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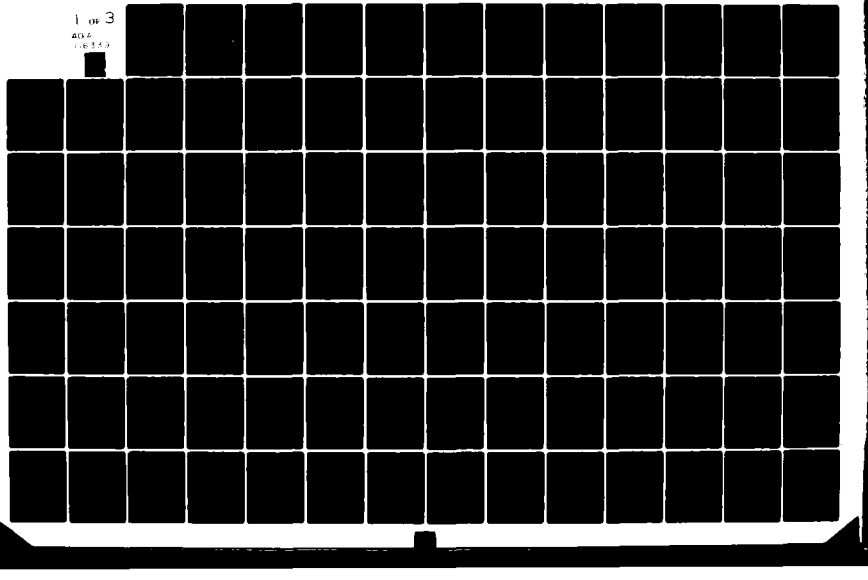

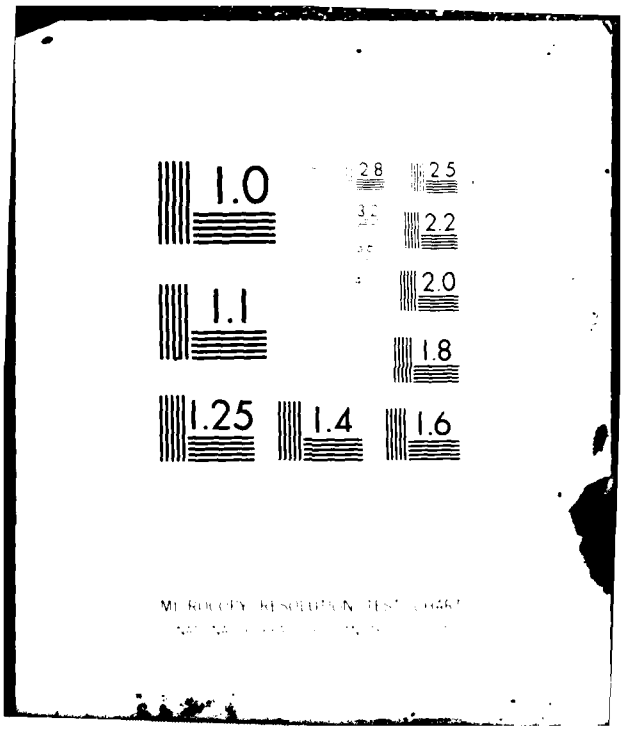
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Recommendations to Minimize Timely Payment Problems of Subcontractors Involved in Private and Public Building Construction in Pennsylvania

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ABSTRACT (CONT)

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THE PENNSYLVANIA STATE UNIVERSITY

THE GRADUATE SCHOOL

DEPARTMENT OF CIVIL ENGINEERING

Recommendations to Minimize Timely Payment Problems of Subcontractors Involved in Private and Public Building Construction in Pennsylvania

A Report in

Civil Engineering

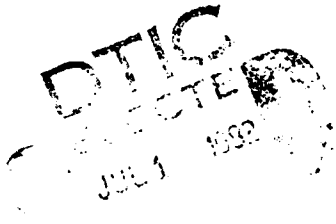
by

Thomas P. Kuchar

Submitted in Partial Fulfillment
of the Requirements for the
Degree of

Master of Engineering

May 1982



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Chapter 1

INTRODUCTION

Prelude

Problems of timely payments* to subcontractors have existed for many years. However, this problem for subcontractors has been greatly magnified because of the high interest rates on borrowing and investing which now exist. There are many differing opinions about the exact problems, causes, seriousness, and solutions of payment problems. The lack of quantifiable data, along with the differing opinions, have made evaluation of payment problems difficult. It is the opinion of the writer, and others in the construction industry, that payment problems for subcontractors need to be minimized (97, 105, 107).

General building construction constitutes a significant portion of the total construction industry. The majority of the subcontractors' work is in general building construction. Some of the payment problems are common to all states, while other problems are unique to a particular state. Laws pertaining to payment terms vary from state to state. The common practices among parties in construction and/or the economic situation in a state may also vary between states. As a result, this research effort is restricted to the development of recommendations which can minimize the timely payment problems of subcontractors involved in the private and public building construction industry within the state of Pennsylvania.

---

*Definitions for terms used in the paper when describing and discussing payment problems in the construction industry are presented in Appendix A.

Background

The Subcontractor's Role in General Building Construction

Before discussing payment problems, it is appropriate to establish the significance of the subcontractor's role within the context of the general building construction industry. Statistical information from the 1977 Census of Construction Industry, which is taken every five years, is utilized to demonstrate this signficance (23). Pertinent data was extracted from the census and is summarized in tabular fashion in Appendix B.

There are four general classes of construction:

General Building Construction
Single Family Housing*
Heavy Construction
Other

General building construction, as noted in Table B.1 (Appendix B), is the largest class of construction, representing approximately 41% of the total construction industry in the United States and 42% of the total in Pennsylvania. Table B.2 indicates that Pennsylvania accounts for 4.9% of all United States construction (by receipts) and is the fifth largest in terms of total construction receipts.

Within the industry, there are four types of contractors:

General Building Contractors
Single-Family Housing General Contractors
Heavy Construction General Contractors
Specialty Contractors

---

*For the purposes of the paper, single-family housing construction will not be considered within the general building construction category and as such will not be discussed in this paper. This class of construction has its own unique problems. Also, the role of the subcontractor is different in single-family housing construction than it is for general building construction.

As shown in Table 1.1, specialty contractors represent the majority of all contractors involved in all classes of construction. The figures for Pennsylvania are slightly higher than those for the United States.

Table 1.1
Percentage of Contractor's Work in All Construction

Type of Contractor	Number of Establishments[a]		Total Construction Receipts[b]	
	U.S.	PA	U.S.	PA
General Building	32.8	23.5	20.3	12.1
Specialty	60.6	72.4	45.8	49.4

[a] Source: Table B.3
[b] Source: Table B.1

Table 1.2 indicates that within the general building construction category, both for the United States and for Pennsylvania, the majority of the work is performed by specialty contractors.

Table 1.2
Percentage of Contractor's Work in General Building Construction[a]

Type of Contractor	U.S.	PA
General Building	46.0	36.2
Specialty	54.0	63.8

[a] Source: Table B.5

A very important distinction that should be noted is that the majority of the specialty contractors' work is performed in the subcontracting mode. As shown in Table 1.3, the percentage is significantly higher in general building construction than it is for all of classes of construction. The percentage is lower for Pennsylvania than for the United States as a whole.

Table 1.3
Percentage of Specialty Contractor's
Work That is Subcontract Work[a]

Class of Construction	U.S.	PA
All	66.2	51.7
General Building Construction	79.6	60.6

[a] Source: Table B.6

Within the specialty trades category, as shown in Table B.7, plumbing contractors comprise the largest group, representing 25% of the total. The next largest size group is the electrical contractors (approximately 17% of the total).

The average annual amount of new construction in the period from 1976 to 1980 was $198 billion dollars, of which 23.1% was public construction and 76.9% was private construction (24). In 1977, new construction accounted for 84% of all construction; the remainder consisted of maintenance and repair work projects (23B).

Contractural Arrangements

The two types of contractural relationships that are most common in Pennsylvania are the single contract system and the prime contract system. General diagrams for these contract systems are shown in Figure 1.1 and Figure 1.2

In the single contract system, which is normally used in private construction work, the owner and the general contractor have a contractual relationship. Various subcontractors, sometimes called first tier subcontractors, have separate contracts with the general contractor, but they do not have a direct contractual relationship with the owner. Similarily, there can be other tiers of subcontractors.

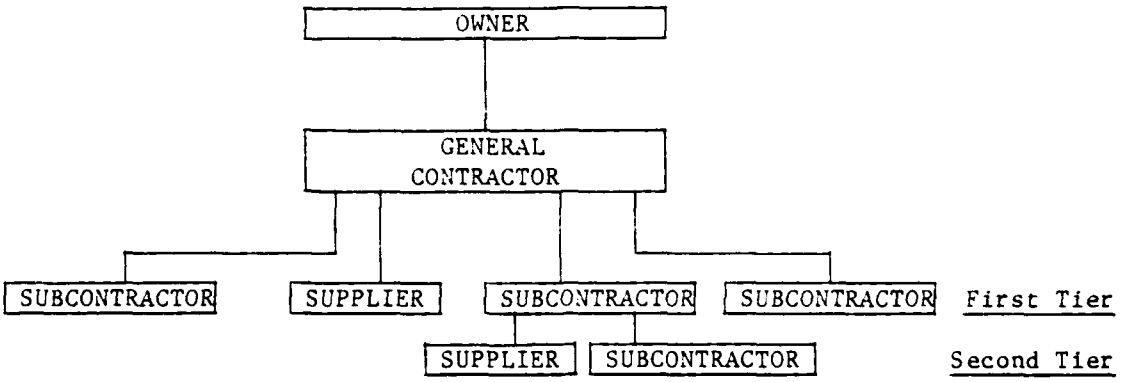

Figure 1.1 Single Contract System

In Pennsylvania, it is a legislative requirement that the erection, construction or alteration of any public building which exceeds a cost of $2,500 must have separate specifications prepared, separate bids received, and separate contracts awarded for the plumbing, heating, ventilating and electrical work (18). Under such a "prime contract system", a number of separate contractors have contracts with the owner. As noted in Figure 1.2, one of the contractors is referred to as the general contractor and the specialty contractors are called prime contractors.

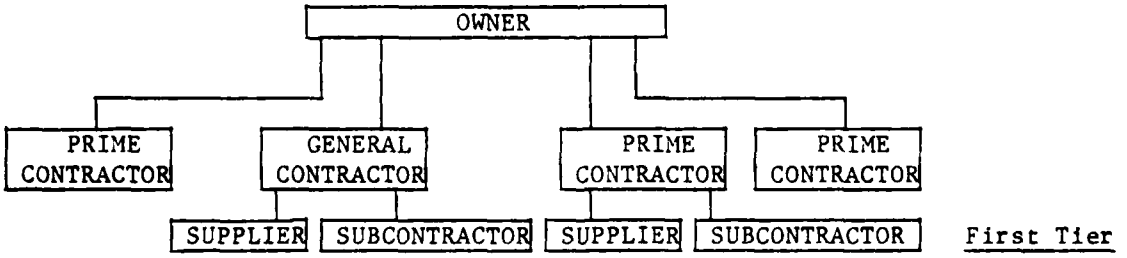

Figure 1.2 Prime Contract System

This paper will focus on the situation of the first tier subcontractor, the one who has a direct contractual relationship with either the general contractor or a prime contractor. This represents the majority of subcontracted work since, as noted in Table B.8, the amount of work that is subcontracted to second or lower tier subcontractors represents only approximately 5% of the first tier subcontractor's volume.

It is interesting to note that a typical specialty contractor would probably perform some of his work as a subcontractor under the single contract system and some of his work as a prime contractor. Such a firm, therefore, is in an excellent position to evaluate the differences in payment problems which are faced by subcontractor and prime contractors.

Problems of Subcontractors

Contractors, due to the nature of the construction industry, face many different problems which do not have definable counterparts in other industries. Usually, a contractor must commit himself to a fixed total cost of construction before he starts to build. The construction of any building is complex which requires the combined effort of many different types of contractors. These contractors may or may not have worked with one another in the past. In order to coordinate all of the parties involved, and to resolve the many conflicts and problems which will occur, an efficient project administration system is needed. No two projects are ever the same. Some of the problems are engineering or construction related. Most, however, are related to the legal and business aspects of the terms of agreement between the parties.

General contractors and subcontractors usually face the same categories of problems. However, because of their position in the contractual hierarchy, the exact nature of problems and the severity of them are different for subcontractors. Sweet points out (8) that some of these problems are:

Bid Shopping
Bid Peddling
Delay in Timely Payments
Back Charges by General Contractor
Scheduling Problems with Other Subcontractors

Retainage
Union vs. Non-union Work
Change Orders
Payment for Materials Stored on Site
Regulatory Requirements Relating to
Minority Business, Environment, etc.
Warranties
Hold Harmless Clauses
Wages and Workmen's Compensation
Punchlist Work
Canceled Shipping Damages
Differing Site Conditions
Quality Control and Quality Assurance
Financial Problems in Obtaining Loan or
Being Bonded

Trade Associations

Trade associations, such as the Association of General Contractors (AGC), the American Subcontractors Association (ASA) and the Associated Specialty Contractors (ASC), have been established to represent the interest of construction firms on the national level. The AGC represents not only general building contractors but also single-family housing contractors and heavy construction general contractors. The ASC is an umbrella organization for eight individual national construction specialty contractor associations. The ASA and ASC, as compared to the AGC, are relatively new organizations. These associations have worked together to help resolve many construction industry problems. National Joint Guidelines and Joint Policy Statements have been published by these associations and they have been involved with the development and passage of legislation, advising governmental agencies on contract administration policies, creation of standard contract documents, and the education of the individual contractors.

These associations also have local chapters that cooperate with regard to local issues. Pennsylvania, for instance, has five AGC chapters and

three ASA chapters. In the early 1970s, one of the first accomplishments of the ASA was to provide assistance to the American Institute of Architects (AIA) in the creation of the AIA Document A401, Standard Form of Agreement Between Contractor and Subcontractor (97). In 1974, the ASA conducted a study of retainage, which was called Project SORE (Stamp Out Retention Entirely). The results of the study indicated that contract costs would typically be 3.7 percent lower if retainage provisions were eliminated from construction contracts. This study had an impact on many governmental agencies who have since either lowered or eliminated their retainage provisions (56).

One of the joint statements made by all three organizations concerns prompt payments (62). Since 1971, one of the top priorities of the ASA has been to minimize the problems associated with timely payment on construction projects (49, 50, 97). In 1979, the ASC and ASA published a pamphlet entitled Subcontract Payments (65). Later, the ASA published a pamphlet entitled UPTOP (Unconditional Payment Terms on Performance) Action Kit (58). These pamphlets suggest practical actions that a subcontractor can take to insure timely payment from the general contractor and from the owner. Even though all the associations agree that the timely payment issues must be improved, it is interesting to note that it appears that these organizations appear to disagree on the specific issues involved, the severity of the problems, and the solutions that should be proposed.

Each organization admits that too often trade associations tend to think of worse cases and often argue without a basis of fact (97, 104, 107). With this in mind, it is appropriate to discuss those issues relating to subcontractor payment problems that will be analyzed in this paper.

Subcontractor Payment Problems

Sweet (8) points out that the principal subcontract problems deal with payments. The payment problems that appear to be of major concern to subcontractors are ones associated with progress payments and final payments. Final payment includes the last progress payment and the final release of retainage.

One of the first points that must be recognized is that payment problems are a sub-part of a larger problem which is associated with the total flow of funds on a construction project. Many parties are involved. Usually, parties are bound by the terms of the contract which requires payment for an exchange of some type of performance. A model which indicates the parties involved and their interaction is shown in Figure 1.3. The subcontracting system heightens the financial stress inherent in the "flow through" process because it increases the distance of the money flow (8). The research effort in this paper will concentrate primarily on the interaction of the general contractor and the subcontractor, and to some extent on the interaction of the owner and general contractor.

In dealing with timely payment issues, the subcontractor typically can consider two courses of action, namely, prevention or seeking remedies. A subcontractor can prevent payment problems by taking some sort of action before an issue turns into a problem. Once a problem occurs, then the subcontractor must take action to remedy the situation. Some of the actions that may be taken to prevent payment problems are (65, 105):

- Negotiating for Good Contract Payment Terms
- Credit Checks on Owners and General Contractors
- Not Bidding with Certain General Contractors and Owners
- Use of Business Practice Interchange (BPI)

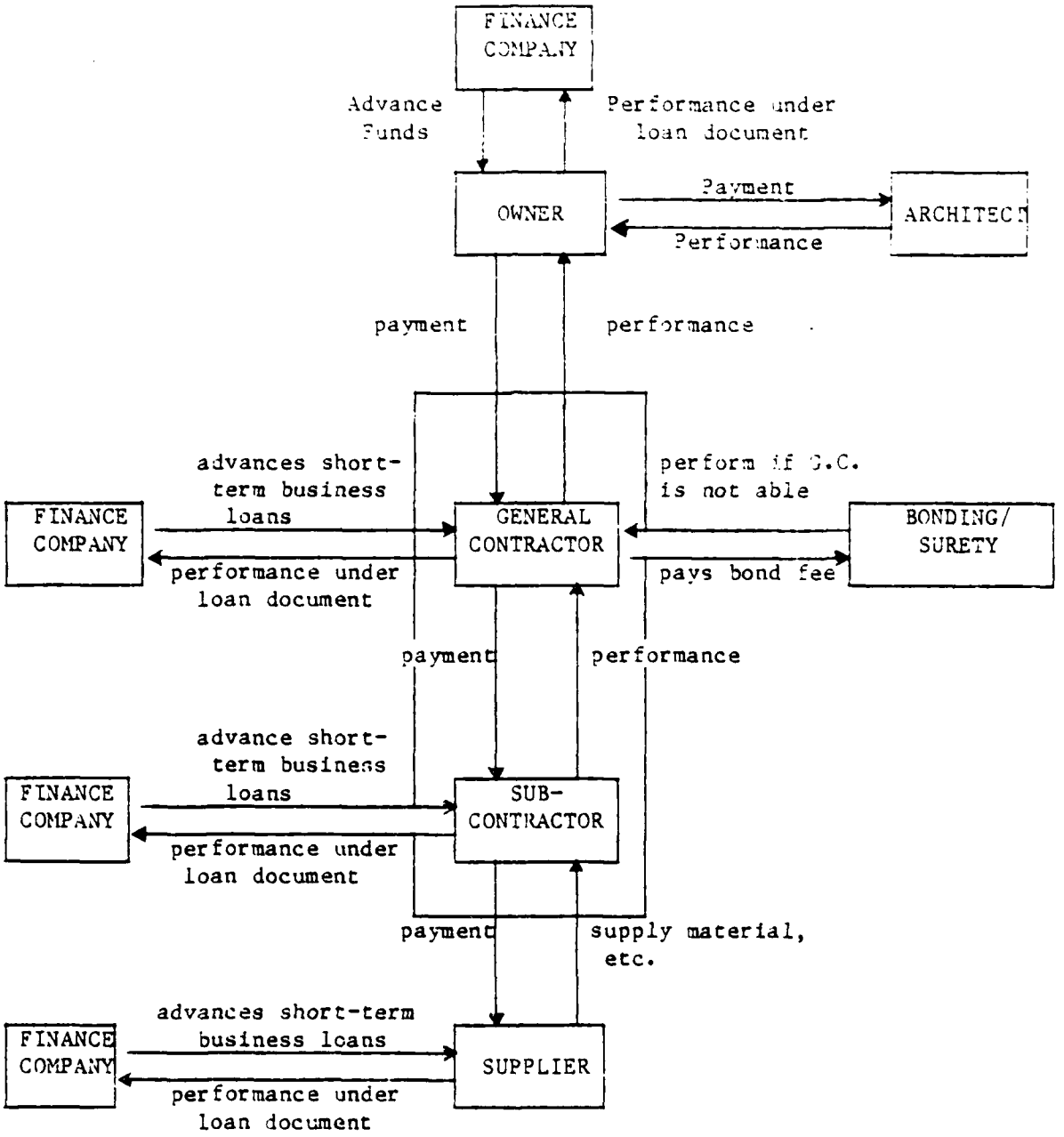

Figure 1.3
Flow of Funds and Performance
on a Construction Project

The last action references a service which is provided by local chapters of the ASA. Some of the remedies that might be sought are (65):

- Follow-up on Payments
- Architect/Owner Notification
- Lien Filing in Private Work
- Sueing Under Payment Bonds
- Stoppage of Work
- Litigation or Arbitration of Other Issues

It should be noted that the issue of how much percentage is retained is not discussed in this paper, since this topic should be considered by itself. Similarly, other payment issues that will not be discussed are payment for stored materials, extras, and payment to suppliers. Material and equipment from suppliers constitutes approximately 33% of the subcontractor's total receipts (Table B.8). However, it is common practice among the trades to pay the supplier in full within thirty days (97, 107).

Objectives of the Report

The objective of this report, within the constraints noted above, is to develop recommendations which can minimize payment problems for subcontractors working on private and public building construction projects in Pennsylvania. In order to accomplish this objective, the following tasks were performed.

1. The identification of the major causes of payment problems and the establishment of the magnitude and seriousness of the problem.

2. An analysis of the existing preventive and remedial options that are available in Pennsylvania. This analysis will consider legal, legislative, contractual, and business-related areas.

3. A presentation of new concepts and arrangements affecting payment problems, which are not presently being commonly applied in Pennsylvania.

4. A determination of the perceptions of Pennsylvania contractors with respect to the causes and seriousness of payment problems and the effectiveness of the preventive and remedial options which are presently available to them. This study considers the viewpoints of specialty contractors who perform as subcontractors and, in some cases, as prime contractors, general contractors, and architects.

Figure 1.4 presents a flow chart which illustrates how these four tasks are integrated in this report.

Research Methodology

The research methodology was divided into seven phases. The first phase consisted of performing preliminary interviews, writing letters, and locating available library references which discussed subcontractors' payment problems. Preliminary interviews were conducted with personnel from the national chapters of the ASA, AGC, ASC, and also with two ASA chapters and a local AGC chapter in Pennsylvania. Letters were written to various trade organizations. A letter requesting information on each chapter's activities and their opinions of payment problems were sent to each of fifty-one local ASA chapters. Standard contract documents were obtained as a result of the letters and interviews. Available library references that discussed business and legal aspects of the construction industry were located. Also, statistical information on the construction industry and financial information on general contractors and specialty contractors were located in the Pattee Library, which is the Pennsylvania State University Library located on University Park Campus.

The second phase consisted of conducting legal and legislative research related to the payment problem topic. Based on information obtained in Phase One, appropriate laws and proposed bills were located.

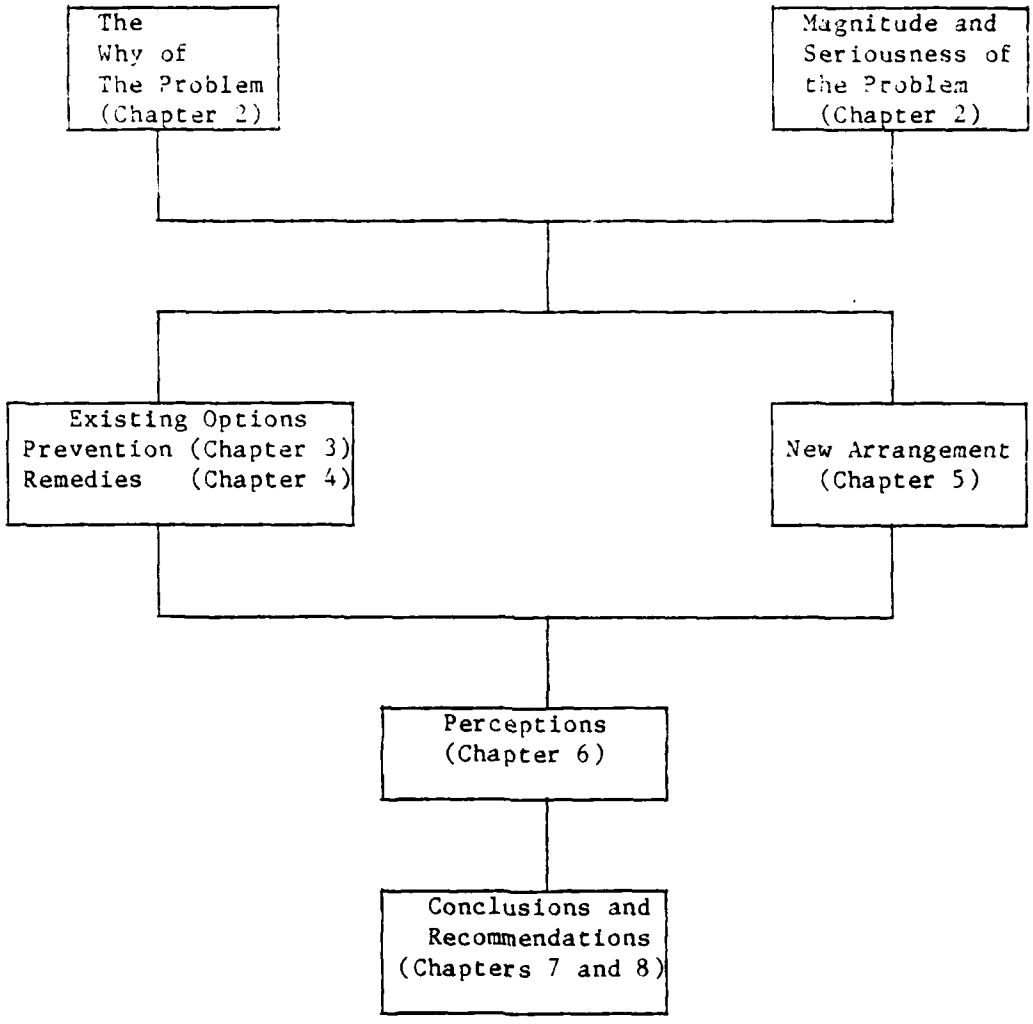

Figure 1.4
Conceptual Model
of the Scope and Issues
Involved with Payment
Problems

Letters were again sent out to obtain the viewpoints of concerned parties on the proposed legislation. Legal research was conducted through appropriate legal reference located in the Pattee Library.

The third phase consisted of obtaining necessary documents from owners and title insurance companies. Policy and contract documents were sought and collected form the Pennsylvania Department of General Services and several federal agencies. In order to research a relatively new approach in the disbursement of funds, information was obtained from the Chicago Title Insurance Company (CTI). CTI is one of two title companies in the United States that are known to offer a direct payment service.

The fourth phase, document review, consisted of reviewing the documents and references obtained in the first three phases and performing appropriate analysis of statistical information gathered in the first phase.

The fifth phase consisted of conducting field interviews with four subcontractors and three general contractors. These interviews helped to formulate and field test the questionnaires that were used in the next phase. Additionally, financial information was obtained from three of the four subcontractors. Initially, it was the intent of the writer to collect expenditure/disbursement data on specific projects. However, data was obtained in a different format because it was found that the subcontractors' ledgers were arranged in such a manner that this information was not readily available and would have required too much of the subcontractors' time. It was still possible however to demonstrate the financial effects of payment problems using the data that was obtained. The difference between the two types of data is discussed in Chapter 2.

The sixth phase involved the distribution of questionnaires to subcontractors, general contractors and architects. Initially, it was the intent of the writer to also send questionnaires to bankers and owners. However, after the initial research effort it was determined that researching the bankers' involvement in the construction process was beyond the scope of the paper. In addition, the writer felt that because of the numerous types of owners in the private sector and the variability of their experience in the construction process, information from the architects as representatives of owners, would accomplish the same objectives. Information from public owners was also obtained in the third phase.

These questionnaires were formulated in order to assess perceptions concerning payment problems in the public and private sectors within Pennsylvania. Questionnaires were distributed to 92 subcontractors, 39 general contractors, and 20 architects throughout the state of Pennsylvania. Care was taken by the writer to insure that the subcontactors and general contractors were involved in general building construction by obtaining information about the type of work each performed through directories, membership lists and registers.

The final phase provided an analysis of the data acquired in the previous phases. The analysis consisted of an examination of the perceptions of the various contractors and architects, in order to establish the seriousness of payment problems, to contrast the preventive and remedial activities that could be used in dealing with payment problems to those that are actually used in the field, and to investigate new concepts and arrangements that could improve payment problems. This analysis was the basis for the overall recommendations to improve timely payment problems for public and private building construction in Pennsylvania.

Expected Results

This report culminates in the development of recommendations to minimize payment problems for subcontractors in Pennsylvania. This includes an assessment of existing practices to prevent and provide remedies to payment problems, identifies areas which require additional investigation, and makes recommendations for future action. As such, this report should be of great benefit to the subcontracting industry.

Chapter 2

THE CAUSES AND SERIOUSNESS OF SUBCONTRACTOR PAYMENT PROBLEMS

Introduction

The causes of payment problems that subcontractors experience are many and varied. Payment problems can occur between any of the parties shown in Figure 1.3 that are involved in the "flow through" of funds in a construction project. Only the causes associated with the relationships between the owner and general contractor and subcontractor and general contractor are analyzed in this paper. The effect of delayed payment, for whatever cause, results in another cost to a contractor which, in some cases, can be quite substantial. The situation of high interest rate on borrowing and the increased number of failures within the construction industry are discussed. Specific financial effects of late payments to a contractor are shown by two methods; one by analyzing financial statements, and the other by analyzing specific construction projects.

Causes of Payment Problems

In general, the causes of payment problems are either the fault of one of the parties or a combination of several of the parties that are shown in Figure 1.3. It should be noted that while the causes for delay in progress payments also apply to final payment, there are some which just pertain to final payment. Likewise, many causes are common to both public and private projects with others are unique to only public jobs. In the mid-seventies, a study (71) was conducted to make an assessment of the causes of payment problems. Some of the results of the study are presented. Contractor's

and architect's perceptions of the causes of payment problems in Pennsylvania construction projects, are presented in a later chapter.

Causes Related to Owner-General Contractor Relationship

Generally, the causes relate to either operational considerations of the administration of a project or to the tendency of the parties to hold on to their money so as to improve their own cash flow management.

Operational Considerations of Project Administration. Within this category, the five generally recognized subcategories are: paperwork requirements, owner's approval process, owner default or owner inability to obtain funds, lending institution requirements, and conditions peculiar to final payment.

