

## **Impact of Contract Language on Implementation of TQM in the Building Construction Industry**

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### **Abstract**

A construction contract is typically composed of several clauses that describe the right and responsibilities of the parties signing the contract with regard to several important issues. These issues include for example method and time of payments to the contractor, quality control requirements, mechanisms of resolving disputes, expected project completion date and insurance requirements. Such contract clauses are found in any construction contract regardless of the project delivery system utilized. The language of contract clauses can greatly affect the quality of the project. Contract clauses that unfairly transfer risk to one party adversely affect working relationships, increase the number of claims, prevent the free flow of information necessary for the successful completion of a quality project and in many cases are not upheld by the court in case of legal disputes. The paper discusses unfair contract clauses that should be avoided and effective contract clauses that should be utilized.

### **Keywords**

Construction Contracts, TQM, Differing Site Clause, Incentive Clause, Exculpatory Clause

### **1. Introduction**

Total quality management (TQM) is a company-wide effort to increase customer satisfaction, employee satisfaction and cost effectiveness by continuously improving performance of all functions of the company (Burati and Oswald, 1993, Burati et al, 1992). The goal of TQM is to achieve customer satisfaction without increasing cost by ensuring that all work is done right and free of defects the first time (Deming 1988, Crosby 1979). The language of the contracts used to establish the responsibilities of the various parties can have a great impact on the success of TQM in the building construction industry. Contract clauses must be written to establish a win-win contractual relationship by fairly allocating project risks (Kubal 1994). Risks should be allocated to the party who has direct control over the risk. For example, general contractors should be responsible for labor, material and workmanship related risks, the design team should be accountable for design related risks and the owner should be responsible for unforeseen site conditions risks (Dorsey 1997). Where no party has control, risks should become the responsibility of the owner, who is the ultimate beneficiary of the construction project (Committee 1991).

## **2. Research Objectives, Methodology and Scope**

The findings presented in this paper are part of the results of a large research project whose objective was to study the implementation of TQM in building construction. The objective of this research was to identify the ways in which building construction companies have implemented TQM. To achieve the research's objective, interviews were conducted with quality personnel from 8 major construction firms specializing in building construction. The combined annual volume of the 8 firms exceeds \$5 Billion. The research project studied many other factors affecting the successful implementation of TQM and examined the various quality improvement processes that were successfully implemented by large construction firms throughout the various phases of the project. The Quality Management Programs of the 8 firms were also reviewed and an extensive literature search was conducted. Only findings related to the effect of contract clauses on the successful implementation of TQM are presented in this paper.

The preliminary literature search has concluded that there are important factors necessary for the successful implementation of TQM on any project. These factors include (Spatz 2000, Arditi and Gunaydin 1998):

- Open communication between project parties. Open communication creates an early awareness of potential problems and encourages the use of innovation to solve these problems before they occur (AGC 1995).
- Positive relationships among project parties. Positive relationships build the teamwork necessary for the quality completion of the project. Positive relationships also create a more enjoyable work environment and prevent disagreements at the job sites from becoming disputes in the courtroom (Kubal 1994)
- Trust and fair dealings among project parties. Trust and fair dealings create a win-win environment for all parties and reduce litigation.

The research effort then examined the various clauses typically used in construction contracts and analyzed their effects in supporting or jeopardizing the factors necessary for the successful implementation of TQM. Some clauses were found to be detrimental to TQM implementation while others were found to be beneficial to TQM implementation. These clauses are discussed in the following sections.

## **3. Contract Clauses that are Detrimental to Project Quality**

Contract clauses that are detrimental to project quality and should be avoided include clauses that unfairly transfer risk to the contractor and penalty clauses that are not balanced with bonus clauses (Kubal 1994). Some owners think that these clauses protect their interest but in fact they create obstacles to total quality management, may not be enforced in court and increase the total cost of the project since the contractor will demand additional compensation for assuming the risk (Jensen 2001). Examples of these contract clauses include:

- Hold harmless or indemnification clause
- No damages for delays clause
- Exculpatory or disclaimer clauses
- Liquidated damages clause

The effect of these clauses on project quality is further discussed in the following sections.

