

# QAQC CONTRACTUAL GUIDELINES

## SMALL SCALE WORK






(Contract value less than 2 Cr)





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### DOCUMENT RELEASE AUTHORIZATION

				
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## QAQC CONTRACTUAL GUIDELINES – SMALL SCALE WORKS

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## **1. INTRODUCTION**

This document aims to illustrate Employer's Quality requirements in Projects during construction phase. It also aims to provide guidelines on responsibilities and authorities of projects key parties to implement quality management system and FIRST TIME RIGHT APPROACH in Projects during construction Phase.

Direct and indirect costs of establishing quality management system and implementing Quality procedures are deemed to be included in the Accepted Contract Amount. No further claim in relation to such costs will be considered.

Those requirements are designed to be the minimum standard that the Contractor should implement on the Project.

The Contractor shall ensure that all the quality related issues are rectified promptly and in time-bound manner such that the handing over of the project to the end-user is ensured smoothly without any additional cost to the Employer.

This document contains guidelines and best practices with respect to Quality Assurance / Quality Control requirements for construction activities on a project.

- Guidelines/requirements for procedures to be implemented to ensure that the project meets the requirements in accordance with the contract, industry standards and legal requirements.
- Guideline for inspection and documentation of construction activities.
- Detection and resolution of circumstances which affect the quality.
- This document to be read in conjunction with the project requirements and specifications.

## **2. GENERAL QUALITY CONTROL REQUIREMENTS**

The contractor shall:

- a) fulfill, implement and maintain quality control program as per the Contract and specifications. to prevent occurrence of Nonconformities and its repetition.
- b) Assist the Project Head / Consultant and Client Representative in auditing QC activities.
  - i. Project Head / Consultant and Client representative's audit conducted as agreed
  - ii. Compliances of MLDL Internal & External audit findings
- c) Inspection and testing of material
  - i. Maintain record for the inspection and tests executed.
  - ii. Calibration of Equipment
  - iii. Implementation of first in and first out.
  - iv. Tagging and stacking as per MLDL standard.

- d) Quality Assurance & Implementation
  - v. Follow MLDL approved method statement & checklists.
  - vi. Assisting MLDL to perform Mockup and its approvals.
- e) Arrange for inspection/tests as required by the Contract, local Authority / Consultant / Client.
- f) Provide Tools & tackle, instruments, qualified personnel, and facilities necessary for the inspection/ tests.
- g) Repeat tests and inspections after correction of non-conforming work as agreed.
  - i. All re-testing and re-inspection shall be executed at no additional cost to the Employer and number of sample will be decided by employer.
- h) Project Head / Consultant and Client Representative may elect to perform additional inspection and tests at the place of the manufacture, the shipping point, or at the destination.
  - i. Inspection and test performed by Project Head / Consultant and Client Representative shall not relieve the Contractor of his responsibility to meet the Specifications.
  - ii. Inspection and tests by Project Head / Consultant and Client Representative shall not guarantee that materials delivered at a later time will be acceptable.
- i) Non-conforming materials will be rejected by Project Head / Consultant and Client.
  - i. Contractor shall be notified in writing to correct/remove the defective material from works and material.
  - ii. If the Contractor fails to respond, the Project Head / Consultant and Client may order correction, removal, replacement of defective materials.
  - iii. Removal of rejected material from the site shall not exceed seven days and at the cost contractor.
- j) Materials accepted on the basis of a Certificate of Compliance may be sampled and inspected/tested by the Project Head / Consultant and Client Representative at any time.
  - i. the materials accepted on the basis of a Certificate of Compliance shall not relieve the Contractor of his responsibility to use materials which comply with the Specifications.

- k) Contractor shall impose the specified QCP requirements upon Suppliers and Sub-contractors.
  
- l) Failure to Perform
  - i. If the Contractor fails to perform any or all the provisions, the Client, at his sole discretion, reserves the right to have the Project Head / Consultant and Client Representative perform any or all the provisions of this Section and back-charge the Contractor for the actual cost of such work and any administrative charges deemed necessary.

This remedy for the Contractor's failure to perform shall be in addition to any other right or remedy available under the Contract.

### **3. PROJECT QUALITY PLAN (PQP)**

The Contractor will adhere to the Project Quality Plan (PQP) provided by MLDL. Further he will provide his acceptance by signing the PQP.