Paperwork requirements cause delays when forms are not filled out promptly or procedural requirements are not followed. Some examples include invoices not properly submitted, invoice requests not in accordance with the owner's forms, payout requests submitted after the cut-off date, etc. (7, 10). These types of causes usually occur at the beginning of a project when the parties are establishing their working relationships. Also, payments are often withheld throughout the project because affidavits or lien waivers have not been submitted (97).

The owner's approval process causes delays because of the amount of time it takes to obtain the required signatures within the owner's organizations which allow the release of funds (96). Sometimes the architects or engineers are slow in the processing of payment requisitions because of disputes about the actual amount of work that has been completed, or because of disputes related to front-end loading* (96). School boards are

*Front-end loading refers to the situation whereby a contractor will invoice for payment at the beginning of a project for an amount that is greater than the actual cost incurred. The contractor may do this in order to "fund" other concurrent projects he is involved with or to offset the costs associated with retention (10, 11).

usually not in session during the Summer and contractors often must wait until the beginning of the Fall to get their approval for release of funds for this type of construction. (106, 107).

Owner default or inability to obtain funds is a common problem. Sometimes inflation increases the cost of construction well above the original estimate (97). In an effort to avoid the effects of inflation, some owners try to start construction as soon as they can. However, the process of hurrying the design stage also can result in an incomplete design which later results in many claims for extra work. Usually, the extra work is not factored into the cost and money is not appropriated for it (97).

The requirements imposed by lending institutions on the owner can also sometimes cause delays. In some cases, the owner's administrative ability does not match the lending agency requirement (10). Because lending institutions usually do not have construction expertise, they tend to be conservative and often impose unnecessarily rigid conditions on the owner (97).

In order to obtain final payment, the owner often requires that all necessary corrective work be completed before payment is made. After a project is substantially completed, (i.e., the time when the owner has beneficial occupancy), the amount and cost of the remaining work is usually very small. For example, the last item typically completed on a project is landscaping. If a job is substantially completed in late Fall, the landscaping can not be completed until the following Spring (107). At the end of a project, a punchlist of small items to be corrected is usually made. The punchlist may take a month to complete because all trades must be scheduled back on the project, or because the contractor may have other

project commitments (107). In some instances, multiple punchlists are made. The architect may prepare one list which is completed. Then the owner's construction department may prepare another list and require that this work also be completed. After the work is performed, the owner's grounds and maintenance department may require completion of another punchlist. Multiple punchlists can prolong the completion of a project by several months (97, 107).

Another item that extends the completion of a project is the issuance of a change order late in the project. Typically, final payment for the other work is usually not made until after the change order work is also completed (72, 97, 107).

Tendency to Withhold Money. Often an owner is reluctant to "draw" on his construction funds because of the high interest burdens involved. He may also be using the construction funds to make investments that yield a higher rate of return than the interest charged on construction funds. The longer the owner can withhold payment, the better his cash flow position (79, 96, 97). Such practices are not readily obvious because the owner can use one or a combination of the operational considerations discussed above as an excuse for withholding money that is due.

Causes Related to General Contractor-Subcontractor Relationship.

Generally, when a general contractor is experiencing payment problems with the owner, the subcontractor will also have payment problems. Hence, the causes related to the owner-general contractor interaction are often also the causes for general contractor-subcontractor problems.

Operational Considerations of Project Administration. At times, the general contractor may withhold payment to induce better performance of subcontractors (96, 107). On projects where the subcontractors are

essentially performing all the work, the general contractor may not press as hard for money due from the owner, because he only has a small amount of his own firm's money tied up in the delayed payment (107). On some occasions, the subcontractor may invoice properly, but is not paid because payment from the owner is delayed due to disputes arising from the attempt of the general contractor or other subcontractors to overbill or front-end load a project (107). When a general contractor defaults on a project, it frequently becomes difficult to obtain timely payments from his bonding company (107). Sometimes a general contractor will retain more on a subcontractor than is retained by the owner. Similarily, when the level of retention is reduced by the owner, the general contractor will not always reduce the subcontractor's level of retention (64). Some individuals feel such action is satisfactory if the subcontractor has not completed his work to the retention reduction stage of the entire project (86). Particularly for small contractors, it is very difficult to complete punchlist requirements because they must usually commit all of their resources to another project (107).

Tendency to Withhold Money. It is felt within the construction industry that some general contractors tend to act as "construction brokers" (53, 63). In such a situation, they deliberately delay payment to their subcontractors, even though they have been paid by the owner, in order to create their own cash float. This money is then available for diversion as operating capital or for other uses by a general contractor. The general contractor may also raise a false dispute as an excuse for a delayed payment (106). Some general contractors may purposely delay the completion of a project because the amount owed to the subcontractors in retentions far exceeds the amount due from the owner (92).

However, most in the construction industry feel that pure, "broker-type" contractors only constitute a small part of all contractors (97, 104, 107). Furthermore, they point out that some subcontractors also act as "brokers" to other lower tier-subcontractors. Although the total amount of brokering may be small overall, the effects on a subcontractor dealing with this type of contractor are great.

Subcontractors, Themselves, as a Cause.

There are those who hold the opinion that subcontractors pay more attention to the technical aspects of construction rather than to the business ones and, consequently, cause some of their own problems (75, 83). Often a subcontractor is unaware of the functions of accounting and thus leaves cash flow concerns to his accountant (10). Some subcontractors repeatedly bid to contractors who they know will "shop their bid" and who are known to be slow payers (86). Often the competitive nature of subcontracting in a depressed market causes them to assume such risks. If a subcontractor is prudent enough to realize the actual cost associated with bidding to a slow payer, he may still, because of his competition, not consider such costs in his bid (107).

Public vs. Private Work.

Although some causes are common to both public and private projects, there are also some important differences. Because the paperwork requirement of governmental agencies is usually greater than that required in private work and because it is perceived that this requirement slows down the payment process, some believe that public work usually deserves an additional 1-2% mark-up over private work (89, 97). Some feel that there are more problems with the Federal Government because of the lack of strong

payment statutes and the reluctance of these agencies, to give out information on payments covering subcontractors' work (79, 85). In some states, the payment problems for state and local public work is less than for private work because of their laws requiring prompt payments (79, 84). Public projects that are financed from the sale of bonds may result in delay of payment problems.

When bonds are sold, the cash is invested. The longer payments are withheld, the more income is earned from the short-term investments (10). However, there are also those who feel that payment problems are no greater for public work than for private work (83, 96).

Survey Results.

Although the above mentioned causes are relatively well-known in the construction industry, the extent to which each cause affects payment problems is not known. Some believe that causes can not be affixed to any one entity, but rather are a comminglingly of the actions of many. In the mid-1970s, the Construction Industry Foundation (CIF) made a survey of the large commercial banks involved in construction financing (71). The problems that were found are summarized as follows in order to assess causes and problems of the flow of funds in the construction industry:

- Slow payments from the owner were mentioned by 55% of those who responded. Eighty-nine percent charged that governmental agencies are slow payers.

- Substantially, all the replies mentioned slow payments by the prime contractor as a major problem in the flow of funds. In a majority of the cases, the reply referred to a general contractor. The most common reason for slow payment was the diversion of funds so as to operate on the other man's money.

Many individuals in the construction industry felt that this report was not credible because it seemed to favor subcontractors (97, 104, 107). Subsequently, the CIF went out of business. Since then there have been no

national studies conducted on this subject. Although the effects of each cause can not be quantified, the writer's opinion, and that of others, is that the importance of cash flow management in recent years is one of the more significant causes of payment problems (91, 97, 105, 107). The remaining sections of this chapter are therefore devoted to a discussion of the importance of interest rates and to a demonstration of the actual financial effects of delayed payment.

Interest Rate vs. Failures in the Construction Industry

In recent years, the cost of borrowing has risen greatly. Technologies have advanced to the point whereby investment opportunities are available to individual contractors. This section will focus first on the changes in interest rates over the last decade. Next, failures in the construction industry are introduced and compared to the situation of changes in interest rates. A further analysis of failures is performed by comparing general contractors and subcontractors. Also, failures by individual type of subcontractors are presented. With the interest rates being high today, contractors cannot afford to borrow or leave their money idle. Because of the emphasis on cash management, two methods of measuring the results of cash flow problems are introduced. In the next section of this chapter, these methods will be applied to actual data collected by the writer to demonstrate the effects on subcontractors.

Cost of Borrowing.

The cost of borrowing money is directly related to the prime interest rates. Generally, the prime interest rate follows market conditions. When money was tight in the 1974 and 1975 following the 1973

oil embargo, the prime rate was approximately ten percent. Lately, the prime interest rate, as shown in Table 2.1, have risen to as much as 22 percent.

Table 2.1

Annual Average Prime Rate Charged by Banks on Short-Term Business Loans

Year	Percent
1972	5.3
1973	8.1
1974	10.8
1975	7.9
1976	6.8
1977	6.1
1978	8.1
1979	12.7
1980	15.3
1981	19.1 (as of June '81)

Source: Reference 51

Failures in Construction Industries

In this sub-section, the following are discussed:

- failures, in general
- comparison of interest rates vs. failures
- an analysis of failures by type of contractor
- causes of these failures

Failures, in General. Failures in the construction industry are reported by the number of failures and by the dollar value of liabilities resulting from the failures. In the period from 1974 to 1980, failures in the construction industry represented 19.0% of the 9,260 annual average total commercial and industry failures. Categories in the commercial and industrial group, other than construction, are mining and manufacturing, wholesale trade, retail trade, and commercial sales. The liabilities generated by the failures within the construction industry were 14.4% of the $3,356 million total (45). In the first three months of 1981, failures

in Pennsylvania were 4.8% by number and 32.5% by liabilities for all industries and trades in the United States. Pennsylvania was ranked as the seventh worse state in both of these categories (46).

Interest Rates vs. Failures. A yearly comparison of the interest rates and number of failures in the construction industry which was made by the writer is presented in Figure 2.1. An examination of Figure 2.1 indicates that there appears to be a correlation between the two. If interest rates are high, then an increase in failures is likely to result.

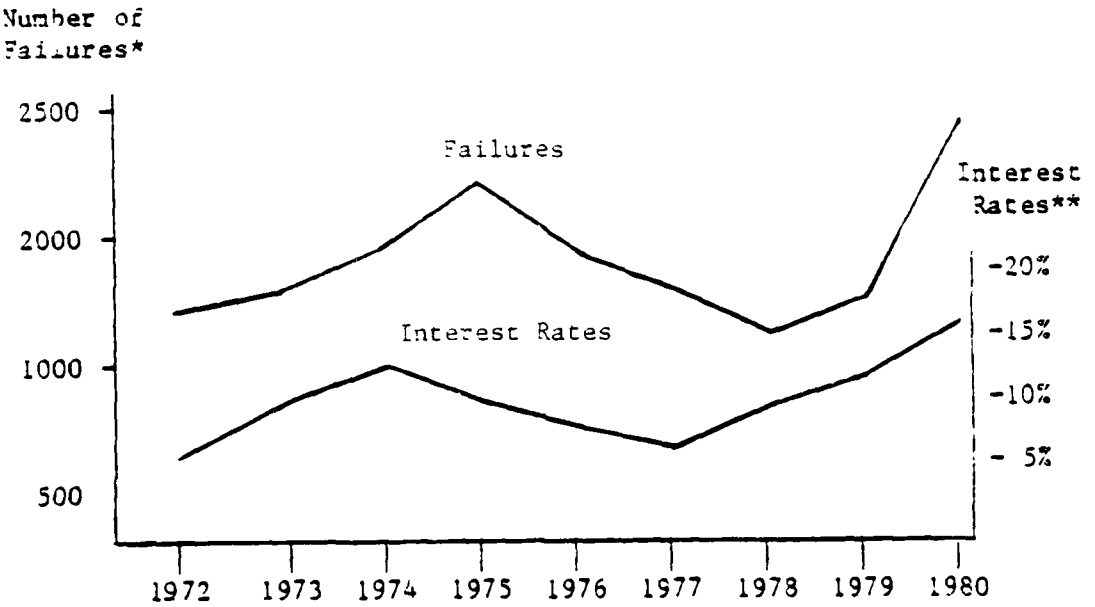

Figure 2.1 Interest Rates vs. Failures in the Construction Industry

* Reference 43
** Reference 51

Failures by Type of Contractor. The following types of comparison are made:

- general contractor and subcontractors
- general building contractor and single family housing contractors
- individual types of subcontractors

A comparison of general contractor and subcontractors, as shown in Figure 2.1, indicates that subcontractors had a larger number of failures than all general contractors. In contrast, the liabilities associated with general contractors' failures have been greater than those of the subcontractors (see figure 2.2). However, in the last three years shown (1978-1980), the number of failures and the resultant liabilities were approximately the same. It should be noted that general contractors, as shown in these figures, include single family housing* contractors. The increase in failures seem to follow the market conditions. If this trend continues, failures in construction are going to be even more serious in the next few years.

When considering building contractors to single-family housing contractors, as shown in Table 2.2, the latter type of contractor is experiencing a higher amount of failures relative to the volume of construction they performed in 1979 and 1980. Subcontractors and general ontractors seem to be experiencing an equal amount of failures relative to the respective volume of construction they performed.

Within the specialty contractor classification, there does not appear to be a particular trade, as shown in Table 2.3; that is, experiencing an unusually higher percentage of failures relative to the volume of construction they performed.

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*As discussed in Chapter 1, this report is not concerned with subcontractors involved in single-family housing construction. However, the sources used to determine failures did not differentiate between these types of contractors.

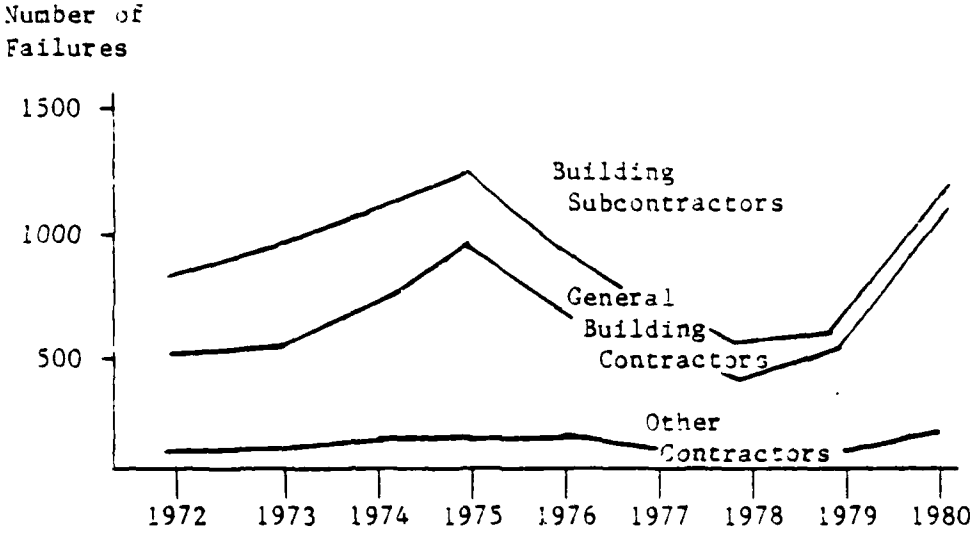

Figure 2.2 - Number of Failures by Type of Contractor

Source: Reference 45

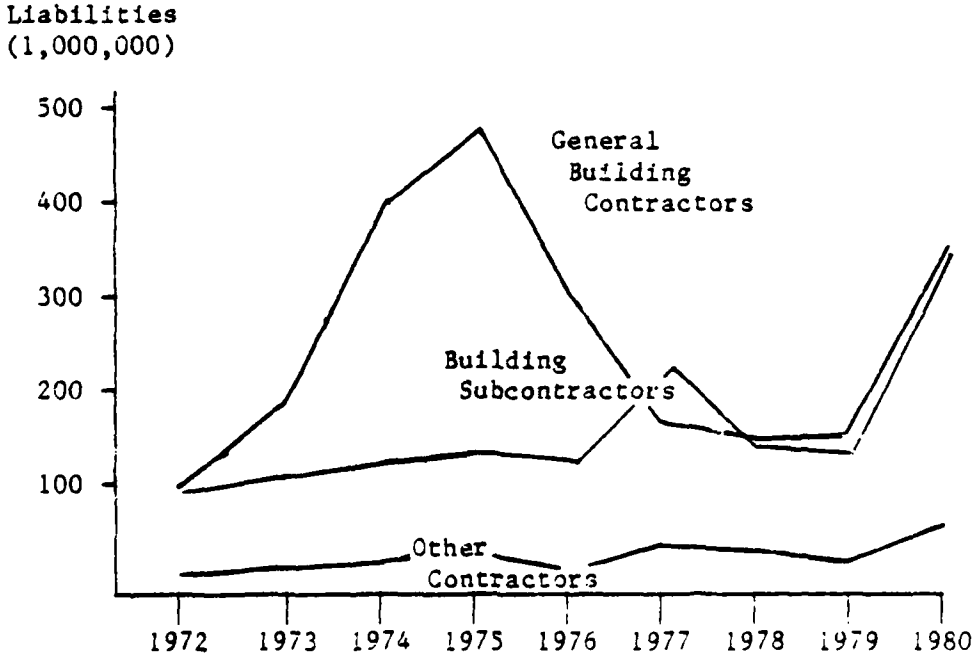

Figure 2.3 - Failures by Liability Value for Each Type of Contractor

Source: Reference 45

Table 2.2
1979 and 1980 Failures vs
Construction Volume
by Type of
Contractor

Type of Contractor	Construction Volume (by Receipts) Receipts (1)	Number of Failures (2)	Liabilities (3)
Single Family Housing	9.2%	30.7%	23.5%
General Building	20.3%	12.1%	21.6%
Subcontractors	45.8%	49.6%	38.8%

Note: All percentages are of the total in the United States.

Source: (1) - Table B.2
(2) and (3) - Reference 48

Table 2.3
Comparison of Individual Specialty Contractor's
Failures to the Amount of Construction Performed
By Each (All Figures are Percentage of Total)

	Total Construction Receipts U.S. (1)	1979 Failures by Number (2)	1979 Failures by Liabilities (3)
Concrete	5.2	4.8	[6.8]
Electrical	17.9	(12.4)	19.0
Excavation and Foundation	5.3	6.6	[7.7]
Floor Laying	2.0	2.4	(1.1)
Masonry	4.8	5.0	4.8
Painting	4.0	6.6	(2.8)
Plastering	7.6	6.8	6.5
Plumbing	26.6	27.3	26.2
Roofing and Sheet Metal	7.8	9.6	8.2
Structural Steel	2.3	2.0	(0)
Terrazzo, Tile	1.0	1.0	(.3)
Others	5.5	[15.5]	[16.6]
Totals	100.0	100.0	100.0

[ ] - more than 25% above the amount of work performed.

( ) - greater than 25% below the amount of work performed.

Source: (1) - Table B.7
(2) and (3) - Reference 48.

Causes of Failure. The causes of all construction failures is shown in Table 2.4. Problems in collection of receivables, the amount due to an individual contractor, is one of the major categories of causes and represents almost fourteen percent of all causes.

Table 2.4
Causes of Construction Failures

Lack of Experience in the Line	10.1
Lack of Managerial Experience	16.7
Unbalanced Experience*	20.0
Incompetence	45.9
	92.7
The above is evidenced by inability to avoid conditions which result in:	
Inadequate Sales	46.3
Heavy Operating Expenses	21.5
Receivables Difficulties	13.7
Competitive Weakness	30.5
Other	5.6

*Experience is not well rounded in sales, finance, purchasing and production

Source: Average of the 1975, 1976, 1977 and 1979 figures from Reference 45.

Investment Opportunities.

Today, lending institutions are willing to invest contractor's funds in an overnight market fund (60). Because of the very high rates of return on investments, substantial amounts of money can be generated from idle funds. Hence, if the contractor is not taking advantage of the investments, and his competitors are, he is losing both money and competitive advantage.

Methods to Evaluate Cash Flow.

Two methods are employed by the writer to quantify the effects of cash flow. One method involves analyzing the financial statements to determine

the cash demand period (4, 10) which represents the number of days, on the average, that a firm will need to provide funds to meet the obligations of current operations. Either the contractor must use its own funds and, thus, loses the opportunity to invest these funds, or he must borrow this money from a lending institution. A detailed development of this method is contained in Appendix C.

The other method involves the examination of a specific project and the application of an interest rate to the amount of money owed over the amount of days the money was past due. Both of these methods were utilized to evaluate contractor's financial statements and specific projects.

Financial Effects of Slow Payments

This section contains the results of an analysis performed by the writer on cash demand costs derived from contractor's financial statements and on an interest cost analysis of late payments made on subcontractor's projects. The actual calculation procedures used for each method are shown in Appendices C and D, respectively. The analyses demonstrates that cash demand costs and interest costs can have a great effect on an individual contractor's financial well-being.

Cash Flow Demand.

A comparison of specialty contractor's cash flow demand* are made to those of a general contractor. Calculations on the data derived

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* A more detailed discussion of cash flow demand is presented in Appendix C.

In Figure 2.5, the differences of the cash demand period were compared to the prime interest rate. Until 1976, the difference seemed to follow the rate. However, from 1977 to 1979, the difference has tended to decrease as compared to rise in the interest rates. With the current high prime interest rate, it is not known whether these improvements for subcontractors have continued.

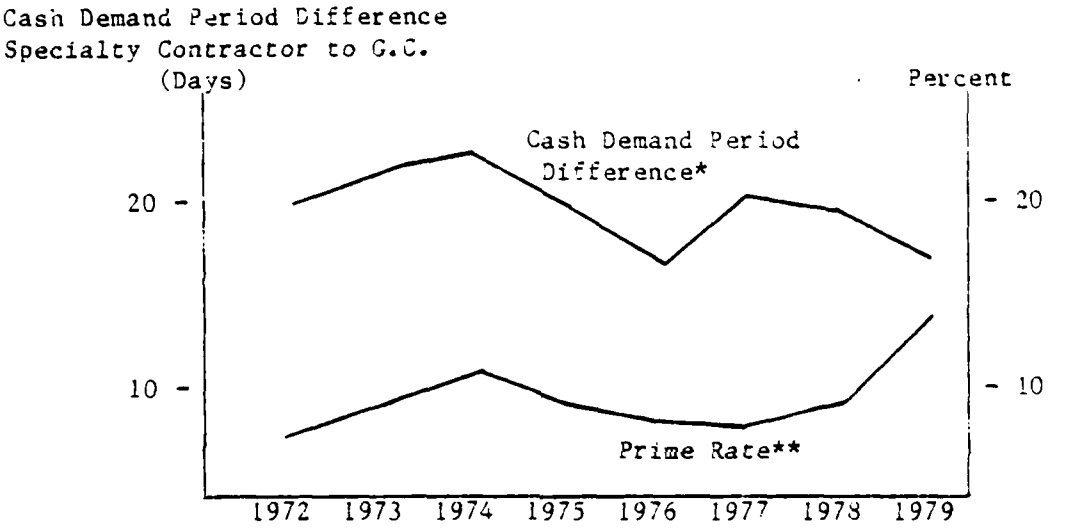

Figure 2.5 - A Comparison of the Difference of Specialty Contractor's Cash Demand Period to the Prime Interest Rates.

*Source: Table C.4
**Source: Reference 51

In an effort to explain why the above situation has occurred, the three components of the cash demand period were analyzed. These are the demand periods relating to:

normal billings
retainage
overbillings

A plot of these components in Figure 2.6 indicates that while the demand period difference due to overbillings increased, the normal billings effect decreased greatly from 1977 to 1979.

from the financial statements contained in the Robert Morris Association Reference (6) are included in this report as Appendix C. The effects of difference in cash demand are assessed for each of the individual types of specialty contractors. Finally, general comments on the effects on a subcontractor are presented.

Specialty Contractor vs. G.C. For all the years analyzed, the cash demand period for the average specialty contractor was approximately nineteen days greater than that for the general contractor (Table C.4), The results of the demand periods are shown in Figure 2.4.

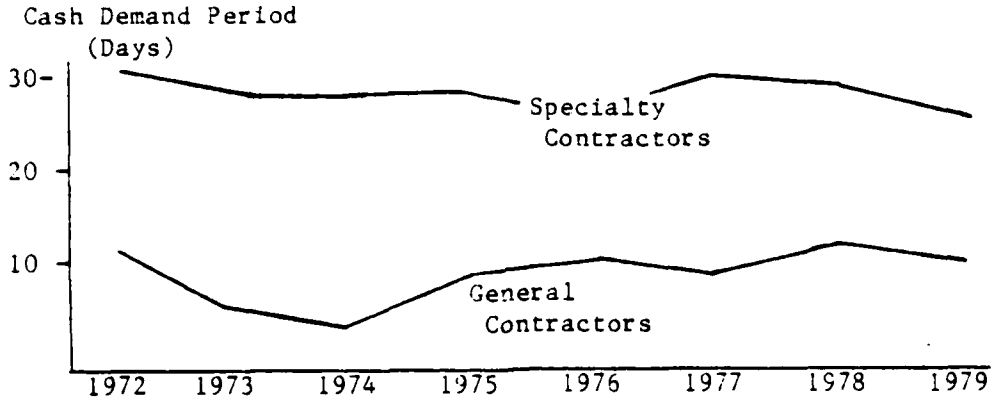

Figure 2.4 - Cash Demand Period by Type of Contractor from 1972 to 1979 (Source: Table C.4)

The breakdown of the average age of receivables to the average age of payables for each type of the contractor is shown as follows:

	Average Age of Receivables	Average Age of Payables	Cash Demand Period
Specialty Contractors	71.1	42.3	28.8
General Contractors	60.1	52.3	7.8

Note: Values were obtained from Table C.5.

As compared to the specialty contractor, the general contractor collected money owed to him in less time and was therefore able to increase the time available to pay others. The combination of the two factors has caused the difference in the cash demand period.

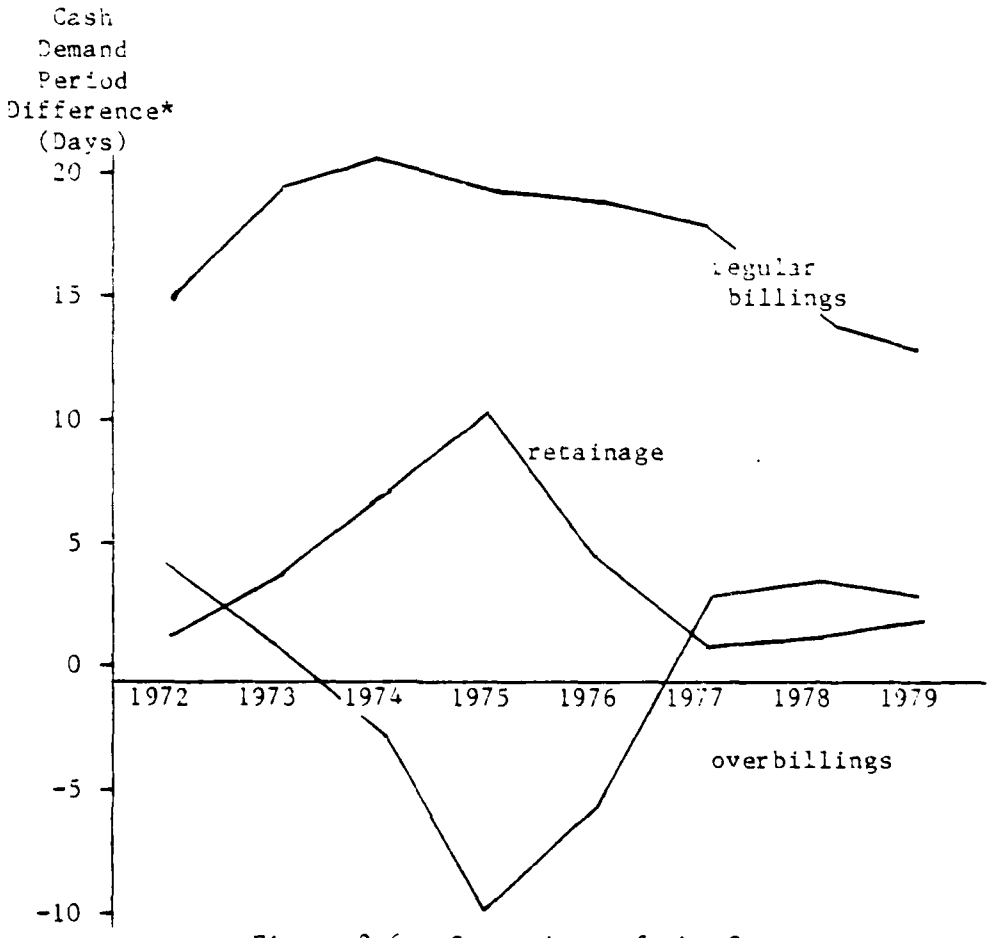

Figure 2.6 - Comparison of the Components of the Cash Demand Period Difference

*The difference of the cash demand period components are from the difference of specialty contractors to general contractors as shown in Figure 2.4

Effect on the Individual Specialty Contractor. Cash demand had a significant effect on the profits of some of the individual specialty contractor. The difference of the cash demand periods of each specialty contractor to that of the general contractor's were analyzed in relationship to their expected profits. For a complete discussion of this comparison, the reader is referred to Appendix C. The results are shown in Figure 2.7. The effects on each individual type of specialty contractor varied from as much as fifty (50) percent for the plastering contractors, to as small as eight (8) percent for a floor laying contractor.

