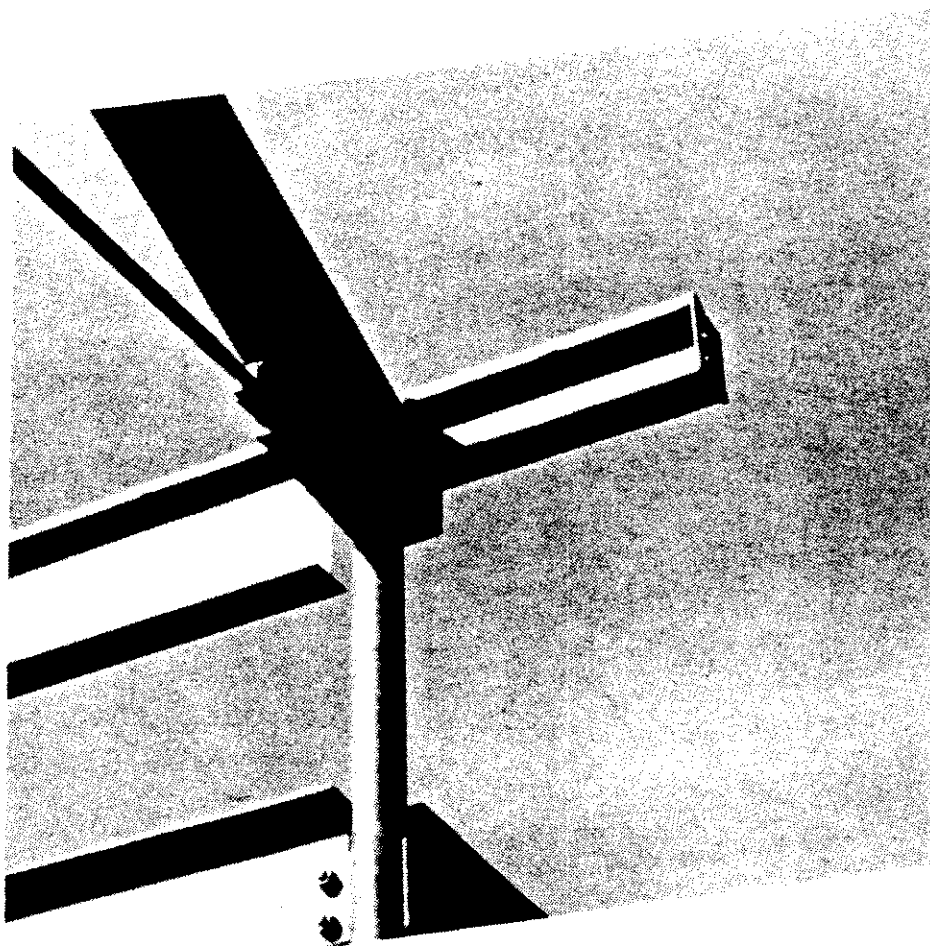


TECHNICAL PUBLICATION NO. 84

**CHANGE ORDER SYSTEMS FOR IMPROVED
PRODUCTION AND PROFIT**

**SPONSORED BY A GRANT FROM THE BUILDING CONSTRUCTION
INDUSTRY ADVISORY COMMITTEE**



**By: Dr. Carleton Coulter, III
Mr. Charles A. Kelley
Mr. George Clark**

**School of Building Construction
University of Florida**

1992

WORKSHOP FOR THE SMALL-TO-MEDIUM SIZE CONTRACTOR

R 89-15 REVISED

CHANGE ORDER SYSTEMS FOR IMPROVED PRODUCTION AND PROFIT

PREPARED BY

DR. CARLETON COULTER III, PROFESSOR
PRINCIPAL INVESTIGATOR

MR. CHARLES A. KELLEY
CO-INVESTIGATOR AND GRADUATE RESEARCH ASSISTANT

MR. GEORGE WILLIAM CLARK, JR.
GRADUATE RESEARCH ASSISTANT

M.E. RINKER, SR. SCHOOL OF BUILDING CONSTRUCTION
UNIVERSITY OF FLORIDA (FAC 110)
GAINESVILLE, FLORIDA 32611

SPONSORED BY

FLORIDA BUILDING CONSTRUCTION INDUSTRY ADVISORY COMMITTEE

FALL 1992

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Sr. Secretary
University of Florida