### **4. QUALITY MEETINGS / QUALITY WALKS:**

Quality meeting shall be conducted in the project on weekly basis by the Employer

The Employer and contractors' attendance for this meeting shall include minimum, MLDL construction team and contractor project incharge.

Weekly joint Quality site walk shall be conducted with the Employer and contractor – attendance for this walk shall include contractor Project incharge/responsible qualified representative ,end of the site walk it shall be raised as a Quality site walk report and findings recorded in the report shall be issued as an Observation Report / NCR to contractor.

Weekly Quality meeting randomly- Contractor shall respond within 24 hrs for any concerns of minute recorded else deemed to be considered as accepted.

## 5. INSPECTION PROCEDURES

### 5.1. Inspections

Contractor shall establish a program for inspection of activities affecting quality covering all construction site and other related operations, including both onsite and offsite operations. Inspection responsibility matrix of all stakeholders & all activity including the frequency of inspection has to be describe in FQP (field Quality Plan)/Activity ITP.

Inspections shall be performed to verify compliance with documented instructions, drawings, procedures, and specifications as required by the contract.

All inspections shall be documented by the contractor as required by specification.

- i. Inspect work before beginning , during and after completing a representative portion of the work.
- ii. Perform follow up inspections as necessary to ensure compliance with the contract.
- iii. Perform an initial inspection when a representative segment of work has been completed.  
This inspection shall include the following:
  - Conduct scheduled tests.
  - Results – As per Contract requirements, analytical procedures, and the actual test result.
  - State whether item tested or analyzed “conforms” or “fails to conform”.
  - Test reports shall be signed by the authorized laboratory representative.
  - Immediately all documents to be delivered to Project Head/ Consultant and Client Representative.
  - Examine quality of workmanship.
  - Check for omissions or dimensional errors.
  - Approve or reject initial work.
- iv. Provide follow-up inspection as necessary.  
Include continued testing and examinations to comply with the Contract requirements. Contractor and the Consultant / Client representative perform follow-up inspections daily to:
  - Ensure continuing compliance with Contract requirements.
  - Ensure compliance with control testing until completion of particular feature of work.
- v) Stage passing clearance procedure as per MLDL standard to be followed.
- VI) Unit wise tile hollowness tracker to be maintained till rectification and clearance by MLDL representative.

5.1. **Mock-up Inspection Request:**

Contractor has to do a mock-up for each activity in their scope of work by following proper drawings, details, sequence as per the method statement to set the expectation for workmanship, to visualize the finishing details, to identify the challenges well in advance, once mockup is done contractor shall offer it to the Employer / PMC/ Engineer for inspection (where ever Design consultant is required they also will be involved) to receive the feedback through formal Mock up inspection request, contractor will incorporate the feedback comments, once incorporated it shall act as a reference for workmanship ensure clear expectations is set from both parties. All test required for mockup shall be organized by the contractor to confirm the compliance on the parameters specified in the specification.

5.2. **Quality App:**

Quality app should be used by all responsible qualified representative and supervisor of towers which have online filling of checklist (Pre, During & Post), online closure of Site NC and observation within TAT specified, online stage clearance as per approved Flow line etc.

Additional features will be included as per requirement which need to follow by Contractor.

**6. DOCUMENT AND SUBMITTAL CONTROL**

- a) Establish written procedures for processing all documents and submittals required in the project.
  - i. Procedures shall address receipt, filing, safe guarding, processing and transmitting.
  - ii. Establish procedures to ensure preparation and distribution of documents periodically.
  - iii. Procedures shall also ensure documents contain the required technical information.
- b) Provide quality control procedures, methods, and documents at the location.
- c) Maintain separate files for quality related documents and ensure availability to the Client Representative upon request.
  - i. All Quality related records & documentation should be handover to clients upon closure of contracts.
  - ii. Protect all records from damage, deterioration, and loss.

- d) Contractor shall not change/alter approved submittals, procedures, shop drawings or any other documentation without the Project Head/ Consultant and Client Representative written authorization.
- e) Establish document registers to verify the approval status of ITP's, Method Statements, drawings, and other submittals.