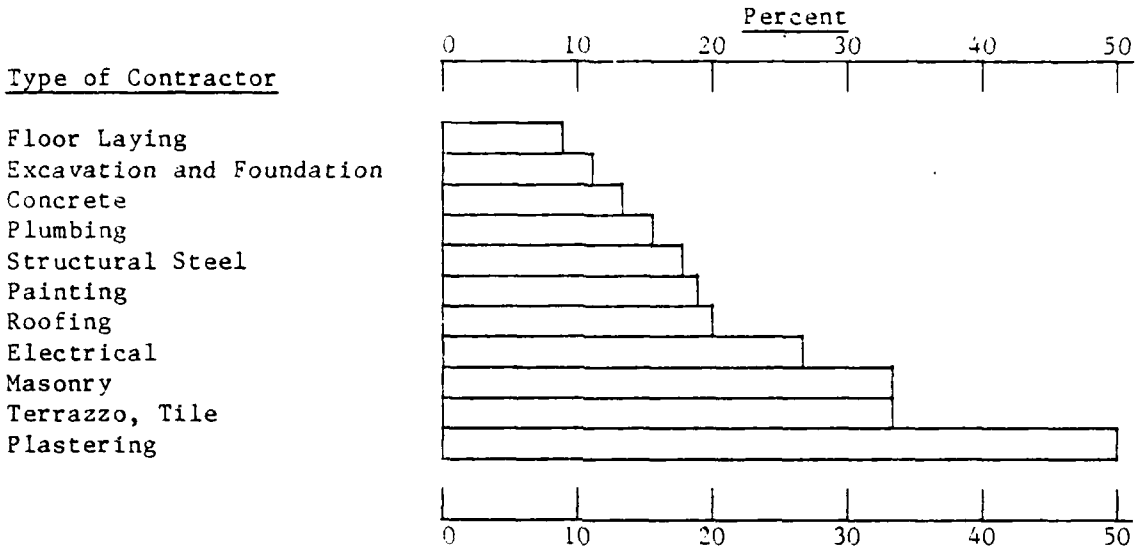

Figure 2.7 - Percentage of the Cost of Cash Demand Period Differences to Contractor's Profits*

*This information is summarized from the analysis performed by the writer of the RMA financial statement, which is contained in Appendix C. Generally, these percentages were determined as follows:

$$\text{Percentage of the Cost of Cash Demand Period Differences to Contractor's Profits} = \frac{\text{Cost of the Demand Period}}{\text{Contractor's Expected Profit}} \times 100\%$$

Effect on a Subcontractor. The results noted above are for the work of specialty contractors in the total construction industry. The figures that relate to a subcontrator's work in only general building construction can not be determined from the data analyzed because it was not available in such a form. However, it is the opinion of the writer that cash demand differences would be greater if only this type of work was considered. As discussed in Chapter 1, the percentage of work which is subcontracted out by general building contractors is highest for all types of contractors. Thus it would appear that the opportunity to delay the amount payable to others is increased. This would increase the age of money owed to the subcontractors. Because a subcontractor must pay his workers weekly and pay suppliers within thirty days, and because the amount of work that a subcontractor subcontracts out to others is small, the subcontractor is not able to increase his payables to others. Hence, the cash demand period for the average subcontractor is greater than it is for the average contractor.

Furthermore, the ability to delay payments to others can occur within the individual types of specialty contractors. The plumbing contractors had one of the lowest cash demand periods (see Table C.5). A comparison of the cash demand periods of plumbing contractors and specialty contractors is as follows:

Type of Contractor	Total Receivable Age	Total Payable Age	Cost Demand Period
Plumbing	72.9	53.1	19.8
Average - All Special Trade	71.1	42.3	28.8

Note: Values were obtained from Table C.5

The plumbing contractor is the largest type of specialty contractor and subcontracts out the highest amount of work to others (see Table B.7).

Perhaps, due to the amount of work subcontracted out to others, the average plumbing contractor was able to have a higher age payable than the average subcontractor.

The writer is not advancing the opinion that general contractors are intentionally delaying payments to improve their cash flow. As discussed earlier, the causes of late payment can also be related to operational considerations associated with the project administration.

Interest Costs.

When an annual interest rate of twenty-two percent is applied to the amount of money that has not been paid under the terms of the contract, the effect can be substantial. This effect is demonstrated in this report by an interest cost analysis by the writer of several subcontractor projects. A discussion of the analysis, which includes the calculations performed to determine interest costs from field data, is contained in Appendix D. The results of this analysis are presented in this section. In order to make a comparison of the interest costs to the project size, the costs are presented as a percentage of the expected profits. The results are summarized in Table 2.5

Table 2.5
Interest Costs as a Percentage
of Expected Project Profits

Type of Contractor	Type of Contract	Interest Cost as Percent of Profits	% of Interest Costs That Resulted From:	
			Progress Payments	Final Payments
Mechanical*	Sub	46%	76%	24%
Flooring**				
Project #1	Sub	23%	45%	55%
Project #2	Sub	22%	82%	18%
Project #3	Prime	2%	--	--
Insulation***	Sub	10%****	--	--

* Source: Table D.1
** Source: Tables D.2 through D.3
*** Source: Table D.4
****Only the effects of final payment were analyzed

For the projects in which the specialty contractors were subcontractors, the interest costs represented from twenty to forty-six percent of the expected profit for each project. The results shown above also indicate that both late progress payment and final payment contributed to the interest costs. The one job, in which the specialty contractor was a prime contractor, resulted in an insignificant amount of interest costs.

It is the intent of the writer to present the results of the analysis so as to demonstrate the substantial effects that interest costs associated with late payment can have on a project. However, it should be noted that the above results are biased because these projects which were known to have payment problems were selected by the writer to demonstrate the effects noted. The writer is not suggesting that this represents the average case for a typical subcontractor, and is not stating that interest costs only affect the subcontractors. The same analysis would apply to a general contractor. This situation, coupled with the many other problem areas that contractors must face, as discussed in Chapter 1, can and does in the opinion of the writer cause many failures within the industry.

Chapter Summary

The reasons and causes of subcontractor's payment problems are many and varied. Generally, these can be grouped into two catgories: problems which general contractors have in getting payments from owners; and problems which subcontractors have in obtaining payment from general contractors. In both categories, the causes can be either related to the operational/administrative considerations of managing a project or to the intentional act of one party to hold on to the money owed to others. In addition, it has been pointed out that subcontractors, by not being good businessmen, can be the

source of their own problems. Public projects might result in more payment problems than private projects because the administrative requirements required on the former type project are greater. Although the extent to which each of these causes contribute to the overall problem is not assessed in this report, the effects of the causes have the same result, payments are delayed to subcontractors. In the last three years, the prime interest rate on short term borrowing has greatly increased. Accordingly, the increased amount of failures and liabilities in construction have affected both general contractors and subcontractors alike. With the increased cost of borrowing money coupled with the increased opportunities for contractors to invest their money, any type of delay in payments will affect a contractor's operations. An analysis of the financial statements of contractors presented in this report indicates that subcontractors are experiencing substantially more payment problem effects than are general contractors, and that certain specialty contractors are affected more than others. An analysis of several actual subcontractor's projects was also included in this chapter, in order to provide specific examples of the effects of delayed payments.

Chapter 3

PREVENTIVE MEASURES

Introduction

The two most important ways in which a subcontractor can avoid payment problems are to seek favorable contractual provisions pertaining to payment terms and to know the financial position of those general contractors who are bidding on a project and, in some cases, the solvency of the owner of the project (65, 97, 105, 107). If this information indicates that there may be problems with one or more of the general contractors, the subcontractor can decide either not to bid with these general contractors or to quote higher bid prices as a contingency against the potential future problems. In this chapter, favorable payment provisions used in contracts will be presented and discussed. Several types of contracts will be compared with regard to these provisions. Also, the methods that are available to collect credit information on contractors will be presented and evaluated.

Payment Provisions of Contracts

Many feel that obtaining favorable payment terms in the contract is the most important activity that a subcontractor can perform in order to have profitable projects (61A and B, 97, 107). In this section, contractual provisions that affect either progress payments or final payment will first be presented. Several standard subcontract forms and a typical general contractor's own subcontract form will be compared and evaluated according to these provisions. Often, there are payment conditions in the contract between the owner and general contractor that have an effect on timely payments to subcontractors. In order to insure a pass-through of benefits, it is important that subcontractors be aware of these provisions

so that they can have these terms incorporated into the subcontract agreement. There are some (97) who feel that it should be a requirement that uniform subcontracts be used on public projects so that these pass-through benefits are provided to all. In order to analyze the differences among owner-general contractor contracts, a comparison, similar to the evaluation of subcontracts provisions discussed above, will be made between the AIA contract (30 and 32) and the Pennsylvania Department of General Services' contract (36). Also, some of the payment provisions used by several federal agencies will be presented and compared.

Payment Provisions, in General

Typically, a subcontractor will submit an application for payment each month to the general contractor and will receive the requested monthly progress payment, less a certain percentage that is withheld as retainage, within a certain number of days after the invoice is received. The percentage which is retained may be reduced at various stages of the project. The subcontractor should insure that the percentage retained is not greater than that which has been retained by the owner. Also, the subcontractor should seek clauses that state that he will receive the same benefits of reduced retainage at the same time that they are received by the general contractor.

In some contracts, several conditions must occur before payment is made to subcontractors. These contingent payment terms include a certification of payment by the Architect or Engineer for all of the work which is included in the application of payment and/or a payment made by the owner to the general contractor. In some instances, contingent payment terms will delay payment to a subcontractor even when the reason for

non-approval or non-payment is not the fault of the subcontractor. The legal interpretation of such contingent payment terms will be discussed in detail in the next chapter.

Some contracts will state that partial certificates of payment can be made by the architect so that undisputed amounts will be paid on time. In any case, the subcontractor should at least obtain the money that has been approved for the work that he has completed. In some contracts, the subcontractor is given permission to directly contact the Architect to determine how much money was released and for which work it was approved. With this information the subcontractor can determine if money should have been paid to him.

The subcontractor should also seek some type of time limit on the number of days before final payment is made. Some contracts require that final payment, less an amount equal to the cost of repairs (punch list work) and less the amount of uncompleted work, will be made shortly after the project is substantially completed. If the owner is going to release this amount at substantial completion, the subcontractor should seek a clause which provides the same consideration in his contract. A certificate of substantial completion is usually issued by the Architect or Engineer when the building is essentially completed so that it can be used for its intended purpose. At times, the completion of a project may be delayed because a few items of work cannot be completed within a particular season. Some contracts consider this phenomenon and permit final payment, less the amount of the work to be completed, to be made immediately.

Also, a contract provision allowing for interest to be paid on unpaid progress or final payment amounts could be included so that the effects of late payment on cash flow, as demonstrated in Chapter 2, can be offset.

Comparison of Subcontracts

Three different subcontracts are compared in this section with regard the different payment provision considerations that were discussed above. Two of these contracts are standard subcontract forms; one, Standard Agreement for Building Construction, AGC Document No. 5, 1980 (33), was developed by the AGC, and the other, Standard Form of Agreement Between Contractor and Subcontractor, AIA Document A401, 1978 (31), was developed by the AIA with the support of ASA and ASC. The last subcontract is a general contractor's own contract form (contained as Exhibit E.1) which is a purchase order that was obtained by the writer from one of the general contractors that was interviewed.

Of the three contracts, the writer feels that the AIA A401 form, as shown in Table 3.1, contains the most favorable payment provisions for subcontractors. Both standard contract forms require the parties to insert into the contract the exact retainage provisions. The subcontractor must therefore know what the retainage provisions are between the owner and general contractor so that he can incorporate them into his contract.

Both the purchase order and the AGC document contain contingent payment clauses. The AIA form specifically states that the general contractor must pay the subcontractor no matter what the condition as long as that subcontractor is not the reason for non-approval. The purchase order contains very little explicit contract language concerning payment provisions.

The AIA document is the only one of the three subcontracts that gives the subcontractor the right to contact the Architect for payment information, provides a clause to consider interest on late payment, and ties in final payment to substantial completion.

Table 3.1
Comparison of Payment Provisions of
Different Subcontract Agreements

Payment Provision	Purchase Order Contract (Exhibit E.1)	AGC Document No. 5 (33)	AIA Document A401 (31)
Progress Payments			
Percent retained	10%	(to be filled in by parties)	(to be filled in by parties)
Same retainage condition as General Contractor	not stated	(to be filled in by parties)	(to be filled in by parties)
Conditioned on approval of Architect	Yes	Yes	*
Conditioned on payment from Owner	not stated	Yes	*
Permission to request payment information from Architect	not stated	No	Yes
Final Payment			
Conditioned on payment by Owner and approval of Architect	not stated	Yes	No
Amount less value of punchlist work with 30 days after issuance of substantial completion	not stated	not stated	Yes
Seasonal consideration	not stated	not stated	not stated
Interest on unpaid balance of payment	not stated	not stated	amount of interest to be inserted into blank space

* stated that it will not be a condition if reason for non-approval is not fault of subcontractor

It is interesting to note that the AGC document does not endorse the A401 document because they do not believe that the AIA should be involved in writing contracts between subcontractors and general contractors. They also object to the requirements that the contractor must pay the subcontractor if the architect fails to issue a certificate of payment and the contractor does not receive payment from the owner (86).

Payment Provisions of Contracts Between Owner and Contractor.

Frequently, there are payment provisions contained in the contract between the owner and contractor that directly affect payment procedures related to subcontractors. It is important that the subcontractor be aware of these provisions, so that he can either have these provisions (especially the ones pertaining to retainage) placed in his contract, or at least be aware of the circumstances if the contractor is not making payments according to the proper procedures. In order to provide an example, the Pennsylvania Department of General Services Contract (36) and some of the payment practices of selected federal agencies were analyzed.

Pennsylvania Department of General Services (DGS) Contract. The payment provisions of the DGS Contract (36 and 37) are almost identical to the AIA Document A201, General Conditions of the Contract for Construction (30) which is used in conjunction with the AIA Document A101, Owner/Contractor Agreement (32). The DGS contract does, however, contain more provisions that directly consider payment to the subcontractor. A comparison of the DGS contract and AIA A201 for selected payment provisions is shown in Table 3.2. Those sections of the DGS Contract that are regulated according to a Pennsylvania law (15) are also shown in Table 3.2

One of the big differences between the two contracts is that the DGS Contract states that the contractor must pay the subcontractor regardless

Table 3.2
Payment Provisions, Which Have a Direct Effect on Subcontractors, Contained in the Contract Between Owner and Contractor

Types of Payment Provisions	DGS Contract*	AIA Document A201**
Require that pass through of payment be made to Subcontractor, to include the benefits of any reduction in retainage	Section 63.63 (a&b) Note: required by PA law, section 1626***	Article 9.5.2
Contractor must pay subcontractor, if it is not the fault of the Subcontractor, if the Department did not approve Contractor's application of payment and/or if the contractor did not receive payment from the Owner	Section 63.63(c)	not stated
Appropriate payment information will be released to the Subcontractor	Section 63.63(e)	Article 9.5.3
Payment at substantial completion	Section 63.107	Article 9.8 and 9.9
Specific requirement on the amount of payment withheld	Section 63.105(d) Note: required by PA law, Section 1625	not stated
Seasonal effects considered	Section 63.105(e)	not stated
Interest on unpaid amounts of progress and final payment for the amount of days due	not stated. Note: required by PA law, Section 1028 for final payment only	to be filled in A101 form

* The section referenced in the DGS Contract is contained in this paper as Exhibit E.2.
** The appropriate articles of the AIA document are noted but the articles are not reproduced in this paper.
***The appropriate laws mentioned are contained in this paper as Exhibit E.3.

of payment from the owner, as long as the reason for nonpayment is not the fault of that subcontractor. It is interesting to note that, while the AIA document A201 does not contain such a clause, the AIA Subcontract Document, A401 (31), does.

Both contracts require the contractor to pay the subcontractors and, thus, prevent the diversion of these funds to other projects. These contracts also require that the subcontractor receive the same benefits of retainage reduction which are received by the contractor. Also, both contracts permit the subcontractor to contact the Architect or Department to obtain information about the amount of payment which has been approved for the work that he has completed.

The DGS Contract contains more specific information pertaining to payment at substantial completion than does the AIA form.

DGS uses the following schedule of retainage percentage reduction according to the stages of completion:*

Stage of Completion	Retainage
0- 50%	8%
50- 80%	4%
80- 95%	2%
95-100%	1%

Payment Practices of Selected Federal Agencies. Contract documents, which were obtained from the United States Army Corps of Engineers (Corps) (39), Veteran's Administration (VA) (43), General Service Administration (GSA) (35), the Postal Department (42), and Housing and Urban Development Department (HUD) (40), were analyzed according to their retainage reduction schedule. The practice used by the Corps and the VA is to retain 10 percent but allows the Contracting Officer the option to reduce this amount

*The schedule is listed in Section 63.105 of the DGS Contract (36 and 37). The maximum limit of the percentage that can be retained are defined in Section 1625 of the Pennsylvania Law (see Exhibit E.3).

to zero for any and all periods that he feels satisfactory progress has all periods that he feels satisfactory progress has been achieved. The GSA and Postal Department have a similar policy but will not give this option to the contracting officer until after 50 percent of the project is complete. The HUD contract, which contains no standard statement as to what the retainage reduction should be, has blanks available for the desired schedule.

Credit and Financing Checks

Normally, subcontractors do not perform a formal credit evaluation of general contractors that they know and will not require evidence of adequate financing from owners that they have worked with before (92, 97, 100, 101). However, for those instances where relatively new or unknown general contractors and/or owners are involved, subcontractors can evaluate the credit risk of these groups before bidding by using one of the different methods which are discussed below.

Credit Checks

One of the means used to obtain credit information is to ask the general contractor to fill out a consumer credit application and include copies of their financial statements (4). However, because subcontractors are normally in the weaker bargaining position, many would not attempt this option (97, 107).

Other methods include obtaining credit information from different sources such as local credit bureau reports, Dun and Bradstreet (D&B) Reference Book (47), lending institutions, and from services provided by ASA chapters and other trade associations (4). Many feel that D&B ratings produce only marginal information (97, 100). Permission must be received from the general contractor in order to receive any information from local

credit bureaus and/or lending institutions. Credit information exchange services provided by trade associations will be discussed later in another section.

Evidence of Financing

In some contract documents, such as the AIA document A201, it is required that the owner furnish reasonable evidence of financial arrangements prior to signing the contract. One organization recommends that the owner welcome inquiries from interested contractors before the Invitation to Bids and provide sufficient, not just "reasonable", evidence so as to minimize the risks involved for all parties (70).

Business Practice Information Interchange

One of the services provided by most of the ASA chapters is credit information exchange through the Business Practice Information Interchange Program. In this section, a description of the program will be provided, usage by subcontractors will be discussed, legal considerations will be presented, and other credit information exchange programs will be mentioned.

Program Description

Usually, subcontractors of a particular ASA chapter will meet once a month in conjunction with a chapter dinner meeting, to conduct the interchange of information. First, a moderator will read a statement relating to the rules of conduct for the meeting. Questions placed on cards, relating to such things as payment practices, job conditions, or back charge practices of a particular contractor, are submitted by an interested subcontractor. The moderator will read the questions from the cards and comments will be received from the audience. The moderator monitors the information to insure that it is kept factual (2, 98, 105, 106).

Usage by Subcontractors

Some of the ASA chapters have reported that 3PI is the number one reason why subcontractors join their chapters (68, 105). However, one member of ASA pointed out that the program usage is not as widespread or as effective as it would first seem to appear (97). One of the Pennsylvania ASA chapters indicated that because subcontractors are in competition with one another on the same projects, many are reluctant to provide such information (101).

Legal Considerations

Although the benefits to subcontractors can be great, legal problems can arise if the exchange of market information results in a restraint of trade. This activity can result in a violation of federal and state anti-trust laws. Those activities which may be subject to attack under the anti-trust laws include:

- agreements as to pricing or sales
- blacklists
- agreements not to deal with delinquent customers
- agreements on terms and conditions of sales or credit (which include discounts, cash only requirements, or lien waivers) (2)

In order to avoid legal liability under these laws, the programs are carefully controlled by the moderator. Usually a legal counsel is present at the meeting. One of the local Pennsylvania ASA Chapters briefs its members on the following rules before each of the meetings:

- attendance is voluntary
- all information is voluntary
- state facts only - as you know them
- give no opinions

- derrogatory or undermining remarks are not tolerated

- no exchanges on current or future pricing

- no opinions on a person's character or morality (66)

In the other ASA chapter, the moderator will read the following statement before the meeting is conducted:

> The information to be presented is confidential and is to be used for credit purposes only. Under no circumstances should this information be used to embarrass fellow contractors. To avoid this possibility, and to protect us from any abuse of the confidential information, no tape recordings of the proceeding will be permitted.
>
> The use of data regarding any debtor is not to be understood as a recommendation on the part of ASA Chicago Chapter or its members that further credit be denied.
>
> The extension of credit is a question to be unilaterally determined by individual sellers in accordance with their own judgment after appropriate investigation.
>
> If there are any General Contractors or representatives of General Contractors now in attendance at this credit interchange, please now identify yourselves. We welcome any General Contractor whose firm might be mentioned to have an opportunity to respond to any information or statements given at this interchange (67).

By conducting and monitoring the meetings according to the rules, there have been very little legal problems associated with any of the ASA chapter credit interchange programs (97).

Other Types of Credit Exchange Programs

Another helpful program offered by several ASA chapters is a credit referral service. The chapter maintains a file of subcontractors having a recent credit experience with each of the general contractors in the area. When an inquiry is received, the chapter refers the party to those having credit information. The actual exchange of past credit experience is then made directly between the two subcontractors (2, 105, 106).

Another association; the National Association of Credit Management, maintains an active system of credit interchange for its participating

members with emphasis on ledger experience with respect to payment practices (2).

Chapter Summary

The intent of this chapter was to familiarize the reader with the two most important ways that subcontractors can avoid payment problems. One way involves obtaining favorable contractual provisions pertaining to payment terms. The other involves obtaining credit information on the general contractor and/or owner so as to determine the credit risk involved.

Some of the types of payment provisions that should be sought, include:

- exact terms on the retainage reduction schedule
- payment at substantial completion with consideration given to punchlist work
- permission to contact the Architect for general payment information
- interest to be applied to amounts of payments past due.

Three types of subcontracts were then compared and analyzed. Of the three, the AIA A401 form contained the most favorable payment provisions. This form was the only one which explicitly stated that there would be no contingent payment conditions. The AGC document and a general contractor's own purchase order contract stated that payment would be conditioned.

Since it is important for a subcontractor to know what payment terms the general contractor has with the owner so that he can get these provisions placed in his contract, several owner-general contractor contracts were analyzed. Both the DGS and AIA A201 contracts contain favorable payment provisions, however the DGS contract, which is partly regulated by

Pennsylvania laws, contains better and explicit payment terms for subcontractors. The DGS contract contains strong language to prohibit contingent payment practices, and has a four stage retainage reduction schedule which lowers the percentage retained from eight percent down to one percent. The payment practices pertaining to retainage reduction of five different federal agencies were compared and it was revealed that each of these agencies allow their contracting officers the option, at times, to not hold any retainage. Because there are many different payment practices by public agencies and because in most instances it is not practical for a subcontractor to review the general contractor's contract with the owner, some feel that the agencies should require that a standard subcontract be used by all general contractors so that there will be a flow-through of benefit to all subcontractors.

It was pointed out that obtaining credit information on the general contractor may not always be practical because the information may be too general and because he may not agree to release information. There are ways, however, (such as the BPI service and credit referral system provided by local ASA chapters), that exist for the subcontractors to determine the credit risks of their business associates. Since there are many legal implications associated with the BPI service, the local ASA chapters follow strict guidelines in the conduct of such meetings.

If the subcontractor determines that a particular general contractor or owner is a credit risk, or if he is unable to obtain favorable payment provisions in his contract with the general contractor, he may decide to either not bid on the project or to raise his bid.

CHAPTER 4

REMEDY OPTIONS

Introduction

Payment problems occur even though the preventive measures discussed in Chapter 3 have been taken. Once a subcontractor recognizes that such a problem exists, he must vigorously pursue collection through available remedial options. Usually, these options are exercised in a sequential order, starting with a simple notification that payment is due to the more formal, legal methods, until payment is made. The options that will be discussed and analyzed in this chapter include: establishment of a satisfactory collection program; notification to the architect or owner of payment problems; filing of either lien notices on private projects or intent to collect under payment bonds on public projects (both according to the applicable Pennsylvania laws); stoppage of work; and litigation.

Collection Programs

A basic collection program consists of billing or invoicing all of the projects according to the terms of each contract and following up on past due receivables (2, 4, 10). Of the contractors interviewed, most felt that there were not too many problems involved with the amounts to be invoiced. However, in those situations where there were problems, they were mostly associated with when to bill for reduction in retainage, because, at times, it was not known how much and when this reduction would occur. As discussed in Chapter 3, certain owners and public bodies use a variable schedule of retainage reduction. A subcontractor would best be served by recognizing these variations so that he can make inquiries as applicable to others, as appropriate.

Payments that are past due must first be identified before follow-up procedures can be stated. The number of projects that a contractor is involved with may dictate how elaborate the identification process must be. The contractors that were interviewed kept a chart of payments that were 30 days, 60 days and 90 days or more past due. Usually, the status of late payments was manually updated, but for one company this function was performed as part of a computer program handling accounting and financial activities.

Most follow-up procedures involve making telephone inquiries about the nature of the problem, when payment can be expected and, if necessary, on the amount of days that the payment is past due. These calls are made to different positions within the hierarchy of the company that is delinquent in making payment. Since many companies operate in a continually tight cash position, payment is usually a case of "the wheel that squeaks the loudest gets the grease" (4, 97).

As pointed out by Teets (10), the functions of invoicing and following up on past due receivables, should be the responsibility of those directly involved with the administration of the project rather than that of the accounting and bookkeeping departments, since the former are more knowledgeable about the situation and will thus probably be able to collect payments faster.

Notification to the Architect or Owner

A subcontractor can, in most cases, contact the architect or owner to first find out if payment for their work was made to the general contractor and, if so, to inform them that they have not received payment. The actions of the architects or owners can range from no action to that of withholding further payment to the contractor.

Before notifying the architect, the subcontractor should generally know the payment practices of a particular owner so that he knows when the general contractor was paid. These times will vary. To demonstrate the variability involved, payment practices (with respect to the amount of days it takes the owner, on the average, to pay the general contractor once he submits an invoice for payment), of the Pennsylvania State University, DGS and selected federal agencies were obtained and are presented in Table 4.1

Table 4.1

Payment Practice of
Selected Owners to General Contractor

	Amount of Days Payment is Made After Date of Invoice	Bibliography Source
Pennsylvania State University	30 days	102
DGS	14 days [a]	90
VA	30 days (and in some cases[b], 2 weeks)	78
Postal	2-3 weeks	82
GSA	3-5 weeks	87
HUD	15 days	95

[a]The subcontractor is to be paid within twenty days of the date that the subcontractor is paid.
[b]The duration is shorter if a computerized network analysis is available.

Since June 1980, on a Pennsylvania DGS project, a subcontractor can contact the Bureau of Construction to obtain information on payment made to the prime contractor (88, 99). According to the DGS Contract, which has the same provision as the AIA document A201 agreement, the certificate of payment can be declined so as to protect the owner for "failure of the

contractor to make payments properly to subcontractors or for labor, materials or equipment" (30, 36).

All of the federal agencies that were analyzed will provide general information of payments made, (a requirement of the Freedom of Information Act), to the inquiring subcontractors (78, 80, 93, 95). If the subcontractor reports that he is unpaid, he is advised of his rights under the Miller Act and is furnished the name and address of the surety (78, 87, 93). Although the agencies will not interpose the government between the contractor and subcontractor, the General Services Administration did indicate that they would contact the general contractor to determine the nature of the problem and to remind him that he had certified that timely payments would be made (87). The U. S. Army Corps of Engineers will not withhold any payment during the performance of the contract because subcontractors are unpaid but it is noted (80) that:

> When contract work has been completed and the Government has been given written notice by the surety regarding the contractor's failure to meet its obligations to subcontractors or suppliers the contracting officer shall withhold payment pending agreement between the contractor and the surety or a judicial determination establishing the rights of the parties.

Payment Bonds

On most public projects, the prime contractor is responsible for posting a bond which protects subcontractors and suppliers in case of non-payment. The situations under which the bond protection may be used and the terms of the bond coverage are outlined in the laws covering each type of project. For a federal project, the Miller Act (19) applies and for a Pennsylvania state project, the Public Works Contractors' Bond Law of 1967 (17) applies. The discussion in this section, although the two laws are very similar, centers upon the Pennsylvania law.

The "Public Works Contractors' Bond Law of 1967" requires the prime contractor on all public works contracts exceeding $5,000.00 to post a surety bond for 100% of the contract price solely to protect subcontractors and suppliers. Upon request, a subcontractor may obtain a copy of the bond from the contracting body. A subcontractor may sue on this bond if not paid in full within ninety (90) days of the date on which the subcontractor last performed work or furnished materials. A subcontractor who does not have a direct contract with the prime contractor, but only with another subcontractor, must give written notice to the prime contractor of his claim within ninety (90) days of performing his last work. Where required, this notice is a condition precedent to commencing suit. Suit against the surety company must be brought within one (1) year of the date on which the subcontractor last performed work or furnished materials (17).

As shown in the Lite-Air case (25), under the language of the bond as a whole, the payment bond covers only money due for "labor and materials". The subcontractor in the case had tried to sue a surety for claims involving:

- lost profits
- cancellation charge
- delayed damages
- escalated material costs
- finance charge or interest on claims, and
- finance charge on invoices that were paid late

but lost the case because these provisions were not covered in the payment bond. Although there are no current efforts being made to amend the Pennsylvania law to cover these situations, there is a proposed amendment (20) to amend the Federal Miller Act so that attorney's fees and interest

on any amounts recovered in litigation will be covered under the bond. In New York, a recent ammendment to their law was passed with respect to including coverage of interest on claims and attorney fees (11A).

In another court case (27), it was found that a public body owed the duty to a subcontractor to ensure that a general contractor furnishes a payment bond, but such duty does not make a subcontractor a third party beneficiary to the public body if the public body has not made any implied or expressed agreement to pay subcontractors when the general contractor has not paid them.

Lien Laws

Mechanic's lien laws exist to protect those who improve real property on private projects, either with their labor or by furnishing materials and are not paid for their work. However, these laws are very complex, which frequently causes lawyers to spend countless hours sifting through the legalities of the statutes in an effort to enforce the legal rights of their clients. Each state has its own lien laws. In this section both the existing Pennsylvania Mechanic's Lien Law and its proposed amendment will be discussed.

Pennsylvania Mechanics Lien Law

Under the Pennsylvania Mechanic's Lien Law (16), an owner may have to pay out more money than the contract sum because he will have to pay a subcontractor if he has paid the general contractor for work and this contractor has not paid the subcontractor. This type of "double-pay" situation is called the "Pennsylvania System". The opposite, in which the contract sum is the limit, is called the "New York System" (7). Some of the other highlights of the Pennsylvania law are discussed below.

