

QUANTITY SURVEYOR'S ROLE IN FABRICOM-GTI

Presentation to the Dutch Association of Cost Engineers

15th March 2007

Introduction

Chairman, ladies and gentlemen, esteemed colleagues I would firstly like to thank you for attending this function and secondly for allowing me to participate.

My name is John McCracken and I am **Fabricom-GTI's** Contract Manager engaged in its international projects. I am currently engaged in managing projects in Libya, Algeria, and Belgium and in the Netherlands. I specialize in identifying the risks associated with large EPC and Design & Build Turnkey Contracts and in arranging the most thoughtful and appropriate contracts for our projects. I am also constantly engaged in trying to strengthen both the contract and commercial management of our projects. This often means a close liaison with our cost engineers.

Given this close liaison with our cost engineers it is perhaps appropriate that I try to explain my role within **Fabricom-GTI** and the **Suez** Group to the Dutch Association of Cost Engineers (DACE).

Legal Needs

A construction project has legal needs from its conception to its completion. The more complex the project, the more sophisticated the needs, which often involve a spectrum of services from financing, contracts, procurements, labour relations and dispute prevention.

Failure to meet these needs can create delays, cost-overruns, design errors or omissions, and contract issues that end up in a formal dispute resolution process that can seriously damage the project and those involved with it.

A fast-track Industry

Construction and engineering are arguably the world's largest industries. They are fast-paced and governed by strict deadlines. Building a successful project requires cooperation and teamwork between the contractor's team, subcontractors and many others. We need to understand the industry from finance, development and design through implementation, construction and close-out. Drawing upon our management and technical expertise, we need to minimize disputes and accomplish common project goals. Our ability to anticipate, address and prevent the myriad of problems that can arise during any phase of a construction project provides real value to our clients and enhances both their and our bottom lines. Effective Contract Management is pro-active.

Profitability & Contract Management

The profitability of work performed under a construction contract is determined as much by the way the contract is managed as it is by the way the work is performed. One of the most effective ways of increasing profitability is to improve construction contract management.

Primarily, at **Fabricom-GTI** and at **Suez**, we believe one of the best preventative measures is to enter into thoughtful and appropriate contracts for our projects.

At Fabricom-GTI we try to create policies, procedures, and systems that minimize exposure, producing positive business results

Strategic planning minimizes the risk of exposure to issues that inevitably arise in the course of day-to-day business.

Strengthening Contract Management & Continuous Improvement

At Fabricom-GTI and within the **Suez** Group:

- We are constantly trying strengthen contract management, administering changes and controlling claims
- We are constantly trying to improve field-generated documentation and field management procedures
- Our Contract Managers engage with field personnel to familiarize them with the procedures which are best suited to the project

- We are constantly trying to achieve improved control, accountability and claims prevention

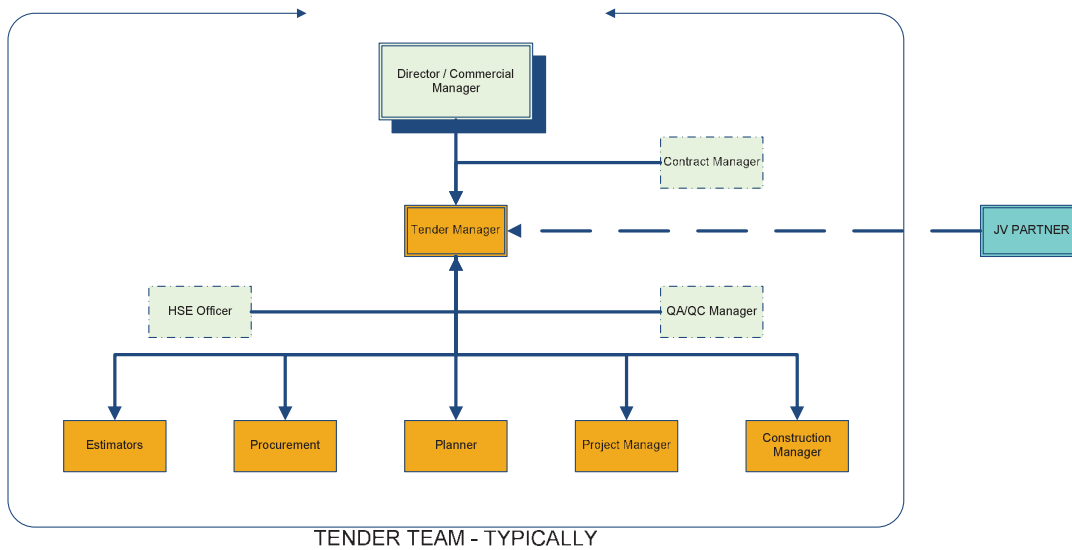
Continuous improvement is based on updating actual experiences and feedback from our Project Teams and from the project documentation created by them.