## **7. IDENTIFICATION AND CONTROL OF ITEMS AND MATERIALS**

- 7.1. Contractor shall establish control procedures to ensure that items or materials accepted Through shipping or receiving inspection are properly used and installed.
- 7.2. Contractor shall identify all items and materials so that they are traceable throughout all inspections, test activities, and records. For stored items, the identification method shall be consistent with expected duration and type of storage.
- 7.3. Contractor shall record equipment and material identifications and ensure that they are traceable to the location where they are incorporated into the work.

## **8. THIRD PARTY QUALITY/INTERNAL AUDITORS**

Employer may appoint a Third Party/Internal Quality Auditor at any stage of the project.

The auditor shall conduct site audits from the time of commencement till the final handover.

Contractor need to comply all the requirements of Third party quality Audit (TPQA) & internal audit points and submit the closure report within the Turn around Time (TAT).

The general scope of work of TPQA is as follows:

- Review of Project Management System
- Quality Protocols (material specifications, factory inspection, work procedure to be adopted for execution and finished product standards)
- Mock up Approval & Work Authorization
- Inspections to monitor quality of supervision & Review
- Awareness and Training adequacy of work force deployed.

Documented information of Quality Audit records (Audit schedule, Audit reports, and closure reports) are kept and maintained as part of the Quality management system by Contractors)

## 9.INSPECTION AND TEST PLAN (ITP)

Contractor shall Follow an MLDL Inspection and Test Plan (ITP) for each Specification Section and for the design/execution/test processes for each item.

Note : this clause no.9 will not applicable for labour rate contract.

## 9. TOOLS & CALIBRATION

Checking & working tools listed as per activity WPM & maintaining its calibration record.

In case of RCC work cube storage and Curing arrangement to be done.

NOTE : All Job Specific tools and tackles as per MLDL WPM requirement must be procured on Project.

## 10. NON-CONFORMANCE MONITORING

10.1 Contractor shall take prompt action to identify the causes of each non-conformance and the corrective action necessary to prevent recurrence. The results of failure and discrepancy report summaries, supplier evaluations shall be used for determining corrective action. Information developed during construction, tests, and inspections that support the implementation of required improvements and corrections shall be used to support the adequacy of corrective action taken.

10.2 Employer will withheld the amount for all open observation, NCs & audit points as per MLDL QA violation clauses.

10.3 In this case the Employer will issue a Site Observation Report (SOR) to the contractor who has to work on closing this SOR by taking proper remedial action. SOR shall be issued only for issues related to Quality scope of works. If SOR is not actioned within 3 WD, it will result in the SOR being converted to an NCR as found appropriate by the Employer.

Duration for implementation of Correction shall not exceed **Major- 9 WD, Moderate -6 WD & Minor -3 WD**, unless otherwise justified by the contractor and accepted by the Employer.

10.4 MLDL project representative has full authority stop the work immediately without any notice/prior intimation when potential or critical issues are identified.

## **11. CONTRACTOR'S QUALITY REPRESENTATIVE**

One responsible Qualified representative should be kept by contractor who can submit Quality related documents like MIR, Checklists, Training attendance sheet etc. and give final inspection/checking to Employer representative on timely basis of completed work.

## **12. QA/QC INDUCTION & TRAINING**

- a) No workmen will allow to work without quality Induction. Each workmen should have an ID card of quality inducted.
- b) Tool Box talk should be conducted on site with minimum requirement of 2 TBT/ Trade/ Building on monthly basis. Record of same shall be maintained in form of attendance sheet and shared with MLDL team on monthly basis.
- c) Visual Work procedure should be displayed at prominent locations on site before start of any new activity.

## **13. MATERIAL HANDLING AND STORAGE**

- a) Contractor shall be responsible for handling, storing and preserving equipment and material from the time of receipt to the time of acceptance by the Employer.
- b) Contractor's storage and handling procedures shall be designated to prevent damage, distortion of shape or dimension, loss, degrading, loss of identification, or substitution.
- c) The handling procedures shall address the use, inspection and maintenance of special devices such as crates, boxes, containers, dividers, slings, materials handling and transportation equipment and other facilities.
- d) Contractor shall identify equipment and material requiring special handling or testing.
- e) Wherever storage required little elevated surface from the existing floor level contractor has to ensure suitable arrangement are made to have the elevated surface to avoid damage to material due to water or due to dampness from the existing soil surfaces. In particular materials like Rebar, cement, concrete repair materials shall be stored in elevated area and storage shall not be done directly on soil, storage area shall be prepared with lean mix of concrete if it is not having a concrete surface.

