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22 DESIGN & SUPERVISION CONSULTANT QUALITY REQUIREMENTS

22.1 GENERAL

22.1.1 Scope

- 1 This Part specifies the Quality Assurance activities to be performed by Design and Supervision Consultants during all phases of the Contract and should be read in conjunction with all other parts of the Contract.
- 2 The purpose of this part is to define Design and Supervision Consultants responsibility for demonstrating that the work under the contract is executed to the quality standards required by the contract and to outline verification activities.

22.1.2 References

- 1 The following standards are referred to in this part or included for reference purposes:
ISO 9000Quality Management systems. Fundamentals and vocabulary
ISO 9001Quality Management systems. Requirements
ISO 10005Quality management — Guidelines for quality plans
ISO 10006Quality Management systems, Guidelines for Quality Management in Projects
ISO 19011:2011Guidelines for auditing management systems
ISO 31000Risk management — Guidelines

22.1.3 Definitions

- 1 **Nonconformity:** any part of the Works not executed, provided or completed in accordance with the Contract. For the avoidance of doubt and without limiting the generality of the expression the term shall be taken to include any item of Plant, material, goods or work incorporated or used in the Works which does not or may not conform to the relevant quality standards or pass the tests prescribed in or to be inferred from the Contract
- 2 **Owner:** The Ministry, Municipality, Department, Affairs, Agency, Authority, or individual for whom the Project is being undertaken and to whom the handover of the final product will be made.**QA & QC:** Quality Assurance & Quality Control and this may be written as QA/QC.
- 3 **QA:** Quality Assurance. Part of quality management focused on providing confidence that quality requirements will be fulfilled. QA involves a continuous evaluation of the adequacy and effectiveness of the overall Quality Management System in order to evaluate the deviation from established quality objectives.
- 4 **QC:** Quality Control. Part of quality management focused on fulfilling quality requirements. The QC involves specific control points during design, fabrication or construction stages to check the fulfilling of design criteria, acceptance criteria (tolerance, etc.), performance criteria or functional criteria.
- 5 **QCS:** Qatar Construction Specification.

- 6 **QMS:** Quality Management System. A set of interrelated or interacting processes, activities or tasks to direct Project resources to achieve established quality policy and objectives.
- 7 **Quality Management:** Coordinated activities to direct and control an organization with regards to quality.
- 8 **Risk:** The identification, analysis, assessment, control, and avoidance, minimization, or elimination of unacceptable risks.

22.2 GENERAL

22.2.1 Contract Specific Quality Management System

- 1 If required under the Contract the Consultant shall implement a QMS in accordance with ISO 9001, however compliance with the requirements defined in this part take precedence to those of ISO 9001 for any QMS being operated by the Consultant. Compliance with ISO 9001 requirements enhances and supports the specific QA/QC requirements of this part to ensure on time, within budget and quality delivery of the Owner's projects.
- 2 Other standards listed in 23.1.2 above are reference documents to aid in meeting the requirements of this part.

22.3 DESIGN CONSULTANT QUALITY REQUIREMENTS

22.3.1 Quality Responsibility and Duties

- 1 The Design Consultant shall be required to establish, implement and regularly monitor a Project Specific Design Quality Management Plan that will define the Design Consultants approach to meet the specified design standards.
- 2 The Design Consultant shall be required to undertake a quality auditing, monitoring and oversight role with regards to any appointed sub-consultants under their control.
- 3 The Design Consultant shall specify any examinations and tests necessary to demonstrate that the works conforms to the design expectations and will meet the requirements of the Contract
- 4 The Design Consultant shall establish and maintain a system of records that will provide evidence that the Supervision Consultant has effectively monitored the Contractors quality controls and inspections and that the resulting product meets the design criteria. Records shall be made available to the Owner or delegated authority when requested.
- 5 The Design Consultant must respond promptly to any audit or surveillance finding generated and issued by the Owner or delegated authority as defined in the Contract.
- 6 The Design Consultant shall ensure that a suitably qualified Quality Manager will verify that the requirements of this standard will be fulfilled.