EXECUTIVE SUMMARY

This short course is one of four workshops recommended for funding by the Florida Building Construction Industry Advisory Committee (BCIAC) to the State of Florida Commissioner of Education. Funds come from the set aside of the contractor's licensing fee for research and continuing education.

The BCIAC recommended development of four courses to constitute a continuing education program for the small and medium contractor. The courses are: (1) Construction Productivity Improvement, (2) Safety and Loss Control, (3) Change Order Estimating and Control, and (4) Contractor Financial Management.

Intent

The courses are intended to be taught on a regular basis by institutions eligible for BCIAC continuing education funding. Contractor associations, especially smaller chapters in conjunction with community colleges, can use the BCIAC materials to improve member education.

Scope

The table of contents provides details on the course's scope. Each course consists of a course manual and a video tape. The manual's main components are an introduction, each hour's instructional materials with case study problems and solutions, blank forms, and notes for the instructor, including lesson plans.

A brief but thorough video segment introduces the course and each lesson's important items. The video is intended to supplement the course instructor or moderator. As a minimum, a moderator is necessary for soliciting student comments and reviewing each hour's problems and solutions.

Methodology

The courses were developed in three phases over the following academic periods.

Precontract Phase (Summer 1990 - Spring 1991). During the recontract phase, a tentative course outline was prepared. Contact was made with small and medium contractors in Boca Raton, Gainesville, Jacksonville, Orlando, Sarasota, Tampa, Vero Beach, and West Palm Beach to ascertain their needs and ideas for inclusion in the course. Graduate Research Assistants (GRA) reviewed the literature and prepared preliminary course material.

Research Phase (Summer 1991 - Fall 1991). During the research phase, contractors were recontacted on specific questions and additional suggestions were solicited and the material revised. The format is similar to the continuing education courses of the Construction Industry Institute (CII). The materials were field tested at the Continuing Education Division, University of Florida and the Florida East Coast Chapter of Associated General Contractors of America, Inc.

Development Phase (Spring 1992 - Fall 1992). During the development phase, the research materials, including a supporting video tape, were completed and reviewed by the BCIAC.

Investigators

The principal investigator was Dr. Carleton Coulter III, Professor, M.E. Rinker, Sr. School of Building Construction, University of Florida. The co-investigator was Charles A. Kelley. Graduate students developing course materials were: Mark Meeske, Construction Productivity Improvement; John V. Ward, Jr., Safety and Loss Control; William Clark, Change Order Processing and Control; and Charles A. Kelley, Contractor Financial Management.

Acknowledgements

Appreciation is expressed to the BCIAC coordinators who freely gave of their time to review the materials and suggest improvements. BCIAC coordinators for the course materials were: Bruce Simpson (Vice Chairman of the Board, The Crom Corporation) for Construction Productivity Improvement, Safety and Loss Control, and Contractor Financial Management; and Mr. Thomas Mack (State Director, Florida Home Builders Association), Mr. Clifford Storm (Director, The Broward County Board of Rules and Appeals), and Mrs. Celeste Valdez (Vice President, Kalemeris Construction, Inc.) for Change Order Processing and Control. Forms are courtesy of JAC Construction Consultants, Palm Beach Gardens, Florida.

Obtaining Copies

A copy of this report and accompanying video may be obtained by contacting: Executive Secretary, BCIAC, M.E. Rinker, Sr. School of Building Construction, FAC 101, University of Florida, Gainesville, Florida, 32611, 904/392-5965.