A lien claim may only be filed by a general contractor or a subcontractor, thus, a firm which furnishes labor or material to subcontractors does not have the right of lien. The subcontractor must give a preliminary notice to the owner of his intent to file a lien if the payment due is not paid. A claim must be filed within four (4) months of the date when work was completed with the Prothonotary of the Court of Common Pleas in the county in which the improvement is located. Within a month of filing, the subcontractor must give written notice to the owner. Within twenty days of giving this notice, the subcontractor must file with the Prothonotary an affidavit of service of the notice. All these time limitations must be strictly observed if the right to lien is not to be lost. In order to assure that these filing dates are not missed, some of the ASA chapters offer a service to their members providing them with sample letters to all the parties that must be notified (73, 74). The mechanic's liens are automatically attached to the property as of the date work begins. As a result of this fact, banks and construction lenders usually make certain that their loan mortgage is recorded before work begins, which gives them first priority on liens. The owner has the right to retain funds on a contractor to an amount sufficient to protect the owner from loss until the claim is finally settled.

Perhaps, one of the most controversial aspects of this law is that a contractor may enter into an agreeement with the owner waiving the right of the contractor and of all persons under him to file or maintain a mechanic's lien claim. Such an agreement is binding upon a subcontractor. It is claimed by some (105), that the Mechanic's Lien Law is virtually useless to subcontractors because most private owners in Pennsylvania require that the lien rights be waived. Some states, such as New York,

void any waiver of lien (113). The issue of lien waivers is one of the central issues of the proposed amendment to the Pennsylvania law.

Proposed Amendment

According to a House Bill in the General Assembly of Pennsylvania, which will add provisions relating to mechanic's liens and make other repeals (14), any waiver of liens will be void unless:

- the aggregate value of labor, services or materials for the erection, construction, alteration or repair, as appropriate, is less than $100,000, or
- the owner has posted or caused to be posted a payment bond (Section 309 of the amendment).

The payment bond would be similar to the bond required under the Public Bond Law of 1967. Many of the general contractor's trade associations object to this amendment because they feel that the owner, who probably will not be able to get a bond, will require a general contractor to post one which, in turn, would leave the general contractor without a remedy if the owner defaults (103). It may also have some impact on contractors who are in a marginal financial position because they may not be bondable (76, 100).

Stoppage of Work

Many contract documents, such as the AIA document A401 (31), permit the subcontractor to stop work until payment of the amount owed is received. Although there are other common law concepts that would legally permit the subcontractor to stop work, if such a program is not already in the contract, the prudent contractor should seek legal advice from his attorney before exercising such an option (7, 65).

Litigation

In addition to suits involving payment bonds and mechanic liens, subcontractors are frequently involved in suits against general contractors.

Also, claims made against third parties, such as owners or lending institutions, will be discussed in this section.

Claims Against General Contractors

Many of these claims involve the issue of whether or not a "payment condition" is created from the subcontract since such a condition would permit the general contractor to refuse to pay the subcontractors until he receives payment from the owner. In recent years, courts have required that extremely clear language be used in a subcontract in order to show that the subcontractor had assumed the risk of owner nonpayment (5, 7, 8, 65). One of the leading cases that stresses this fact is the case of Dyer vs. Bishop* (28).

In Dyer vs. Bishop, the owner went insolvent and the general contractor relied on the contingent payment clause in the subcontract when he refused to pay the subcontractor. The courts ruled that in the construction business, it is normally the general contractor who assumes the risk for the owner's insolvency and if this risk were to be shifted to a subcontractor, a clear expression of intention must be made in the subcontract. The court felt that the subcontract provision used in this case was designed to postpone payment for a reasonable period after the work had been completed in order to afford the general contractor the opportunity to procure from the owner funds necessary to pay the subcontractor. It did not require the subcontractor to wait an indefinite period of time to be paid (28).

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*This is the leading case in the United States on this issue which has set the legal precedence for all other cases. In Pennsylvania there have been very few cases involving contingent payment provisions. Because of the importance of this case, the writer has included a discussion of it in this chapter.

A provision that would probably be considered as a condition precedent clause would be:

> The subcontractor shall be paid final payment promptly only when full payment for this subcontract work is received by the general contractor from the owner (65).

Generally, it is held that the following two situations are clear in law:

- if the subcontractor fails to properly perform, he is not entitled to payment and
- if the reason for nonpayment is the improper performance of the general contractor or his unwillingness to make reasonable efforts to obtain payment,

the subcontractor is entitled to be paid (5, 7, 8).

The more difficult questions involve nonpayment by the owner under circumstances, such as owner's insolvency or when the work of another subcontractor is defective, so that neither the prime contractor nor the subcontractor can be held directly responsible (5, 7, 8).

Claims against Owners or Lending Institutions

Since there is normally no privity of contract between an owner or lending institution and subcontractor, claims against them would have to be in the form of third party suits. Generally, payment claims against third parties are hard to sustain (8). However, it is felt by some, such as McNeill Stokes (91), legal counsel of the ASA, that this situation will soon change:

> Owners are putting the subcontractors in privity by requiring the subcontractors to assume all responsibilities for the work in accordance with the general contract plans and specifications but at the same time duck the payment responsibility. In other words, they are putting the subcontractor in privity for the performance liabilities but not for the payment benefits. This inconsistency may not last too long in the law.

The point just noted was recently reflected in a decision by the Superior Court of Pennsylvania that allowed unpaid subcontractors to recover against the lender (26). In this case, Gee vs. Eberle (26), the lender, who had advanced part of the mortgage to the owner, purchased the property which contained the virtually completed construction project at a sheriff's sale. The subcontractors were granted the decision because they proved that the lender had been unjustly enriched by the subcontractors' work. The subcontractors, who did not have a direct relationship with the lender, were granted the decision even though they had not exhausted all of their other statutory and contractual remedies.

Other Issues

Although a complete analysis of legal issues involving payment cases is beyond the scope of this report, some other important points should be mentioned.

In cases where a subcontractor attempts to collect finance charges due to delayed payments, such as the costs demonstrated in Chapter 2, courts require that he must show a relationship between the formulas he used in calculating these charges and his cash flow (3).

In Pennsylvania, the dispute process for claims on public projects involves the Board of Claims. Because it currently takes several years for a case to go through the Board of Claims (76), it is the opinion of the writer that the current dispute process which is used in Pennsylvania be researched to determine whether or not it should be revised.

According to interviews that the writer had with over ten different subcontractors or general contractors, each of the contractors either had never been involved in litigation or had been involved in no more than one case. Some had a policy of avoiding litigation at any cost.

Chapter Summary

The intent of the chapter was to familiarize the reader with remedial options available to a subcontractor who is experiencing problems with timely payments. The areas that were analyzed include:

- Collection Programs
- Notification of Architect or Owner
- Payment Bonds
- Lien Laws
- Stoppage of Work
- Litigation

Collection programs usually consist of simply identifying when payment is due and then making a vigorous business-like follow-up on those who are delinquent in making payment until payment is made.

By notifying the architect or the owner, the subcontractor can usually obtain information on payments made. The payment practices of owners will vary and, as such, payment may be made sooner by some than others. Because there is no privity of contract, the actions by public owners is generally to advise the subcontractor to pursue his collection action under payment bonds. Some agencies might contact the general contractor in an attempt to help solve the problem. In the DGS contract, there are provisions whereby payment will be withheld to the general contractor if he has not paid his subcontractors.

The legal and legislative protection afforded to a contractor is payment bond coverage on public projects and lien rights on private projects. In order to collect under these laws, the subcontractor must strictly follow the requirements of each. The Pennsylvania bond law is of the type that may require the owner to make "double payment", but does not contain provisions which would allow for total coverage of costs associated with the type of effects of late payment, which were discussed in

Chapter 2, and for the costs involved in the collection process. Some states include such coverage and there exists a proposed amendment to the federal payment bond law to also include this coverage. There is also a proposed amendment to the Pennsylvania Lien Law to prohibit the waiving of subcontractor's rights by the owner and general contractor unless there is bond coverage provided. Some feel that this change must be made because the existing Pennsylvania Lien Law is ineffective.

The right to stop work option may be contained as a provision in the contract, but should only be used after consulting an attorney.

Generally, litigation cases, other than cases involving payment bonds and lien rights, are concerned with contingent payment clauses. The courts generally will rule in favor of subcontractors unless explicit language is contained in the contract which states that the subcontractor will assume the risk of the owner's nonpayment. Although there is no privity of contract between an owner (and/or lender) and a subcontractor, subcontractors are required by their contract with the general contractor to follow the owner's demands. Because the one-way flow of requirements may not be fair, there may be an increasing tendency in the courts to grant action to a subcontractor against an owner or lender.

Chapter 5

OTHER PAYMENT ARRANGEMENTS

Introduction

In the previous two chapters, topic areas were analyzed, which would provide either preventive measures or remedial actions for subcontractors in Pennsylvania to take in order to avoid or solve timely payment problems. In this chapter, payment arrangements used in other parts of the country, and some relatively new concepts that have been recently developed and are only starting to be used in practice, are discussed. The main emphasis is on a system whereby payments are made directly to subcontractors instead of going through the general contractor. Others topics that will be covered include:

- line item release of retainage
- payment practices of construction managers
- trust fund statutes
- uniform procurement systems for all levels of government
- proposed federal legislation

Direct Payment

A payment method used by the Chicago Title Insurance Company and by the Virginia Lawyers Title Company provides direct payment from the owner, via the title company, to the first tier subcontractors (44, 75, 81, 97). In a recent survey of its members, the Chicago ASA Chapter found that 88 percent of their subcontractors had worked on projects in which they received direct payments from title companies (68). Although it is mainly used in these two areas by the previously mentioned title companies, and to a limited extent by some banks, it is felt that this type of payment procedure shows potential and might become a common practice in the future (91,97, 107). In this procedure, title companies are able to insure that

the priority of a "construction mortgage will be superior or primary to any liens against the property filed by those parties providing materials or services relating to the construction of the improvement" (81). This is accomplished by disbursing payments to the major subcontractors and suppliers. They are required to furnish additional documentation, such as lien waivers or other paid receipts, to demonstrate that they, in turn, have reimbursed their sub-subcontractors and suppliers.

Procedures

The system used by the Chicago Title Insurance Company (hereinafter referred to as CTI), as contained in their documents (34 and 69), provides an example of the procedures that are used.

Initial Agreement. The initial step taken is to have a Construction Loan Escrow and Disbursing Agreement (34) signed by the lender, owner, CTI, and the general contractor.

The agreement contains information about the amount of the loan and the amount which CTI will disburse to the contractor and to other agencies who are involved with administrative costs. This type of involvement insures that the project is adequately financed.

Prior to each disbursement of funds, according to the agreement document, CTI must be furnished the following:

- The statements of the Owner and Contractor, disclosing all persons with whom either has contracted to furnish services, labor or materials for the Project; the amount of each contract, including additions or other changes; the amounts paid to date; the amounts being requested for payment in the current disbursement; and the balance due on each contract.
- An approval by the lender and Owner (or his supervising architect or inspector, if so designated) of the requested disbursement.
- Sufficient funds to make the disbursement in question.

CTI will only guarantee equitable disbursement of funds received, but will not make any payment if the owner fails to release funds.

Owner and Contractor Statements. The Contractor will forward a statement to the owner listing all the subcontractors, by a trade account number, and include the amount of the contract, the amount previously paid and retained, and the amount to be paid in the period to each of the subcontractors. This type of cost breakdown requires the general contractor to report actual costs as submitted by the subcontractors. The owner will forward this statement to CTI, along with a statement of his own which lists all those who performed either construction-related or non-construction-related services, which were not contained in the contractor statement. This procedure insures that all the costs that the owner incurs will be handled.

Lien Waivers and Payment. Lien waivers may be obtained in one of two ways. First, a payment draft voucher can be made out to each of the subcontractors. The draft will be executed once the subcontractor signs the lien waiver contained on the voucher. The preferred method though (81), is to require the first tier subcontractors to submit affidavits and lien waivers, along with the contractor's statements. These lien waivers will contain the names of all subcontractors and suppliers with whom the first tier subcontractor has contracted for work or material. Signed lien waivers from those listed on this affidavit must be presented along with the contractor's statement. In the event that any such additional waivers are not obtained, such as when those in question have not been paid, the draft or check voucher will be made out jointly. It will name, as joint payees, the subcontractor and those respective sub-subcontractors or suppliers who have not waived their lien rights.

Payment vouchers can be made out by any one of the parties so that it will be compatible with their accounting systems. According to CTI, payments are usually made within 15 to 20 days from the dates of billing.

Changes. Any change made in the work scope and contract amount must first have the agreement of the parties involved, namely the owner, lender, CTI and the general contractor. Once approved, the exact cost allocations to each of the trade accounts listed in the contractor's statements will be changed accordingly.

Advantages

Some of the advantages noted by others (44, 81, 97) of this system include:

- since the participation of the major parties involved is required, evidence of adequate financing is insured, and all are continuously aware of the contract status, to include any major changes, so that the early warning as to potential fund shortages is possible.
- with the requirement to report the actual breakdown of cost by each trade account, the problems associated with front-end loading and overbilling, as discussed in Chapter 2, are avoided.
- the needs and interests of all the parties are served: the owner and lender have greater assurance of having clear title to the successfully completed project and all the subcontractors will receive their payments from available funds.
- the approval process used under the conventional system of payment which requires the approval by general contractor, owner, and, if designated, the architect, remains intact, and, hence, perserves their leadership authority over others.

- the chances of the diversion of funds is minimized because payment is made to first tier subcontractors. Payments to the lower-tier contractors are further assured through the use of lien waivers.
- the benefits of any reduction in retainage will be passed on to the subcontractors.

Some of the hopeful results of using such a system, as pointed out by CTI (81), are:

- the cost of construction will be lower because the subcontractors will not build into the contract figures "either the cost of money to carry his costs over an extensive waiting period or the cost of pursuing the payer (owner, developer, lender)"
- such a payment system will provide an incentive for the subcontractors to perform expeditiously.

Disadvantages

Besides the disadvantage of having to pay for these services, there must be an adequate fee structure to support these services. Of course, if the owner fails to obtain money, payment will not be made to the contractors.

Some of the disadvantages and concerns noted by the AGC (77 and 104) are that they feel:

- this system takes away some of the control that the general contractor must have over the subcontractor
- the owner's perogative will be damaged because CTI makes the actual disbursement
- there may still be problems associated with a second tier subcontractor who has not been paid or who may decide to sue the general contractor for payment.

Overview

The direct payment system seems to offer many solutions to the problems of making timely payments to subcontractors. The unique aspect of this system is that it involves all the major parties involved in funding, financing and making payments, (as discussed in Chapter 1), in such a way that the interests and needs of each of the parties are served. The perceptions of general contractors and architects located in Pennsylvania, which will be covered in the next chapter, have been obtained to evaluate their support of such a payment system, and to identify other problems that must be considered. Although it is beyond the scope of this paper, further studies should be made to evaluate its effectiveness, and to perform a cost-benefit analysis of this payment system.

Line Item Release of Retainage

Frequently, retainage is reduced to the general contractor at certain stages, such as at 50 percent completion or at substantial completion, of a construction project. The subcontractors do not necessarily receive the benefits of this reduction but will, in many cases, have to wait until final payment to receive their portion of the retention. Those trades which complete their work early in a project, such as steel erection and excavation contractors, must wait until the end of the project to receive their retention. There is action by some (12, 64) to incorporate the release of retained funds, as well as the inclusion of the point of reduction of retainage into a standard practice in construction. This release of funds would be accomplished according on a line item basis. Under such a basis, each contractor's or subcontractor's work will be considered as a separate item. Besides benefitting subcontractors, it is hoped that the line item release of retainage will also reduce the actual cost of construction (97).

There are only two states, Alabama and Arizona, which have statutes requiring a release of retainage on public projects according to separately stated contractor divisions (57). Although the practice of utilizing line item release of retainage is not often used in Pennsylvania, one local chapter of the ASA is negotiating with other trade associations, such as the AGC and AIA, to obtain an agreement on this subject (105).

There are some problems associated with ascertaining when each trade has substantially completed its individual portion of a project. For example, there are inherent difficulties involved in determining whether a steel contractor has fully complied with the plans and specifications until other trades have fitted in their work at a later time. Some (97) point out that, for instance, the obligation of a steel contractor can be called complete when all that ties in with the structural steel, such as windows, are complete. Thus, he becomes eligible for release of retainage. However, the definition of completion may not be as obvious for other trades. For an example, mechanical contractors must wait until the building is occupied to balance the mechanical system, although most of their work has been completed long before that point. Others (98) suggest that the subcontractor should not have to wait that long and should be paid at the time he substantially completes his work. He posts a bond to cover any work that may be needed in the future. Despite the use of a bond, others (104) feel that if this situation were to occur, the general contractor could have difficulties getting the subcontractor back on the job.

Although the benefits to subcontractors would be obvious under this plan, further research is needed to determine what effects this will have on the overall cost of construction. Also, further studies are needed to determine at what point the release of payment should be made. It should

consider the peculiarities associated with each particular trade. The problems of another possible bonding situation should also be analyzed.

Payments on Construction Management Projects

There are some who feel that payments made by Construction Managers (CM) are more timelier than those made by general contractors (54, 55). Under a typical CM project, specialty contractors have either a direct contract with the owner or with the Construction Manager.

To further investigate this hypothesis, several ASA chapters and federal agencies were asked to make a comparison of payment practices between CMs and general contractors. Of the five ASA chapers who responded, only one felt that payment was made in a better fashion by a CM (79). Of the five federal agencies contacted, four reported that they had very little experience with CM type contracts (78, 80, 82, 95). The General Services Administration did comment that because of the project management system used by CM, payments were made in a more timelier fashion than with general contractors (87). In conclusion, there does not appear to be enough signficant differences in the payment practices of the CM and general contractor, and the topic does not warrant further investigation.

Other Arrangements

Some other types of arrangements which affect payment practices to subcontractors include: trust funds, a proposed uniform procurement system to be used by all levels of government, and recently proposed federal legislation. These subjects are introduced in this section, but are not covered in detail.

Trust Funds

There are three types of protection against nonpayment to subcontractors that are provided by law. The first two, which were discussed in

Chapter 4 are Mechanic's Lien Laws and Payment Bond Laws. The third is a trust-fund statute, which is used in thirteen states (57). These laws have been enacted to avoid diversion of payment by prime contractors. The work performed by others is designated as a trust fund. The trustee, the prime contractor, must pay those whose work generated the fund (2, 8). Pennsylvania does not have a trust-fund statute. The intricacies of these laws vary greatly from state to state: according to its applicability to public and/or private work, to the sanctions, either criminal penalties and/or civil liability, and to the case law generated from each (2, 8). Some individuals (97, 107) feel that trust funds are very important to the construction industry and suggest that further research be accomplished in this area to evaluate the effectiveness of the various types of trust provisions used in some state lien laws in requiring contractors to share payments received equitably with subcontractors.

Uniform Procurement System

At the present, the Office of Federal Procurement Policy, which is under the Office of Management and Budget, is conducting hearings on the development of a Uniform Procurement System for the federal government (54, 91). Both the ASA and AGC have provided testimony to this office (54, 59, 63). The ASA has recommended that uniform contract documents be used on public construction so that both the responsibilities and benefits are passed through to all its participants. The payment contract provisions that the ASA is seeking include:

- use of trust upon construction funds so as to discourage diversion of funds.
- requirement that any reduction in retainage be passed along to subcontractors.

- require line item release of retainage.
- interest rates according to the prevailing commercial rates shall be applied to money thirty days past due.

In 1980, after a five year study, the American Bar Association developed and approved the Model Procurement Code for State and Local Governments (41). The contents of this code sets forth fundamental principles and policy guidance for the procurement of supplies, services, and construction for public purposes, and also administrative and judicial remedies for the resolution of controversies relating to public contracts (41). In the near future, a Joint State Government Commission of the Pennsylvania General Assembly will appoint a task force to study the Pennsylvania state procurement laws as compared to the Code (52).

Proposed Legislation

Currently, there are two bills in the United States Congress that will have an affect, if passed, on payments to subcontractors on federal projects. One of the bills, known as the "Small Business Contract Payment Procedures Act" (21), calls for the elimination of retainage for small business contractors once an adequate performance bond has been posted.

The other bill, "Delinquent Payment Act of 1981" (22), would require the federal government to pay interest on overdue payments. The interest, which will be determined according to current private commercial rates of interest for new loans maturing in approximately five years, would be used on any payment that is over thirty days past due, as per terms of the contract. By Pennsylvania law, an interest rate of not less than 6 percent would be used on the amounts of the final payments that are thirty days overdue (15). As compared to the Pennsylvania law, the proposed federal law considers all payments, and the interest rate would be much higher.

Chapter Summary

The intent of the chapter was to familiarize the reader with the different types of payment arrangements and innovations which are either used in parts of the country or are relatively new in development, and not widespread, as of yet, in the construction industry. No attempt was made to fully research these topic areas. Additionally, some proposed federal legislation that will affect, if enacted, the payments to subcontractors, was introduced.

The direct payment system, as developed by the Chicago Title Insurance Company, seems to offer many advantages. Not only does it solve many of the subcontractor problems associated with timely payments, but it also accomplishes the needs of all parties involved with the flow of funds through the construction process. As previously discussed, first tier subcontractors receive payments directly from the owner, via the title company. The participation of all major parties is required, which results in better administration of the entire project. This unique service is currently only being offered in two areas, Chicago and Virginia. This type of payment procedure will certainly, in the opinion of the writer, become a standard practice in the construction industry in the future.

An examination of line item release of retainage revealed that while the benefits to subcontractors could be great, that there remains questions. Further research is needed to show how this will be accomplished in practice in a manner which will reduce the overall cost of construction.

A preliminary discussion with some ASA chapters and federal agencies revealed that there is no major, significant advantage to using a construction manager contract as compared to a single contract with a general contractor, as far as payment practices are concerned.

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RECOMMENDATIONS TO MINIMIZE TIMELY PAYMENT PROBLEMS OF SUBCONTR--ETC(U)
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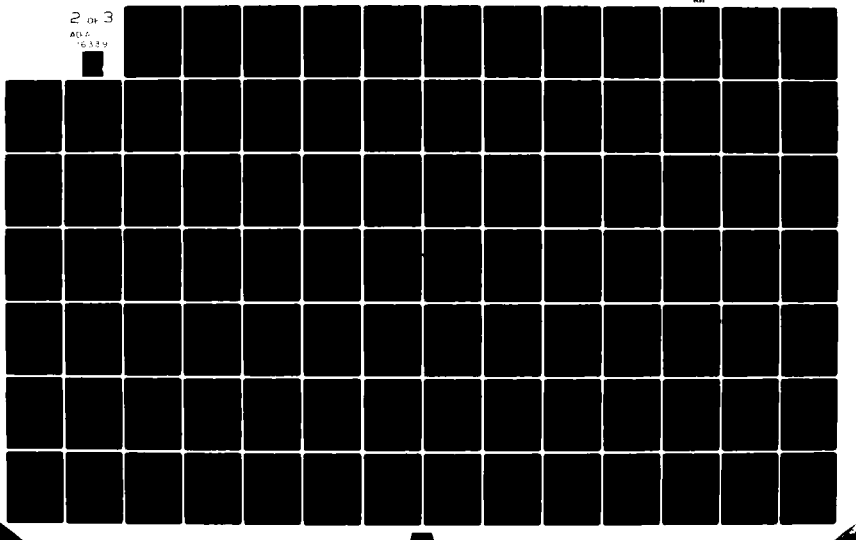

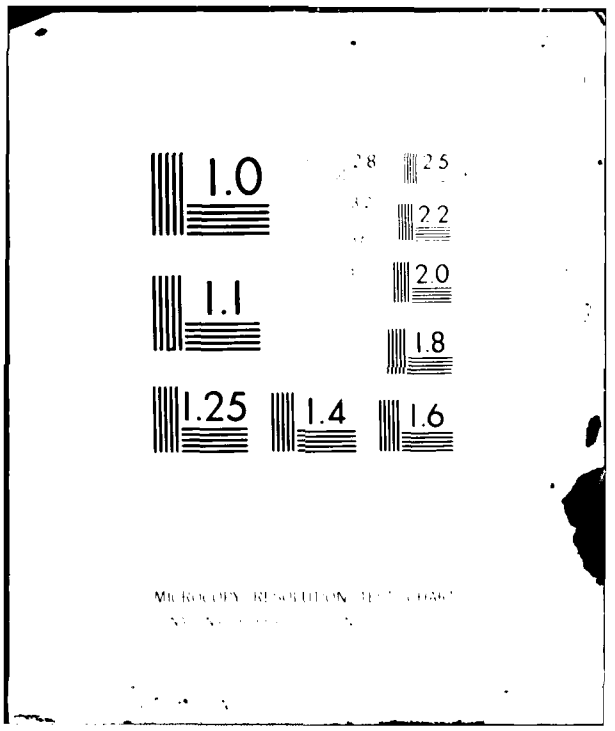
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2.5

Statutes, which require payments made to contractors to form a trust fund for those who have provided work or supplied material to the contractor, exists in several states. The effectiveness of such laws and its applicability to the situation in Pennsylvania needs to be determined.

It has been pointed out that many governmental agencies, including the state of Pennsylvania, are reviewing their procurement policies to include the coverage of construction contract administration as public policies. A model procurement code developed by the American Bar Association is available at all levels of government, to provide a means of comparison and a source to make revisions or develop new policies affecting procurement policies. Also, it has been pointed out that there exists proposed federal legislation which would provide, in certain cases, the elimination of retainage to small business contractors and would provide interest charges on the amounts of payment that become thirty days past due.

All of these new developments provide a forum of further research. Trade associations, such as ASA and its Chapters, could incorporate these developments into their efforts to get favorable consideration of subcontractors instituted into standard construction practice.

Chapter 6

THE PERCEPTION OF CONTRACTORS AND ARCHITECTS CONCERNING THE PROBLEM OF TIMELY PAYMENTS

Introduction

It was determined by the writer that the most effective way to establish the opinions of personnel who are involved with payment problems was to distribute a questionnaire to those groups of individuals who either have experienced these problems or are involved in the payment process (questionnaires used and the results obtained, are presented in Appendix F, while responses to open-ended questions are presented in Appendix G). This phase of the research effort was necessary because of the lack of available, quantifiable data on the subject of payment problems in building construction projects within the Commonwealth of Pennsylvania.

The three groups that were selected for the survey were: specialty contractors, general contractors, and architects. Within the specialty contractors' survey, ten types of trades were contacted. All questionnaires were sent to groups who are located in Pennsylvania. Each group was asked in the cover letter, as shown in Exhibit F.4, to respond to the questions for only those projects which were building type construction projects located in Pennsylvania The specialty contractors were asked to answer certain questions that pertained only to projects that they were a subcontractor to, and, if appropriate, to answer other questions relating to projects in which they were a prime contractor. The questions were designed so that the group could separately answer a particular question with respect to the two types of projects, private and public. Some questions, such as frequency of problems, causes of problems, and type of

contract documents used, were asked of all three groups. Other questions pertained either to one of the groups or, in some cases, to two of the groups. By examining these three groups, it was felt that an accurate picture of problems with timely payments could be obtained.

Level of Response to the Data Collection Effort

The response to the questionnaire was very satisfactory. Overall, 52 percent of the organizations that were contacted responded. Response levels of each group are shown in Table 6.1. As shown in Table 6.2, the responses of the individual types of specialty contractors varied considerably.

Table 6.1

General Response Data to Questionnaires

Type of Group	Questionnaires Mailed	Responses	Percentage of Responsed to Mailed
Specialty Contractors	92	45	49%
General Contractors	39	22	56%
Architects	20	12	68%
Total	151	79	52%

Table 6.2
Individual Specialty Contractors'
Responses to Questionnaires

Type of Contractor	Questionnaires Mailed	Responses	Percentage of Mailed to Responsed
Electrical	18	13	72%
Mechanical/Plumbing	18	10	56%
Brick/Mason	8	1	13%
Carpentry	4	1	25%
Concrete	4	1	25%
Excavation/Foundation	6	2	33%
Painting	7	4	57%
Roofing/Sheetmetal	8	1	13%
Structural Steel	12	6	50%
Others	7	6	86%
Total	92	45	49%

Responses by the Three Groups Surveys to Identical Types of Questions

There were three questions concerning the problem of timely payments that were asked of all three groups surveyed. These questions pertained to the frequency of payment problems, the seriousness of problems associated with final payment as compared to progress payments, and the causes of such problems. In addition, two other questions were asked which pertained to the amount of their work that was performed on public and private projects, and to the types of contracts that were typically used. The intention of grouping these responses together, as shown in Tables 6.3 through 6.8, was to permit comparison and analysis of the opinions revealed by these questions. These five areas are discussed below.*

Percentage of Work

Since most of the questions that were asked of all three groups made a distinction between public and private projects, it was important to identify the amount of each group's work that was involved in the two types of projects. As shown in Table 6.3, the majority of each group's work, as would be expected, was involved in private projects. The specialty contractor's work was subdivided into the amount performed as a subcontractor and as a prime contractor. Probably because state-related construction requires a prime contract system, the percentage of public projects that prime contractors performed, were higher than the other group's averages.

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*The questionnaires were designed to obtain information on several variables within a question. The variables were the type of project, public or private, and the type of payment, progress or final. If there was a difference among any of the variables, then the statement would so indicate it. Otherwise, for the sake of brevity, a general statement of the results of a question was made for all the variables.

The percentage of the work performed which was reported in the questionnaire does not differentiate between the total contract dollar volume amount of projects and the number of projects. The intent of the writer was to obtain information on the average over the last few years; however, there may have been some confusion as to whether these percentages were to apply only to the immediate prior year's projects. One of the Architects* commented:

> The questionnaire should indicate the yearly construction dollar volume because payment problems increase at direct proportion to the amount of dollar volume.**

Despite these shortcomings, the results were sufficient enough to indicate, as would be expected, that the majority of the work was in the private sector.

