

Important Requirements for the Construction Work in Buildings.

- **Contract Documents**
 - 1) **Contract Agreement.**
 - 2) **General Condition of Contract.**
 - 3) **Particular Condition of contract.**
 - 4) **Specifications of the project.**
 - 5) **Design Drawings of the Project.**
 - 6) **Bill of Quantities.**
 - 7) **Correspondences which have been occurred during the tender stage.**
 - 8) **Letter of intent.**
 - 9) **Instruction to tenders.**
 - 10) **Clarifications which have been done at the tender stage.**
 - 11) **Amendment to contract documents.**
 - 12) **Appendices of prices break downs.**

- **To start with any project we need to have**
 - 1) **Building Permit, Deed/title, survey plan, and survey coordinate list.**
 - 2) **Necessary N.O.C. (No objection certificate) from the concern authority of water, electricity, sewage, and telecommunications etc.**
 - 3) **Soil Investigation Report mentioning the depth of excavation required, type of foundation recommended, water table, and the bearing capacity of soil**
 - 4) **Demarcation of the plot limits and set back.**
 - 5) **Mobilization Permit.**
 - 6) **Logistic plan showing all the facilities including but not limited to roads, stores, site offices, temporary fence, car parking areas etc...**
 - 7) **Quality control plan.**
 - 8) **Health, Safety and environment plan.**
 - 9) **Time Schedule for activities which are going to be executed at site (Base Line Program.**
 - 10) **Organization Chart of staff and Key persons + CVs**
 - 11) **Cash Flow**
 - 12) **Man power Diagram**
 - 13) **Field survey plan showing the natural ground levels and the adjacent road levels.**
 - 14) **Construction plan.**
 - 15) **Method statement of activities.**

- 16) Building Permit application (Electrical)**
- 17) Procurement List indicating the time required for each material and when it must be available.**
- 18) Logs for material, workshop drawings, and prequalification of various materials, drawings, suppliers and subcontractors**
- 19) Subcontractor/Suppliers list.**
- 20) Daily Report Form**
- 21) Monthly Report Form.**
- 22) Procurement status log.**

Requirements for the submittal of any Subcontractor / Supplier Prequalification

- 1) Stamped transmittal – checked and verified by contractor.
- 2) Company details including photographs of facilities.
- 3) Location Map and Information
- 4) Organization chart
- 5) Personnel qualifications with enclosed Cvs.
- 6) Commercial Registrations.
- 7) Accreditations from authority, certificates, ISO, etc.
- 8) Workshops and Capabilities.
- 9) Test Reports (Test certificates, calibrations of equipments)
- 10) List of Machines and date purchased and calibration validities.
- 11) List of projects, Clients.
- 12) Copies of approvals from government department and other consultant.
- 13) Health and safety statement.
- 14) Supplemental requirements.

Requirements for the submittal of any material

- 1) Product data.
- 2) Sample submissions-(sample and mock-ups).
- 3) Test report (Product test report).
- 4) Method statements and Method of installation.
- 5) Manufacturer's data.
- 6) Shop Drawings.
- 7) Engineering calculation.
- 8) Information or direct for application and removal procedures for all protection materials used on or for samples during shipping, storage and installation.
- 9) Accessory hardware and fixing along with samples and warranty.
- 10) Detailed description of inspection and product testing programs, and inspection reports.
- 11) Warranty of materials and accessory.
- 12) References (Tender Documents), general & particular condition of contract, particular specifications, general specification (QCS), approved for construction drawings, bill of quantities, other applicable codes.
- 13) Contractor's schedule of submittals (Plan date and Actual date)
- 14) As Built Drawings.

- 15) Other supplemental requirements.
- 16) All materials related to fire fighting and fire alarm a certificate from civil defense of each is required.