22.3.2 Quality System Documentation

- 1 The Design Consultants shall ensure the following documents are established and implemented

- (a) Design Quality Management Plan as detailed in 23.2.3 below
 - (b) Procedures and work instruction: The Design Consultant must include all relevant technical processes and procedures and other pertinent documentation to ensure that the design works are controlled and completed in accordance with the contract.
 - (c) Quality Records: In addition to (and including) quality records identified in the contract or other applicable codes, standards or process and procedures, the Design Consultant shall identify all project quality records within the Design Quality Management Plan.
 - (d) References and other related documents.
- 2 The Design Quality Management Plan shall be submitted to the Owner or delegated authority for review, comment and approval within 30 days after contract award. Any later amendments to the Design Quality Management Plan must be resubmitted to the Owner or delegated authority for review, comment and approval.

22.3.3 Design Quality Management Plan

- 1 Design Consultants are required to submit project specific Design Quality Management Plan identifying the design activities which are specific (not generic) to the Contract. The Plan must define the minimum requirements to be followed by all parties involved in the design process including stakeholders and partners.
- 2 The Plan must also outline the design quality control and quality assurance checks to be performed during the design development and define the role and responsibilities of each party involved in the design process.
- 3 All design activities associated with the project will be undertaken in line with the quality programme specified with the Design Quality Management Plan. Periodically a review of the design processes / procedures will be carried and refined based on quality problems identified and the findings of any audit.
- 4 The Design Quality Management Plan should contain but not be limited to the following contents:
- (a) Purpose of the Plan
 - (b) Overview of the design work
 - (c) Scope
 - (d) References
 - (e) Definitions
 - (f) Roles, Responsibilities & Authorities
 - (g) Project Overview
 - (h) Design Standards
 - (i) Design interface management
 - (j) Design production & review
 - (k) Risk
 - (l) Change Management
 - (m) Schedule

- (n) Design reporting
- (o) Control of design documentation
- (p) Approval of deliverables
- (q) Interface management
- (r) Communication plan
- (s) Any relevant tables
- (t) Appendices

5 The Design Consultants Quality Plan will make reference to and take into account applicable codes, standards, specifications, quality characteristics and regulatory requirements as necessary. It will identify the criteria by which the design and developments inputs and outputs should be accepted, and how, at what stage(s) and by whom, the outputs should be reviewed, verified and validated.

22.3.4 Construction Inspection and Test Requirements Specification

1 The Design Consultant shall provide a specification addressing the complete inspection and testing regime related to their design output, taking into account the requirements of the QCS. This shall be guiding document by which Supervision Consultants and Contractors will be held accountable for all on and off site tests and inspections to be performed. The Inspection and Test Requirements Specifications must be sufficiently detailed to leave no questions regarding the number of samples required or types of tests to be made over and above the requirements of the QCS and which standards must be complied with.

22.3.5 Design Consultant Verification of Sub Consultants

1 The Design Consultant is required to perform audits and verification activities at any sub consultants premises to gain assurance that the subcontracted product conforms to specified requirements.

22.3.6 Risk Identification

- 1 The Design Consultant shall determine, record and monitor all Risks that can affect his organizations ability to meet their contractual requirements and take action to address such Risks and identify opportunities for continual improvement.
- 2 The Design Consultant shall implement processes which identify and address Risk, including improvements, in its operations relating to their contractual requirements.

22.3.7 Quality Records

- 1 The list of quality records generated during the life of the contract, and made available upon request for review by the Owner or delegated authority, shall be indexed by the Design Consultant in his Quality Plan.
- 2 The Design Consultant shall maintain Registers for all incoming and outgoing documents.

