if sub-contracted shall also be in his area of responsibility and shall be as follows: -

- Ensure that on-going works by the Contractors as well as that of the Sub-Contractor conform to the approved drawings and contract specifications.
- Inspect all mechanical material received on site including:
Plumbing
HVAC
Irrigation
- Inspect proper storage of material in Contractors and sub-Contractor's storage.
- Co-ordinate execution of the required testing with subcontractor's QC.
- Receive from subcontractor QC daily inspection request that must be submitted to The Client Representative at least 24 hours before inspection is carried out.
- Review hold points table for mechanical works prepared by subcontractor before submitting to the QC Manager.
- Prepare daily report for mechanical works, including inspection of materials and testing performed.

Quality Inspector – Electrical:

He shall work under the direction of PQ Manager. Electrical works if sub-contracted shall also be in his area of responsibility and shall be as follows: -

- Ensure that on-going works of Contractor as well as that of the Sub-Contractor conform to the approved drawings and contract specifications.
- Inspect all electrical material received on site.
- Inspect proper storage of material in Contractor and sub-Contractor's storage.
- Co-ordinate execution of the required testing with subcontractor's QC.
- Receive from subcontractor QC daily inspection request that must be submitted to The Client Representative at least 24 hours before inspection is carried out.
- Review hold points table for electrical works prepared by subcontractor before submitting to the PQ Manager.
- Prepare daily report including inspection of materials and testing performed.
- The Project Quality Manager shall always keep the Clients Representative informed of the Contractor's activities verbally and in writing as necessary. A summary of all Quality Assurance activities will be documented in Daily QA Report and submitted to the Client's Representative. The report shall also include test and inspection results along with any actions taken to rectify deficiencies.

Liaison with Procurement Department:

The Project Quality manager will keep liaison with the procurement department of AL- RUBAT AL-KABEER COMPANY, to ensure that material submitted complies with the contract documents.

PQ Manager will request additional documentation when necessary, for materials or products in order to substantiate their compliance with specifications and contract requirements prior to submission to the Clients Representative.

Review of Suppliers / Subcontractors:

Subcontractors and suppliers shall be selected on the basis of their ability to meet the contract requirements, including quality requirements and on records of their previously demonstrated capability and performance.

The appointed subcontractor / supplier shall ensure that their own or required quality system are implemented and effective.

The PQ manager will ensure that all suppliers/subcontractors activities comply with the contract documents and QA procedures.

The PQ Manager will ensure that all materials, products and services of suppliers and subcontractors conform to the Contract requirements.

The PQ Manager will ensure that approved materials, products and services supplied and / or executed by suppliers / subcontractors are installed in accordance with drawings and specifications.

Control of Non-conforming workmanship:

- Quality Inspectors are required within their assigned area of responsibility to ensure total implementation of Contract provisions relevant to quality of materials and workmanship at works. They are granted authority to disapprove workmanship that does not confirm with contract requirements.
- Quality Inspectors shall promptly notify PQ Manager of non-conforming workmanship. The PQ Manager shall, based on such information or his own observations, notify the contractor or subcontractor to stop the non-conforming work in progress. He shall state in writing the following instructions:
 - Reason for stopping the work
 - Time limit if applicable to correct non-confirming items
 - Ask for proposed procedures for corrective action by Contractor / Sub-contractor
- Quality Inspectors shall deal with site supervisors to correct identified deficiencies of the work in progress.
- Daily report shall include deficiencies and a copy of written instructions for corrective action.
- Proposed procedure for the corrective action shall be reviewed by Site Engineering and the PQM and submitted to The Client representative for concurrence prior to proceeding with the repair of the defective work.

Control of Non-conforming Materials:

- Quality Inspectors are required within their assigned areas of responsibility to ensure that only materials that comply with the contract requirements are used at the works. Non-conforming products are to be rejected.
- Quality Inspectors shall promptly notify the PQ Manager of non-conforming product. He shall in return notify the supplier in writing (Memo, Fax, Telex) and state the following:
 - Reason for rejecting the product
 - Time Limit to remove and replace the non-conforming item
 - Ask for proposal for replacing or repairing the product.
- PQ Manager shall investigate with Site Engineering support the causes of non-conforming product and may specify the necessary corrective action to prevent recurrence.
- Daily Report shall include list of inspected materials and results.
- Propose Site Engineering and PQM shall review procedure for replacement of non-conforming product. The Client Representative Prior approval shall be obtained for proceeding with the repairs.