Requirements for the submittal of any Work Shop Drawing

- 1) Stamped verified and review contractor’s transmittal
- 2) Drawing Tile Block, Client, Consultant, Contractor, Sub Contractor, Key Plan, Revision Information, etc.
- 3) Drawing Content Requirements
 - a) Dimensions
 - b) Design Criteria
 - c) Materials
 - d) Connections
 - e) Bases
 - f) Foundations
 - g) Anchors
 - h) Schedule (mark, description, length, diameter, Nos., Location)
 - i) Technical and performance Data
 - j) Calculations
 - k) Other relevant information, like symbols, legend, etc.
- 4) Drawing Reference (Tender Documents)
 - a) Particular Condition of contract
 - b) General Condition of contract
 - c) Particular Specifications
 - d) General Specification, QCS
 - e) Issued for Construction Drawings (IFC)

Drawing No.	Content	Date Issued

- f) Bill of quantities
- g) Other applicable codes and requirements.
- 5) Schedule of submittal and Implementation

Plan Date of Submittal:

Plan Date of Implementation:

Actual Date Submitted:

- 6) As-Built Drawings
- 7) Health and safety Provisions

List of Civil & Architectural Material Submittals in Building Construction

1. Sub & Super structure concrete (Mix Design + Admixtures) including all trial mixes & tests required.
2. Concrete repair materials.
3. Reinforced Steel bars of various diameters including all tests required.
4. Post tensioning materials and accessories.
5. Selected back filling materials including all tests required.
6. Water proofing Materials for sub structure, Roofing, and wet area including primer paint, membrane, protection board/ screed & liquid applied waterproofing etc.
7. Expansion joint filler boards, rods & Mastic filler & Aluminum caps.
8. Water stopper for construction joints.
9. Hydrophilic water stopper for construction joints.
10. Thermal Insulation Materials for roof including the foam concrete.
11. Thermal Insulated & concrete masonry blocks including all tests required.
12. Block work & Plaster work accessories like wall ties, wire & corner mesh galvanized or stainless steel.
13. Mortar mix for block work.
14. Mortar mix for plaster work / Ready mix plaster.
15. Wooden doors materials and accessories.
16. Steel Doors materials and accessories.
17. Aluminum Doors, windows, curtain walls, composite panels with all necessary accessories required.
18. Glass & Glazing for all the elevations and partitions.
19. False ceiling materials including all the accessories.
20. Wall and floor ceramic tiles, ceramic fixing adhesives and grouts.
21. Screed for car parks, floors and roofs.
22. Interlock, Curbstone, & wheel stopper.
23. Stone cladding with all the necessary accessories required.
24. External & Internal paint & Powder coatings for Aluminum profiles.

25. Marble & Granite for stairs and entrances.
26. Skylights, Domes, and fabric tents.
27. GRC decorative panels (Internal & External).
28. Stainless steel hand rails, columns cladding, skirting etc.
29. Surface treatments (Curing compounds & Release agents).
30. Grouts & Anchors for concrete work.
31. Structural strengthening materials.
32. Flooring system (Epoxy based flooring system).
33. Flooring system (Polyurethane based flooring system).
34. External Car park sheds.
35. Decorative stamped concrete for drive and walk ways.
36. Precast boundary walls.
37. precast septic tanks and soak away.
38. Rubber corner & wall guard.
39. Traffic direction arrow and parking strips.
40. Polyethylene Sheet.
41. Anti-termite material.
42. Carpet & vinyl flooring.
43. Mosaic tiles
44. Raised flooring system.
45. Precast Hollow Core slabs.
46. Anchor bolts for steel structure work.