Contract Management & the Tender Process

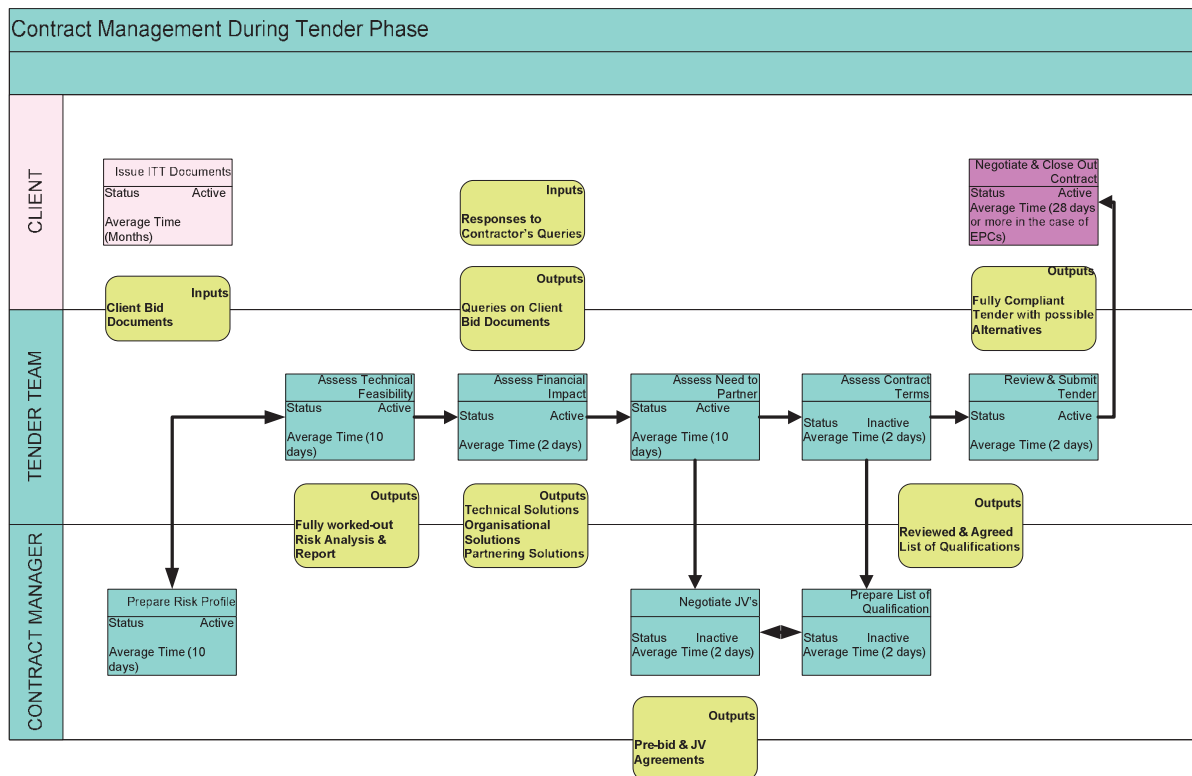
At *Fabricom-GTI* the Contract Manager is integrated into the Tender Team and will typically profile the risks associated with any project being tendered.

Typically the Tender team and process followed by *Fabricom-GTI* are as follows:

The Tender Team



The Process



Risk Management during the Tender Phase

Risk Management

Risk management is the process of measuring, or assessing risks and developing strategies to manage it. Strategies include transferring the risk to another party, avoiding the risk, reducing the negative effect of the risk, and accepting some or all of the consequences of a particular risk.