#### 14. MATERIAL SAMPLE :

Approved physical samples/sample board along with the signed material sample approval document shall be kept for reference.

#### 15. QUALITY CONTROL RECORDS

- a) Contractor shall develop a complete records index based on the requirements. Document and data submittals in each Section of the Specifications.
- b) Indicate all quality control records, documentation, submittals and data required.
- c) Supplement these records as necessary to monitor quality throughout the project.
- d) The records identified in the index shall provide objective evidence that quality control program activities conform to the contract requirements.
  - Include evidence that required verifications have been performed.
  - Establish the basis for key project decisions.
- e) Authenticate all records. Only complete and properly authenticated documents shall be maintained as records of material and equipment quality.
- f) Records shall be indexed, filed and maintained in a manner that provides for timely retrieval; traceability, easy identification and the latest status (acceptability) of equipment and material.
- g) Protect Quality Control records from deterioration and damage till handing over to MLDL.
- h) All the original quality control documents as capture and mentioned in this documents to be handed over to the MLDL team for issuance of visual completion certificate.

#### 16. WORKMANSHIP

- a) Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- b) Perform work by persons should qualified to produce workmanship of the specified quality,
- c) Electrician, plumber and qualified welder should be license holder.
- d) Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- e) Comply with manufacturer's published installation instructions. If instructions found to conflict with Contract Documents, request clarification from Employer before proceeding.
- f) Activity / work will accept/reject as per tolerance limit of technical specification, IS/BS or

employer's tolerance limit whichever is more stringent.

- g) All relevant and required tools and tackles should be made available on site by contractor which is required for executing work on site.

## 17. PROTECTION OF PROPERTY

- a) Do not load / permit structure in a manner that will endanger the structure.
- b) Do not subject work or adjacent property to stresses or pressures that will endanger it.
- c) Existing surfaces and facilities:
- Take positive action to protect existing surfaces and facilities from damage resulting from construction operations unless modifications to the surfaces or facilities are required.
  - Protect paving, landscaping, utilities and facilities from damage caused by mobile and stationary equipment, including vehicles delivering materials to the project site.
  - Protect finished surfaces, including jambs and soffits of openings used as passageways through which materials are handled, against possible damage resulting from the conduct of the work by other trades.
  - Provide and maintain adequate protection for adjacent structures.
  - When required by law or for the safety of the Work; shore, brace, underpin, or otherwise protect those portions of adjacent structures that may be affected by the Work.

### New Work

- All finished surfaces shall be clean and un-marred upon acceptance of the area.
- Do not permit traffic or material storage on finished surfaces.
- Where some activity must take place on the finished surface in order to perform the Work, provide and maintain adequate protection.
- Provide and maintain adequate protection against the weather at all times so as to preserve Work, materials, equipment, apparatus, and fixtures free from damage.
- Do not use items of equipment that are intended to form a part of the completed work as construction equipment without specific approval from the Project Head in each instance.
- Protect finished surfaces, including jambs and soffits of openings used as passageways through which materials are handled, against possible damage resulting from the conduct of the work by other trades.

- Provide and maintain adequate protection for adjacent structures

**18.QUALITY REWARDS & RECOGNITION:**

- Contractors shall participate in Quality Month Celebration held at project site during month of November and motivate his workers & staff to participate in the events

