

# King Fahd University of Petroleum and Minerals

**Department of Construction Engineering and Management**

## **CEM 515 Project Quality Management**

**Term Paper**

### **Procurement Quality Management In Construction Project**

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## **Procurement Quality Management for Industrial Construction Project**

### **Abstract:**

Procurement Project quality management of prime contractor for medium size project is submitted to owner for review and approval directly after signing the contract .In industrial project , equipment representative more than 50 % of project total cost , hence more attention should be considered for procurement quality management that is part of project quality plan. The monitor and revised the process according to site location, progress of construction and product availability will increase the project saving that will be shown in this brief procurement.

### **Methodology:**

The procurement quality project management process will be based on the followings:

1. Project tender specification.
2. Quality Project Management
3. Equipment and subcontractors requirement
4. International Standard ISO 9001A: 2000
5. General site condition
6. Siemens work experience with SEC-EOA
7. Problems and difficulties in completed and ongoing construction projects done by competitors.

### **Objective / Project Scope of work:**

Setting and doing procurement quality management to deliver services and equipments that is refereed to product right as per requirement at right time and within lowest cost that meeting customer satisfaction and purpose of procured.

The processes will help the company to benefits the followings :

1. Improve company and project reputation name
2. Achieving customer satisfaction and increase market share
3. Reduce rework and mistake
4. Standardized forms
5. Reduce warranty period
6. Increase profit
7. Lower insurance cost
8. Improve cash follow

## **Introduction:**

Industrial construction detailed Project quality management submitted after contractors signed the contract. Hence procurement services and equipments are considered the main cost of a project. Project quality plan should be set directly after awarded a project and procurement mainly for the equipment has to be set at the beginning. The main process:

1. Planning
2. Documentation
3. Evaluation
4. Awarded
5. Administration
6. Inspection
7. Delivery
8. Improvement

The product delivery will be closely monitor and delivery decision will be responsibility of project manager based on the following variables that changed from a project to other :

1. Project site storage facility
2. Site location
3. Type of suppliers
4. Market condition
5. Reliable of sub contractor and progress of construction
6. Availability and schedule of installation manpower
7. Cash follow of the project

Procurement systems process has a profound impact on the construction industry project. For example:

- Ineffective and inefficient procurement systems can impede delivery or compromise the intended project outcomes.
- non-uniform procurement practices between different authorities and different spheres of the public and private sector increases tendering costs, expose tenderers to increased risks and frustrates initiatives aimed at the development of an adequate procurement skills base.
- Emphasis on lowest price rather than best value impacts negatively on industry performance in terms of time, cost and quality. It affects the sustainability of enterprises and their ability to develop and retain a skilled workforce, and to actively promote safety, health and the environment. It

tends to encourage opportunistic tenders, leading to a delivery paradigm that is focused on claims and adversity.

- Poor choices in contracting, pricing and targeting strategies can lead to disappointing or costly project outcomes

## **Construction Project Quality Management Procurement Process**

The construction project quality management process is dependent on several factors such as criticality, complexity, and dollar value of the system, equipment, material, or service, as well as the nature of the procurement (i.e. fixed price vs. cost, R&D vs. production, etc.). The procurement processes are used to fulfill the contract that occurs at any point in a project life cycle where external resources are required to provide supplies and services in any combination.

### **Procurement Process**

Procurement process is process of identifying the project products needs that can be procure within time and budget and seek support from out side the project team member for specialist products.

#### **1- Procurement Planning**

Procurement planning is process of identifying the project products needs that is needed to deliver a project which satisfy customer.

- a- Project scope of work  
It provided important information about projects needs  
Provide short description of the products.  
Provide brief outline of the quantity and quality of product.
- b- Project Specification and drawings  
It provided the boundary of the products.
- c- Product list  
List of equipments and well the subcontract work to be subcontracted.
- d- Company resources  
If the organization doe not have contacting group or product then the project team has to supply both resources and expertise to conduct the activities.
- e- Product estimated value  
Estimate the financial value of the proposed contract for budget value

- f- Product supplier list  
List of equipment suppliers and subcontractors
- g- Type of product Procurement
  - Non competitive bids
    - Sole sourcing : is the procurement of goods or service that is unique to particle vendor and cannot be obtained from anther source
    - Single sourcing: is the procurement of goods or service from particle vendor rather than competitive bids.
  - Competitive bids: Accepted the lowest bid meeting the requirements and specification in the competition.
- h- Approval to procedure with procurement  
Management decision to proceed / not to proceed based on estimated and market condition of product  
Provide justification for not to proceed.