Documents & Drawings control:

General

The basic principle of document and drawing control is the systematic identification (numbering) of each piece of correspondence and technical document. This is achieved by applying correspondence referencing

system described below and relating all technical documents to engineering disciplines. Tasks and project subcategories.

Document Control Center

Many of the problems (i.e. delays and mistakes) in the Engineering office are the direct or indirect results of the lack of proper document control. To eliminate these problems a "Document Control Center" (referred to as "D/C") will be set up.

The function of the D/C is to:

- Register all incoming and outgoing correspondence, drawings and documents.
- Distribute internally (within the project groups) all incoming correspondence, drawings and documents.
- Distribute internally copies of outgoing correspondence and drawings / documents (if required).
- File record copies of all incoming and outgoing correspondence, drawings and documents.
- Monitor the history of submissions (computer register)

- Keep computerized drawing / document lists up to date and allocate drawing / document numbers as required.
- Prepare cover letters (if any) and document transmittals for engineering submissions and other drawing / document issues.
- Arrange number of copies for submission and other issues.
- Complete packages (envelopes, boxes or tubes) of submissions/issues for mailing.

Follow-up outstanding correspondence (see item below).

Keep computer registers up-to-date; issuing status reports to the management on weekly and monthly basis or as required.

One of the most important functions of the D/C is to follow-up outstanding correspondence by regularly reminding the concerned parties when letters, telexes or faxes are not replied. This will be achieved by transferring the manual correspondence register information to the computer in the following format:

Incoming Correspondence

Form "A"

Type	From	Ref.	MD	Date Rec'd	Subject	Action By	Reply		Reply Sent	Remark	
							Yes	No		Date	Ref.

LEGEND FOR "TYPE": Letter = LT, Telex = TL, Fax = FX
REPLY REQUIRED: Yes (Y) No (N)

Outgoing Correspondence

Form "B"

Type	To	MD	Recipient Ref.	Date Sent	Subject	Sent by	Reply	Reply Sent			Remarks
								Yes	No	Date	

LEGEND FOR "TYPE": Letter = LT, Telex = TL, Fax = FX

REPLY REQUIRED: Yes (Y) No (N)

With the above format it is possible to obtain prints out of any kind i.e. by Originator, by subject or by correspondence not yet replied. The above is a useful "Managerial Tool" for controlling the follow-up of correspondence.

The D/C would have facilities for:

Box files containing records copies of all incoming and outgoing drawings / documents – mainly record copies of submission.

Files containing all incoming and outgoing correspondence

Register (Log Books) of all incoming and outgoing correspondence, drawings and documents.
Computerized drawings Lists

Large tables (lay down space) for sorting out incoming out outgoing packages

Copy machines. Computers

There will be a Document Control Engineer in charge of D/C with the necessary number of Assistants/Clerks to ensure that all the above duties are carried out promptly and efficiently.

The Document Control Engineer will be directly responsible to the Project Controls Manager or to the person appointed by him.

Testing:

The Project Quality Manager shall ensure that all field and laboratory tests as specified in the contract documents will be carried out.

Technical requirements for testing are detailed in each technical section of the Project Specifications, where specific requirement such as tests and test frequencies, specific performances, requirements and certifications are stated.

The specific testing frequencies and requirements will be agreed with The Client site representatives as per contract.

Following is a suggested list of standard tests carried out on typical project. This list will be adjusted to suite a specific project as needed.

Please note that these tests and their frequencies may vary from project to another and therefore will be adjusted accordingly.

The Site Testing Laboratory shall conduct tests as specified by the contract documents or others as The Client Representative may require as per contract.

Quantities and extent of tests shall be as specified or as required by The Client Representative.

Regarding other tests that cannot be conducted at the site laboratory, they shall be carried out by appointed Independent Testing Laboratory.

Responsibility of Site Testing Laboratory

Carry out all field and laboratory tests as specified in the contract document. Testing shall be executed in strict accordance with applicable standard methods or other procedures required by the Project specifications.

Provide adequate test equipment, tools and measuring devices in order to carry out all the specified fields and laboratory tests.

Testing machines and measuring devices shall be correctly calibrated to nationally recognized standards by an approved independent Calibrating Agency.

Maintain calibration record for measuring, inspection and test equipment.