Table 6.3
Percentage of Work Performed
On Public Vs. Private Projects
By Type Of Group Surveyed

Type of Group	Percentage of work performed on: Public Projects	Private Projects
Specialty Contractors[a]		
(66% as a Subcontractor)	32%	68%
(34% as a Prime Contractor)	45%	55%
General Contractor	32%	68%
Architect	24%	76%

[a]The Specialty Contractors' work on some projects was as a Subcontractor and on others it was as a Prime Contractor.

* For the purposes of this paper, whenever the results of the survey are presented and it mentions a specific group, the name of the group will be capitalized.

**Quotations from the survey are contained in Appendix G.

Frequency of Payment Problems

Generally, Subcontractors*, as shown in Table 6.4, felt that they experienced more problems related to both progress and final payment than did the General Contractors. As high as 75 percent of the Subcontractors held the opinion that problems associated with final payment on public projects occurred frequently.

All of the groups indicated that problems related to final payment occurred more frequently than to those linked with progress payments. Also, each of the groups generally felt that there were more problems associated with public projects than with private ones.

Seriousness

As shown in Table 6.5, all three groups were divided on deciding which type of payment problem was more serious. Half of the group seemed to feel that problems associated with final payment were more serious than those related to progress payments. The other half felt that both were just as serious. The only exception to this was that 25% of the Architect respondees indicated that problems linked to progess payments were the most serious. One Subcontractor made the following comment:

> In the 24 years of being in the business, I think getting paid for the work completed has been the biggest problem to me as a subcontractor.

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*In the analysis of the perceptions, for those questions which a Specialty Contractor answered as a Subcontractor, he was considered to be a Subcontractor. Likewise for the other cases, the Specialty Contractor, when appropriate, will be referred to as a Prime Contractor.

Table 5.4
Responses By The Three
Groups To The Frequency
of Payment Problems

Question*: How often have you experienced payment problems in public and private work? [Architects were asked: To the best of your knowledge, how frequent are payment problems in public and private work?]

	Frequently	Sometimes	Rarely
Progress Payment			
a. Public			
Subcontractor	40%	48%	12%
General Contractor	29%	42%	29%
Architect	40%	30%	30%
b. Private			
Subcontractor	30%	55%	15%
General Contractor	20%	65%	15%
Architect	16%	42%	42%
Final Payment			
a. Public			
Subcontractor	75%	20%	5%
General Contractor	47%	41%	12%
Architect	30%	60%	10%
b. Private			
Subcontractor	58%	39%	3%
General Contractor	25%	50%	25%
Architect	33%	58%	9%

* This was question number one on each of the questionnaires. (See Exhibit F.1 through Exhibit F.3.)

Table 6.5
Responses By The Three Groups
To The Seriousness Of The Type Of
Payment Problems

Question*: Which problem is the most serious one?

	Progress Payment	Final Payment	Both Are Very Serious	Other
Subcontractor	6%	47%	47%	0%
General Contractor	0%	40%	45%	5%
Architect	25%	42%	33%	0%

* This was question number two on each of the questionnaires. (See Exhibit F.1 through Exhibit F.3.)

Causes

Seven types of causes were considered for problems associated with progress payments, and two additional types were considered for those related to final payment. The results, as shown in Table 6.6, are analyzed in the following paragraphs.

Owner Having Problems Financing the Job. None of the groups indicated that this was a major cause. As would be expected, each group did indicate that this was more of a cause on private projects than public ones.

Owner Holding the Money. Both the Subcontractors and General Contractors felt this to be a major cause; however, the opinion of the Architects was considerably different for public projects. All three groups viewed this as more of a cause in private projects than on public ones.

Table 6.6
Responses By The Three Groups To The
Causes Of Payment Problems

Question*: For the time that you experienced payment problems [for Architects: payment problems occurred], what were the reasons and causes of the problem?

	Progress Payment		Final Payment	
	Public	Private	Public	Private
(1) Owner having problems financing the job				
Subcontractor	2%**	36%	0%	20%
General Contractor	0%	15%	6%	15%
Architect	0%	25%	10%	0%
(2) Owner holding the money				
Subcontractor	36%	47%	48%	44%
General Contractor	47%	70%	41%	70%
Architect	10%	42%	0%	33%
(3) General Contractor holding the money				
Subcontractor	31%	61%	31%	49%
General Contractor	—	—	—	—
Architect	10%	8%	20%	17%
(4) Prime holding the money				
Subcontractor	10%	20%	5%	18%
General Contractor	—	—	—	—
Architect	10%	8%	20%	17%
(5) A portion of the work is not accepted				
Subcontractor	31%	24%	38%	33%
General Contractor	24%	20%	29%	25%
Architect	70%	67%	60%	58%

* This was question number three on each of the architect and general contractor questionnaire (see Exhibit F.3 and Exhibit F.2) and question number four on the subcontractor one (see Exhibit F.1)

**The percentage does not add up to 100%. Each percentage represents the amount that a particular group thought a variable, such as public project/progress payment, was a cause.

Table 5.6 (continued)
Responses By The Three Groups Of The
Causes Of Payment Problems

	Progress Payment		Final Payment	
	Public	Private	Public	Private
(6) Architect slow on approving payment				
Subcontractor	24%	20%	19%	18%
General Contractor	24%	25%	18%	25%
Architect	--	--	--	--
(7) Overall approval process is slow				
Subcontractor*	--	--	--	--
General Contractor	59%	40%	47%	30%
Architect	60%	33%	40%	58%
(8) Multiple punch lists				
Subcontractor			45%	40%
General Contractor			53%	41%
Architect			70%	75%
(9) Extra Work Extends Completion of the Job				
Subcontractor			48%	27%
General Contractor			24%	25%
Architect			30%	25%

*Due to a typical graphical error on the specialty contractor's questionnaire, data on this question was not collected.

General Contractor Holding the Money. A small amount of the Architects' responses indicated that this was a problem. The Subcontractors' responses, which were very similar to their opinion that the owner was a cause because he held onto other's money, indicated that this was a cause. As high as 62 percent felt that the general contractor was holding the money in private projects when progress payments were involved. One Subcontractor made the following comment:

> The business climate is the major factor in payment problems. In good times, our money comes faster and we are able to negotiate for better terms. In tough times, such as 1974, 1978 and the present, jobs are difficult to get and good payment terms are even more difficult.

Prime Contractor Holding the Money. Both the Subcontractor and Architect groups did not perceive this to be much of a problem. The Architects' opinion of the prime contractor being a cause were the same as their feelings about the general contractor. The Subcontractors' viewpoints, though, were much different.

A Portion of the Work is Not Accepted. Whereas only a quarter to a third of the Subcontractor and General Contractor respondents felt this to be a cause, the Architects' opinions indicated that this was, perhaps, the single largest cause.

Architect is Slow in Approving Payments. Only a quarter of the Subcontractors and General Contractors viewed this as a cause. It is interesting to note that there was little difference in the perception of problems associated with final and progress payments.

Overall Approval Process is Slow. Both the General Contractors' and Architects' opinions indicated that this was a major cause. The General Contractors' responses indicated that this was more of a problem on public

projects for either type of payment. The Architects' opinions were the same, except they had reversed their opinions when the final payment was involved. In this case, they felt that this was more of a cause on private projects.

A General Contractor and an Architect made the following comments respectively:

> It has been my personal experience that payment is forthcoming from an owner that is directly proportionally related to the quality and promptness of the work that is performed. Public works' payment is slower because of the channels required for an invoice to travel through that agency. However, a public works project will pay like clockwork; be it three weeks, five weeks, etc.

> Usually public work is very slow in payment because of the cumbersome contract procedures. This forces the contractors to borrow money and results in higher bids on public work. This is especially true in the current economic environment.

Multiple Punch Lists. Nearly half of the responses of Subcontractors and General Contractors and over 70 percent of the Architects' opinions indicated that this was a cause. It is not known why the Architects' responses were higher.

Extra Work Extends the Completion of the Job. Whereas only a quarter of all the groups thought this to be the cause, nearly half of the subcontractors indicated this to be a cause on public projects.

Summary. The causes which received the highest percentage of responses by each of the groups varied among the three. For private projects, over half of the Subcontractors indicated the cause was related to the General Contractor holding the money. Similarily, 70 percent of the General Contractors felt that the cause pertains to the owner holding the money. The Architects did not perceive holding money to be as much of a cause; they perceived the problem in that a portion of the work is not acceptable. This

variation is probably related to the biased feelings associated with their individual position in the contractual hierarchy. Regardless, holding on to the money by some organizations was generally considered to be a cause. The other major causes noted were related to multiple punch lists and associated with a slow overall approval process.

Contract Documents

In an effort to assess the type of payment problems that each group must typically face, a survey of the type of contracts which were normally used between them and the other groups was included.

Subcontracts. Both the responses from Subcontractors and General Contractors, as shown in Table 6.7, indicated that the general contractor's own contract document is used most of the time. The payment terms on these types of contracts would probably be less explicit, as discussed in Chapter 3, than the ones used in standard contract documents such as the AIA documents. Hence, the subcontractors would probably have to negotiate more for definite payment terms in order to prevent future problems.

Table 6.7
Responses To Type Of
Contract Used Between A
General Contractor And A
Subcontractor

Question*: What Type of Contract is Usually used between the Subcontractor and the General Contractor?				
	Public		Private	
	Sub	G.C.	Sub	G.C.
General Contractor's Own Contract	52%**	82%	60%	75%
AIA Document A401	48%	0	53%	10%
AGC Standard Subcontract	12%	0	20%	5%
1966 AGC-ASC Subcontract	2%	0	7%	0%
Purchase Order	14%	71%	40%	30%

* The Subcontractors' results are from question #6, Exhibit F.1, and the General Contractors' results are from question #5, Exhibit F.2.

**The percentage in each column does not add up to 100%. The contractors were asked to indicate the contract(s) that they used. In most cases, they marked one or two types of contracts for a particular type of project.

One important difference was noted with respect to the usage of the AIA Document A401, which contains excellent payment terms for subcontractors. Half of the Subcontactors indicated that they had used this form at one time or another, whereas a very low percentage of the General Contractors' responses indicated this.

Another difference was noted with respect to the use of purchase orders. Some General Contractors use this as their own contract document, so there may have been some confusion on how to classify this document. This discrepancy however is of only minor importance.

Owner Contracts. Both the responses of the General Contractors and Architects, as shown in Table 6.8, overwhelmingly indicated that the AIA Forms A101 and A201 are used. The Prime Contractors responded that the owner's own contract is used most often. The payment provisions of the AIA document and those provisions of a public owner's document are generally known to be excellent, but the provisions of the owner's contracts, used in the private sector, are not known.

Specialty Contractor's Response

Two viewpoints were obtained from the Specialty Contractor's questionnaire, one as a subcontractor and the other as a prime contractor (the questionnaires and the results obtained, are presented in Exhibit F.1). In addition to the five areas previously analyzed, four other areas of questioning were employed to determine the subcontractors' views and two other areas pertaining to prime contractor projects, were also asked. Except for the percentage of work reported, the other areas already discussed will not be further analyzed.

Percentage of Work

As reported earlier, for all of the Specialty Contractor's responses,

Table 6.8
Responses To Type Of
Contract Used Between An
Owner And A General Contractor
Or A Prime Contractor

Question*: What type of contract is usually used between the owner and the General Contractor or Prime Contractor?

	Public			Private		
	PC	GC	Arch	PC	GC	Arch
Owner's Own Contract	40%**	24%	30%	45%	40%	25%
AIA Forms A101/A201	18%	47%	70%	18%	80%	75%
Pennsylvania Department of General Service Document	--	35%	40%	--	0%	0%
ASC-Standard Form of Agreement between Owner and Contractor	15%	--	--	18%	--	--

* The results from the Specialty Contractor, General Contractor, and Architect quesitonnaire are taken from question #12, Exhibit F.1,
**The percentage in each column does not add up to 100%. The contractors were asked to indicate the contract(s) that they used. In most cases, they marked one or two types of contracts for a particular type of project.

the average amount of work performed as a subcontractor and as a prime contractor was 66% and 34%, respectively These figures compare to the percentages determined for building construction in Pennsylvania (see Table B.6). However, this varied greatly among the individual trades. The two largest types of specialty contractors, electrical and mechanical, indicated that half of their work was performed as a subcontractor and the other half as a prime contractor. For all the other contractors, they reported that 80% of their work was as a subcontractor. The latter figure compares to the percentage calculated from the national statistics, as reported in Table B.6.

Subcontractors' Responses*

The four areas examined were a comparison of general contractors' payment procedures to those of prime contractors and construction managers (see question 3 of Exhibit F.1), evaluation of preventive and remedial activities used (questions 5 and 10), payment practices (questions 7 and 8), and cash flow management (question 9).

Comparison of Types of Contractual Arrangements. Half of the Subcontractors surveyed felt that payments were made in a timelier fashion when working under either a construction manager or prime contractor, rather than under a general contractor. However, 40 percent also indicated that there was no difference between these different arrangements. A few, 7 percent, did indicate that payment was made in a timelier fashion by general contractors than by the other two.

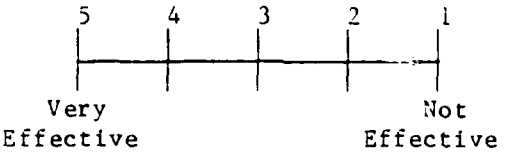
Prevention and Remedies. Each of the Subcontractors were asked to evaluate the effectiveness of the preventive measures (Chapter 3) used to avoid payment problems, and of the remedial actions used (Chapter 4) to collect payments due. The results of the ratings, as shown in Table 6.9, indicate that there were perceived differences about the effectiveness of each of the measures and actions. In some cases, there were differences in ratings, dependent upon whether it was a public or a private project.

Regarding preventive measures, the Subcontractors' responses indicated that the most effective measures would be not to bid with certain general contractors. In another question (see question 5, Exhibit F.1), half of the Subcontractor respondees felt that if they anticipated that payment problems were likely to occur with a particular owner or general contractor, they

*The analysis of this section will not distinguish between the results of individual type of specialty contractors. Although this type of analysis is very invaluable, it is beyond the scope of research for this paper.

Table 6.9
Responses of Subcontractors
To The Effectiveness Of
Preventive and Remedial
Actions*

Question: How would you evaluate the effectiveness of the following in preventing payment problems or providing remedies to collect the payment due?



	Average Effectiveness Rating	
	Public Projects	Private Projects
Preventive Measures		
Negotiate for good contract payment terms	2.9	3.9
Credit checks on G.C.	2.7	3.2
Do not bid with certain G.C.s	4.0	3.9
Business Practices Interchange	3.3	3.6
Remedial Action		
Follow-up when payment is due (letters and telephone calls to G.C.)	3.6	3.6
Notify the Architect	2.2	2.5
Notify the Owner	2.7	2.9
Lien Rights	---	2.3
Payment Bond	2.5	2.4
Litigation	2.3	2.3
Arbitration	2.4	1.8
Stop Work	3.3	3.4

*This is question #10 of Exhibit F.1

would not bid with this firm. Others had indicated that they would raise their bid under such conditions. The only action which received less than effective rating was credit checks when public projects were involved. Subcontractors, essentially, felt that negotiating for better contract payment terms was more effective on private projects than on public projects. To a lesser extent, the same phenomenon was true of credit checks.

Of the remedial actions rated, the option of business-like follow-up on payments past due and the use of the stoppage of work received the highest effectiveness ratings. Use of lien rights, payment bonds, litigation, and arbitration were all perceived to be less than effective. One Subcontractor commented that:

> The lien law must be changed. As far as subcontractors in Pennsylvania are concerned, there is no lien right. In order to get a job, you must waive your rights at the contract signing.

Arbitration on private projects received the lowest ratings. The action of notifying the owner received an effective rating which was higher than that of notifying the architect.

Payment Practices. The two types of payment practices that were surveyed were contingent payments and line item release of the final payment. Over half of the Subcontractors said that if a general contractor was having trouble receiving payment from the owner, they would not receive their payment on time. The other half indicated that sometimes they might receive payment under such conditions. In receiving final payment, very few Subcontractors said they received payment shortly after their portion of the work was completed. The usual practices, as reported by the respondees, was to receive payment after all work was completed. A quarter of the Subcontractors indicated that payment would be made shortly after all the work was

completed, but close to 70 percent of those surveyed reported that they had to wait thirty or more days for final payment.

Cash Flow Management. The majority of the Subcontractors felt that their overall efforts to manage cash flow were good. A fifth had indicated that their efforts were adequate, while an eighth thought their efforts were excellent. From this question, it was impossible to determine whether they indeed had the cash flow program that they thought they had. The definition of a good cash flow program was not presented in the questionnaire due to obvious difficulty of providing a complete explanation. Hence, any accurate comparisons were impossible. The perception of whether payment problems exist would probably vary with the degree of sophistication that the subcontractor has in cash flow management. Therefore, the results of this question are inconclusive, and this additional factor will not be further analyzed in this report.

However, one Subcontractor brought out a very important consideration, pertaining to invoicing, that was discussed in chapter 2. His comments were as follows:

> Whether being a Prime or Sub, timeliness of payment should be evaluated from time of work performed, and not just when invoiced. Some clients, G.C. or owners, complicate and drag out the approval process, but pay promptly once invoicing is actually authorized. Relatively new emphasis on "cost control" and "automated" systems are somewhat responsible for this phenomenon.

The writer feels that a future evaluation of payment problems must consider this point more directly.

Prime Contractor Response

Over 80 percent of the Prime Contractors felt that they experienced less payment problems as a prime contractor than as a subcontractor. The remaining opinion was that payment problems involved with both types of contractual positions were the same. This result would tend to support the

contention that subcontractors experience more payment problems than others because of their lower position within the contractual hierarchy. Additionally, because the mechanical and electrical contractors perform less of their work as subcontractors than the other types of specialty contractors, then these other types may be experiencing a greater percentage of payment problems than the mechanical and electrical contractors.

Approximately only 10% of the Prime Contractor's work, as reported, is subcontracted out to others. This indicates that these contractors have less of an opportunity to improve their cash flow by delaying payments to others, than those contractors who subcontract out the majority of their work to others.

General Contractor Response

The other areas surveyed in the General Contractor's questionnaire were subcontracted work, payment practices (questions 6 and 7, Exhibit F.2), preventive measures (questions 8 and 9) and direct payments (question 10 and comments in Exhibit G.2).

Subcontracted Work

The General Contractors surveyed indicated that approximately 63 percent of their work was subcontracted out to others. This figure was higher than the 52 percent average for building construction in Pennsylvania, as reported in Table B.5.

Payment Practices

In evaluating contingent payment conditions, almost half of the Contractors felt that depending upon who the subcontractor is and/or whether the contractors would have to borrow money, they sometimes would make progress payments to a subcontractor, even though the owner had not paid the general contractor. The Subcontractors' responses to this were quite

different. Most of them, as reported before, indicated that they would not receive payment on time.

Almost 70 percent of the General Contractors indicated that final payment will be made to the subcontractor when his portion is complete and the owner releases that portion of the money due. This indicates that if one line item release of payment was made by the owner, most contractors would pay the subcontractors their amount. Almost a fifth of the respondees indicated that payment would still be made to the subcontractor if the money was definitely needed, in spite of the fact that the owner had not yet paid the general contractor.

One very interesting comment made by one of the General Contractors pertaining to line item payment was:

> In my opinion, too many contractors operate on the subcontractor's money. I would be in favor of a law that would require a contractor to pay the subcontractor when the subcontractor's work is completed, instead of paying him from the final proceeds. *This would help the subs and eliminate* many 'fly-by-night' contractors.

Preventive Measures

Most of the Contractors reported that if a subcontractor would negotiate for better payment terms, then they would sometimes accept these terms. Whereas a fifth of the group said they would not accept such terms, another 14 percent said they would. The above practice by general contractors is reflected in the Subcontractor's opinion that negotiating for better terms would be effective. Many subcontractors seem to use this preventive measure as shown by the fact that only three Contractors reported that they never had a subcontractor negotiate for such terms.

The General Contractor, like the Subcontractor, will not work with certain owners if it is anticipated that payment problems will occur. One comment made concerning this point was:

> The smart contractor does not always bid every job, especially those with slow payers and tough inspectors or lawyers. Some owners and architects never have the same contractor twice.

The majority of the Contractors will perform a financial check on the owners who they have not worked with before, or those who they feel will be slow payers. However, the Contractors surveyed would additionally, though to a lower extent, require a certificate of adequate financing of such owners. By exercising these preventive options, the general contractors have decreased their chances of having a payment problem which would ultimately affect the subcontractor.

Direct Payment

The majority of the General Contractors, 64 percent, held the opinion that they would not favor a direct payment system. Some of the Contractors, as indicated by the comments cited below, felt that this would undermine their control over the subcontractors:

> A general contractor must have control on each project or you would have subcontractors dealing with owners or different agencies on matters such as scheduling, extras, substituting materials and workmanship.
>
> This would dilute the control, even if psychologically, that a General Contractor has over the Subcontractor to perform the work to the owner's best interest.
>
> The direct payment arrangement occurs on a Construction Management Project. Under a typical General Contractor project, loss of payments to subcontractors would jeopardize leverage on a subcontractor to perform.
>
> Because the subcontractors are agents solicited and selected by the General Contractor, this contractor is responsible for their performance. This also applies to the General Contractor's surety. Direct payment could pose a myriad of problems, legal and practical.

If the direct payment arrangement is managed, as described in Chapter 5, the general contractor should not lose control.

Other comments reflected their viewpoint that this arrangement would create administrative problems.

> Payment suggested would add one more complexity. We believe this system would tend to complicate our records.
>
> We prefer canceled checks as a record of payment.
>
> It's a paperwork nightmare to have an insurance company distribute to 50 or 80 vendors on one contract.

The arrangement, as discussed before, would use standard forms that could be adaptive to any of the contractor's accounting procedures.

Two Contractors suggested that this type of arrangement would take away their competitive advantages that they obtain by developing a reputation as a good payer.

> Payment would be immediate upon approval from our office and, therefore, faster.
>
> We pay our subcontractors quickly for completed work. Word gets around and, hopefully, subcontractor bids are lower to us because of this.

If general contractors were to use this system, it is the opinion of the writer that subcontractors would consider this in their bidding.

Nine percent indicated they would favor such a system and an additional 18 percent thought they might favor such a system. The explanation of the direct payment system presented in the questionnaire was far from being a complete one. The comments of general contractors represent only an initial impression. Hopefully after a little exposure and experience, their viewpoints will change. However, based on the overwhelmingly negative response, much education and encouragement will be needed to convince them to try this system.

Architect Response

In addition to the five areas already discussed, three other areas were analyzed; remedial action (question 4, Exhibit F.3), payment practices

(questions 6, 7 and 8 and comments from Exhibit G.1), and direct payment (question 9 and comments).

Remedial Action

Almost all of the Architects surveyed, 92 percent, reported that if a subcontractor informed them that they were not getting paid, the architects would question the general contractor and the problem would be solved. The Subcontractor's perception as to the effectiveness of notifying the architect seems to be opposite to that of the Architects.

A small amount, 17 percent, indicated that if the problems were not settled, payment would be withheld from the general contractor and the subcontractor would be paid directly. Only one architect indicated that the subcontractor is not getting paid for legitimate reasons.

Payment Practices

For those times when a portion of the work is not accepted, a majority of the Architects, 67 percent, responded that the general or prime contractor would get paid the undisputed amount, and 50 percent said that it would be specified by line item according to each trade. However, a quarter of the Architects said that payment would not be made, which indicates that the total payment would be delayed because a small portion of the total project was incorrect. There may have been some question by those surveyed as to what the corresponding amount billed indicated. It was the writer's intent that this amount was to be the undisputed amount. Because of this potential confusion, the value of the results of this question is only marginal.

Two-thirds of the Architects indicated that line item release of retainage is not used on a project and that they, generally, would not favor

the use of such a system. Some of the comments which supported their views were:

> Owners are interested in complete projects, not pieces. By withholding the General Contractor's payments, we have been able to stimulate the entire project.
>
> Any premature release of retainage is the option of the General Contractor by using his own money. This office does not want to lose its bargaining power.
>
> Associated conflicts or faulty construction may not be evident until other work is performed. It will be difficult to get the Subcontractor back.

The use of a bond, as discussed in Chapter 5, is designed to overcome most of the situations noted by the Architects.

One Architect noted a very important consideration which alludes to the reason for line item release of retainage.

> Subcontractors who perform work early in the project are aware of their position and allow for this in their bidding.

The main question for the owner, which needs further research effort, is whether the benefit of using this arrangement is greater than the cost of accepting higher bids.

Direct Payment

Forty-two percent of the Architects surveyed said that they would not favor such a system, a third of the group indicated that they would favor it, and a quarter were either undecided, had no preference, or thought they might favor a direct payment system. Some of the comments by those who did not favor such a system were as follows:

> The normal contract is between the owner and prime contractor. A contract would have to exist between the owner and subcontractor before direct payment to a subcontractor can be made.
>
> The administration of even a small project is complicated enough without having additional responsibility and coordination time. For example, if we are responsible for approving subcontractor payments, phone calls will be made to us rather than to a general contractor.

> There are usually mix-ups, such as overpayments, when there is not a single individual in control.

These comments would probably not have been made if a full explanation of the direct payment system was provided in the questionnaire.

The results of the Architects surveyed differed from the Contractors' results. The Architects generally seemed to favor such a system more than the Contractors. This is important because the likelihood of the architect convincing the owner to experiment with such a system is increased.

Chapter Summary

The intent of the chapter was to develop the perceptions of Specialty Contractors, General Contractors, and Architects concerning the problems associated with timely payments. The results of questionnaires from these three sources were presented and analyzed, and conclusions were presented when they appeared to be supported by the data.

Generally, the groups surveyed seemed to be representative of all such groups in Pennsylvania, since much of the statistical information gathered compared with the state's average in each of the categories analyzed.

Most of the groups acknowledged that payment problems occurred frequently and were more likely to happen on public projects than on private projects. There was a division on which was the most serious problem; half felt that there were just serious problems with final payment, whereas the other half felt that there were serious problems associated with both progress and final payments.

The perceptions as to the exact causes tended to vary with each group's own position, but all tended to agree that multiple punchlists, the overall approval process, and the tendency of some to hold the money of others,

were the major causes. The Architects' responses also indicated that a portion of the work not being completed was a major cause.

The contracts that were used by the owners were the AIA Standard documents. This would indicate that the general contractors should not be experiencing many problems due to contract provisions. On the other hand, the Subcontractors seem to be using a high percentage of the general contractor's own contract. This would suggest that Subcontractors need to review these contracts closely, especially if the terms were unfamiliar, so as to determine if better payment terms should be negotiated.

Subcontractors, as compared to Prime Contractors, experience more payment problems due to their contractual position. The other types of contractual arrangements (i.e., construction management and prime contracts), may result in less payment problems than the traditional contract arrangement using the general contractor.

The best preventive measure that contractors possess in order to avoid late payment is not to bid with certain parties whom they feel will cause problems. Subcontractors report that negotiating for good contract payment terms on private projects is also especially effective.

The two remedial options that were most effective for the subcontractors were to follow up when payment was due through the use of good business practices, and to use the stoppage of work alternatives. There seemed to be some question as to whether notifying the architect would solve the problem. The formal methods that were available, such as use of lien rights, payment bond, litigation, and arbitration, were given very low ratings, which suggests the need for improvement in these areas.

It was reported that if the owner did not pay the general contractor, the subcontractors were generally not paid on time. Although line item

release of final payment is not commonly used, Architects indicated that they might experiment with such a system.

The initial impression of most General Contractors and Architects towards the direct payment arrangement is that they would not favor such a system. However, there were some who indicated that they might favor such a system. If this system was available in Pennsylvania, it is the opinion of the writer that many of the opinions given against such as arrangement would change.

Chapter 7

CONCLUSIONS AND RECOMMENDATIONS

Many aspects of the subcontractor's problem in receiving timely payments and how they handle them for construction projects in Pennsylvania and in the United States as a whole, have been discussed and analyzed in the previous chapters. This chapter culminates this analysis, by drawing some conclusion about this subject, by presenting recommendations for improvement for the construction industry in Pennsylvania, and by advancing some recommendations for further study.

Conclusions

Specific conclusions are drawn for the following categories: causes and seriousness of payment problems, preventive actions and remedial options available in Pennsylvania, and new arrangements. The analysis of each of these categories have been based upon the discussion contained in appropriate chapters, Chapter 2 thru 5, and upon the perceptions of three types of participants in construction industry of Pennsylvania, as presented in Chapter 6. A further breakdown of the topic areas covered in each of the chapters is shown in Figure 7.1. Also included in this section of the chapter are the limitations of the research effort performed for this paper. Before proceeding with the results of the above information, it is appropriate to review the role of the subcontractor in the construction industry.