Risk avoidance

Avoidance may seem the answer to all risks, but avoiding risks also means losing out on the potential gain that accepting (retaining) the risk may have allowed. Not entering a business to avoid the risk of loss also avoids the possibility of earning profits.

Steps in the risk management process

- Identification
- Assessment
- Potential risk treatments

Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories: (Dorfman, 1997) (remember as 4 T's)

- Tolerate (retention)
- Treat (mitigation)

- Terminate (elimination)
- Transfer (buying insurance, partnering or sub-contracting)

Risk retention

Involves accepting the loss when it occurs. True self insurance falls in this category. Risk retention is a viable strategy for small risks where the cost of insuring against the risk would be greater over time than the total losses sustained.

Risk transfer

Means causing another party to accept the risk, typically by contract or by hedging. Insurance is one type of risk transfer that uses contracts. On large Contracts including EPC or Turnkey Contracts partnering is another method of transferring risks. Subcontracting is yet another. In these the contract language in any Joint Venture, Consortium or Subcontract Agreement should be consistent with the partner or subcontractor accepting the risks relating to the works that they are assigned. Other methods include agreeing contract language with Employer's that limits risks without the need to pay an insurance premium or to transfer risks or to include large risk contingencies in a tendered price. Liability among construction or other contractors is very often transferred or handled in this way.

Create the plan

The risk management plan should propose applicable and effective controls for managing the risks. A good risk management plan should contain a schedule for control implementation and responsible persons who shall take ownership of those actions.

Implementation

Follow all of the planned methods for mitigating the effect of the risks. Purchase insurance policies for the risks that have been decided to be transferred to an insurer, avoid all risks that can be avoided without sacrificing the entity's goals, reduce others, partner and subcontract others and retain the rest. Work on the basis that a risk should be assigned to the party best capable of controlling any of the identified risks.

The Risks and Exposures traditional to Construction Projects

Financial Risks & Exposures

- Project Financing (Debt, Equity)
- Labour and Material Costs (Own, Contract, Outsourced)
- Currency Fluctuation (Foreign Exchange)
- Interest Rate Changes (Credit Risks, Bonding)
- Regulatory Exposures (Governmental, Regulatory, Local)
- Funding Risks

Contractual Risks & Exposures

- Contractual Liability (Breach, Third-Party Actions)
- Indemnification (Hold Harmless Clauses)

- Indemnification Forms (Limited, Intermediate and Broad)
- Design Responsibility (Design Delegation, Assumption of Risk)
- Warranties (Express, Implied)
- Waivers of Subrogation
- Liquidated, Consequential and Punitive Damages Clauses
- Force Majeure Clauses (Schedule Delay but no costs paid)
- Partner or Subcontractor Default

Operational Risks & Exposures

- Operations Failure Risk
- Construction Defects
- Weather Volatility (Seasonality)
- Political Risk (Domestic, International)
- Reputational Risk (Company, Product/Service Defamation)
- Regulatory Risk
- Operational Leverage Risk
- Material / Labour Price Risk
- Supplier Provisioning Risk

Organizational Risks & Exposures (Project Delivery Methods)

- General Construction Contracts (Design-Bid-Build)
- Design-Build Contracts (Self-Performed or Subcontracted Design)
- EPC Contracts (Engineering, Procurement and Construction)
- Fast Track Contracts (Phased Design and Construction)
- Joint Venture or JV / Design-Build Contracts

Insurable Risks & Exposures

- Workers Compensation and Employers Liability
- Commercial General Liability
- Commercial Property and Builders Risk
- Professional Liability
- Environmental Liability (Pollution Coverage)
- Contractors Professional Liability
- Directors and Officers Liability (D&O Coverage)
- Employment Practices Liability (EPL)
- Project Specific Coverage
- Owners and Contractors Protective Liability
- Project Management Protective Liability
- Subcontractor Default Liability (Bonding Alternatives)