**19.PENALTY CLAUSE**

QUALITY ASSURANCE VIOLATION CLAUSES					
S. No	Description	1st Instance	2nd Instance	3rd Instance	Remarks
1	Violation to work sequence	NCR	Repetitive NCR+Penalty	SWN	20k for each violation+ Hold Amount- 1.5 times of estimated repair cost
2	Work commencement without MLDL/ PMC approval ( <b>work method Statement, ITP, Checklist and mock-up Approval</b> )	Obs	NCR	SWN	Work to start only after MLDL/ PMC approval
3	Work commencement without stage clearance	NCR	Repetitive NCR+Penalty	SWN	10k for each violation+ Hold amount against estimated repair cost
4	Work Commencement without Quality Induction to Workmen who is new to site	Obs	NCR	NCR+ Penalty	10K for each violation
5	Work commencement ( For RCC ) without structural consultant approval	NCR	Repetitive NCR+Penalty	SWN	10K for each violation
6	Work commencement ( For Civil ) without Architect approval	NCR	Repetitive NCR+Penalty	SWN	10K for each violation
7	Work commencement ( For Finishes ) without Architect approval	NCR	Repetitive NCR+Penalty	SWN	10K for each violation
8	Work commencement without approved GFC drawings / approved sketches / approved shop drawings	NCR	Repetitive NCR+Penalty	SWN	10k for each violation
9	Work Commencement without Conducting Training	Obs	NCR	Penalty	10k for each violation

QUALITY ASSURANCE VIOLATION CLAUSES					
S. No	Description	1st Instance	2nd Instance	3rd Instance	Remarks
	for Engineers, Supervisors and Workmen while starting New activity				
10	Work Commencement without Quality Tool Box Talk for every trade	obs	NCR	Repetitive NCR+Penalty	5k for each violation
11	Use of unapproved / Substandard materials (Without approved test Reports)	Obs	NCR	SWN	
12	<b>Contractual Documents</b> : Work commencement without BOQ / LOI / Contractual documents etc	NCR	SWN	-	
13	<b>Documents</b> : Incomplete / non updated documents ( Like Concrete cube register / Concrete pour register / Incoming material register / Material rejection register / Concrete pour cards / Pour log sheet / Curing time sheet / Lab testing formats / Work process checklist / Incoming material checklist / Drawing register / WMS / MAS / ITP's etc. )	Obs	NCR	Repetitive NCR+Penalty	20k for each violation
14	<b>Structures</b> : Structure defects like Honey comb / offsets / deviation in plum / deviation in alignment / Waviness / undulations / <b>Exposed steel on surface/ Corrosion in tensile members/ Any foreign material embedded in casted concrete</b> etc.	NCR	Repetitive NCR	Hold amount +Penalty	Hold Amount- 1.5 times of estimated repair cost for each violation Penalty- 20k for each violation
15	<b>Materials</b> : Improper / substandard material stacking / preservation / handling	Obs	NCR	Hold amount +Penalty	10k for each violation+ 1.5 times Hold amount against estimated repair cost
16	Incoming material unloading without checking / intimation to MLDL/ PMC	Obs	NCR	Repetitive NCR+ Hold Amount	Unloaded material not to be used unless tested and approved by MLDL/ PMC, Hold amount- 1.5 times

QUALITY ASSURANCE VIOLATION CLAUSES					
S. No	Description	1st Instance	2nd Instance	3rd Instance	Remarks
					of estimated repair cost for each violation
17	Non closure of FOR ( Field Observations ) within the stipulated time	1st reminder for closure	2nd reminder for closure	Penalty+ Hold amount	10k for each violation+ Hold amount minimum 1.5 times of estimated repair cost for each violation
18	Non closure of NCR within the stipulated time, Non-implementation of Correction/Corrective Action approved by MLDL/ PMC QA	1st reminder for closure	2nd reminder for closure	Penalty+ Hold amount	20k for each violation+ Hold amount minimum 1.5 times of estimated repair cost for each violation
19	Concrete quality ( Cube failure / variation in cube strength / yield / standard deviation / Curing / skip of testing / slab cracks / unfinished slab surface etc )	NCR	Rep etitive NCR	Hold amount +Penalty	Hold Amount- 1.5 times of estimated repair cost for each violation Penalty- 20k for each violation
20	Deployment of non qualified / inexperienced / unskilled staff / labor where Skilled workmen is required e.g. Use of Helper as Mason/Fitter/Carpenter	Obs	NCR	Penalty	5k for each violation
21	Use of non-calibrated equipment/apparatus/instrument	obs	NCR	Repetitive NCR	Penalty for Repetitive NC
22	Use of non specific construction tools	Obs	NCR	Repetitive NCR	Penalty for Repetitive NC
23	Deviation of Process and Product requirements mentioned in PQP/Quality Assurance Plan/ITP/Formats/Checklist	NCR	Repetitive NCR+ Hold amount	Penalty	Hold Amount- 1.5 times of estimated repair cost for each violation Penalty- 10k for each violation
24	Non-compliance to activity checklists (inspections not	Obs	NCR	Repetitive NC+ Penalty	5k for each violation

