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Subcontractor Management for Public Buildings

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INTRODUCTION

Managing subcontractors in public building construction is important because of the increasing spending for public buildings. This growth in spending is being fueled primarily by an increase in spending for the construction of educational facilities. According to the 1992-1993 U.S. Markets Construction Overview [1], the spending for the construction of educational facilities is forecast to grow to \$28 billion in 1993. This is an increase from \$10 billion in 1983. Both of these figures are in constant 1987 dollars. The prediction for the coming decade is for continuing growth in spending. These increases are due to the school overcrowding that has resulted from the increased birth rates in the late 1970s.

Building construction is subcontractor intensive due to the number of specialty contractors needed. Items typically subcontracted include excavation, masonry, glazing, interior finishes, mechanical, and electrical. In addition to the large number of subcontractors, public building construction is also restricted by the regulations of public contracting.

This paper presents the guidelines for the management of subcontractors and then presents examples from recent projects to illustrate the guidelines. The purposes of the guidelines are to solicit low bids from qualified subcontractors and to limit subsequent claims or growth in the contract amount. While the guidelines and lessons learned are for public buildings, they apply to all types of contract administration.

Good subcontract management, like all human endeavors, is simply good communication. According to **Webster's New Collegiate Dictionary**, communication is "a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior." Almost all problems in subcontract management are caused by poor communications. The ten guidelines listed below will, when followed, produce an effectively managed project. The purpose of each guideline is to improve the communications between the prime contractor and its subcontractors. Each of the guidelines will be discussed in detail in subsequent sections.

- Clearly define the subcontract scope.
- Actively solicit bids.
- Attend the pre-bid meeting.
- Analyze all aspects of each bid.
- Document the subcontract agreement.
- Hold pre-job meetings.
- Hold weekly subcontractor coordination meetings.
- Identify the key contact people.
- Inspect all subcontract work.
- Analyze subcontract cost performance.

SUBCONTRACT SCOPE

The purpose of the design and construction process is to provide the owner with a facility in which the owner can pursue the owner's goals. The designer interfaces with the owner to determine the overall scope of a project and to communicate the scope to the construction team. The designer does this by producing drawings and specifications. The specifications are divided into divisions and sections. Most building specifications follow the sixteen-division format called Masterformat that was developed in 1963. Even with this standard format, construction specifications vary substantially from

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project to project and from designer to designer. Frequently, work is specified in more than one specification section. Sometimes, the different specification sections contradict each other.

On one recent project, the specifications conflicted regarding the millwork finish. *Division 6—Woods and Plastics* required all millwork to be sealed and varnished at the fabrication shop. However, *Division 9—Finishes* required all millwork to have one coat of stain and two coats of polyurethane. This discrepancy was particularly troubling, because it affected the scope of two separate subcontractors. The general contractor assigned the work to the painting subcontractor. The painting subcontractor filed a claim to be paid extra for this finishing.

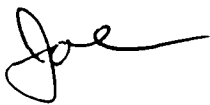
<p style="text-align: center;">STRUCTURAL STEEL, INC.</p> <p>July 9, 1993</p> <p>Project: North Lafayette Elementary School Lafayette, IN</p> <p>Thank you for the opportunity to submit to you the following quote on the above referenced project.</p> <p>Our scope of work includes:</p> <table><tr><td>Section 05100</td><td>Structural Steel</td></tr><tr><td>Section 05200</td><td>Steel Bar Joists</td></tr><tr><td>Section 05300</td><td>Metal Deck</td></tr><tr><td>Section 05500</td><td>Miscellaneous Metals</td></tr></table> <p><u>SPECIFIC ITEMS INCLUDED</u></p> <p>Columns Beams Joists & bridging Deck & accessories Chimney frame Handrail Pipe bollards Steel ladders</p> <p><u>SPECIFIC ITEMS EXCLUDED</u></p> <p>Grout or grouting Testing or inspection Demolition Surveying Taxes</p> <p>All steel to be fabricated and erected in accordance with the AISC Code of Standard Practice.</p> <p>Fabricated & erected, \$122,290.00</p> <p>Addendum #1 and #2 included in this bid.</p> <p>If you should have any question regarding this quotation, please feel free to call me at your earliest convenience.</p> <p>Thank you, </p>	Section 05100	Structural Steel	Section 05200	Steel Bar Joists	Section 05300	Metal Deck	Section 05500	Miscellaneous Metals
Section 05100	Structural Steel							
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Figure 1—Typical Subcontract Bid