- 47. Scaffolding system for supporting the concrete shutter work.**
- 48. Sun breakers.**
- 49. Access ladders.**
- 50. Asphalt for roads.**
- 51. GRP lining for water tanks.**
- 52. Copper Domes for roofs.**
- 53. Aluminum cladding work for roofs.**

List of Electrical Materials / Systems which need to be Submitted in Building Construction

- 1. PVC pipes, conduits, and boxes for wiring installation.**
- 2. Cable trays and cable trunks.**
- 3. Cables & wires.**
- 4. Transformer.**
- 5. Main switch board (MVP with capacitor bank).**
- 6. Cables lugs.**
- 7. Motors control centers.**
- 8. Wiring devices.**
- 9. Light fittings.**
- 10. Distribution Board.**
- 11. Sub Main Distribution Board.**
- 12. Isolators.**
- 13. Fire resistance wires for fire alarm system.**
- 14. MICC wires.**
- 15. Generators.**
- 16. Fire Alarm system.**
- 17. CCTV System.**
- 18. Building Management System.**
- 19. Public Address System.**
- 20. Voice Evacuation System.**
- 21. Lighting protection system.**
- 22. Earth system.**
- 23. Telephone and data system.**
- 24. Structural Data System.**

List of Mechanical System Materials which need to be Submitted in Building Construction

Fire Fighting System

- 1. Firefighting pumps**
- 2. Firefighting pipes**
- 3. Fire Fighting Valves**
- 4. Fire Fighting Fittings and Accessories**
- 5. Fire Fighting Sprinklers**

Drainage System

- 1. Drainage Pipes (UPVC).**
- 2. Drainage Fittings and Accessories.**

Water Supply System

- 1. Water Supply Pumps (Booster & transfer types)**
- 2. Water Tanks.**
- 3. Water supply pipes.**
- 4. Water supply valves.**
- 5. Water supply fittings and accessories.**

Irrigation System

- 1. Irrigation Pumps**

HVAC System

- 1. Chillers**

Agenda of a progress meeting with consultant

- 1. Presentation (Accomplishment Report)**
- 2. Program of works & updates, resource loading, cash flow**
- 3. Presentation (Monthly look ahead)**
- 4. Areas of delay & Remedial measures**
- 5. BOQ/Billing**
- 6. Submission of various reports**
- 7. Procurement schedule**
- 8. Site Organization**
- 9. Additional Manpower and Key Personnel**
- 10. QA/QC Program & Method Statement**
- 11. Material Quality control**
- 12. Submission of complete set of design drawings**
- 13. Submission of coordination drawings**
- 14. Submission of workshop drawing**
- 15. Safety and Security Program including subcontractors**
- 16. Coordination between and among subcontractors**
- 17. Structural Issues**
- 18. Architectural Issues**
- 19. MEP Issues**
- 20. Material submittals**
- 21. Housekeeping & Lighting**
- 22. Unsolved Issues from the last meeting**
- 23. Others (Open discussions)**

Monthly Report must contain the following Items

- 1. Introduction & Project scope of work**
- 2. Project summary (Project particular)**
- 3. Submittal of workshop drawings log**
- 4. Submittal of material log**
- 5. Organization chart**
- 6. Labor histogram**
- 7. Time schedule**
- 8. Material procurement log**
- 9. QA/QC report**
- 10.HSE report (accident report)**
- 11.Variations Report**
- 12. Claims (Extension of time)**
- 13. Construction activities**
- 14. Pending matters**
- 15.Material on site log**
- 16.Photos**

Cost Estimate in Building Construction Work.

Concrete Form Work.

→ REQUIREMENTS OF THE COMPLETE ANALYSIS AND DESIGN CALCULATIONS TO BE SUBMITTED FOR APPROVAL

DESIGN ANALYSIS AND DOCUMENTATION

A. BASIS OF DESIGN

Provide a narrative report on how the design concept satisfies the requirements, meets criteria and is cost effective. Include statements on the following:

- A.1 List a summary of the criteria upon which the structural design will be based. Include a statement of live loading to be used, to include floor loads, wind, earthquake, etc., with references to justify the criteria used.
- A.2 List all assumptions required for the structural design where the design criteria is undefined, unclear, conflicting, or unknown. State the basis for the assumption made.
- A.3 Describe the gravity and lateral load structural systems selected for **Hypermarket Building** to be constructed, and explain why it was selected. Provide all pertinent information, such as capacity, size, dimensions, and a list of material selected with design strengths.
- A.4 Provide a narrative summary of the type of foundation to be used, method by which the allowable bearing values are to be determined, and maximum allowable bearing capacity and lateral-force resisting capacity of the foundations, as well as other allowable soil parameters used in the design.
- A.5 Describe the structural floor and roof systems designed. Include a description of the lateral force resisting system with appropriate materials and dimensions. Clearly describe the load path to the foundation for both the vertical and the lateral-force resisting system. Include definitions of the manner in which foundations and slabs on grade are used to distribute lateral forces between the structure and the ground.
- A.6 When appropriate, provide a statement of any special considerations that affect the design (e.g., "post-tensioning floors", special corrosion resistance requirements, fire-resistive requirements, etc.).

B. DESIGN CALCULATIONS

- B.1 Provide calculations to support all items and details outlined on the drawings and specifications. Structural calculations must be legible, orderly, and easily understandable. A registered practicing structural engineer different from the originator must check calculations.
- B.2 Include a cover sheet indicating the project title, location, construction contract number, and the names of the persons originating and checking the calculations.
- B.3 Include a table of contents.

PROCESS DESCRIPTION				
PREPARATION AND PROCESSING OF PAYMENT CERTIFICATES				
Doc. No.	Revision	Date	Prepared By	Approved By
QMSP-PM-06	0	13-12-12	Dept. Mgr.	EVP

1 **PURPOSE**

To describe the system and define the responsibilities for the preparation of payment certificates.

2 **SCOPE**

This process covers the system for the preparation and processing of (a) monthly and final payment certificates to be forwarded to the client, and (b) subcontractors' payment certificates, for all projects executed by the Division.

3 **REFERENCE**

- 3.1 Project Contracts
- 3.2 Purchase Order / Subcontract
- 3.3 Bill Of Quantity
- 3.4 ISO 9001:2000 Clause 7.0
- 3.5 Quality Manual Section 7.0

4 **DEFINITIONS**

Nil

5 **RESPONSIBILITY**

- 5.1 Quantity Survey Chief
- 5.2 Quantity Surveyor
- 5.3 Project Manager
- 5.4 Construction Manager
- 5.5 Finance Department

6 **PROCESS DESCRIPTION**

6.1 **Interim and Final Payment Certificate**

- 6.1.1. Project Site Office quantity survey department shall prepare contract specific

format of Payment Application / certificate (to be submitted for the client's / his representative's approval), or, use client provided Payment Application / certificate format, if any.

- 6.1.2. At the end of every month, the site quantity surveyor shall prepare the Payment Application / certificate with details of all works, including any additional works, executed during the current month, including the value of works, in the approved format and submit to the project manager.
- 6.1.3. The project manager shall verify the Payment Application / certificate, discuss with the quantity surveyor regarding changes, if any, to be made in the certificate.
- 6.1.4. The site quantity surveyor shall include the project manager's comments and prepare the Payment Application certificate, and give it back to the project manager, for approval.
- 6.1.5. The project manager shall submit the Payment Application to the client's representative / consultant, as per the contract terms.
- 6.1.6. The site quantity surveyor shall assist the client's quantity surveyor, if requested, in order to clarify any point of disagreement. (The Site quantity surveyor shall refer any major disagreement, to the attention of the project manager and the QS department).

Once the Payment Application / certificate has been approved by the client's representative, the project manager shall send a copy of the approved payment certificate to the chief quantity surveyor and the finance manager in the Head Office to the administration and finance manager.

- 6.1.7. All project managers shall prepare a statement of the status of the payment certificates by end of every month, and

forward to chief quantity surveyor.

- 6.1.8. The Head Office Finance Manager shall prepare quarterly financial report, showing the payment status of all projects, and give copies of the report to EVP.
- 6.1.9. The quantity survey department shall prepare delay payment charges, if applicable and required, for the projects.