QUALITY ASSURANCE VIOLATION CLAUSES					
S. No	Description	1st Instance	2nd Instance	3rd Instance	Remarks
	being done as per approved checklists)				
25	Contractor's responsible person absence in Planned & Communicated Quality Walk/Quality Meetings	Written Instruction	Penalty	Penalty	5k for each violation
26	<del>No Internal NC system implementation at site</del>	<del>Written Instruction</del>	NCR	Repetitive NC	Penalty for Repetitive NC
27	<b>Repetitive NC</b>	1 Ok Penalty	20k Penalty	40k Penalty	NC repeating with same root cause
28	Manipulation of official records and reports	NCR	Repetitive NC	20k Penalty	
29	Non followance of site instructions of MLDL/ PMC Staff in terms of quality management systems	Written Instruction	Penalty	Penalty	20k for each violation
30	<b>Snags:</b> Failure in action/ closing of Snag and submission of de-snagging (snag closure) within specified timeline of 5WD	Snag List	Proportionate whole amount related to work carried out where Snag is identified shall be kept on hold by billing engineer/ contract manager/ cost consultant whoever is responsible for certifying the bill/ payment certificate, shall be released only after the satisfactory closure of snag which shall acceptable closure		

Abbreviations
<b>NCR</b> - Non Conformance
<b>SWN</b> - Stop Work Notice
<b>Obs</b> - Field Observation
<b>K</b> - Thousand ( rs. )

Notes	
1	All penalty is applicable and will be imposed to Contractor/Agency, this Penalty matrix is not for the Individuals/Workers
2	Any field observation/ NCR/ Stop Work Notice/ Penalty will be imposed by MLDL/ PMC staff to the Contractor based on 1st/2nd/3rd instances as per Categorization done in above Penalty matrix.
3	Penalty amount mentioned is for each violation
4	Contractor has to perform applicable correction / Corrective Action at his own cost in addition to Imposed penalty
5	Contractor on repeated Process violation shall be blacklisted from MLDL in future Pre qualifications
6	Hold amount in RA Bill during Quality certification until closure of NCR with appropriate and approved corrections and corrective actions

## 20. PROJECT CLOSEOUT

### a) Handover

On the day on which the Works are agreed as complete, the Contractor shall issue to the Project Head the following approved documents:

**(Including but not limited to the below list)**

- As Built Drawings.
- Third party/ External lab test reports of all materials.
- Material inspection form ( MIR ) and MTC of all incoming materials.
- Activity checklists of all building/towers etc.
- NC and Observation report of all building/towers.
- Concrete Cube register of all building/towers.
- Approved Concrete Mix designs.
- Approved Method statements.

### Snagging / De-snagging

Contractor's authorized representative will be responsible for making sure that the completed works are as per Contract. He shall establish an inspection regime for their internal quality control procedures for snagging and de-snagging of all completed works.

He shall discuss and get approval from the Employer's QA /QC Engineer and Project Head about the proper handing-over procedure from their internal snagging and de-snagging up to the handing-over to the Project Head.

Contractor should be liable for rectification/completion of snags till handing over of units/Flats to meet the satisfaction of Customer/Owner.

## 21. DEFECTS

- a) Objective of the Contractor shall be to deliver a defect free project on the day the Works are handed over to the Employer.
- b) Contractor will be responsible for providing & removing of protection of finishes multiple times as per requirement for rectification/dependency with other vendors work etc till handing over to customers.
- c) The Contractor shall provide and implement his own progressive defective works inspection regime on site to allow the Project to be handed over defect free. This requirement will be an important part of the Contractors pro-active project specific quality plan.

- d) Employer's Representative/ Estate Department will issue a final list of defects for the architectural, structural and MEP works within 14 calendar days of the agreed completion dates. Subject to the type of defect, the Contractor will be required to clear and have the Employer's Representative/ Estate Department sign off all defects within 60 days of the Taking-Over Certificate.
- e) Any defects resulting from the inspection prior to acceptance by the Employer will be formally notified to the Contractor by the Employer's Representative and rectified by the Contractor within 5 days of the date of the written notice.

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