Subcontractor's Role

As pointed out in Chapter 1, the subcontractor represents a significant portion of all contractors involved in construction. The class of construction analyzed in this paper is general building construction, which

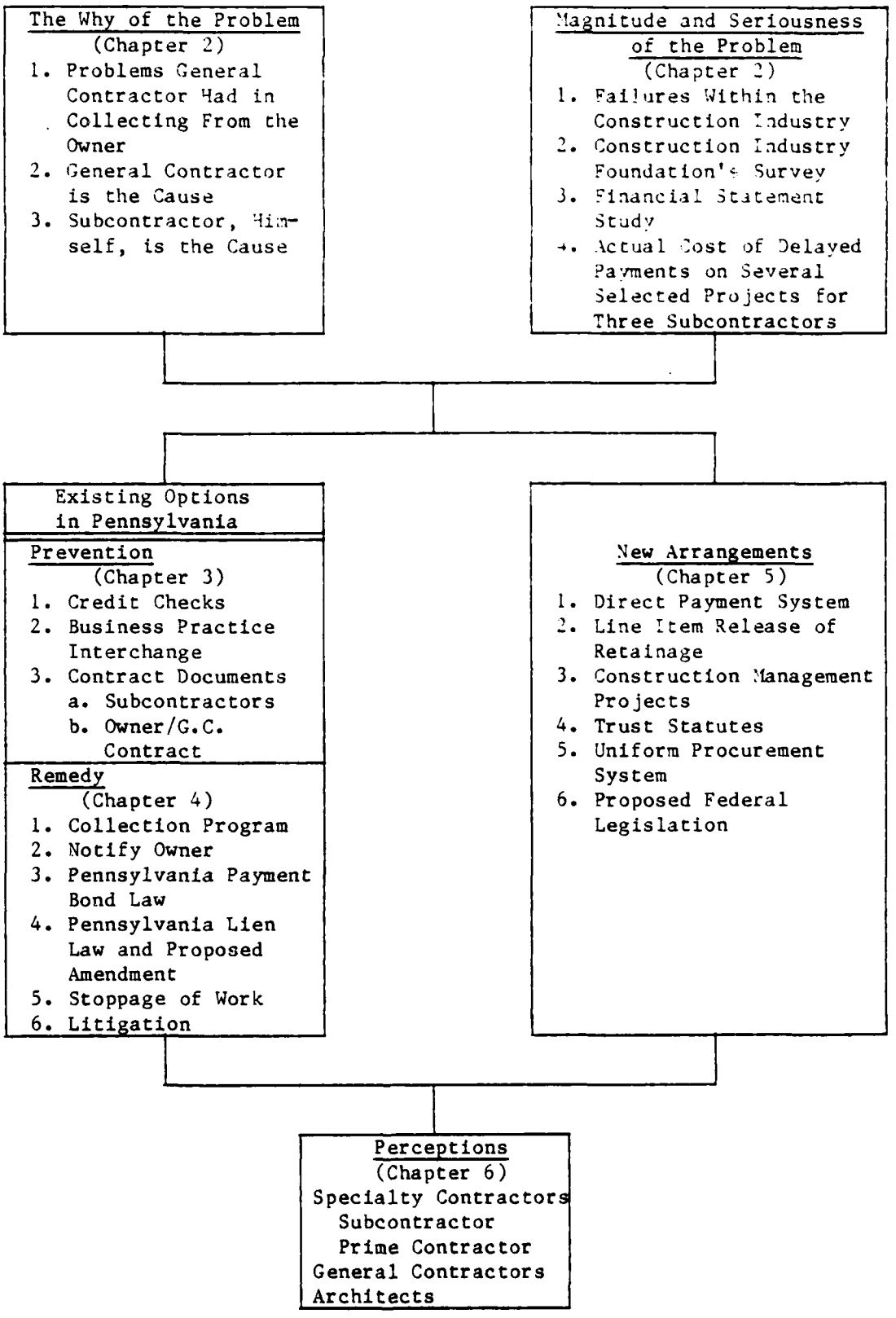


Figure 7.1

Summary of Topics
Covered in the Report

accounts for over 40% of the total volume of all classes of construction (Table B.2). In Pennsylvania, specialty contractors perform over 60%, by volume, of this class of construction (Table B.5). Of this, almost 80% of specialty contractors work in the United States and 60% of their work in Pennsylvania is performed in the subcontracting mode. The results of subcontractor's survey, as contained in Exhibit F.1, parallel these figures. The specialty contractors are usually either a prime contractor or a subcontractor when involved in either of the two types of contract systems, single and prime (Figure 1.1 and Figure 1.2). In Pennsylvania, a prime contract system is required by law for all types of public projects. Three quarters of all construction is in the private sector (24). There are many trade associations, such as the American Subcontractors Association (ASA) and Associated Specialty Contractors (ASC), who represent specialty contractors and subcontractors, because of their significance.

Subcontractors, as shown in Figure 1.3, are only one of the many parties involved in a construction project. They, like many of the other contractors, encounter many problems during a project; however, due to their position near the bottom of a project hierarchy, they experience other unique problems. It is felt by many in the construction industry that the subcontractor's major problem involves receiving progress and final payments, to include retainage, in a timely fashion (8, 91, 97, 105, 107).

Causes and Seriousness of the Problem

The causes of problems with timely payments is a mixture of the following categories:

- Problems the General Contractor Has in Collecting from the Owner
- General Contractor is a Source of the Cause
- Subcontractor, Himself, is the Cause

In both of the first two categories, the reasons can be related to the operational/administrative considerations of managing a project or can be related to the intentional action of one of the parties to hold on to the money owed to others so that they can make investments. With the high current interest rates, the second reason is becoming more frequent. This has had a profound effect on subcontractors and general contractors alike, as shown by the increased amounts of failures in the years in which the prime interest rates were the highest (Table 2.1, Figures 2.1 and 2.2). The results of the contractor's survey revealed that they held the opinion that the tendency for a party to hold on to their money was one of the biggest causes for payment problems. Other conclusions drawn from the perceptions of Contractors and Architects also indicated that multiple punchlists and the overall slow approval process of a project were the other major causes. The subcontractors, who usually have sufficient technical/engineering proficiency in their work, become a source of the cause when they either neglect or do not know the business side of construction.

Public-type projects, because of the amount of administrative requirements, might result in more payment problems than in private ones. This was verified by the group's surveys, which was based upon their field experience.

The analysis of financial statements from the Robert Morris Association (RMA) Annual Financial Studies (6), performed in this paper, indicated that there was a difference in the cash demand periods between the general contractor and subcontractor (see Chapter 2 (pp. 32-37), and Appendix C). Furthermore, even for similar types of subcontractors, some were affected more than others; in some cases, the difference amounted to as much as 50% of individual subcontractor's expected profit amount

(Figure 2.6). The actions of general contractors to delay their payables to subcontractors caused the difference in cash demand.

The effects of delayed payments were further demonstrated through analyzing the interest costs which occurred on several of the subcontractor's projects (Chapter 2, pp. 38-39, and Appendix D). Again, these interest costs consumed a great part of the expected profit picture.

Options Available in Pennsylvania

A subcontractor usually takes some preventive measures to avoid any payment problem and, if these problems do occur, he will take some type of remedial action to solve the problem. The effectiveness of exisitng options available in Pennsylvania is presented below.

Preventive Actions. The three types of preventive actions which many subcontractors take are to perform credit checks of general contractors and owners, use information from the Business Practice Interchange (BPI), a service offered by local ASA chapters, and to seek and obtain good contract documents.

Obtaining credit checks is usually dependent upon the approval of general contractors or owners to release this information. Because subcontractors are not in a good bargaining position, it is unlikely that they will be able to get approval. The subcontractors surveyed considered this to be the least effective preventive measure.

The Business Practice Interchange is very effective in some parts of the country. However, because the competitive situation in Pennsylvania is so strong and subcontractors are reluctant to exchange information, this ASA service is not as effective (p. 50). The subcontractors surveyed gave this an above average effectiveness rating (p. 96).

Negotiating for the proper payment terms in contract documents was given a very high effectiveness rating for private projects and a slightly

less than effective rating on public ones by the subcontractors surveyed (p. 96). The American Institute of Architect's (AIA) Subcontract document, A401 (31), contains excellent payment provisions for subcontractors (p. 44). Subcontractors surveyed indicated that this form was used on half of their projects, and that the general contractor's own form was used on the other half (93). Subcontractors should know the contract used between the owner and general contractor so that they will be able to seek similar provisions in their contracts. The Pennsylvania Department of General Services (DGS) contract (36) between the state and general contractors contains excellent payment requirements for payments made to subcontractors (p. 46). Part of the reason the DGS contract is so favorable is due to the Pennsylvania Law (15) which regulates public contracts (p. 46). The reduction of retainages, especially on federal projects, can occur at variable times (p. 48).

One of the best preventive measures used by those subcontractors surveyed was not to bid with general contractors who might be a potential problem (Table 6.9).

Remedial Options. One of the most effective remedial options for collecting payments which are due is to have a good business-like collection program so as to identify the problems and to follow up on them until they are collected (p. 55 and Table 6.9). Another effective procedure, although legal advice should be sought before executing this, is to exercise the right to stop work on a project (p. 62 and Table 6.9).

The more formal methods of collecting payment, such as suing under a payment bond for private projects or using lien rights on public ones, and either going to litigation or arbitration, all received very low ratings by the subcontractors surveyed. The Pennsylvania Payment Bond Law (17) does

not include coverage of any interest costs or attorney fees. A proposed amendment to the Federal Miller Act (19) would include this coverage (p. 59). A proposal (14) exists to amend the Pennsylvania Lien Law (16), so that the subcontractor's rights can not be waived unless adequate bond protection is posted. Some general contractor trade associations are against this proposal (pp. 60-62). Although the legal interpretation of contingent payment clauses are generally consistent (p. 64), a new precedence of holding owners or lending institutions responsible to subcontractors may be an issue of the future (p. 64). The claims process in Pennsylvania usually takes several years to complete and probably needs to be reviewed and revised (p. 65).

Notifying the owner or the architect are options available to subcontractors. The subcontractors that were surveyed felt that these were also somewhat less than effective, and were usually less effective on public projects than on private ones (Table 6.9).

New Arrangements

Two relatively new arrangements affecting payments to subcontractors are a direct payment system and the practice of line item release of retainage. Other arrangements, which are not either currently available or not widely practiced in Pennsylvania, have been introduced in Chapter 5 and are mentioned again below.

Direct Payment System. In the Chicago area and in Virginia certain title insurance companies offer a service whereby payments are made directly to major subcontractors from the title insurance companies. The system involves the participation of all parties associated with a project, which includes owners, lending institutions, general contractors, and subcontractors. An initial agreement is made by the parties, and the

progress of the project is monitored throughout; requiring a complete breakdown of all costs. Once lien waivers and signed affidavits are collected, which proves that lower tier subcontractors were paid, the subcontractors are paid directly. The traditional approval process, which requires the general contractor's and owner's approval, is still required to get approval for payment. The benefits to subcontractors are obvious; however, further research, which will be discussed in the second part of this chapter, needs to be accomplished to demonstrate how this arrangement will lower the overall cost of construction. This arrangement might provide a partial solution to the controversy over the Pennsylvania Lien Law.

The general contractors and architects that were surveyed indicated that the majority would not accept such a system (p. 101 and p. 104). Most thought that they would lose their control over the subcontractors.

This type of system may seem ideal to some, although it will take some time before this becomes a common practice in the construction industry. At least a quarter of the Architects and General Contractors surveyed indicated that they would either favor and/or might favor such a system. This initial favorable reception by these groups indicates that there is a basis for its use as an experiment on some projects in Pennsylvania.

Line Item Release of Retainage. If retainage were released by line item, that is by a type of trade, the subcontractor's problem pertaining to final payment would be reduced. The Architects surveyed indicated that they would not favor such a system because they are only interested in a completed project (p. 104). However, most of the General Contractors surveyed, indicated that they would pay by line item if the owner would release the money (p. 100). If a lower overall cost could be demonstrated,

then the Architects might change their opinion. Further research is needed to determine whether this practice would reduce the overall cost of a construction project.

Others. The other types of arrangements that were introduced and discussed include payment practices of construction managers, trust statutes, procurement policies of public agencies, and some proposed legislation. Although no specific conclusions will be drawn from these subjects, a few points should be mentioned. Although some of the Subcontractors surveyed indicated that construction management projects pay in a timelier fashion than traditional ones (p. 95), most of the ASA chapters and federal agencies that were contacted indicated that there were no significant advantages to this type of system (p. 75).

The ASA has recommended several very important practices which effect payment practices. They recommend that the requirement to use standard subcontract and line item release of retainage, should be included in the proposed Uniform Procurement System (p. 76). The procurement policies of Pennsylvania are currently being compared to the Model Procurement Code for State and Local Governments (p. 77).

Limitations of the Research Effort

The two main limitations of this research effort are the broad scope of issues addressed and lack of quantifiable information on the payment problems of subcontractors. A good portion of the paper was devoted to establishing the importance of subcontractors within the industry. Substantial research effort was necessary to locate, gather, and analyze financial information; to demonstrate the effect late payments can have on subcontractors; and to hypothesize what some of the reasons were.

Within the topic of payment problems, the writer was concerned with two sets of variables.

type of payment (progress or final)
type of project (public or private)

The first set of variables did not provide too much trouble. However, it was difficult to equally balance the emphasis on the two types of projects. Most of the sources of information, because of their accessibility and availability, were from public entities. There are many different types of private owners, which would have required an effort beyond the scope of this paper to properly identify and classify. When one considers that over three quarters of all construction is performed in the private sector, the need for information from this area becomes obvious.

Many subject areas were also covered. There were several specific topics within each of the three main subject categories: preventive measures, remedial options, and new arrangements.

The research effort attempted to consider only the situation in Pennsylvania. The laws of this state are very easily distinguished from other state and federal laws. However, it becomes more difficult to determine differences in legal interpretations and even nearly impossible to identify contrasts in the economic situation affecting the construction industry and common practices of the industry for just one particular state.

Subcontractors were considered, for the purposes of this paper, as one type of group. However, in reality, subcontractors are made up of dozens of individual trades, and varying company sites, each of which have their own unique problems.

The paper was written with the viewpoint of protecting the subcontractors within business-like and legal bounds. The underlying objective

was to improve the overall construction process. The questionnaire was restricted only to contractors and architects. It was beyond the scope to obtain the input of owners and bankers in the analysis. The writer recognizes that all of these parties have their own problems and needs. Because of these limitations, it has been impossible to provide a detailed enough analysis of each of the subject areas discussed so as to generate undisputable recommendations. Some topics received more attention and scrutiny than others. Hence, the discussions range from analysis to just an information type research effort. With these limitations in mind, the recommendations contained in the last part of the chapter can be better understood.

Recommendations

The purpose of developing recommendations to the timeliness of payments is fourfold.

- to recognize the importance of the subcontractors in the overall construction process
- to eliminate the causes of payment problems: the tendencies of some to hold on to other's payment and causes related to operational/considerations of administration of a project
- to provide equitable protection of subcontractors
- to identify areas for further research and to promote new innovative concepts and arrangements

The objective of these recommendations is to improve the subcontractor's position in the construction industry, and ultimately to improve the overall construction process. The discussion of recommendations is divided into three areas: Pennsylvania, as a whole; individual parties involved in construction; and areas for further research.

State of Pennsylvania

The three main areas pertaining to the state are: legislation, legal, and industry cooperation.

Legislation. The existing lien law, as far as subcontractors are concerned, is very inadequate. The law defeats the purpose of lien protection. Further study should be performed on the proposal so that the general contractor's concerns are addressed especially as to who has the responsibility for liens: the owner or the general contractor.

Other legislative action that should be taken is to amend the law to allow for the full recovery of the total costs incurred. Certainly with today's high interest rates, any interest costs due to late payments should be considered as part of the total cost. As demonstrated in Chapter 2 and Appendix D, these interest costs can be quite high. One of the laws that does not include interest costs is the Pennsylvania Payment Bond Law. There is federal action to amend the Miller Act, so that interest costs are allowed. The state bond law should be examined.

Legal. The claims process on public projects in Pennsylvania appears to be inadequate, since it takes a very long time to get a case settled, and, hence, it should receive a complete review.

Industry Cooperation. Trade associations for general contractors and subcontractors have had a great impact on the construction industry. The subcontractor associations have only in the last decade established themselves (97). By meeting with one another and, by approaching architects (AIA), owners, and lending institutions as a group, these trade associations can bring about changes in laws and the administrative procedures of owners. New arrangements such as the direct payment system, line item release of retainage, and required standard subcontract

agreements, can be tranformed from concepts to actual construction practices with their help and support. The issues that these trade associations decide to act upon, should be beneficial to them and be based upon quantifiable information, such as the results of surveys, and other statistics. The Census of Construction Industry (23), which is conducted every five years, could provide an invaluable source of information. The trade association can have some input into the design of the questionnaires used in this census. For more information and further study, trade associations could provide support and aid to promote research. Future studies should be structured to determine whether or not the overall cost of construction can be lowered.

Individual Parties Involved in the Construction Process

Recommendations are made for three types of individual parties: subcontractors, general contractors, and owners.

Subcontractors. The most effective way for subcontractors to handle payment problems is to utilize the resources that are presently available. It takes a long time to get new laws enacted and to get other subcontractors and general contractors to change their procedures. As pointed out in Chapter 2, the subcontractors themselves are frequently the cause of late payment, because of their poor business practices. Without the knowledge of how interest costs are calculated, a subcontractor would probably not recognize the magnitude of the problem. For each day that a payment is past due, there is an interest cost. That cost is also someone else's gain. All ASA chapters contacted pointed that educating subcontractors as to what their rights are, is the most important action that can be taken to help subcontractors (79, 83, 84, 85, 89, 98, 105, 106). This education includes preventive measures, especially with respect to contract

documents, and remedial options that are available for their use. An interesting point is that the so-called "construction brokers" are in business because subcontractors still bid with them. Through the use of the Business Practice Interchange, which is offered to its members by local ASA chapters, these "brokers" can be identified. Each subcontractor can then decide what action to take.

Besides not bidding with certain contractors, subcontractors can influence their own fate by negotiating for good payment practice. Asking for standard contract forms, such as AIA document A401, will provide excellent protection. A written document, outlining the payment provisions, is better. It is unlikely that a general contractor would disregard it, because in a legal court case, a general contractor would not have much of a defense. In order to get a flow through of benefits, the subcontractor should know the terms of agreement between the owner and general contractor, and should also get those terms put into his contract.

A final point should be mentioned. Subcontractor's trade associations can be quite effective, but it takes an active membership to make a good trade association.

General Contractor. Most of the recommendations made to improve the timely payment problem situation of subcontractors, are aimed at either protecting the subcontractor against "brokers", which represents only a small portion of all general contractors, or making the subcontractor more aware of their rights. Several new concepts and arrangements were introduced. Before these are put into practice, though, they must be researched and the "bugs" worked out of them so that general contractors are not adversely affected. The concepts in this paper are not in any way suggesting that general contractors are not needed, on the contrary, a good

"quarterback" is needed on all projects. However, the importance and rights of subcontractors need to be recognized.

Owners. The first thing that owners should realize is the importance of the subcontractors on a project. Also, they must realize how any delays in payments are going to affect the subcontractors. As concluded from the results of the Contractors and Architects surveyed, many of the causes of payment problems are due to the tendency of some to hold on to another's money, multiple punchlists' requirements, and the slow approval process for handling payment invoices. The costs resulting from these causes are usually reflected back to the owner. The owner can lower his costs by correcting these. Using contract documents, such as the Pennsylvania Department of General Services Contract (36), which prohibits the diversion of payment, to include any releases of retainage, can stop "brokering" by contractors. Other possible opportunities to lower costs are to consider experimenting with new arrangements, such as a direct payment system and line item release of retainage.

If a trend is established by the courts which would favor the subcontractors in cases involving an owner and/or lending institution, then the owner will more than likely want to have certain items included in the contract between the general contractor and the subcontractor. Required standard subcontracts could possibly be used in these instances.

Areas for Further Research

Because of the broad scope of topics analyzed in this paper, many areas for further research were identified. For the sake of simplicity, they will be categorized as follows: payment practices and procedures, legislation, litigation, and an overall analysis of the payment process.

Payment Practices and Procedures. The three new concepts affecting the payment process that were discussed include: direct payment system, line item release of retainage and usage of required standard subcontracts. The first two are practiced by some, while the third is only in the proposal process. The objective of future analysis of these areas should be to evaluate their effectiveness to lower the overall costs of construction. The legal implications of requiring the use of standard subcontracts should be given additional attention. Further guidelines should determine when to release the retainage for each of the different types of trades.

Legislation. Laws and proposals that should be further analyzed are trust fund statutes, the Pennsylvania Lien Law, amendment of the Federal Miller Act, and the proposals for new statutes. The trust fund statutes that exist in several states should be compared so as to determine their effectiveness in deterring diversions of funds. If the lien law amendment is not passed, then further analysis should be performed to determine its adequacy. If the Pennsylvania Lien Law amendment is passed, then the impact of this change should be analyzed. Studies of the proposed amendment to the Federal Miller Act (20), the Small Business Contract Payment Procedures Act proposal (21), and the Delinquent Payment Act of 1981 proposal (22) should also be pursued.

Litigation. The possibility that owners and lending institutions will be scrutinized more closely by courts, a point brought out by Mr. Stokes (91), could have a tremendous impact on subcontracts and the entire contracting process. Research in this area could be very valuable.

The claims process in Pennsylvania, which currently takes several years to reach a decision on a case, should receive attention.

Overall Analysis of the Payment Process. A study should be conducted to analyze the entire payment process of a typical project, so that recommendations could be made that would meet everybody's needs and/or would lower the overall cost of construction. The tendency of individuals to hold on to money owed to others, some to the extent that they are considered "construction borkers", should be considered. Further research into the private sector should be accomplished because this is where most of the construction is performed.

The high interest rates and advanced financial and accounting techniques has had a tremendous affect on the construction industry. Further financial analysis, such as the ones performed in Chapter 2, could produce invaluable information for a study on strategies that are used by individual firms in managing cash flow.

Others. This report generally treats the subcontractors as one group. The unique problems of the individual-type subcontractor should receive further attention.

Arbitration, which was not covered in this report, is increasingly becoming a major method of resolving disputes (97, 107). A study on arbitration's interpretation of payment problems would be very important to any future work on payment processes.

OVERVIEW

One of the biggest problems of subcontractors is obtaining, in a timely basis, the payments which are owed to them. In the past, this problem did not receive much attention. However, with the current high interest rates, the seriousness of their problem has greatly magnified to the point that it can no longer be ignored. The causes of the problem can be attributed to the individual actions of owners, general contractors, and

also to the subcontractors, themselves. The causes are usually either related to the administrative procedures and requirements involved in the normal operations of the project or to the tendency of one to hold on to the money due to others. The latter action creates a situation known as "brokering". The seriousness of delayed payments has been demonstrated in this paper by analyzing finincial statements, interest costs of several subcontractor's projects, and failures within the construction industry.

Several conclusions and recommendations have been drawn from the analysis of the preventive measures and remedial options available to subcontractors, and the perceptions of architects, general contractors, and subcontractors in Pennsylvania. First, it is imperative that subcontractors be well versed in the options and alternatives available to them. Secondly, changes in laws, such as the Pennsylvania Mechanic's lien law, must be made in order to provide adequate protection to subcontractors. Several new concepts, such as the direct payment system and line item release of retainage, offer not only advantages to subcontractors, but also opportunities to improve the overall construction process. The conclusions and recommendations, which were developed and presented in this paper, have the potential of minimizing the timely payment problems of subcontractors involved in building construction within the state of Pennsylvania.

Traditionally, subcontractors have been considered as representing the bottom of the construction process. Subcontractors, however, perform over half of the volume of all building construction. This segment of the industry can no longer be ignored. The prudent individual and/or organization in the construction industry should recognize and attempt to remedy subcontractor problems, since they are a resource that offers great potential for improvements to the overall construction process.

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APPENDIX A

DEFINITION OF TERMS

DEFINITION OF TERMS

Some of the terms in the area of payments do not possess a singular accepted definition. Also, a number of terms will be used that may not be familiar to individuals because they describe relatively new concepts. In order to prevent misunderstandings, the following definitions, as employed by the writer, are provided. It is suggested that the reader take time at the beginning of the report to read these definitions, particularly if he is not familiar with the terminology.

Retainage - A certain percentage of the money that is due to a contractor is withheld from each progress payment by the owner. The percentage withheld is determined by the terms of the contract; it is usually from five to ten percent.

Reduction of Retainage: At some portion of the job, the percentage of retainage withheld is reduced. This usually occurs at the fifty percent completion milestone. Again, the exact amounts are determined by the terms of the contract.

Punch-list Work: The work that is related to the correction of deficiencies noted at the end of the project as a result of a formal inspection by the architect and/or owner.

Progress Payments: The periodic payments made to contractors for the portion of the work that is completed during the payment period. Unless otherwise stated, progress payments are made monthly.

Final Payment: The payment for the final portion of the work completed. This includes payment for punch-list work and a release of all of the retainage that has been withheld.

Payment Problems:: Those problems associated with not receiving progress payments and/or final payment on time as indicated by the terms of the contract.

General Building Construction: The construction of any type of residential, commercial, industrial building. Single-family housing is not included in this definition.

Public Work: In the context of this paper, public work involves the construction of any building in which governmental monies are involved.

Private Work: In the context of this paper, private work involves the construction of any building in which governmental monies are not involved.

Specialty Contractors: Those contractors whose work is mainly involved with a single specialty such as electrical, plumbing, carpentry, masonry, etc.

Prime Contractors: As used in the context of this paper, special trade contractors who have a contract directly with the owner.

General Contractors: Those contractors who normally are the only contractors who have a direct contractual relationship with the owner. When other prime contractors are involved on a job, the general contractor will still be referred to as the general contractor.

Subcontractors: Those special trade contractors who have a contract with the general contractor or a prime contractor to perform a portion of the work on a particular project. In addition to performing labor, the

subcontractor also furnishes materials; however, labor or services remain the principle items of the contact.

Line Item Release of Retainage: Release of retained funds either at some point of reduction or when the final payment is made, are done according to a line item basis. Each contractor and subcontractor is considered as a separate item.

Direct Payment System: In this paper, a system whereby a title insurance company makes direct payments to subcontractors. Approval of the general contractor and owner is needed before the title company will make payment.

APPENDIX B

DATA DERIVED FROM THE 1977 CENSUS ON THE CONSTRUCTION INDUSTRY

DATA DERIVED FROM THE 1977 CENSUS ON CONSTRUCTION INDUSTRY

This Appendix contains the results of the 1977 Census of the Construction Industry (23a and b) that show the significance of the involvement of subcontractors in general building construction. This is the most recent census information. The census is conducted every five years and is not published until a few years after it is taken. The results of the writer's research effect were summarized into eight categories, and they are contained as eight separate table on the following pages.

This Appendix contains information at a level of detail which enables the interested reader, to trace this information back to the source document. The reader should be able to follow the logic that was used to calculate the different percentages. Generally, the dollar amounts were extracted form the census' information. The writer then calculated the percentages. Information related to construction in the United States was obtained from Reference 23-B. Information related to construction in Pennsylvania was obtained from Reference 23-A.

Table B.1 - Construction Receipts by Class of Construction				
CLASS OF CONSTRUCTION	Construction Receipts			
	U.S.		PA	
	Amount*	Percent	Amount*	Percent
General Building (Less Single-Family Housing)	$ 87,751	40.9%	$ 4,303	42.4%
Single Family Housing	56,752	26.4	2,282	22.4
Heavy Construction	59,799	27.8	3,106	30.5
Other Construction	10,542	4.9	476	4.7
Total	$214,844	100.0%	$10,167	100.0%

Table B.2 - Construction Receipts by Type of Contractor				
TYPE OF CONTRACTORS	Construction Receipts			
	U.S.		PA	
	Amount*	Percent	Amount*	Percent
General Building Contractors (Less Single Family Housing)	$ 33,192	20.3%	$ 981	12.1%
Single Family Housing	15,070	9.2	1,100	13.6
Heavy Construction General Contractors	40,273	24.6	2,006	24.8
Specialty Contractors	74,931	45.8	3,992	49.4
All Construction**	$163,466	100.0%	$8,079***	100.0%

* This amount is less the amount of work that is subcontracted out to others.
** This does not include subdividers and developers.
***PA represents 4.9% of all U.S. Construction.

Table B.3 - Number of Establishments by Type of Contractor				
Type of Contractor	U.S.		PA	
	Number	Percent	Number	Percent
General Building Contractors	$155,971	32.8%	$12,425	23.5%
Heavy Construction General Contractors	31,296	6.6%	2,328	4.1
Specialty Contractors	287,811	60.6%	41,375	72.4
Total	$475,078	100.0%	$57,128	100.0%

Table B.4 - Class of Construction by Specialty Contractors				
Class of Construction	Construction Receipts			
	U.S.		PA	
	Amount*	Percent	Amount*	Percent
General Building (Less Single-Family Housing)	$41,126	51.9%	(Information not available in this breakdown)	
Single Family Housing	18,623	23.5%		
Heavy Construction	11,658	14.7%		
Other	7,832	9.9%		
Total	$79,239	100.0%		

* In millions of dollars of construction receipts

Table B.5 - Construction Receipts by Industry For General Building Construction (less Single Family Housing) (All Figures other than percents are in millions of dollars)

Contractor	Total*	Subcontracted Out to Others		Work By Own Forces	
		Amount	Percent	Amount	Percent of Total
UNITED STATES					
Non-residential Building Contractor	$39,993	19,631	49.1%	20,362	28.0%
Operative Builder***	19,311	9,136	46.3%	10,927	15.0%
Other Residential Building Contractor	4,442	2,239	49.1%	2,203	3.0%
Total - General Contractor	$64,247	$31,055	48.3%	33,192	46.0%
Specialty Contractors	$41,126	$ 2,100**	5.1%	39,026	54.0%
Total				72,218	100.0%
PENNSYLVANIA					
Non-residential Building Contractor	$1,779	1,001	56.3	778	
Operative Builder	493	186	37.1%	307	
Other Residential Building Contractor	156	67	42.9%	89	
Total - General Contractor	2,428	1,254	51.6%	1,174	36.2%
Specialty Contractors****	2,200	129	5.9%	2,071	63.8%
Total				3,245	100.0%

* In millions of dollars of construction receipts.
** This figure was not directly available. It was determined by taking half of all work subcontracted out to others.
*** An operative builder is primarily engaged in construction on their own account for sale rather than as contractors.
****These figures were not directly available. The 51.9% of the work that specialty contractors performed in general building construction less single-family houses for the U.S. (see Table B.4) was applied to the PA total figures for subcontractors.

Table B.6 - Amount of Specialty Contractor's Work That Is Subcontract Work*
(All figures other than percent are in million dollar bracket)

	All Construction		General Building Construction (Less Single-Family Housing)	
	US	PA	U.S.	PA
Amount of Work Subcontracted Out by General Contractors	$4,577	$2,[illegible]	$[illegible]	$1,234
Amount of Work of Specialty Contractor's Own Work	$74,931	$3,992	$39,026	$2,071
Percent That Specialty Work is Subcontracted	66.2%	51.7%	79.6%	60.6%

* This analysis assumes that all work subcontracted is to specialty contractors. All figures, other than percentages, are in millions of dollars.