## **2- Documentation of purchasing requirement**

Documents shall identify scope, product characteristic, and forms. They should include delivery dates for product. Failure to identify things that exist at outset of the procurement give rise to costly dispute between the parties

- a- prepare procurement documents
- b- Standard forms
  - Inquiry – purchase order – delivery note
  - Establish terms and condition of the contract
  - Correspondence and references
- c- Invite contractors from approved shortlist to submit tender offers or expression of interest
  - Advertise for tenders
  - Invite tenders offers from short list
  - Response to clarification
  - Conduct clarification meeting / site meeting as necessary
  - Issue attendance /with minute of meeting
  - Issue addenda if needed
- d- Receive tender offers or expression of interest
- e- Prepare evaluation report
- i- Review procurement documents
- j- Make official sue that finance is available

### **3- Supplier and Subcontractor evaluation**

Based on setting criteria the bids or proposal are evaluated.

- a- Open and record tender offers received
- b- Determine whether or not tender offers are completed
- c- Determine whether offers compliance to request
  
- d- Evaluate tender submissions
  - Standard items
    - Price and term of payment
    - Delivery
  - Non standard
    - Overall or life cycle cost
    - Technical capability
    - Understudying the needs
    - Management of provider approach
    - Financial capability of provider
    - Price and technical skills
    - Installation and testing
    - History with vendor organization
    - Customer acceptance
    - Customer feedback and approval of the selection
  
- e- Perform a risk analysis
  - All likely or possible outcome risks should be identify and explicitly assigned to a particle party in procurement documents, failing which
    - Tender price will be unexpected high
  
- f- Prepare a tender evaluation report
  - The evaluation report should included the recommendation in respect of action to be taken.

### **4- Award Contract**

Procurement planning is process of identifying the project products needs that can be procure.

- a- Notify successful tender and unsuccessful tender of outcome
  - Notify in writing the successful tender and unsuccessful tenders.
  
- b- Compile contract document-
- c- Capture contract award date
- d- Formally accepted tender offer

## **5- Administration**

Procurement administration is process of ensuring that supplier / contractor performance meets contractual requirement.

- a- Administer contract in accordance with the terms and provision of the contract
- b- Ensure compliance with requirement  
Monitor the contractor / supplier's performance to ensure that the request quality standard is attained and all requirements are satisfied and certify compliance upon completion.
- c- Capture contract completion and closeout
- d- Payment  
Pay within the time period provided in the contract to avoid dispute and reasons for delay.

## **6- Inspection**

A formal inspection is review of deliverable by an inspector who would typically be external to the project team, third party. The inspector captures statistics on suspected defects. It is technique for use with documentation.

- 1- Request for manufactures / subcontractors inspection procedure
- 2- Review vendor/ manufacturer inspection procedures
- 3- Get approval of inspection test plan
- 4- Submitted inspectors third part CVs for approval for each equipments
- 5- Send RFI
- 6- Review and RFI report and clear punch list
- 7- Get release of the equipments
- 8- Ship the equipments
- 9- Document to be provided to selected third part inspector
  - a. Copy of un price PO
  - b. Approved drawings
  - c. Approved specification
  - d. Place of inspection
  - e. Address of owner

Characteristics, not wholly visible in the end item, for which conformance must be established progressively through precise measurements, inspections, tests, and controls applied during purchasing, manufacturing, performance, assembly, and functional operations.

Noncomplex items have quality characteristics for which simple measurement and test of the end item are sufficient to determine conformance to contract requirements. Basically there are two levels of contract quality requirements

a. *Contractor & owner Inspection* This simplest level, contractor inspection, is used for small purchases whereby the item being procured is not complex or critical. Using this requirement, the contractor is solely responsible for inspecting the item, and there is no third party inspection or involvement.

b. *Standard Inspection.* There is a wide variety of clauses to use depending upon the nature of the procurement. The appropriate standard inspection clause(s) should be used on all procurements when the item procured warrants something greater than Contractor Inspection (i.e. other than non-complex small purchases). The various standard inspection clauses essentially require an inspection system acceptable to the owner, provide for owner inspection at source, and provide various administrative details such as handling unacceptable items.

## **7- Delivery**

Procurement planning is process of identifying the project products needs that can be procure.

a- Deliver to site with the following documents

- Equipment / Material description
- Quantity , size , model brand
- Equipment test certificate
- Equipment / material manual

b- Delivery Decision

- Available of site store facility
- Radiance of installation place
- Cash flow
- Installation Manpower
- Related interface item

c- Site inspection

- Conduct visual inspection
- If the product or progress of subcontractor is rejected then
  - i. Inform vendor , supplier and subcontractor for reason for rejection
  - ii. Assure rectification
  - iii. Check insurance regarding claim possibility for delay

## **8- Improvement**

Project manager shall monitor the process and

- Whether the procurement satisfied the stated objective
- Whether needs and expectation have be meets
- Whether the procurement process should be improve
- How external factors such regulation , standard component have change
- Whether the process improve cost saving
- Project manager will monitor the site

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