22.4 SUPERVISION CONSULTANT QUALITY REQUIREMENTS

22.4.1 Quality Responsibilities and Duties

- 1 The Supervision Consultant shall be required to establish, implement and regularly monitor a Project Specific Quality Management Plan that will define the Supervision Consultants approach to effectively supervise the contractor's delivery of the construction activities in order to meet the specified design standards.
- 2 The Supervision Consultant shall be required to undertake a quality auditing, monitoring and oversight role of the supervision service and extending to the contractors, sub-contractors (Including laboratories) under their control.
- 3 The Supervision Consultant shall perform and/or witness any inspection and tests necessary to conform the conformance of the works to the requirements of the Contract and shall accept only works completed by the Contractor that comply with the specified requirements.
- 4 The Supervision Consultant shall witness sampling and related testing performed in site based laboratories as well as testing performed in external third party laboratories.
- 5 The Supervision Consultant shall establish and maintain a system of records which shall provide objective evidence that the supervision Consultant is meeting the requirements of this standard and that the Contractors control and inspections are effective in meeting the minimum standards required under their contract. Records shall be made available to the Owner or delegated authority in accordance with the requirements stated herein or elsewhere in the contract.
- 6 The Supervision Consultant will be subject to monitoring through audit and surveillance by the Owner or delegated authority or other authorized authority as defined in the Contract. In both cases the Supervision Consultant shall promptly rectify any negative findings with regards to the implementation of the Quality Management Plan and rectify nonconformity and corrective action found during audit and surveillance activities directed at them.
- 7 The Supervision Consultants shall follow up on all findings (nonconformity, corrective actions and observations) issued on the project to, or by the contractor or other entities under the contract.
- 8 The Supervision Consultant is responsible for ensuring the Contractor's work meets all technical and quality requirements of the contract and shall keep continuous records of action taken and shall advise the Owner or delegated authority in writing of significant alteration to construction or manufacturing techniques to ensure that specified requirements are met.
- 9 The Supervision Consultant shall conduct regular surveillance activities to provide evidence of the use and effectiveness of the Contractors quality system throughout the execution of the contract.
- 10 The Supervision Consultant will ensure that the Contractor has included the quality assurance requirements of the contract into subcontracts entered into by the Contractor.

- 11 The Supervision Consultant shall verify that the Contractor's Project Quality Plan, Inspection and Test Plans and other such quality documentation includes or references the Quality Plans, and Inspection and Test Plans of subcontractors and vice versa. All of these documents must be reviewed and approved by the Supervision Consultant.
- 12 The Supervision Consultant shall hold and chair contract specific QA/QC meetings on a monthly basis throughout the duration of the Work. Topics to be addressed at the site quality meeting shall include, but shall not be limited to:
- (a) Reviewing of the previous months Quality
 - (b) Current Performance of the activities
 - (c) Providing 4 week look ahead of planned activities
 - (d) Nonconformity of activities
 - (e) Key performance indicators
 - (f) Audit schedule
 - (g) Status of inspection of test plans and method statements
 - (h) Quality Training
 - (i) Contractors Project quality plan and quality control plans review and on-going effectiveness
- 13 The Supervision Consultant shall be responsible for issuing a Monthly Quality Report template, meeting the Owner or delegated authority requirements, to the Contractor and reviewing the completed reports submitted by the Contractor.
- 14 The Supervision Consultant shall be responsible for completing any QA/QC Questionnaires or Reports required by the Owner or delegated authority.
- 15 The Supervision Consultant shall appoint a suitably qualified, full time, Quality Manager to verify that the requirements of this standard are met. The proposed Quality Manager shall be subject to approval by the Owner or delegated authority.

22.4.2 Quality System Documentation

- 1 The Supervision Consultant Quality System shall include as a minimum the following elements.
- (a) Quality Management Plan as detailed in 23.4.3 below
 - (b) Processes, procedures and work instruction: The Supervision Consultants QMS must include all relevant technical processes and procedures and other pertinent documentation to ensure that the works are supervised and completed in accordance with the contract.
 - (c) Quality Records: In addition to (and including) quality records identified in the contract or other applicable codes, standards or process and procedures, the Design Consultant shall identify all project quality records within the Design Quality Management Plan.
 - (d) References and other related documents.