Table B.7 - Construction Receipts by Individual Specialty Contractors

	U.S.			PA		
	Construction Receipts*	Percent of Total	Percent of Own Work Sub-Contracted	Construction Receipts*	Percent of Total	Percent of Own Work Sub-Contracted
Concrete Work	$ 4,097	5.2%	5.7%	$ 133	3.1%	7.4%
Electrical	14,221	17.9	2.1	652	15.4	2.7
Excavation and Foundation	4,215	5.3	6.8	241	5.7	6.3
Floor Laying	1,617	2.0	4.3	80	1.9	5.1
Masonry	3,775	4.8	2.6	247	5.8	1.7
Painting	3,171	4.0	3.8	188	4.4	2.1
Plastering	6,057	7.6	3.9	313	7.4	3.8
Plumbing	21,072	26.6	10.9	1,070	25.2	10.6
Roofing and Sheet Metal	6,200	7.8	4.2	394	9.3	4.9
Structural Steel	1,803	2.3	5.2	366	8.6	5.7
Terrazzo, Tile	766	1.0	2.1	29	.7	2.8
Others	12,238	15.5	5.2	526	12.4	4.9
TOTAL	$79,232	100.0%		$ 4,239	100.0%	

*In millions of dollars.

Table B.8 - Construction Receipts for Category of Services* Provided by Specialty Contractors

Category of Service	U.S. Receipts* Amount	U.S. Percent	PA Receipts* Amount	PA Percent
Amount of Own Work	$44,713	56.5%	$2,2558	60.4%
Amount Subcontracted Out to Others	4,301	5.4%	$ 247	5.8%
Amount of Payment for Materials	30,218	38.1%	1,434	33.8%
TOTAL	$79,232	100.0%	$4,239	100.0%

* In millions of dollars.
**The services can either be provided material, subcontracted work out to others, or performed work with own labor force.

APPENDIX C

CASH FLOW DEMAND DATA DERIVED FROM THE ROBERT MORRIS ASSOCIATION ANNUAL FINANCIAL STUDIES

CASH FLOW DEMAND DATA DERIVED FROM THE ROBERT MORRIS ASSOCIATION ANNUAL FINANCIAL STUDIES

This Appendix contains the procedures used by ther writer in performing the analysis of financial statements. Interpretation of this analysis is contained in Chapter 2. The contents of this appendix includes the presentation of the equation to calculate the cash flow demand period, the results of the application of the equation to contractor's annual financial statements from 1972-1979 which are contained in the Robert Morris Association (RMA) Studies (6), and an application of these results to individual contractor's profit statements.

Equations

Cash flow demand period is the number of days, on the average, that a firm will need to provide funds to meet the obligations of current operations. Basically, this is the difference between the average age that money is owed to a firm, age receivables, and the average age in which the firm makes payments to others, age payables. The equation presented in the Fails Management Institute Book (4) is shown in Table C.1. The values of each of the variables are usually reported in most annual financial statements. One of the two types of accounting methods are used in a contractor's financial statement. These methods are:

completed contract method
percentage of completion method

It is generally felt that the latter method presents a more accurate representation of a contractor's actual financial situation than would the other (4,10). Hence, the equation used to calculate the cash demand period will be applied to financial statements reported by the percentage of completion method. The RMA studies report only statements using this accounting method.

In order to apply the equation to the RMA studies (6), the writer has modified the above equation. The modified equation is shown in Table C.2. In general, those values reported in the asset columns of a balance sheet are reported as receivables; and those within the liability column, as payables. Receivables and payables are each broken down into three sub-categories:

- Normal Billings
- Billings Related to Retainage
- Overbillings

Overbillings are reported only under the percentage completion method. If a contractor is paid more money on a particular job than what his costs were, the billings are in excess of costs and, as such, are a liability. Conversely, if a contractor is paid less than the costs, the cost would be in excess of the billings. This would become an asset. The accounts receivables, because the RMA studies provide information into this detail, were broken into two parts, normal billings and billings related to retainage. The effects due to retainage can thus be presented by using this breakdown. Usually, contractors do not have a significant amount of money involved in inventories; hence, the age of material inventory need not be calculated. Under these circumstances, the modified equation is the same as the original equation.

Application of Modified Equation to RMA Financial Statement.

The modified equation shown in Table C.2 was applied to the financial statements reported by individual contractors in the RMA Studies (6). An example of the information extracted from the financial statements and how it was applied to the equation, is presented to the reader as Table C.3. This analysis was performed on the 1972-1979 statements of specialty

contractors and general contractors. There were eleven types of specialty contractors. The information reported for these contractors represents their work in all classes of construction in the United States. Data was neither available for only general building construction, nor available for only construction in Pennsylvania. The general contractor was involved in commercial construction. Due to space requirements, the calculations for each contractors over the eight year period are not contained in this report. The information is summarized as an average of all specialty contractors and the general contractor for each year. This is presented as Table C.4. Table C.5 contains the average for each individual type of trade contractors for the eight year period.

Effect of the Difference in Cash Demand Periods on the Individual Specialty Contractors

The difference between the specialty contractor's and general contractor's cash demand, presented in the preceeding section, is compared to the individual specialty contractor's profits. An interest rate of twenty-two percent annually was applied to this difference. Profit financial ratios for each contractor were obtained from the Dun and Bradstreet reference (46). Calculations were then performed to represent the value associated with the difference of cash demand as a percent of profit. The data is tabulated according to effect on individual specialty contractors in Table C.6. An example calculation of this procedure is provided for the reader at the bottom of this table.

Table C.1

Equation to Calculate
Cash Demand Period*

Equation Number	Name	Calculation
1	Average Age of Material Inventory	= $\frac{\text{Material Inventory}}{\text{Material Cost}}$ x 365 days
2	Average Age of Costs and Estimated Earning in Excess of Billings	= $\frac{\text{Average Cost and Estimated Earnings in Excess of Billings}}{\text{Net Sales}}$ x 365 days
3	Average Age of Accounts Receivables	= $\frac{\text{Average Accounts Receivable}}{\text{Net Sales}}$ x 365 days
4	Cash Conversion Period	= Eq(1) + Eq(2) + Eq(3)
5	Average Age of Accounts Payable	= $\frac{\text{Average Accounts Payable}}{\text{Materials + Subcontractors}}$ x 365 days
6	Average Age of Billings in Excess of Costs and Estimated Earnings	= $\frac{\text{Average Billings in Excess of Costs}}{\text{Net Sales}}$ x 365 days
7	Cash Demand Period	= Eq(4) - Eq(5) - Eq(6)

* Source: Fails Management Institute Book; Reference 4

Table C.2
Modified Equation to Calculate
Cash Demand Period

Equation Number	Name		Calculation	
1	Average Age of Normal Accounts Receivable	=	Average Accounts Receivable / Net Sales	x 365 days
2	Average Age of Retainage Accounts Receivable	=	Average Retainage Accounts Receivables / Net Sales	x 365 days
3	Average Age of Costs and Estimated Earnings in Excess of Billings	=	Average Cost and Estimated Earnings in Excess of Billings / Net Sales	x 365 days
4	Average Age Receivables	=	Eq (1) + Eq (2) + Eq (3)	
5	Average Age of Normal Accounts Payable	=	Average Accounts Payable / Total Cost	x 365 days
6	Average Age of Retainage Accounts Payable	=	Average Retainage Accounts Payable / Total Cost	x 365 days
7	Average Age of Billings in Excess of Costs and Estimated Earnings	=	Average Billings in Excess of Costs and Estimated Earnings / Net Sales	x 365 days
8	Average Age Payables	=	Eq (5) + Eq (6) + Eg (7)	
9	Demand Period of Normal Accounts	=	Eq (1) - Eq (5)	
10	Demand Period of Retainage Accounts	=	Eq (2) - Eq (6)	
11	Demand Period of Over-billings	=	Eq (3) - Eq (7)	
12	Cash Demand Period	=	Eq (4) - Eq (8) or Eq (9) + Eq (10) + Eq (11)	

Table C.3

Example of Calculations of Cash Flow Demand Period

From the RMA Financial Statements

Rma Statement*

CONTRACTORS—ELECTRICAL WORK

107 STATEMENTS ENDED ON OR ABOUT JUNE 30, 1977
160 STATEMENTS ENDED ON OR ABOUT DECEMBER 31, 1977

UNDER $1MM	$1MM & LESS THAN $10MM	$10MM & LESS THAN $50MM	$50MM & OVER	ALL SIZES		CONTRACT REVENUE SIZE
96	142	13	6	257		NUMBER OF STATEMENTS
%	%	%	%	%		ASSETS
12.4	11.6	10.8		12.0		Cash
40.8	44.4	42.9		42.7	a	A/R Progress Billings
6.0	6.6	4.7		6.3	b	A/R Current Retainage
3.8	4.1	5.6		4.1		Unbilled Work in Progress
2.9	5.0	6.2		4.5	c	Costs in Excess of Billings
10.1	8.0	4.7		8.3		Other Current Assets
78.2	80.6	80.8		78.8		Total Current
13.4	9.2	6.6		10.8		Equipment
2.7	2.9	5.8		3.1		Real Estate
0	.5	.7		.4		Joint Ventures
7.7	6.8	6.4		7.1		Other Non Current
100.0	100.0	100.0		100.0		Total
						LIABILITIES
8.7	8.5	10.0		9.2		Notes Payable Bank
18.3	20.1	17.8		19.5	d	Accounts Payable Trade
.7	.2	.7		.4	e	Accounts Payable Retainage
1.1	1.8	5.0		1.7		Federal Income Tax Payable
3.4	4.4	5.6		4.2	f	Billings in Excess of Costs
.8	.3	1.3		.6		Contract Advances
0	0	0		0		Prov for Loss on Contr in Prg
3.3	2.8	1.4		3.1		Current Maturities LT Debt
7.8	9.6	7.9		8.9		Other Current Liabilities
45.4	48.6	40.7		47.8		Total Current
10.7	7.2	8.2		8.6		LT Liabilities Unsub
56.1	56.7	57.9		56.2		Total Unsubordinated Debt
1.2	.4	0		.7		Subordinated Debt
42.7	43.0	42.1		43.2		Tangible Net Worth
100.0	100.0	100.0		100.0		Total
						INCOME DATA
100.0	100.0	100.0		100.0		Contract Revenues
73.1	79.6	86.0		77.7	g	Cost of Work Performed
26.9	20.4	14.0		22.3		Gross Profit
23.5	18.3	10.8		19.6		All Other Expenses Net
3.3	2.1	3.2		2.6		Profit Before Taxes
[illegible]	[illegible]	[illegible]	[illegible]	1407,255M	h	Contract Revenues ($)
[illegible]	[illegible]	88767M	[illegible]	547,980M	i	Total Assets ($)

M = $thousand
MM = $million

* RMA Studies, 1978 (ref. 9)

Modified Equation as Presented in Table C.2

$$Eq(1) = \frac{a/100 \times 1}{h} \times 365 = \frac{42.7/100 \times 547,980M}{1407,255M} \times 365 = 60.7$$

$$Eq(2) = \frac{b/100 \times 1}{h} \times 365 = \frac{6.3/100 \times 547,980M}{1407,255M} \times 365 = 9.0$$

$$Eq(3) = \frac{c/100 \times 1}{h} \times 365 = \frac{4.5/100 \times 547,980M}{1407,255M} \times 365 = 6.4$$

$$Eq(4) = 60.7 + 9.0 + 6.4 = 76.1 \text{ days}$$

$$Eq(5) = \frac{d/100 \times 1}{h \times g/100} \times 365 = \frac{19.5/100 \times 547980M}{1407,255M \times 77.7/100} \times 365 = 35.6$$

$$Eq(6) = \frac{e/100 \times 1}{h \times g/100} \times 365 = \frac{.4/100 \times 547980M}{1407,255M \times 77.7/100} \times 365 = .7$$

$$Eq(7) = \frac{f/100 \times 1}{h} \times 365 = \frac{4.2/100 \times 547980M}{1407,255M} \times 365 = 6.0$$

$$Eq(8) = 35.6 + .7 - 6.0 = 42.3 \text{ days}$$

$$Eq(9) = 60.7 - 35.6 = 25.10$$

$$Eq(10) = 9.0 - .7 = 8.3$$

$$Eq(11) = 6.4 - 6.0 = .4$$

$$Eq(12) = 76.1 - 42.3 = 33.8$$

or

$$25.1 + 8.3 + .4 = 33.8$$

} Cash Demand Period

Table C.4
A Yearly Comparison of Cash Demand Periods
of Specialty Contractors Versus
General Contractors

	Contractors				Contractors Commercial				Difference Between Specialty Contractors and General Contractors			
	B	R	OB	T	B	R	OB	T	B	R	OB	T
1972	26.7	8.0	-4.1	30.6*	12.1	6.3	-7.7	10.7	14.6	1.7	3.6	19.9
1973	20.4	10.4	-3.9	27.0	1.7	7.5	-4.5	4.7	18.7	2.9	.6	22.3
1974	18.5	11.3	-3.6	26.2	-1.3	5.1	-1.4	2.4	19.8	6.2	-2.2	23.8
1975	18.7	11.7	-4.3	26.1	.4	2.2	5.0	7.6	18.3	9.5	-9.3	18.5
1976	20.0	8.5	-3.4	25.1	2.2	4.5	2.8	9.5	17.8	4.0	-6.2	15.6
1977	20.1	7.7	0	27.8	3.8	7.4	-2.4	8.8	16.3	.3	2.4	19.0
1978	20.2	7.7	- .7	27.2	7.1	6.7	-3.7	10.1	13.1	1.0	3.0	17.1
1979	18.0	7.2	-1.0	24.2	6.8	5.6	-3.8	8.6	11.2	1.6	2.8	15.6
Average**	20.3	9.1	-2.6	26.8	4.1	5.7	-2.0	7.8	16.2	3.4	- .6	1

Key: B = cash demand due to normal billings
R = cash demand due to retainage
OB = cash demand due to overbillings
T = Total - B + R + OB

* For each year, the average for specialty contractors was determined by taking a weighted average according to the amount of work each contractor performed as reported in the Robert Morris Studies (6).

**The average was determined adding up the values for each year and dividing by the number of years.

Table C.5
Average of Cash Demand Period Duration from
1972 to 1979 by Individual Type of Contractor

Type of Contractor	Total Receivables Age	Total Payables Age	CASH FLOW			
			Billings	Retainage	Over-billing	Total
Concrete	68.9	46.7	18.3	6.4	-2.5	22.2
Electrical	71.6	38.6	27.2	8.3	-2.5	33.0
Excavation and Foundation	69.4	46.5	11.1	12.3	- .5	22.9
Floor Laying	66.1	51.1	6.5	8.6	- .1	15.0
Masonry	78.3	39.5	29.2	13.7	-4.1	38.8
Painting	63.0	31.9	30.4	2.6	-1.9	31.1
Plastering	71.1	36.6	26.9	8.5	- .9	34.5
Plumbing	72.9	53.1	14.4	9.9	-4.5	19.8
Roofing	65.1	39.9	21.3	6.4	-2.5	25.2
Structural Steel	79.3	42.4	25.0	11.9	0	36.9
Terrazzo	76.1	39.2	27.7	10.5	-1.3	36.9
Average of Specialty Contractors*	71.1	42.3	21.6	9.0	-1.8	28.8
General Contractor Commercial	60.1	52.3	4.1	5.7	-2.0	7.8

*The average was determined by adding up each value for the specialty contractors and dividing the number of these contractors. These average values are different from the average reported in Table C.4 because the first table averages were calculated in a different fashion.

Table C.6
The Effect of the Difference of Cash Demand Period
on Individual Specialty Contractor's Profits

Specialty Trade Contractor	Percent of Profits to Net Worth (1)	Sales to Net Worth (2)	Difference of Cash Demand of Special Trade as Compared to G.C. (3)	Percent of Difference(3) as Compared to Profits (4)
Concrete	37.1%	5.3	14.4 days	13%
Electrical	28.9	5.2	23.2	26
Excavation and Foundation	23.9	2.8	15.1	11
Floor Laying	31.1	5.9	7.2	8
Masonry	31.0	5.3	31.0	32
Painting	34.4	4.3	23.3	18
Plastering	39.1	12.5	26.7	52
Plumbing	27.4	5.6	12.0	15
Roofing	31.6	5.7	17.4	19
Structural Steel	30.4	5.3	29.1	17
Terrazzo Tile and Marble	29.6	5.4	29.1	32

EXAMPLE

(1) and (2) - These are the medium figure averages for 1979 and 1980 as reported in a Dun and Bradstreet reference (46).

(3) This is difference of cash demand for each specialty contractor's and the general contractor's average as shown in Table C.3

(4) This is the percent that the cost of cash demand is of the average profit amount.

$$\text{Cash Demand Cost} = \frac{\text{Col (3) (days)}}{\text{30 days/month}} \times \frac{1.833\%}{\text{month}} \times \text{Volume}$$

$$\text{Profits} = \text{Volume} \times \frac{\text{Col (1)}}{100} \times \frac{1}{\text{Col (3)}}$$

$$\text{Col (4)} = \frac{\text{cash demand cost}}{\text{profits}} \times 100\%$$

(note: the volumes divide out)

APPENDIX D

INTEREST COSTS ASSOCIATED WITH
LATE PAYMENTS AS CALCULATED
FROM DATA COLLECTED ON
SUBCONTRACTOR'S PROJECTS

INTEREST COSTS ASSOCIATED WITH LATE PAYMENTS AS CALCULATED FROM DATA COLLECTED ON SUBCONTRACTOR'S PROJECTS

Data was collected on five projects: one from a mechanical contractor, Subcontractor A; three from a flooring contractor, Subcontractor B; and one from an insulation contractor, Subcontractor C. The information collected and the results of calculations performed are presented for each project as Tables D.1 through D.5. Except for Subcontractor B's third project, the contractors were a subcontractor to general contractor and a ten percent retention was withheld in each of the projects. In the other project, Subcontractor C was a prime contractor; no retention was withheld. Except for the last project, the effects of late payment were analyzed for both progress and final payments. Only final payment was considered in the other project.

An interest rate of twenty-two percent was applied to the amount of payment due over the period of time that the payment were past due. Payment became past due if payment was not received within thirty days of the invoice date. Appropriate economic analysis were used to determine the interest costs (9). A daily interest rate was applied to those amounts which were less than thirty days past due. A compounded monthly interest rate was then applied to payments that became due more than thirty days. An example of this calculation is provided in Table D.6 for the reader's convenience.

The interest cost was then compared to the amount of profit that would normally be expected on any project. In order to make a comparison of each of the projects, it was assumed by the writer that the profit would be nine percent of the total contract price.

The writer's original intent was to collect data on the date that actual costs were incurred by the contractors. The date of the invoice does not reflect the date of actual costs. In the case of overbilling, a subcontractor will invoice the general contractor for more money than actual costs. The ledgers of the subcontractors were arranged such that it would have taken a considerable amount of time on their part to determine the difference between the date invoiced and date of actual costs. Although there are some differences, it is the opinion of the writer that only marginal benefits could have been obtained if actual cost data were collected. However, the purpose of demonstrating the effects of interest costs is still perserved.

Table D.1
Subcontractor A's Interest Cost

Date Invoiced (1)	Amount Du (2)	Date Paid (3)	Amount Paid (4)	Amount of Days Past Due (5)	Interest Cost (6)
6/18/79	4,496.22	8/16/79	4,496.22	28	76.80
7/19/79	13,494.78	9/04/79	13,494.78	15	123.48
8/17/79	23,831.10	10/04/79	23,831.10	18	261.67
9/20/79	8,363.70	4/30/80	8,363.70	190*	1,019.93*
11/20/79	5,576.58	4/30/80	5,576.58	130	456.84
		Subtotal - Progress Payment			1,938.72
2/28/80	6,195.80	4/30/80	1,880.37	31	34.49
		10/31/80	4,315.43	210	585.11
		Subtotal - Final Payment			619.60

Profit (9% of Total) = 5,576.22

Interest as % of Profits: 46%

* Example calculations of these values are shown in Table D.6.

Table D.2
Subcontractor B's Interest Cost on Project One

Date Invoiced	Amount Due	Date Paid	Amount Paid	Amount of Days Past Due	Interest Cost
6/19/79	$26,973.85	7/30/79	$26,973.85	11	$ 180.99
8/23/79	1,260.00	10/16/79	1,260.00	23	17.68
9/24/79	3,600.00	11/13/79	3,600.00	19	41.72
10/22/79	18,000.00	12/03/79	18,000.00	11	120.78
11/21/79	9,360.00	1/14/80	9,360.00	25	142.74
12/22/79	2,349.39	4/17/80	2,349.39	85	124.07
			Subtotal - Progress Payment		627.98
2/21/80	6,837.36	4/17/80	947.61	26	15.03
		7/16/80	2,367.16	115	170.69
		12/05/80	3,522.59	254	585.72
			Subtotal - Final Payment		771.44
Total	$68,373.60		$68,373.60		$1,399.42

Profit (9% of total)	$6,153.42
Interest Cost as a % of Profit	23%

Table D.3
Subcontractor B's Interest Cost on Project Two

Date Invoiced	Amount Due	Date Paid	Amount Paid	Amount of Days Past Due	Interest Cost
7/23/80	$32,400.00	9/25/80	$32,400.00	32	$ 532.45
8/20/80	4,535.00	9/25/80	4,535.00	5	14.14
			Subtotal - Progress Payment		660.73
8/25/80	4,115.00	9/25/80	2,057.50	0	0
		12/08/80	1,234.00	73	55.80
		3/10/81	823.00	165	86.49
			Subtotal - Final Payment		142.29
Total	$41,150.00		$41,150.00		$ 803.02

Profit (9% of total)	$3,703.50
Interest Cost as a % of Profit	22%

Table D.4
Subcontractor B's Interest Cost on Project Three

Date Invoiced	Amount Due	Date Paid	Amount Paid	Amount of Days Past Due	Interest Cost
12/26/80	$35,000.00	2/13/81	$35,000.00	17	$ 362.95
2/12/81	38,761.00	3/03/81	38,761.00	< 9>*	< 212.80>
Total	$73,761.00		$73,761.80		$ 150.15

Profit (9% of total)	$6,639.49
Interest Cost as a % of Profit	2%

*Actually, the subcontractor gained nine days of the use of his money and, thus, this is considered as an income or, as you will, a negative cost.

Table D.5
Subcontractor C's Interest Cost

Date Invoiced	Amount Due	Date Paid	Amount Paid	Amount of Days Past Due	Interest Cost 22%
1/30/81	$58,544.50	6/09/81	$25,000.00	98	$ 1,529.00
		9/01/81	33,544.50	180	3,862.00
			Final Payment Cost Only		5,391.00

Profit 9% of Total ($585,445)	$52,690.00
Interest Cost as a % of Profit	10%

Note: The reason for delay was issuance of two change orders:
March 18, 1981 for $11,525.00
July 2, 1981 for $12,850.00

Table D.6
Sample Calculations of Interest Costs
(Specific Example from Table D.1)

Data From Tables

Date invoiced	Column (1)
Date paid	Column (3)
Amount of payment	Column (4)
Number of days past due	Column (5)

Equations*

(1) Column (5) = Column (1) - Column (3) = ? days
(2) Number of Thirty Day periods = Eq (1) - 30 days rounded to integer (decimal dropped)
(3) Number of days less than a month = Eq (1) - Eq (2) x 30 days
(4) Monthly interest rate = annual rate (22%)/12 months = .01833
(5) Daily intrest rate = Eq (4)/30 days = .000611
(6) Interest cost for simple daily interest = Column (4) x Eq (3) x Eq (5) x Eq (2)
(7) Interest cost compounded monthly = $[\text{Eq (6)} + \text{Col. (4)}]\ [1 + \text{Eq(4)})^{\text{Eq(2)}} - 1]$
(8) Total interest costs = Eq (6) + Eq (7)

Sample Calculation

Data
Column (1) = 9/20/79
Column (3) = 4/30/79
Column (4) = $8,363.70
Column (5) = 190 days

Equation
Eq (1) = 190 days
Eq (2) = 190/30 = 6.3 (Rounded to integer = 6)
Eq (3) = 190/(6) (30) = 10 days
Eq (4) = .01833
Eq (5) = .00061
Eq (6) = $8,363.70 (10) (.00061) = $51.10
Eq (7) = $[\$51.10 + 3,363.70]\ [(1 + .01833)^6 - 1] = \$968.92$
Eq (8) = $51.10 + $968.92 = $1,020 (This is equal to the value in Column (6))

*The procedure to calculate both simple interest and compounded interest is available in many textbooks. The reference used by this writer is source 9.

APPENDIX E

SUBCONTRACTOR PURCHASE ORDER,

GENERAL CONTRACT PROVISIONS
USED BY PENNSYLVANIA
DEPARTMENT OF GENERAL
SERVICE

AND

PENNSYLVANIA LAWS PERTAINING
TO PAYMENT TERMS OF PUBLIC
CONTRACTS

SUBCONTRACTOR PURCHASE ORDER,

GENERAL CONTRACT PROVISIONS USED BY PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES AND PENNSYLVANIA LAWS PERTAINING TO PAYMENT TERMS OF PUBLIC CONTRACTS

This appendix consists of three Exhibits. The first Exhibit is a copy of a standard subcontractor purchase order used by one of the general contractors that the writer interviewed. The other two contain information on payment terms used by the Department of General Services and required by Pennsylvania Laws. The second exhibit contains payment provisions extracted from the contract documents, used by the Pennsylvania Department of General Services (reference 36 and 37). The third exhibit contains passage of the Pennsylvania laws that pertain to the awarding of and execution of Public Contracts as contained in Purdon's Pennsylvania Statutes Annotated (15).

Exhibit E.1 Subcontractor Purchase Order

Date _____ Project _____

To _____

_____

Gentlemen:

Enter our order to furnish for the above project all materials and/or perform all work, as described below, in strict accordance with the Drawings and Specifications for this project prepared by _____

For Furnishing: ☐ Labor ☐ Material ☐ Insurance ☐ Services

Terms: _____

Ship to: _____

Order must be started _____ and completed _____

To Subcontractor (or Vendor): Instructions on reverse side are part of this purchase order.

By: _____

Accepted by: _____

JOB SUPERINTENDENT

THE FOLLOWING INSTRUCTIONS AND CONDITIONS ARE A PART OF THIS ORDER AND MUST BE FOLLOWED EXPLICITLY

1. If materials and/or labor cannot be furnished in accordance with instructions, prices, terms, etc. on face of this order, you are to advise by return mail.
2. In filling this Purchase Order no changes shall be made as to quantities, qualities, prices, f.o.b. points, etc., except upon direct authority of our Purchasing Department. No extra will be paid unless you have a written order from this office.
3. Where deliveries are made through common carrier, enclose with each shipment, a tally or shipping memo giving all pertinent information.
4. All truck deliveries must be made between the hours of 8:00 A. M. and Noon. We reserve the right to refuse truck shipments.
5. Immediately upon shipment by common carrier, mail to the Project Office one copy of bill of lading or shipping papers and mail original to our Altoona Office.
6. Where shipments are made by your truck, or picked up by our truck, you shall present a delivery ticket in duplicate showing purchase order number, items, and quantities delivered. All delivery tickets must be signed by our representative, and you shall retain one copy of this duly signed delivery ticket.
7. Invoices shall be rendered for each and every purchase order separately. Invoices giving all pertinent information shall be presented to our Office at Altoona, Pennsylvania. All invoices shall be itemized as no payments will be made on statement. No items which are not included on the original purchase order or covered by a change order to the original purchase order shall be included on any invoice.
8. State your discount terms on the invoice.
9. For purchase orders involving material furnished and/or work performed at project site, by you, providing such provision is set forth in the contract specifications we will make monthly payments to the extent of 90% of the value of the work done and materials satisfactorily stored on the project site as may be certified to by the inspector. Where the contract specifications call for payment of 90% of the value of the work performed, excluding materials stored on the site, this condition will be part of this purchase order.
10. We reserve the right to withhold monthly payments from sub-contractors and/or suppliers, by reason of their unsatisfactory performance.
11. Where the Contract Specifications call for the submission of names and addresses of sub-contractors, labor, manufacturers and material suppliers, such names and addresses shall be furnished to our office, within two weeks after acceptance of this Purchase Order.
12. Where the Contract Specifications call for the submission of samples, such samples shall be prepared with proper labels and delivered to the project site, within two weeks after acceptance of this Purchase Order.
13. This order is subject to the approval of the Architect or Engineer. The Architect's or Engineer's decision as to the true construction and meaning of the Drawings and Specifications shall be final. It is also understood and agreed that such additional drawings and explanations as may be necessary to detail and illustrate your work shall be conformed to and abided by so far as they are consistent with the purpose and intent of the original Drawings and Specifications.
14. You understand and agree that you are to comply with and be governed by all provisions of the Drawings and Specifications, including General Conditions, Liquidated Damages, etc.
15. You are to furnish us immediately with, (A) three copies of insurance certificates covering Workmen's Compensation, Public Liability in an amount not less than ($1,000,000) and Property Damage in an amount not less than ($500,000/$1,000,000). (B) Automobile and Truck Insurance in an amount not less than ($500,000/$1,000,000) and Property Damage in an amount not less than ($1,000,000). If the Contract Specifications request insurance coverages higher than those indicated here, then the coverages listed in the Contract Specifications shall take precedence. These certificates must contain this hand signed clause: "This policy is not subject to change or cancellation by the company during its term unless ten days written notice prior to such change or cancellation be given all parties concerned by registered mail."
16. You are to furnish, in triplicate or as specified, all tests, shop drawings, guarantees, bonds, etc., called for in the Specifications.
17. You are to clean up and haul away from the job site all trash and rubbish caused by your work or workmen; if this is done by us, you will be backcharged for same.
18. All State and Federal Taxes applicable to materials or labor are included in this contract price and shall be paid for by you unless noted otherwise.
19. We reserve the right to cancel this Purchase Order if materials are not delivered as promised and specified.
20. Omission of any one or several of these conditions and instructions may be made only by specific reference to same on the face of this contract.

Exhibit E.2 General Contract Provisions

(unless otherwise noted, information was extracted from reference 36)

Section 63.63 PAYMENTS TO SUBCONTRACTORS

(a) The Contractor shall pay each Subcontractor, upon receipt of payment from the department, an amount equal to the percentage of completion allowed to the Contractor on account of such Subcontractor's Work. The Contractor shall also require each Subcontractor to make similar payments to his Sub-subcontractors.

(b) Each Subcontractor shall be entitled to and shall be paid in accordance with the reduction of the percentage for completion in accordance with Section 63.105(c) to the full extent applicable except for reasonable cause shown directly related to this contract.