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Even with problems like this, the scope definitions of individual specification sections are extensively used in defining the scope of subcontracts. Almost always, the scope of subcontractors' bids and the subcontracts themselves is a list of specification sections (see figure 1). Designers are aware of this practice of using the specification section descriptions for subcontract scope definition and have dealt with it by adding disclaimers to the specifications. Most building designers include the American Institute of Architects (AIA) Document A201, General Conditions of the Contract for Construction, as part of the specifications. Article 1.2.4 of the 1987 edition of the A201 states, "Organization of the specifications into divisions, sections, and articles, and arrangement of drawings shall not control the contractor in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade."

Regardless of their disclaimers, architects sometimes do control the division of the work among subcontractors. On one project, the architect wanted a particular countertop to be provided by the casework subcontractor, not by the millwork subcontractor. A note on one of the drawings stated that the countertop was to be provided by the specification section 12307 contractor. Unfortunately, the casework was specified in section 12308, and there was no section 12307 in the specifications. The general contractor had to pay the casework subcontractor extra for the countertop. The architect took no responsibility for the extra cost.

The basic problem in the scope definition of subcontracts is as follows: the subcontractors bid the work by specification section; the prime contractor uses the specification section numbers as the scope definition in the subcontract documents, while the designer, who writes the specifications, disclaims the use of the specifications for this practice.

How can good subcontract scopes be written given the existing situation? The best solution is for the prime contractor and the subcontractor to review a scope definition before bid day. In order to keep a competitive edge and to avoid bid shopping, subcontractors rarely submit a price earlier than a few hours (or even minutes) before the bid is due to the owner. However, the scope definitions can be reviewed several days before bid day. The detailed scope definition should be developed by one party and sent to the other party for review and comment. By bid day, the scope should be understood by both parties. The advantage to the prime contractor in preparing the detailed scope definition for comment is that all subcontractors bidding that phase of the project will be reviewing the same scope definition. The comments from the different subcontract bidders will emphasize the differences in the perceptions of the scope definition by the subcontract bidders.

However, there are advantages to the subcontractors in preparing the scope definition. These advantages are the subcontractor has a better understanding of that portion of the job, and it is easier to price and/or comment on one scope definition instead of several. It is in the best interests of both the prime bidder and subcontract bidders to have the same understanding of the scope definition for the subcontract.

It is recommended that both the prime bidders and the subcontract bidders thoroughly understand the specifications including the discrepancies, omissions, and duplication and to properly note exclusions and additions on subcontract bids and all subcontract documents. It is easier for the prime bidders and the subcontract bidders to communicate the subcontract scope to each other when they thoroughly understand the specifications and drawings.

BID SOLICITATION

A prime contractor can wait and hope for subcontract bids, or the prime contractor can actively solicit bids. It is good business for the prime contractor to be able to choose from all subcontract bids that have been prepared by the various subcontract bidders for the project. Listed below are five methods of assuring the prime contractor the receipt of most subcontract bids:

- Be listed as a plan holder by the owner and designer.
- Be listed by all of the construction information services in your area, such as F.W. Dodge and Construction Market Data, Inc.
- Send bid requests by mail or fax to subcontractors.
- Phone or visit potential subcontract bidders.

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- Make the bid documents available to subcontract bidders in your plan room or allow bidders to borrow the bid documents.

More than once, the lowest subcontract bid has come from a subcontractor who was requested by a prime contractor to submit a bid. Also, conversations with subcontractors in the prime contractor's plan room help to identify problems with scope definition.

PRE-BID MEETINGS

In public building construction, there are two types of pre-bid meetings. One is the meeting for all potential bidders, which is conducted by the designer, owner, and/or construction manager. The other type is a meeting between prime bidders and the key subcontract bidders.