- 2 These Quality system documents shall be submitted to the Owner or delegated authority for review, comment and approval within 30 days after contract award. In the event that comments are made on the contract quality system documentation submitted for review and comment, the Supervision Consultant shall make adjustments, correction, amendment or alteration required. Such comment will be made on the premise that the adjustment, correction, amendment or alteration is within the scope of the contract and will not affect the contract conditions, specifications, guarantees, price or the like in anyway.
- 3 Adjustments, corrections, amendments or alterations made by the Supervision Consultant to the contract quality system shall, after revision be resubmitted by the Supervision Consultant to the Owner or delegated authority for review and approval.

22.4.3 Quality Management Plan

- 1 Supervision Consultants are required to submit a project specific Quality Management Plan identifying the supervision activities which are specific (not generic) to the Contract. The plan shall reference, or include other documentation which is relevant to the Contract. However as a stand-alone document, the Quality Management Plan shall clearly indicate how the quality program shall be applied to meet the supervision requirements of the contract.
- 2 The Quality Management Plan should contain but not be limited to the following contents:
 - (a) Purpose of the Plan
 - (b) Scope
 - (c) References
 - (d) Definitions
 - (e) Project Organization Chart
 - (f) Roles, Responsibilities & Authorities
 - (g) Project Overview
 - (h) Management Responsibility
 - (i) Quality Objectives & Policies
 - (ii) Specific Quality Responsibilities of the Supervision Team
 - (iii) Management Review
 - (iv) Quality Assurance
 - (v) Control of Documented Information
 - (vi) Audits
 - (i) Quality Control
 - (i) Supply Chain Management
 - (ii) Control of Monitoring and Measuring Equipment
 - (iii) Design (including Temporary Works)
 - (iv) Handling, Storage, Packaging and Delivery
 - (v) Method Statements
 - (vi) Inspection & Testing

- (vii) Review of Drawings
 - (viii) Certificates for Manufactured Goods or materials
 - (ix) Product Identification & Traceability
 - (x) Interface Management
 - (xi) Commissioning
 - (xii) Project Completion & Handover
 - (j) Risk
 - (k) Specific Works Practices / Procedures
 - (l) Communication Plan
 - (m) Change Management
 - (n) Quality Records
 - (o) Reporting
 - (p) Contractor Reporting
 - (q) Training & Awareness
 - (r) Audit Program
 - (s) Lessons Learned & Improvement
- 3 The Supervision Consultants Quality Management Plan will make reference to applicable codes, standards, specifications, quality characteristics and regulatory requirements as appropriate. It will identify the criteria by which inputs and outputs should be accepted, and how, at what stage(s), and by whom, the outputs should reviewed, verified and validated.
- 4 Where design is required by the Contractors contract, the Supervision Consultant responsibilities for the Contractors design work shall be as defined under the contract, however not withstanding this the Supervision Consultant shall responsible for auditing this function of the Contractors quality system.

22.4.4 Risk Identification and Analysis

- 1 The Supervision Consultant shall determine, record and monitor all Risks that can affect his organizations ability to meet their contractual requirements and take action to address such Risks and identify opportunities for continual improvement.
- 2 The Supervision Consultant shall implement processes which identify and address Risk, including improvements, in its operations relating to their contractual requirements.

22.4.5 Inspection and Test Plan's (ITP'S)

- 1 The Supervision Consultant shall ensure that the Contractor submits Inspection and Test Plans to the Supervision Consultant a minimum 30 days prior to the programmed work start date covered by each Inspection and Test Plan.
- 2 The Minimum contents of an Inspection and Test Plan are defined in the current QCS, and the supervision Consultant is responsible for ensuring that an Inspection and Test Plan submitted by the contractor meets requirements of the current QCS or the recommendations submitted by the Design Consultant.