Maintain records of all tests and inspections performed. The test report include, as a minimum, the following:

All requested tests should be carried out in accordance with applicable standard testing methods.

Testing machines and measuring devices shall be properly and regularly calibrated.

Promptly notify PQ Manager and The Client Representatives of observed irregularities or deficiencies.

The ITL representative authorized to sign certified test reports should sign all test reports.

Provide access to the ITL facilities for The Client Representative and the Contractor at all times for the purpose of inspection.

Inspection of work and Hold points:

The Quality Control will maintain control of Site activities by systematic inspections as required by the contract documents. The QC in conjunction with The Client Representative shall plan inspections to assure that each phase of the work is in compliance with the project specifications.

Prior to covering of a portion of work during the construction process by succeeding work (Hold Point) the QC Inspection shall, when this work is ready or about ready for inspections send a written notice to the Client Representative 48 hours in advance to inspect the completed work.

The request for inspection shall be made through inspection forms 'Request for Inspection (R.F.I.)'.

Hold Points:

The Hold Point is the stage during construction process at which a part of the work has been completed and is about to be covered or otherwise concealed by succeeding work or compliance of the materials to be used is to be confirmed prior to commencement of the activity. At this point, the Quality Inspector shall request the Client Representative to inspect the work and give approval to proceed with the next stage of work.

The major Hold Points will be agreed in conjunction with THE CLIENT Representatives and are as follows: -

Inspections

The Quality Control shall plan and carry out inspections of construction processes and materials, including required interface with the Client Representative and the stipulated Notice durations, to assure full compliance with approved drawings and specifications.

All inspections shall be divided into two categories as follows:

In-Site Inspection

Site inspection is that inspection in the vicinity of the Projects site and shall include inspection of construction processes and materials utilized in the permanent works.

Inspection of materials and equipment

All materials and equipment shall be approved and subject to quality control inspection upon arrival at site prior to use in the works. All QA personnel are required within their assigned areas of responsibility to allow use of only those materials that comply with the contract requirements. They shall disallow use of non-conforming materials or equipment.

Project Quality Manager must ensure that:

All non-conforming materials are clearly identified and segregated to prevent unauthorized use or shipment.

All replacement work or repairs actions will be subjected to the full disciplines of the "Notice of Non-Conformance".

Daily QA Report shall include inspected materials, findings and actions taken.

Off-Site Inspection

Off-site Inspection is that inspection at the point of manufacture of various products that are to be delivered from the factory to the site. Materials may be in the form, of raw material, components, sub-assemblies or final assemblies.

Factory inspection will include:

Verification that materials used conforms to mill certificates and / or test reports;

Visual inspection of products being fabricated against approved shop drawings for compliance

Verification that all required tests are being carried out and properly recorded

Examination of labors qualifications and competence to assure compliance with contract requirements (e/ g. / Welders Certifications).

Sample Room

The Quality Control will maintain a closed off area as "SAMPLE ROOM" restricted for the presentation, display and safe custody of approved material samples for the Project works. The Contractor under the Control of The Client Representative will maintain it.

A logbook shall be maintained for all samples received in and that removed from the sample room.

Quality Control Reports and Documentation

Quality Control shall maintain and make available to The Client representative all records of their inspections and tests performed. These records shall cover both conforming and defective or deficient work and materials. The record shall include a statement that all supplies and materials incorporated in the permanent work are in full compliance with the project Specifications.

It is the responsibility of PQ Manager to ensure that reports are complete, factual and accurate. These records in a summarized format shall be furnished to THE CLIENT Representative weekly.

Quality Control Daily report

The QC shall submit daily QC reports to the Client Representative.

The Daily Report will provide the following information:

Specific locations of the work performed at the time of inspection or testing.

Results of all inspections, including the nature and characteristics of deficiencies observed and corrective action taken or to be taken. These should include dimensional check of work elements with the locations of such inspections. If no inspections or test are reported, it shall be assumed that none were made.

Reports of test performed with their results, including failures and remedial actions taken or to be taken.

Test results in including all computations shall be attached to the QC Report. Where test results cannot be completed by the time the report is submitted a notation shall be made that the test was performed and the date the results will be available. Delayed tests results shall be submitted with the report on the date received and cross-referenced to the date that tests were performed. All Off-site inspection activities and the inspection of materials and equipment at the site. Daily climatic record and weather conditions.