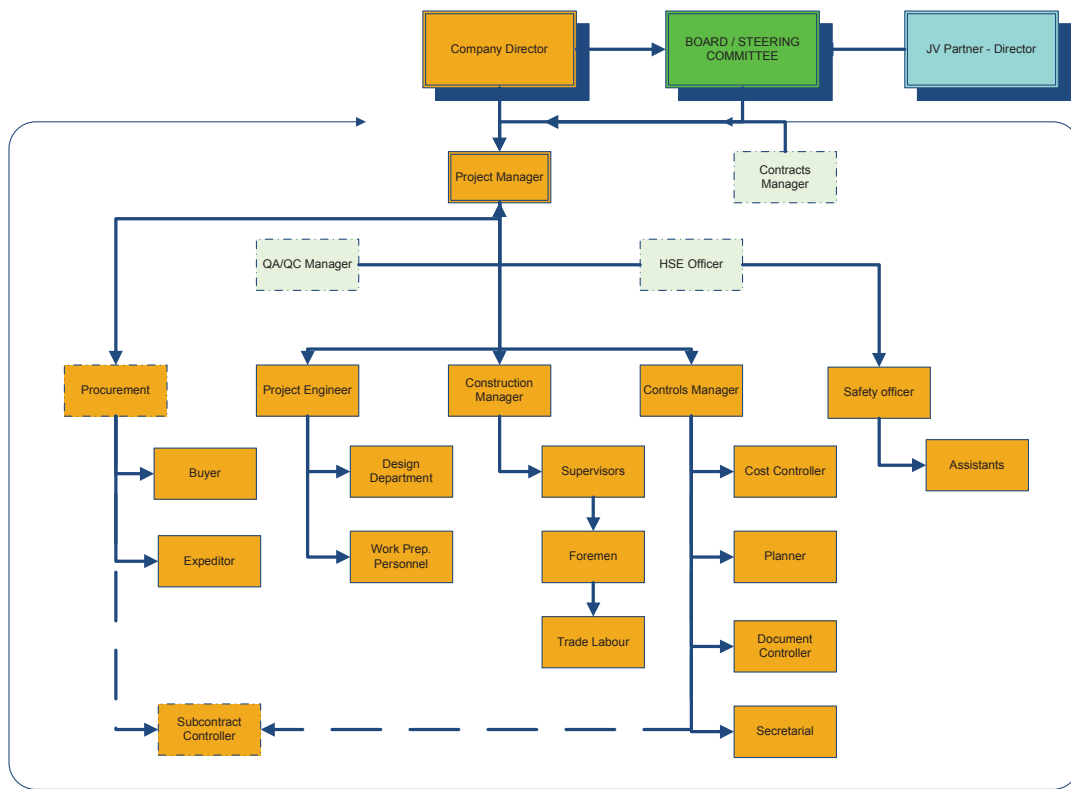
Prevention during the Tender Phase

As stated above we believe one of the best preventative measures is to enter into thoughtful and appropriate contracts for our projects. The processes set out above will define not only our price strategy but also our strategy in closing out any contract with our Clients.