- 3 The Supervision Consultant shall ensure that any Inspection and Test Plan submitted by the Contractor covers the inspections and test points (Hold/Witness/Surveillance/Record Review) required for the Supervision Consultant to ensure that the works are completed in accordance with the contract.
- 4 Where the Design Consultant for the Contract has detailed specific specifications or inspection and test requirements, the Supervision Consultants shall ensure these have been addressed within the Inspection and Test Plan submitted by the Contractor. Where a discrepancy exists between the Inspection and Test requirements of the Design Consultant and the current QCS requirements, the more stringent requirements shall be adopted.
- 5 The Supervision Consultant is responsible for reviewing and approving all Inspection and Test Plans and other such documentation submitted by the Contractor and returning to the Contractor within two weeks of their receipt unless otherwise agreed.
- 6 The Supervision Consultant shall ensure that inspection of processes, materials, goods, services and subcontracted works are described in the Inspection and Test plan submitted by the Contractor.

22.4.6 Technical Procedures, Work Instructions and Method Statements

- 1 The Supervision Consultants shall verify through audit and surveillance that the Contractor's Project Quality Plan includes all relevant Technical Procedures, Work Instructions Method Statements and Inspection and Test Plans to ensure that the Works are completed in accordance with the contract. These shall be submitted by the contractor in accordance with the submission schedule agreed with the Supervision Consultant including those which form part of the Contractors Project Quality Plan.

22.4.7 Monitoring by Supervision Consultants

- 1 Surveillance by the Supervision Consultants will include a variety of typical activities:
 - (a) review of contractor documentations
 - (b) audits of Contractor
 - (c) attendance at Hold/Witness/Surveillance Points
 - (d) Record Review
 - (e) Visits to Contractors off site works etc.
 - (f) Factory Acceptance Tests
- 2 With the exception of visits, these activities will be announced to the Contractors in advance. The Supervision Consultants shall give reasonable notice to the Contractor who is required to make or arrange to be made available all facilities, documentations records and personnel, including those of any subcontractors, which are required for any surveillance activity to be taken.

- 3 The Supervision Consultants shall advise the Contractor in writing of any deficiency or deviation in the contract quality system which comes to the Supervision Consultant's attention as a result of surveillance activities. The Contractor shall be required to rectify the system within as short a period as may be reasonably expected considering the deficiency or deviation. The Supervision Consultant may direct the Contractor in writing to stop the operation and immediately carry out any corrective action, and the Contractor must comply with such direction at his cost. All deficiencies uncovered shall be documented with a Non-Conformance Report or Corrective Action Request as appropriate (Refer to QCS, Section 2 Appendices for a Nonconformity template).

22.4.8 Review of Contractor Quality Documentation

- 1 The Supervision Consultant shall undertake audits of the Contractor in accordance with an established schedule. These audits are to be performed in accordance with formal procedures by trained and qualified auditors.
- 2 The types of audit to be conducted are as follow:
- (a) Compliance Audits: A number of compliance audits shall be conducted at defined milestones in the contract deliverable period. The scope of a compliance audit shall be set by the supervision Consultant to suit the timing of activities, and the findings of the system audit. For example, the scope of a compliance audit could cover any of the following:
 - (i) the complete requirements of the standards and the contract,
 - (ii) specific elements of the standard
 - (iii) specific clauses of the contract
 - (iv) The whole or a part of a single end-to-end process.
 - (b) Product audit: This is a Quality audit of particular deliverable products to check their compliance with specified requirements. Such audits should include performance testing where appropriate.
- 3 The Audit Notification shall also be copied to the Owner or delegated authority for information and they may attend these audits as observers. The Audit Reports shall be submitted to the Owner or delegated authority within 7 days.