It is important for the prime contractor to attend the owner's pre-bid meeting for all bidders for two reasons. First, questions about the overall scope and questions about the scope of specific specification sections can be asked and answered. Second, attending this meeting is part of the active bid solicitation. This meeting is attended by subcontract bidders as well as prime bidders, and just attending this meeting shows an interest in soliciting subcontract bids for this project. Also, attendance lists for the pre-bid meeting are frequently issued with an addendum to the bid documents.

BID ANALYSIS

There are both direct costs and indirect costs associated with a subcontract. The direct cost is the amount of money paid to the subcontractor. The indirect costs include the following:

- delay costs caused by poor subcontract schedule performance;
- loss of productivity to the prime contractor's labor caused by subcontractor interference;
- extra costs for cleaning up after a subcontractor;
- repairs of materials damaged by subcontractors; and
- excessive time spent by the prime contractor's supervision staff on problem subcontractors, to the detriment of other work.

If the indirect costs are substantial, identifiable to a specific subcontractor, and properly documented, they may be collected from the subcontractor. However, many times these indirect costs are borne by the prime contractor. A proper bid analysis must include both the direct and indirect costs. Indirect costs are difficult to quantify and are therefore frequently ignored in the competitive bid environment. The following factors must be considered for each subcontractor during the bid analysis: price, technical qualifications, financial ability, safety, labor relations history, and the ability to meet the schedule.

The ideal subcontract price is low, but not too low. A very low price probably indicates that the scope is not complete or there is an error in the bid. While subcontractors can usually be legally liable for their bid price, the cost of litigation is often too expensive to pursue, and subcontractors frequently walk away from a bad bid. Also, a subcontractor who is losing money on the project will probably have below average performance. The dilemma in not using a suspiciously low subcontract bid is that one or more of the prime bidder's competitors will likely use that low bid.

The best strategy of dealing with a suspiciously low subcontract bid is to call the subcontractor with the low bid to discuss the scope definition and to suggest that all of the math be carefully checked. However, care must be used to avoid giving information about other subcontract bids. One way to measure the technical qualifications of a subcontractor is to discover whether or not the subcontractor has done a project of this type or size before. The prime contractor should keep a historical file of all subcontractors previously used. Included in this file should be evaluations by the prime contractor's project staff. A list of similar projects with references can also be requested from the subcontractor. Evaluating the resumes of the proposed key project personnel whom the subcontractor plans to use is another way to measure the technical qualifications.

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Financial ability is more volatile than are the technical qualifications. A subcontractor can be financially sound today, but be out of business within the next year. As one banker put it, "There are too many things that can go wrong; too few contractors who know anything about banking; and too few accountants who know anything about either construction or banking" [2]. Chapter 9, *Financial and Cost Reporting in Construction Accounting & Financial Management* [2] has guidelines that should be used by the prime contractor's accountant to evaluate the financial ability of subcontractors.

The evaluation of a subcontractor's labor relations and ability to meet schedules comes from the historical files of past projects. Also, checking with the subcontractor's list of references can elicit this information. The evaluation of the subcontractor's safety performance can be measured using the statistics of OSHA Form 100 and the experience modification factor for the subcontractors worker's compensation insurance.

Try to think of the most unqualified subcontractor with whom you have had the misfortune to deal. Did the indirect costs associated with the subcontractor outweigh the subcontractor's price advantage by the end of the project? On one project, the masonry subcontractor delayed the project, did very little cleanup, damaged their own work and the work of others, did not pay vendors on time, blocked access around the site, and sued the prime contractor for alleged extra work. The prime contractor paid this subcontractor a minimal amount to avoid litigation costs.

SUBCONTRACT AGREEMENT

The subcontract agreement is a legally enforceable document. It must spell out precisely what the parties have agreed. An exact scope definition is critical for a good subcontract. The subcontract agreement should be a standard form. Some of the standard terms to be included in the contract are the rights of each party, payment terms, remedies for non-performance or non-payment, and flow-through clauses. A flow-through clause binds the subcontractor to the provisions of the prime contract.