(c) If the Department fails to issue a Certifcate for Payment for any cause which is the fault of the Contractor and not the fault of a particular Subcontractor, the Contractor shall pay that Subcontractor on demand, made at any time after the certificate for Payment should otherwise have been issued, for his Work to the extent completed, less the retained percentage.

(e) The Department may, on request and at its discretion, furnish to any subcontactor, if practicable, information regarding percentages of completion certified to the Contractor on account of Work done by such Subcontractor.

(f) Neither the Department nor the Professional shall have any obligation to pay, or to see to the payment of, any moneys to any Subcontractor except as may otherwise be required by law.

Section 63.105 PAYMENTS WITHHELD

(d) In no event will the Department reduce the retainage when punch list items remain to be completed in excess amount of the retainage. In such an event, the Department shall retain 1-1/2 times the estimated cost of completing the punch list items.

(1) The contractor shall be paid in full except as provided in Section 63.105 of the General Conditions within thirty (30) days following the date of substantial completion, less 1-1/2 times such amount as is required to complete any then remaining uncompleted items.*

(e) When upon final inspection, items of Work cannot be reasonably completed because of seasonal considerations, such as bituminous paving, landscaping, etc., or such items or facilities which the Department agrees to except until a subsequent date, or if the Department hold up the final estimate for any unreasonable length of time, the Department agrees to release payment to the Contractor less twice the dollar value of items on the punch list as mutually agreed upon by the Department and the Contractor, and less one and one-half times the dollar value of uncompleted parts of items of the type described herein.

Section 63.107 SUBSTANTIAL COMPLETION AND FINAL PAYMENT

(a) When the Contractor determines that the Work or a designated portion thereof acceptable to the Department is substantially complete, the Department's representative and the Contractor shall prepare for submission to the Professional and the Department a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance

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* This is a part of a recent change in the contract documents (reference 37).

with the Contract Documents. When the Professional and the Department on the basis of an inspection determine that the Work is substantially complete, the Professional will then prepare a Certificate of Substantial Completion, which shall establish the Date of Substantial Completion, shall state the responsibilities of the Contractor for maintenance, heat and utilities, and shall fix the time within which the Contractor shall complete the items listed therein, said time to be within the Contract Time unless extended pursuant to Section 63.93.

Exhibit E.3 Chapter 18A - Award and Execution of Public Contracts

(enacted by act 1978, Nov. 26, Public Law 1309, Number 317)

Section 1625 CONTRACT PROVISION FOR RETAINAGE

A public contract may include a provision for the retainage of a portion of the amount due the contractor to insure the proper performance of the contract except that the sum or sums withheld by the contracting body from the contractor shall not exceed 10% of the amount due the contractor until 50% of the contract is completed. The sum or sums withheld by the contracting body from the contractor after the contract is 50% completed shall not exceed 5% of the amount due the contractor on the remaining work: Provided, however, (remaining section omitted).

Section 1626 PAYMENT OF RETAINAGE TO SUBCONTRACTORS

In the absence of good and sufficient reasons, within 20 days of the receipt of payment by the contractor, the contractor shall pay all subcontractors with whom he has contracted their earned share of the payment the contractor received.

Section 1627 FINAL PAYMENT UNDER CONTRACT

A public contract containing a provision for retainage as provided in

section 5 shall contain a provision that the contractor shall be paid in full, except as provided in section 5, within 30 days following the date of substantial completion, less only 1 and 1/2 times such amount as is required to complete any then remaining, uncompleted, minor items, which amount shall be certified by the architect or engineer and upon receipt by the contracting body of any guarantee bonds which may be required, in accordance with the contract documents, to insure proper workmanship for a designated period of time. The certificate given by the architect or engineer shall list in detail each and every uncompleted item and a reasonable cost of completion. Final payment of any amount so withheld for the completion of the minor items shall be paid forthwith upon completion a designated period of time. The certificate given by the architect or engineer shall list in detail each and every uncompleted item and a reasonable cost of completion. Final payment of any amount so withheld for the completion of the minor items shall be paid forthwith upon completion of the items in the certificate of the engineer or architect (Section 1625 of this title).

Section 1628 INTEREST PAYABLE ON FINAL PAYMENT

The final payment due the contractor from the contracting body after substantial completion of the contract shall bear interest at a rate of 6% per annum after the date that such payment shall become due and payable to the contractor.

APPENDIX F

QUESTIONNAIRE AND RESULTS

QUESTIONNAIRE AND RESULTS

The following (Exhibit F.1 thru F.3) are copies of the questionnaires that were sent to the three groups surveyed. A definitive breakdown of the number of questionnaires sent and the number of responses that were obtained can be found in Chapter 6. The number and the percentage responding to each of the questions are listed in the parenthesis beside the appropriate response. Written answers to open-ended questions are presented in Appendix G. An example of cover letters that were sent to the specialty contractors is contained as Exhibit F.4. Similar cover letters were sent to the other groups.

Exhibit F.1. Specialty Contractor Questionnaire

Instructions: For the jobs that you were a:

a. Subcontractor to a G.C. or to a prime*, please answer questions 1 thru 10.
b. Prime contractor*, please answer questions 11 thru 13.

* A prime contractor refers to a contractor who is not a general contractor, but has a direct contract with the owner.

Mechanical and Electrical Contractors (18)

The approximate amount of the work that you were a
a. subcontractor is [49%] of which [30%] was public and [70%] was private work.
b. prime contractor is [51%] of which [55%] was public and [45%] was private work.

Other Contractors (20)

[82%] of which [35%] was public and [65%] was private work.
[18%] of which [31%] was public and [69%] was private work.

Total All Contractors (38)

[66%] of which [32%] was public and [68%] was private work.
[34%] of which [45%] was public and [55%] was private work.

Note: Forty-five contractors responded. Three Contractors worked on only private projects. There are 45 possible responses to questions relating to private projects and 42 responses to those relating to public projects. This pertains to the percentages determined in questions 4, 6 and 10.

PART I: SUBCONTRACTORS JOBS (ONLY)

Payment Problems

1. How often have you experienced payment problems in public or private work?

		Frequently	Sometimes	Rarely	
a. progress payment	- public	(16) [40%]	(19) [48%]	(5) [12%]	(check one)
	private	(12) [30%]	(22) [55%]	(6) [15%]	(check one)
b. final payment	- public	(30) [75%]	(8) [20%]	(2) [5%]	(check one)
	- private	(21) [58%]	(14) [39%]	(1) [3%]	(check one)

2. Which problem is the more serious payment problem?

Progress Payment	Final Payment	Both are very serious	Others
(3) [6%]	(21) [47%]	(21) [47%]	(0)

3. As compared to a general contractor, are payments made in a more timelier fasion from a

	Better than a G.C.	Worse Than a G.C.	About the Same
a. construction manager	(22) [52%]	(3) [8%]	(17) [40%]
b. prime contractor	(20) [56%]	(2) [6%]	(14) [39%]

4. For the times that you experienced payment problems, what were the reasosns and causes the problem? (Check the reasons for the ones that occur the most.)

	Progress Payment		Final Payment (retainage)	
	Public	Private	Public	Private
Owner is having problems financing job	(1) [2%]	(16) [36%]	(0)	(9) [20%]
Owner holding payment	(15) [36%]	(21) [47%]	(20) [48%]	(20) [44%]
G.C. holding payment	(13) [31%]	(28) [62%]	(13) [31%]	(22) [49%]
Prime holding payment	(4) [10%]	(9) [20%]	(2) [5%]	(8) [18%]
Architect slow in approving work	(10) [24%]	(9) [20%]	(8) [19%]	(8) [18%]
Other trades work are not complete	(13) [31%]	(11) [24%]	(16) [38%]	(15) [33%]
Multiple punch lists			(19) [45%]	(18) [40%]
Extra work extends date of completion			(20) [48%]	(12) [27%]
Other: Quality of inspection is poor	(1) [2%]		(1) [2%]	
Extra work not approved	(1) [2%]			
Administrative paper work	(1) [2%]			
Total other	(3) [7%]	(1) [2%]	(2) [5%]	(1) [2%]

5. If you anticipate payment problems from a particular owner or G.C., would you raise your bid for this job?

Yes	Sometimes	No	No, because I cannot remain competitive	I will not bid with them
(7) [16%]	(12) [27%]	(2) [4%]	(3) [7%]	(21) [47%]

Contract Documents

6. What type of Contract is usually used between you and the general contractor? (Check the ones that are used and circle the box for the one that is used the most in each column.)

	Public		Private	
	Used	Used the Most	Used	Used the Most
G.C.'s own Contract	(22) [52%]	(14) [33%]	(27) [60%]	(18) [40%]
No one particular form is used	(5) [12%]	(2) [5%]	(5) [11%]	(1) [2%]
AIA Doc. A401	(20) [48%]	(12) [29%]	(24) [53%]	(10) [72%]
AGC Standard Subcontract	(5) [12%]	(2) [5%]	(9) [20%]	(2) [5%]
1966 AGC-ASC Subcontract	(1) [2%]	(1) [2%]	(3) [7%]	(0)
Purchase Order	(6) [14%]	(2) [5%]	(18) [40%]	(4) [9%]
Other: (own proposed contract)	(1) [2%]	(1) [2%]	(1) [2%]	(0)

7. If the general contractor does not receive payment from the owner, and if it is not through any fault of your own, will you receive your payment on time from the G.C.?

(0) yes, most jobs
(15) [33%] sometimes
(6) [13%] no, about half the timev
(24) [53%] no

8. On most jobs, when do you receive your final payment (to include retainage)? (Check one. If the last one is checked, please enter the amount of days)

(2) [4%] shortly after my portion of the work is substantially completed
(12) [27%] shortly after all the work is completed
(31) [69%] _____ days after all the work is completed
enter amount

(2) [5%]	30	(4) [9%]	120
(5) [11%]	60	(1) [2%]	60 to 180
(1) [2%]	30 to 90	(2) [5%]	180
(4) [9%]	60 to 90	(1) [2%]	180 to 200
(6) [13%]	90	(2) [5%]	up to 1 year
(1) [2%]	60 to 120	(1) [2%]	too many
(1) [2%]	90 to 120		

CASH FLOW MANAGEMENT

9. How would you evaluate your efforts to manage cash flow?

Excellent	Good	Adequate	Poor	Do not try to manage
(6) [13%]	(26) [58%]	(10) [22%]	(2) [4%]	(1) [2%]

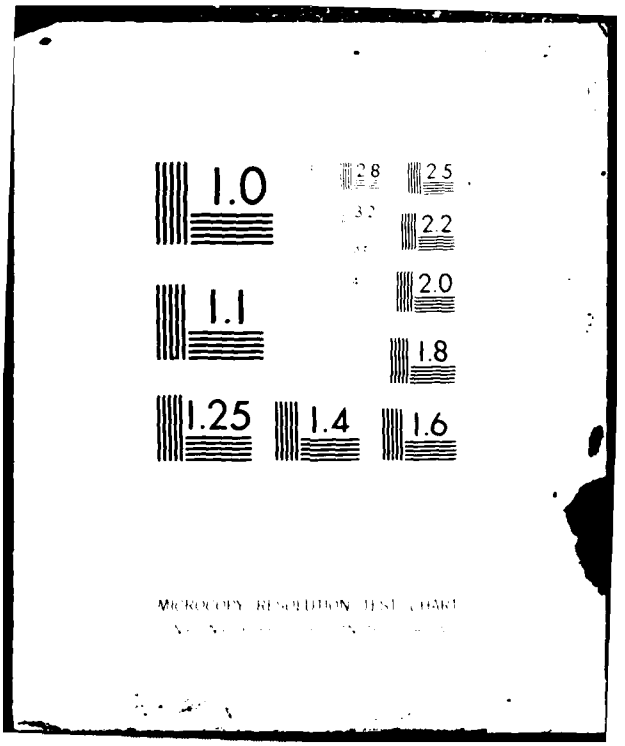
PREVENTION AND REMEDIES

10. How would you evaluate the effectiveness of the following in preventing payment problems or providing remedies to collect payment due?

AD-A116 339 ARMY MILITARY PERSONNEL CENTER ALEXANDRIA VA F/G 5/1
RECOMMENDATIONS TO MINIMIZE TIMELY PAYMENT PROBLEMS OF SUBCONTR--ETC(U)
MAY 82 T P KUCHAR

UNCLASSIFIED

3 OF 3
AD A
116339


1.0
1.1
1.25
1.4
1.6
2.0
1.8
2.2
2.5
MICROCOPY RESOLUTION TEST CHART

Place a number in the spaces provided for these activities which you have ever used.

	Public		Private	
Prevention	No. of Responses	Average Effectiveness Rating	No. of Responses	Average Effectiveness Rating
Negotiate for good contract payment terms	(26)	2.9	(36)	3.9
Credit checks on G.C.	(23)	2.7	(30)	3.2
Do not bid certain GC's	(24)	4.0	(33)	3.9
Business Practices Interchange	(14)	3.3	(23)	3.6
Remedies				
Follow-up when payment due (letters and telephone calls to G.C.)	(30)	3.6	(37)	3.6
Notify the Architect	(21)	2.2	(28)	2.5
Notify the Owner	(27)	2.7	(33)	2.9
Lien rights			(25)	2.3
Payment bond	(19)	2.5	(25)	2.4
Litigation	(19)	2.3	(26)	2.3
Arbitration	(18)	2.4	(23)	1.8
Stop work	(21)	3.3	(29)	3.4

PART II: PRIME CONTRACTOR JOBS (ONLY!)

(Note: Percentages are based on the thirty who responded to this portion.)

11. As compared to jobs that you were a subcontractor, did you experience less payment problems as a prime contractor.

Less problems as a prime	More problems as a prime	About the same
(25) [83%]	(0)	(5) [17%]

12. What type of contract document is usually used between you and the owner? (Check the ones that are used.)

	Public	Private
Owner's private form	(12) [40%]	(18) [45%]
No one type contract is usually used	(5) [13%]	(7) [18%]
ASC-Standard Form of Agreement between Owner and Contractor	(6) [15%]	(7) [18%]
AIA Form A101/A201	(7) [18%]	(7) [18%]
Others: (own forms)	(2) [5%]	(2) [5%]

13. What percent of your prime contract work is usually subcontracted out to others?

public work [11%] private work [12%]

PART III: COMMENTS (Optional)

(Six responded with comments.)

Exhibit F.2 General Contractor Questionnaire

The approximate percentage of the work, by volume, that you worked on

1. public work is 32 %.
2. private work is 63 %.

(Note: Twenty-two contractors responded. Five contractors worked on only private projects, whereas two contractors worked on only public projects. There are 17 possible responses to questions relating to public projects and 20 responses to those relating to private projects. This pertains to questions 1, 3, 4 and 5.)

The approximate percentage of your work that is subcontracted our to other trades is 63%.

Payment Problems

1. How often have you experienced payment problems in public and private work?

	Frequently	Sometimes	Rarely	
a. progress payment:				
public work?	(5) [29%]	(7) [42%]	(5) [29%]	(check one)
private work	(4) [20%]	(13) [65%]	(3) [15%]	(check one)
b. final payment:				
public work?	(8) [47%]	(7) [41%]	(2) [12%]	(check one)
private work?	(5) [25%]	(10) [30%]	(5) [25%]	(check one)

2. Which problem is the more serious payment problem?

Progress Payments	Final Payment	Both are very serious	Other (Please specify)
(0)	(9) [40%]	(10) [45%]	(3) [5%]

Note: The other responses specified: (1) percentage of progress; (2) get all subcontractors back to complete punchlist; and (3) extras.

3. For the time that you experienced payment problems, what were the reasons of the problems? (Check the appropriate reasons.)

	Progress Payment		Final Payment (Retainage)	
	Public	Private	Public	Private
Owner is having trouble financing the job	(0)	(3) [15%]	(1) [6%]	(3) [15%]
Owner holding payment for own use	(8) [47%]	(14) [70%]	(7) [41%]	(14) [70%]
Architect slow in approving payment	(4) [24%]	(5) [25%]	(3) [18%]	(5) [25%]
A portion of the work billed is not accepted	(4) [24%]	(4) [20%]	(5) [29%]	(5) [25%]
Overall approval process is slow	(10) [59%]	(8) [40%]	(8) [47%]	(6) [30%]
Multiple punch lists			(9) [53%]	(9) [41%]
Extra work extends the completion date			(4) [24%]	(5) [15%]
Other:	(1)	(2) [10%]	(0)	(2) [10%]

Contract Documents

4. What type of contract is usually used between you and the owner? (Check the boxes that apply.)

	Public Work	Private Work
AIA Doc. A101/A201	(8) [47%]	(16) [80%]
Dept. of Genral Service document	(6) [35%]	(0)
Owner's standard contract	(4) [24%]	(8) [40%]
Others	(1) [6%]	(4) [20%]

Note: Some answered more than once. The "others" included: 1) customized contract; 2) purchase order; and (1) NSPE document 1910-8-A-1-2.

5. What type of contract is usually used between you and the subcontractor? (Check the one answer in each column.)

	Public Work	Private Work
AIA Doc. A401	(0)	(2) [10%]
AGC Subcontract Form	(0)	(1) [5%]
1966 AGC-ASC Contract	(0)	(0)
Your own company contract	(14) [82%]	(15) [75%]
Purchase Order	(12) [71%]	(6) [30%]
Others	(0)	(0)

Note: Some answered more than once.

6. If the owner does not pay your progress payment, will you pay your subcontractors?

Yes	Sometimes	No	Depends upon the subcontractor	Yes, if I do not have to borrow money	Other
(4) [18%]	(10) [45%]	(2) [9%]	(10) [45%]	(4) [8%]	(0)

Note: Some answered more than once. Percentages are based on the twenty-two responses.

7. On most jobs, when do you pay the final payment (retainage) to your subcontractors?

a. (5) [23%] when the job is completed.
b. (15) [68%] when the subcontractor's work is complete and the owner releases that portion of the money due.
c. (2) [9%] when the subcontractor's work is complete but no money has been released from the owner.
d. (4) [18%] sometimes in case c above, because the subcontractor needs the money.

Note: Some answered more than once. Percentages are based on the twenty-two responses.

8. If the subcontractor tries to negotiate for better payment terms with you, will you usually accept these terms?

Yes	Sometimes	No	Never had a sub negotiate for me	Other
(3) [14%]	(11) [50%]	(4) [18%]	(3) [14%]	(1) [4%] (if cash discount involved)

9. For owners that you do not know anything about or for owners who you know are slow payers, in order to prevent payment problems, do you

	Yes	Sometimes	No
a. perform a financial credit check of the owner	(10) [56%]	(6) [33%]	(2) [11%]
b. require a certificate of adequate financing	(5) [33%]	(4) [27%]	(6) [40%]
c. will not work with certain owners	(13) [68%]	(3) [16%]	(3) [16%]

Direct Payment

10. Because of the high interest rates today, it is very important whether payment is made now or in a few days. Given this, would you favor a payment system whereby a lending institution or title insurance company would make direct payment to subcontractors? The approval process of payments would remain the same; i.e., you would have to approve payment. Subcontractors would have to submit lien waivers with each of the progress payments.

Yes	Maybe	No	Undecided	No Preference
(2) [9%]	(4) [18%]	(14) [64%]	(2) [9%]	(0)

If you answered no, would you please comment why.

(Fourteen individuals responded.)

Additional Comments (optional)

(Three individuals responded.)

Exhibit F.3. Architect Questionnaire

The percentage of the work, by volume, that you worked on

1. public work is [24%].
2. private work is [76%[.

Note: There are ten possible responses to questions relating to public projects and twelve responses to those relating to private projects. Thi pertains to questions 1, 3, and 5.

Payment Problems

1. To the best of your knowledge, how frequent are payment problems in public and private work?

	Frequently	Sometimes	Rarely	
a. progress payment:				
public work?	(4) [40%]	(3) [30%]	(3) [30%]	(check one)
private work	(2) [16%]	(5) [42%]	(5) [42%]	(check one)
b. final payment:				
public work?	(3) [30%]	(6) [60%]	(1) [10%]	(check one)
private work?	(4) [33%]	(7) [58%]	(1) [9%]	(check one)

2. Which problem is the more serious payment problem?

Progress Payments	Final Payment	Both are very serious	Other (Please specify)
(3) [25%]	(5) [42%]	(4) [33%]	(0)

3. For those times that payment problems occurred, what were the reasons of the problems?

	Progress Payment		Final Payment (Retainage)	
	Public	Private	Public	Private
Owner is having trouble financing the job	(0)	(3) [15%]	(1) [10%]	(0)
Owner holding money for his own use	(1) [10%]	(5) [41%]	(0)	(4) [33%]
General contractor is holding payment	(1) [10%]	(1) [8%]	(2) [20%]	(2) [17%]
Prime contractor is holding payments	(1) [10%]	(1) [8%]	(2) [20%]	(2) [17%]
Owner's approval process is very slow	(6) [60%]	(4) [33%]	(4) [40%]	(7) [58%]
A portion of the work billed is not acceptable	(7) [70%]	(8) [67%]	(6) [60%]	(7) [58%]
Multiple punch list requirements			(7) [70%]	(9) [75%]
Extra work extends the completion of the job			(3) [30%]	(3) [15%]
Other: (Reason a)	(1) [10%]	(1) [8%]	(0)	(0)
(Reason b)	(0)		(0)	(1) [8%]
(Reason c)	(1) [10%]	(1) [8%]	(1) [10%]	(1) [8%]
(Reason d)	(0)	(0)	(1) [10%]	(1) [8%]
Total other	(2) [20%]	(2) [17%]	(2) [20%]	(3) [25%]

Note: The following reasons were specified: a) postal system; b) misunderstandings related to work not in contract; c) owner unwilling to accept the fact that the architect decided when payments are due and payable; and, d) punch list items were not completed.

4. If a subcontractor is not getting paid and he informs either you or the owner, what would be the resulting action?

   (1) [92%] the G.C. or prime is quesitoned and usually the problem is settled.
   (2) [17%] usually the problem is not settled and payment is withheld to the G.C. or prime.
   (2) [17%] if the problem is not settled, payment will be made directly to the subcontractor.
   (2) [17%] usually the subcontractor does not notify anyone if he is having troubles.
   (1) [8%] usually the subcontractor is not getting paid for legitimate reasons.

Note: Some answered more than once.

Contract Documents

5. What type of contract is usually used between the owner and the general contractor or prime contractor?

	Public Work	Private Work
AIA Doc. A101/A201	(7) [70%]	(9) [75%]
Dept. of General Service document	(4) [40%]	(0)
Owner's standard contract	(3) [30%]	(3) [25%]
Others: (AIA Doc. 107, for small projects)	(0)	(1) [8%]

6. If a portion of the work billed is not acceptable, will the General Contractor or Prime Contractor get paid the corresponding amount billed?

   (2) [17%] Yes
   (6) [50%] Yes, and it will be specified by line item according to trade
   (3) [25%] No
   (1) [8%] Other (depends on circumstances and amount of money involved)

7. For a particular trade that is completed well before the end of a project, will that subcontractor's portion of the retainage be released (line item release of retainage).

   (0) yes

   (4) [33%] sometimes, depending upon the terms of the contract

   (8) [67%] no

8. Would you favor a line item (by trade or subcontractor) release of retainage?

   (2) [17%] yes
   (2) [17%] sometimes
   (8) [67%] no

   If you answered no, what were your reasons?

   (Eight responded with a comment.)

9. Because of the high interest rates today, it is very important whether payment is made now or in a few days. Given this, would you favor a payment system whereby a lending institution or title insurance company would make direct payment to subcontractors? The approval process of payments would remain the same; i.e., you would have to approve payment. General contractors and subcontractors would have to submit lien waivers with each of the progress payments.

Yes	Maybe	No	Undecided	No Preference
(4) [33%]	(1) [8%]	(5) [42%]	(1) [8%]	(1) [8%]

If you answered no, would you please comment why.

(Nine individuals responded with comments.)

10. Additional Comments (optional)

(Three responded with comments.)

Exhibit F.4 Sample Cover Letter

Dear Sir:

I am a graduate student of Pennsylvania State University working on my Masters of Engineering in Civil Engineering-Construction. My Master's Paper's topic is

Development of Recommendations to Minimize Payment Problems of Subcontractors in Both Private and Public Building Construction in Pennsylvania.

As part of my research, data and information of Pennsylvania Building Construction activities will be collected through questionnaires. One hundred (100) questionnaires have been sent out to PA Subcontractors. Two other sets of questionnaires have been forwarded to General Contractors and Architects.

The enclosed questionnaire has only ten questions. Your answers to the questions should pertain only to that portion of your total work that is related to building construction in Pennsylvania.

For the work, if any, in which you were the prime contractor, please answer the additional questions listed on the reverse side of the questionnaire.

Please return your response in the enclosed envelope within two weeks after receiving this letter.

Your cooperation is very much appreciated and needed.

A copy of my paper will be available at the Civil Engineering Department of Penn State and also will be forwarded to the three (3) American Subcontractors' Association Chapters in PA.

Thank you very much.

Sincerely,

Thomas P. Kuchar

TPK:mk

Enclosures

APPENDIX G

REPRESENTATIVE WRITTEN

COMMENTS

REPRESENTATIVE WRITTEN COMMENTS

This Appendix contains comments extracted from responses to the questionnaires. The number of written comments, and their length, makes a complete listing of the responses impractical. However, to insure that the feeling these comments portray is not lost, the writer has included a representative selection of the written responses. The responses are divided into five categories: (1) Comments of Architects indicating why they would not favor a line item release of retainage; (2) Comments of General Contractors and Architects indicating why why would not favor a direct payment system; and, (3-5) General Comments made by the three groups surveyed.

The responses chosen to be included in this Appendix were selected with the objective of portraying general trends and also of presenting those opinions that the writer felt were significant.

Exhibit G.1. Architect Comments Indicating Why They Would Not Favor Line Item Release of Retainage

Owners are interested in complete projects, not pieces. By withholding the G.C.'s payments, we have been able to stimulate the entire project.

There are no contractual obligations between an owner and subcontractor. It is the Prime Contractor's responsibility to pay his subcontractors, to confirm payments as per the AIA "Request for Payment" Forms.

Any premature release of retainage is the option of the general by using his own money. This office does not want to lose its bargaining power.

This is too cumbersome. Subcontractors who perform work early in the project are aware of their position and allow for this in their bidding.

Associated conflicts or faulty construction may not be evident until other work is performed. It will be difficult to get the subcontractor back.

Work may be damaged in the progress of other work. Inspection would be very difficult prior to final completion.

Too much paperwork. Frequently, the General Contractor will load the front of the job on the schedule of values. There is no effective way that an architect in CM can verify actual amounts.

Exhibit G.2. Comments Indicating Why the Architect or General Contractor Would Not Favor Direct Payment.

GENERAL CONTRACTORS

Because the subcontractors are agents solicited and selected by the G.C., the G.C. is responsible for their performance. This also applies to the G.C. surety. Direct payment could pose a myriad of problems (legal and practical). I would strongly resist a system such as this.

A G.C. must have control on each project or you would have subcontractors dealing with owners or different agencies on matters such as scheduling, extras, substituting materials and workmanship.

This would dilute the control (even if pyschological) that a G.C. has over the subcontractor to perform the work to the owner's best interests.

We believe this system would tend to complicate our records. We would prefer to make the payments ourselves. When our subcontractor's money is available, we usually telephone them and they can pick it up or instruct us to mail it to them.

Subcontractors would resist submitting lien waivers. Payment would be immediate upon approval from our office - and, therefore, faster. We prefer cancelled checks as a record of payment. Payment suggested would add one more complexity.

We pay our subcontractors quickly for completed work. Word gets around and, hopefully, subcontractor bids are lower because of this.

It's a paperwork nightmare to have an insurance company distribute to 50 or 80 vendors on one contract.

This direct payment arrangement occurs on a Construction Management Project. Under a typical G.C. project, loss of control of payments to subcontractors would jeopardize leverage on a subcontractor to perform.

ARCHITECT.

The normal contract is between the owner and prime contractor. A contract would have to exist between the owner and subcontractor before direct payment to subcontractor can be made.

The administration of even a small project is complicated enough without having additional responsibility and coordination time. For example, if we are responsible for approving subcontractor payment, phone calls will be made to us rather than to the G.C.

There is usually mix-ups, such as overpayments, when there is no single individual in control.

Exhibit G.3. General Comments Made By Subcontractors.

In the 24 years of being in the business, I think getting paid for the work completed has been the biggest problem to me as a subcontractor.

The business climate is the major factor in payment problems. In good times, our money comes faster and we are able to negotiate good terms. In tough times, '74, '78 and the present, jobs are difficult to get and good payment terms are even more difficult. You collect your money only by constantly calling and making sure your paperwork is absolutely correct. Everything has to be in order so that there is no excuse for not being paid.

Whether being a Prime or a Sub, timeliness of payment should be evaluated from time of work performed, and not just when invoiced. Some clients, G.C. or owners, complicate and drag out the approval process, but pay promptly once invoicing is actually authorized. Relatively new emphasis on "cost control" and "automated" systems are somewhat responsible for this phenomenon.

The lien laws must be changed. As far as subcontractors in PA are concerned, there is no lien right. In order to get a job, you must waive your rights at the contract signing.

Retainage has to be eliminated. The general contractor should not have control of payments to subcontractors.

A system of direct payment would greatly aid in the solving of this problem.

Exhibit G.4. General Comments Made By General Contractors.

In my opinion, too many contractors operate on the subcontractor's money. I would be in favor of a law that would require a contractor to pay the subcontractor when the subcontactor's work is completed, instead of paying him from the final proceeds. This would help the subs and eliminate many fly-by-night contractors."

It has been my personal experience that payment is forthcoming from an owner that is directly proportionally related to the quality and promptness of the work that is performed. Public works' payment is slower because of the channels required for an invoice to travel through that agency. However, a public works project will pay like clockwork, be it three weeks, five weeks, etc.

The smart contractor does not always bid every job, especially those with slow payers and 'tough inspectors or lawyers'. Some owners and architects never have the same contractor twice.

Exhibit G.5. General Comments Made By Architects.

Owner does not select the subcontractor, therefore he should not be responsible to him.

Usually public work is very slow in payment because of the cumbersome contractual procedures. This forces the contractors to borrow money and results in higher bids on public work. This is especially true in the current economic environment.

I think your questionnaire should indicate the yearly construction dollar volume because payment problems increase at a direct proportion to the amount of dollar volume.


DATE
FILME
7-8