### **3.1 Hold Harmless or Indemnification Clause**

Indemnification clauses fall into three categories: “broad form,” “intermediate form,” and “narrow form” (Dorsey 1997). Broad form indemnity requires the contractor to indemnify the owner for all damages arising out of the project whether caused by the contractor, a third party, or even the owner. Intermediate form indemnity also shifts much risk to the contractor – but not as significantly as does the broad form. When the intermediate form is used, the contractor indemnifies the owner for all damages caused “in whole or in part” by the contractor. This means that even if the contractor contributed just a little bit to causing the damages, he/she will be required to indemnify the owner for all of the damages, including those caused by the owner’s negligence. Narrow form indemnity requires the contractor to indemnify the owner only for those damages caused by the contractor’s negligence. The narrow form is a reasonable form of indemnity and it should be the only one used in a contract since it is rational to hold the contractor responsible for damages caused by his/her own negligence. Many states ban intermediate and broad form indemnification clauses.

### **3.2 No Damages for Delays Clause**

A contract that contains a no-damages-for-delays clause is one that allows the contractor neither time nor money for delays, regardless of who caused them. In the absence of such a clause, the owner will usually compensate the contractor for delays, if the contractor can quantify the time and money lost because of the delay and can prove that the contractor or his/her subcontractors did not cause the delay.

### **3.3 Exculpatory or Disclaimer Clauses**

Exculpatory clauses are included in a contract to protect the owner and/or architect from all possible claims by the contractor. Owners use them hoping for protection from all risks by shifting responsibility for those risks to someone else. These clauses however usually generate more claims than they prevent. A common example of an exculpatory clause is one stating that the owner is not responsible for the accuracy of soil reports and that the bidder is required to verify all site conditions. Courts are reluctant to enforce such an exculpatory clause because it is unreasonable to require a bidder to perform lengthy and costly detailed site investigation to verify all site conditions (Jensen 2001). However the contractor is still responsible to perform a general site investigation to determine obvious factors that may affect project scope and cost.

Another example of an exculpatory clause is the one used by architects to disclaim most responsibility for the design and push the responsibilities down through the general contractor to the subcontractors and suppliers requiring them to perform detailed design and coordinate their work with the architectural drawings. The architect in many cases then does not give adequate time and attention to reviewing the design submitted by subcontractors (Kubal 1994). This situation creates confusion as to who is in charge of the design and in case of any failure; each party will be blaming the other and attorneys will be involved to resolve the problem. Such exculpatory clauses do not necessarily relieve architects from the design responsibility. Architects should carefully review all the technical data submitted by the subcontractors and suppliers to ensure their correctness.

### **3.4 Liquidated Damages Clause**

A liquidated damages clause stipulates monetary penalties on a GC who does not finish the project on or before the date specified in the construction contract. The liquidated damages clause is an example of a penalty clause that is not balanced with a bonus clause (Kubal 1994). General contractors who sign a contract containing this clause are in a lose only situation; if they finish late, they lose part of their fee and if they finish early, they don't get any bonuses in addition to their fee. The lack of a potential bonus for early completion does not encourage the contractor to proactively manage the project schedule right from the start to ensure completion before the planned date. As a result, and because of the lack of proactive planning, many projects are slow in the beginning and are accelerated toward the end when contractors realize that they are behind schedule and that they may miss the agreed upon substantial completion date (Kubal 1994).

The project's acceleration that occurs towards the ends usually results in sacrificing quality. Many of the quality management and control activities that might otherwise have been performed are neglected. The contractor's main goal becomes meeting the substantial completion date and works toward that goal by requiring subcontractors to work over time and on weekends, putting pressure on construction workers to produce faster and even in some cases, hire unqualified construction workers to do the job. All these measures usually lead to meeting the project's substantial completion date but with excessively long punch lists of defects that need to be corrected and reworked (Kubal 1994). The defects are usually in the building finishes that are the most seen by the owner. The owner's perception of the project's quality is negatively affected especially if the rework takes a considerable amount of time.

For the liquidated damages clause to be effective, it should only be used in conjunction with a bonus clause that rewards the contractor for early completion in order to motivate him/her to proactively manage the schedule from the beginning. The liquidated damages clause should also be fair and should realize that meeting the schedule is not only under the control of the contractor but that it can be affected by the design team whose timely review/approval of shop drawings and response to RFIs is crucial for meeting the schedule (Kubal 1994). The contract between the owner and the design team should clearly describe the design team's responsibilities for meeting the schedule.