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INTRODUCTION**OBJECTIVES**

1. **INSTRUCTOR'S BACKGROUND**
2. **STUDENTS' BACKGROUND**
3. **GETTING YOUR MONEY'S WORTH**
4. **ADMINISTRATION**
5. **COURSE OBJECTIVES**

Spend a brief period introducing each other and learning what each participant wishes to learn from the course.

INSTRUCTOR'S BACKGROUND

1. **NAME, POSITION, AND COMPANY**
2. **TYPE OF CONSTRUCTION OF CURRENT COMPANY**
3. **OVERALL EXPERIENCE**
4. **QUALIFICATIONS FOR MODERATING THIS COURSE**

STUDENT'S BACKGROUND

1. NAME, POSITION, AND COMPANY
2. TYPE OF CONSTRUCTION OF CURRENT COMPANY
3. OVERALL EXPERIENCE
4. REASONS FOR ATTENDING THIS COURSE
5. EXPECTATIONS UPON COMPLETING THIS COURSE

Some of the most valuable suggestions come from attenders like yourself. Make this a better course by contributing your ideas with respect to each lesson's material.

GETTING YOUR MONEY'S WORTH

1. WRITE IN YOUR MANUAL IMPORTANT "TIPS" FROM THE INSTRUCTOR OR STUDENTS
2. HIGHLIGHT IMPORTANT ITEMS IN THE MANUAL
3. PARTICIPATE BY ASKING AND ANSWERING QUESTIONS
4. WORK IN GROUPS, INCLUDING HELPING OTHER GROUP MEMBERS
5. BRING UP CONCERNS OR PROBLEMS DURING CLASS OR AT BREAKS
6. INFORM INSTRUCTOR AT A BREAK IF COURSE CONTENT IS NOT WHAT IS EXPECTED
7. TRY TO GET AT LEAST ONE GOOD IDEA PER LESSON THAT YOU CAN TAKE BACK TO USE IN YOUR COMPANY

The instructor/moderator cannot read your mind. If the material does not meet your needs, please mention what you wish to know. The information is adaptable to most small contractors. You may have some special needs. The instructor can show you how to use the proposed ideas in your company or make other suggestions that may serve your needs.

ADMINISTRATION

1. COMPLETE THE REGISTRATION FORM
2. BREAKS ARE MID-MORNING AND MID-AFTERNOON
3. SMOKING OUTSIDE OF CLASSROOM IN DESIGNATED SMOKING AREAS
4. LUNCH TIME - USUALLY AN HOUR
5. NOTIFY INSTRUCTOR IF LEAVING EARLY
6. COMPLETE COURSE EVALUATION
7. RECEIVE ATTENDANCE CERTIFICATE

COURSE OBJECTIVES

1. Modifications
2. Your Change Order Rights
3. Contract Documents
4. Processing Prior to Change Orders
5. Initiation Phase
6. Estimating and Pricing Phase
7. Negotiation Phase
8. The Change Order Policy

The course covers the eight major topics listed above. Remember, try to get at least one good idea each lesson to improve your company's bottom line.

The complexity of course material application can be tailored to the size and specific requirements of the individual business concern.

Look for concepts to consider and apply, as well as the specific techniques discussed.

The presentation order of the material is not a consideration, all the topics (objectives) are interrelated and should be considered in a total context.

The course generally follows the use of the American Institute of Architects (AIA) general conditions regarding change orders. However, the course stresses universal principles that apply to other types of construction, such as residential building that might not always use the AIA general conditions. In cases where the course specifics do not apply to your construction adapt the letters and other ~~language~~ type of contracting.

Note: Throughout this course "COC" shall mean "Change Order Control".