Contract Management & Project Execution

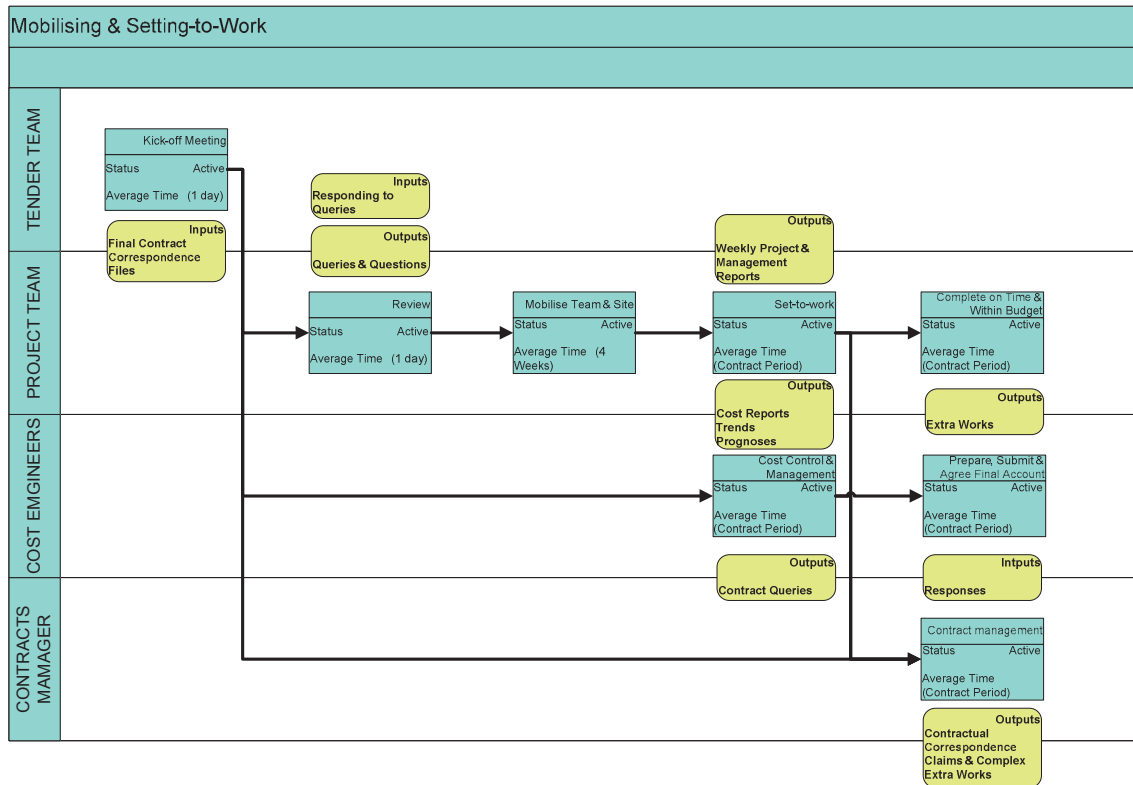
Typically the Project Team and process followed by **Fabricom-GTI** is as follows:

The Project Team



TYPICAL PROJECT TEAM – LARGE (EPC) CONTRACTS

The Process



Documentation & Successful Contract and Commercial Management

Documentation will play an important role in successfully administering both the contractual and commercial management of any Project. The documentation necessary to achieve this goal is extensive and demands a strict discipline by the Project Team.

Typical Construction Project Documentation

The following records are the standard construction project documents that are generated during the completion of a construction contract. These documents usually originate at the home office or at the project office. The project cost engineer will recognize and even generate some of them.

- Contracts between the Owner and Contractor
- Contracts between Contractor vendors, partners and subcontractors
- Contract drawings, including index and revisions
- Specifications, including general conditions, special conditions, technical specifications, and revisions
- Addenda
- Construction Schedules:
 - Baseline
 - Updated

- As-Built
- Purchase orders
- Invoices for materials
- Bid analysis sheet including risk profiles, actions and contingencies taken
- Monthly payment requisitions with itemized breakdowns of amounts
- Payments to subcontractors and suppliers
- Change orders, back-up computations, and their status (i.e. requested, in process, or approved)
- Dispute progress schedules and reports, including bar charts, CPM diagrams, computer printouts, and narrative reports with any updating or revisions
- Daily reports, logs, and diaries by job superintendents, project managers, and field engineers including cost engineers
- Payroll records and time cards
- Contractor cost reports
- Construction progress photos
- Correspondence, including memos, notes, letters, and e-mails, and originated by either party between the contractor and owner, contractor and subcontractors or suppliers.
- Certified date of substantial completion and final completion
- Notice to Proceed (NTP)
- Laboratory testing reports
- Itemized equipment hours charged to the project
- Procurement records for major items or long-lead items
- Shop drawings and logs
- As-built drawings
- Notice of Substantial Completion
- Notice of Final Completion
- Pre-Bid Meeting Minutes
- Pre-Award Meeting Minutes
- Pre-Construction Meeting Minutes
- Progress Status Meeting Minutes

- Coordination Meeting Minutes

Field contract management functions are divided among various personnel already assigned and necessary at the site and in this the cost engineer often plays a key role.

A strict and disciplined maintenance of these records will avoid late discovery of adverse trends across the project and will help to ensure a good and profitable project.

A good project Team will ensure that this documentation is at hand on site at all times.

Closing Statement

Ladies and gentlemen it has been a privilege to meet you and to explain the role of Quantity Surveying / Contract Management as approached by **Fabricom-GTI** and the **Suez** Group. Should any of you need any further information then you can contact me at john.mccracken@fabricom-gti.com.

Thank you

I wish you all success.

John McCracken

Fabricom-GTI