22.4.9 Inspection Responsibilities

- 1 For all work the Supervision Consultant shall:
- (a) Review and check that the contractors Method statement and Inspection & Test Plans are in accordance with the Contract.
 - (b) Inspect all works to verify Contractors compliance with the Method Statements, Inspections and Test Plans, Construction Drawings and Specifications.
 - (c) Verify that notices of nonconformity have been properly actioned.
 - (d) Oversee the sampling and testing of materials to ensure conformity to the specifications and the contract.
 - (e) Review all test results and verify that they are in conformity with the Specifications and the Contract.

- (f) Maintain comprehensive records to verify the above.

22.4.10 Inspections and Test Surveillance Points

- 1 The Supervision Consultant shall nominate his own surveillance points to observe the Contractors and Subcontractors activities and maintain evidence of such surveillance.
- (a) Hold Points – Specific critical task in procurement, manufacturing, inspection and testing for which the Supervision Consultant is pre-notified, in advance of the task and for which no further work is carried out until the supervision Consultant has verified and confirmed conformity by signing off the relevant Records Forms
- (b) Witness Points- Specific critical task in procurement, manufacturing, inspection and testing for which the Supervision Consultant is pre-notified in advance of the task and for which the Supervision Consultant may elect to attend or waive. When attended, the Supervision Consultant shall confirm conformity by signing off the relevant Record Forms. When then Supervision Consultant waives his right to inspect, it should be recorded as such on the appropriate Record Forms.
- (c) Surveillance points- Any procurement, manufacturing, inspection and testing task, so identified on the Inspection and Test Plan, performed on a random basis, without notification by the supervision Consultant.
- (d) Record Review- When specified this point requires the Supervision Consultant to Collect and review for approval the contractor Inspection & Rest Records.

22.4.11 Visits

- 1 The Supervision Consultants is empowered to visit any of the Contractor's or Subcontractor's work sites for any purpose at reasonable times. The Contractors shall assist with such visits and make available those records and personnel necessary to satisfy the supervision Consultants requirements. Such visits may include surveillance points identified by the Contractor and Subcontractors. These visits may include works situated outside of Qatar.

22.4.12 Supervision Consultant Verification

- 1 The Supervision Consultant has the right to perform verification activities at the Contractor's and the Subcontractor's premises (including the construction site) to gain assurance that the subcontracted product conforms to specified requirements.

22.4.13 Interfacing

- 1 The Supervision Consultant is responsible for ensuring that the interfaces between the contract works and different packages of work and different Contracting entities are managed appropriately and that technical integrity and configuration control is maintained.

22.4.14 Consultants Site Diary

- 1 A Site Diary shall be kept on site by the Consultant and entered daily for the duration of the Contract. The diary must be entered neatly and legibly in English and should indicate all visitors to the Site and the reason for the visit. The diary shall also record the following:
- (a) Labour on site by trade and its allocation.
- (b) Sub-contractors working on site.

- (c) Material and equipment delivered to site.
- (d) Material and equipment utilised.
- (e) Plant, equipment and tools brought on to or removed from site including hired plant.
- (f) Work progress during the day.
- (g) Verbal instructions requiring written confirmation.
- (h) Temperature and weather conditions.
- (i) Details of any occurrence which may affect the progress of the Works.

2 The diary shall be regarded as a Quality Record as part of 23.4.17 below.

22.4.15 Punch Lists

- 1 The Supervision Consultants shall be responsible to ensure that the Contractor prepares punch lists at appropriate inspection and acceptance stages to record the outstanding work. The Owner or delegated authority or its nominee may at any time add pending items, or Nonconformity to the Punch Lists.

22.4.16 Protection of the Works

- 1 The Supervision Consultant has the responsibility to ensure that the Contractor is taking necessary precautions for the protection of works before the Initial/Final Acceptance/Handover to Owner or delegated authority or its nominee.

22.4.17 Quality Records

- 1 The list of quality records generated during the life of the contract, and made available upon request for review by the Owner or delegated authority, shall be indexed by the Supervision Consultant in his Quality Plan.
- 2 The Supervision Consultant shall maintain Registers for all incoming and outgoing documents.

END OF PART