Subcontract agreements can be drafted by the prime contractor or the subcontractor, or negotiated by the two. It is generally recommended to use an industry standard subcontract agreement such as the AIA Document A401, or the Associated General Contractors of America (AGC) Subcontract for Building Construction. Each of these subcontracts is compatible with the AIA Document A201, General Condition of the Contract for Construction. For an excellent overview of the legal aspects of construction subcontracting, read Chapter 32, *The Subcontracting Process: An "Achilles' Heel" of Legal Aspects of Architecture, Engineering, and the Construction Process* [3].

PRE-JOB MEETINGS

The prime contractor must be in constant communication with each subcontractor during the development of the overall construction plan. The subcontractors' needs regarding long lead time items, site storage requirements, and the summary plan for the construction of each subcontractor's scope must be incorporated into the prime contractor's construction plan. Without the subcontractor's input, there will be no subcontractor commitment. Note that, for items with long times, it is desirable to request an unpriced copy of the subcontractor's purchase orders. The submission of these copies should be a provision of the subcontract agreement. These planning discussions can be by phone or by holding meetings.

A separate pre-job meeting with each subcontractor must be held on-site. This meeting should be held about two weeks before the subcontractor moves onto the site. Both the prime contractor's and subcontractor's project managers and on-site supervisors must attend this meeting. At the meeting, there will be a detailed discussion of the schedule, assignment of site storage areas, job site rules, and all other matters relating to the subcontractor's performance on-site.

The pre-job meetings need to be run efficiently to be effective. The following are guidelines for conducting meetings:

- Send out meeting notices one week before the meeting.
- Include the agenda with the meeting notice.
- Start the meeting on time.
- The chairperson runs the meeting and keeps the discussion focused on one agenda item at a time.

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- End the meeting on time.
- Send out the meeting minutes no later than the day after the meeting.
- Distribute corrections to the minutes to everyone receiving the minutes.

WEEKLY SUBCONTRACTOR COORDINATION MEETING

Every week, the prime contractor's on-site supervisor must hold a regularly scheduled meeting with the on-site supervisors of each contractor who will be on-site during the next two weeks. The meeting should focus on the schedule, but other topics can be included. Each subcontractor is to submit a proposed two-week schedule to the prime contractor before the day of the meeting.

One agenda item is a review of each subcontractor's schedule for the next two weeks. By having all of the supervisors in one place, potential interferences can be eliminated before they occur. The prime contractors must assure that each subcontractor's two-week schedule conforms to the overall project schedule.

A second agenda item is a list of critical action items. The critical items action report lists those problems that could potentially cause a significant schedule or cost variance. An item remains on the current list until it is completely resolved. Once the item is resolved, it is removed from the list. Each item listed must include the following:

- a description of the problem;
- the potential impact of the problem;
- the action(s) taken or to be taken to resolve the problem;
- the date each action was completed or is to be completed; and
- the name of the subcontractor responsible for the action.

Other agenda items include safety, clean-up, and announcements. The minutes of the meeting include the revised two-week schedule that was agreed upon at the meeting. This two-week schedule is issued by the prime contractor and includes the work of all subcontractors.

KEY CONTACT PEOPLE

An important concept of effective communications is to address the message to the correct audience. This is why it is important to have a list of the key contact people. Ideally, all communications should be between one person for the prime contractor, and one person for the subcontractor. However, it is frequently expeditious to communicate directly with another member of the project team. When this occurs, the communication needs to be documented and sent to each of the designated key persons for the prime contractor and for the subcontractor. Avoiding undocumented verbal instructions is a must.

INSPECT ALL SUBCONTRACT WORK

The prime contractor is responsible to the owner for the execution of the work per the contract documents. Allowing the subcontractor to produce non-conforming work puts the prime contractor in the position of forcing the subcontractor to correct the work or puts the prime contractor in the position of correcting the work and then trying to collect from the subcontractor. Neither case is desirable; it is better to continually inspect the subcontractor's work and to require a change in the process as soon as poor quality work is observed.

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SUBCONTRACT COST REPORT

The subcontract cost report shows the total dollars spent and committed to date, the predicted cost of the remaining work, and the projected overrun or underrun for each subcontractor. The objective of the subcontract cost report is to identify subcontracts that are likely to exceed the budget. The sooner that cost overruns are discovered, the more effective corrective actions can be. For more information on cost reporting, see *Management Reporting* [4].

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