6.2 Sub-Contractor's Payment Certificate

- 6.2.1. At the end of every month sub-contractors or suppliers shall submit their monthly payment claims (invoice / payment notice) to the project manager.
- 6.2.2. The Project Manager shall instruct the Construction Manager to verify the completed work done by sub-contractor validating with Engineer / Client signed-off accepted check-list.
- 6.2.3. The Construction Manager / Site Engineer will verify the sub-contractor completed work and enclose the Engineer / Client sign-off check-sheets, will sign the invoice for technical acceptance and verification only and forward it to Site QS for verification of quantities provided by the sub-contractors.
- 6.2.4. The project manager shall instruct the site QS for checking the quantities of completed work done by the sub-contractors, and the claims if any.
- 6.2.5. The site quantity surveyor shall verify the certificate for the actual completion of the claimed jobs, quantity and price, and the purchase order / subcontract requirements, and give back the certificate to the project manager, with his comments, if any.

- 6.2.6. The project manager shall review and approve the certificate, after getting it corrected by the subcontractor, if required. Then, send it to the QS department for verification.
- 6.2.7. After verification, the QS chief shall forward the certificate to EVP for approval and pass it to the financial department for their action and payment. Copies of the approved payment certificate are given to the project manager and the sub-contractor.
- 6.2.8. Finance Division will process the payment to the sub-contractor in accordance with the payment terms and conditions as per the sub-contract agreement.

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RECORDS

1. Monthly payment certificates
2. Subcontractor payment certificate
3. Statement showing status of payment certificates.

PROCESS DESCRIPTION				
PREPARATION OF SUBCONTRACT DOCUMENTATION				
Doc. No.	Revision	Date	Prepared By	Approved By
QMSP-CM-02	0	30.10.12	Dept. Mgr.	EVP

1 **PURPOSE**

To describe the system of preparation of subcontract documents.

2 **SCOPE**

This process is applicable to all project related subcontracts of PLQ

3 **REFERENCE**

- 3.1 Main Contract documents
- 3.2 Procurement process
- 3.3 ISO 9001:2000 Clause 7.0
- 3.4 Quality Manual Section 7.0

4 **DEFINITIONS**

- 4.1 B.O.Q - Bill of Quantities
- 4.2 L/C - Letter of Intent
- 4.3 P.C - Payment Certificate
- 4.4 Consultant - Agency appointed by the client for the supervision of the project.
- 4.5 Engineer - Engineer assigned by the agency for supervision of works

5 **RESPONSIBILITY**

- 5.1 Contracts Administrator
- 5.2 Senior QS
- 5.3 Technical Manager
- 5.4 Procurement manager

6 **PROCESS DESCRIPTION**

The contracts administrator / senior QS shall;

- 6.1. Receive all required information of the works to be sub-contracted like scope of works, agreed price and terms of payment from the

procurement department. (Refer QMSP-PR-01: Procurement process).

- 6.2. Verify the scope of work and other contractual requirement of the works to be included in sub-contract.
- 6.3. Prepare the sub-contract, comprising the technical, financial and general conditions of the contract. Sub-contract could be back to back contract or as deemed necessary. That means contract terms and conditions could be the same as given in the PLE contract with the Client.
- 6.4. Provide the draft contract to the project manager of the concerned project, and to the Director Finance / Finance Manager for payment terms and conditions for their review and comments.
- 6.5. Incorporate the comments of the project manager and Director Finance / Finance Manager and submit the same to the EVP (Executive Vice President) for his comments and endorsement.
- 6.6. Forward the sub-contract documents to the sub-contractor for necessary signature.
- 6.7. Arrange meeting between the sub-contractor and the EVP to discuss points unresolved, if any, in the conditions of contract.
- 6.8. Arrange necessary corrections as agreed by the EVP and the sub-contractor and obtain the signature of both the parties, in two originals, one each to the sub-contractor and for the Division.
- 6.9. Distribute copies of the sub-contract to the project manager, procurement manager, finance manager, QS department and cost control manager, and maintain the original with the contracts section.

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RECORD

The sub-contract