#### **4. Effective Clauses that should be Included in the Contract**

Contract clauses that are compatible with the TQM philosophy and that can enhance project quality include:

- Incentive clauses
- Differing site condition clause
- Quality clause
- Safety clause

These clauses are further discussed in the following sections.

##### **4.1 Incentive Clauses**

An incentive clause provides a monetary bonus to the contractor based on his/her performance during a project. The monetary bonus is in addition to the contractor's fee stipulated in the contract and is paid when he/she performs above the level required by the contract (e.g. completing the project before the agreed upon completion date). Incentive clauses can considerably increase the total quality of the project provided that the process of determining the value of the incentive is clearly defined. For this reason, the incentive clause should indicate the membership of the committee conducting the evaluation and should include specific

requirements upon which performance is judged in order to have an objective evaluation process (Kubal 1994). Performance requirements may include schedule, cost control, safety, quality, site cleanliness, management of subcontractors, dispute resolution process, and communication with other project parties.

Incentive clauses can also be used in the contract for design services between the owner and the architect. Performance requirements in this case may include design quality, promptness of reviewing submittals and shop drawings and adequacy of answering RFIs.

#### **4.2 Differing Site Condition Clause**

The objective of incorporating a differing site condition clause in a construction contract is to transfer the risk of an unforeseen site condition such as rock or underground water to the owner (Jensen 2001). A differing site condition clause provides the contractor relief when a differing site condition that subsequently increases the contractor's time or cost to perform the contract work is encountered.

Without such a clause, all bidders would substantially increase their bids by adding considerable contingencies for the unknown circumstances. The benefit to the owner when using this clause is a more accurate bid and a lower contract price; the owner only has to pay for the differing site condition when it is actually encountered. The owner also benefits when a more favorable condition than what was expected is found after construction begins. Another important benefit of the clause is that it encourages competent quality contractors to bid the job (Jensen 2001). Since hidden conditions can cause a financial disaster to a contractor, a competent contractor would only bid jobs with a differing site conditions clause.

#### **4.3 Quality Clause**

It is a good practice to incorporate a quality clause in the contracts between the owner and the contractor, between the owner and the design firm and between the contractors and his/her subcontractors. The quality clause should be specific and should list the quality related activities to be performed. These activities may include coordination meetings, educational events and proactive inspection. The quality clause should assign a monetary value to the quality activities that is only paid when these activities are effectively accomplished. The clause should also specify how quality accomplishments are judged. For example, the contract between the owner and the contractor may set a limit to the size of the punch list and the time needed for its correction; substantial completion will be recognized only if the punch list meets the preset limit (Kubal 1994). In the owner's contract with the design firm, the quality clause may set time limits for reviewing shop drawings and responding to RFIs. Having a quality clause in the various contracts would emphasize the importance of quality and would ensure that all parties proactively plan for achieving it.

#### **4.4 Safety Clause**

Safety is inseparable from quality. Allowing poor safety practices on the job is an indication of the lack of dedication to quality and result in accidents that typically have detrimental impacts on worker's productivity, moral and quality of workmanship (Chase 1993). The project's site should always be kept clean and safe. An unclean jobsite is unsafe, makes the owner dissatisfied and gives field workers the wrong impression that poor quality may be tolerated. A clean jobsite on the other hand is an indication of the effectiveness of the project's management and inspires field workers to produce quality work.

A safety clause should be included in all construction contracts and subcontracts to emphasize and clearly explain safety expectations. The clause should identify minimum safety requirements, specify measurable goals and include an incentive/penalty provision for rewarding safety performance (Kubal 1994). Minimum safety requirements for example may include complying with all applicable state and federal safety regulations, drug testing, safety inspection, safety education through toolbox talks, and providing lunch areas, restrooms and trash receptacles to help keep the site clean. Measurable safety goals may include no recordable injuries, no zero workers compensation claims and/or no lost-time accidents (Dorsey 1997). The incentive/penalty provision should provide monetary bonuses for superior safety performance and should impose backcharges for poor safety performances.

## 5. Conclusions

In order to reduce disputes and increase the potential of a successful quality project, the contract should include adequate clauses that justly allocate risks to the various parties on a construction project. In addition, the contract should avoid clauses that create adversarial relationships among the parties and disrupt the free flow of information necessary for the successful completion of the project. The paper presented several contract clauses that should be used and other clauses that should be avoided.

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