LESSON #1 - MODIFICATIONS**OBJECTIVES**

1. PRIMARY CAUSES OF DELAYS AND COST OVERRUNS
2. MODIFICATIONS
3. CHANGE ORDER PROBLEMS

This workshop begins with a brief introduction on the importance of changes, their definitions, and some of the common problems associated with change estimating and processing.

Because many times contractors have lost money on changes smaller contractors feel that there is nothing that can be done to make changes profitable. Take heart! Some firms consistently make money on changes, regardless of the job, and do so year-after-year. These profitable contractors have set up a system that works for them to estimate and process each changes.

Keep an open mind throughout the course. Take what will work for you and adapt it to your type of contracting. And here's hoping you increase the bottom line.

COC PROFIT TIP #1

**KNOWLEDGEABLE CONTRACTORS CAN MAKE MORE PROFIT BY PROPER
CHANGE ORDER PROCESSING THAN BY SECURING THE LOWEST
SUBCONTRACT PRICE**

Each chapter has a profit tip. The workshop's tips concern Change Order Control (COC). These tips come from contractors who are profitable year-after-year. Some of these firms have been in business for decades and some are in their second and third generation of ownership. Use this common sense wisdom at the start of each chapter to increase profit margins, regardless of what you took the job at.

If you sincerely believe you will make a profit on changes there is every chance you will. If you are doubtful, please keep an open mind. Look for at least one good tip or idea in each lesson. By spotting a good idea and making it work, you will recoup your investment in this course and in time become more profitable.

MAJOR SOURCES OF DELAYS AND COST OVERRUNS

1. 45% - DESIGN PROBLEMS IN CONTRACT DOCUMENTS
2. 35% - CHANGE ORDER ESTIMATING AND CONTROL PROBLEMS
3. 15% - SUBCONTRACTOR AND SUPPLIER SELECTION AND COORDINATION
4. 5% - POOR QUALITY CONTROL AND FAILED INSPECTIONS

National studies indicate that the above causes are the primary reasons for lost profits from delays and cost overruns. Notice that the major cause is due to design problems, such as incomplete drawings or errors and omissions. Closely related and the second major cause is change orders estimating and control problems.

The profitable contractor learns to deal with changes in a systematic manner, so that the company receives every dollar it is entitled to -- no more, no less.

1. In your experience what are the major sources of delays and cost overruns?
2. Do you feel that these problems can be overcome or will we always experience these problems and there is nothing that can be done?

MODIFICATION

A MODIFICATION TO THE CONTRACT FOR CONSTRUCTION IS A CHANGE TO THE CONTRACT, AFTER INITIAL EXECUTION OF THE ORIGINAL CONTRACT, WHICH CHANGE HAS BEEN DISCUSSED, UNDERSTOOD, AND MUTUALLY AGREED BY THE PARTIES TO THE CONTRACT (OR DISAGREED IN THE CASE OF A CHANGE DIRECTIVE)

EXAMPLE: CHANGE ORDER, CONSTRUCTION CHANGE DIRECTIVE, OR CLAIM

Notice that a modification can be a change, a change directive, or claim. You will learn about each in this course. Regardless of the original source of the contract modification, the same principles apply to arrive at a fair and equitable scope, price, and time.

1. Are any of these terms new to you?
2. Have you ever been associated with a change, change directive, or claim?

CHANGE ORDER

A CHANGE ORDER IS A MODIFICATION (CHANGE) TO THE CONTRACT FOR CONSTRUCTION (THE AGREEMENT) AFFECTING THE SCOPE, PRICE, OR SCHEDULE, OR SOME COMBINATION OF SCOPE, PRICE OR SCHEDULE

EXAMPLE: REMOVE 20 FT. OF WALL IN ORIGINAL CONTRACT. REBUILD IN ANOTHER LOCATION (SCOPE) FOR AN INCREASE OF \$500 TO THE ORIGINAL CONTRACT AMOUNT (PRICE), AND NO CHANGE TO ORIGINAL COMPLETION DATE (SCHEDULE)

A change is later incorporated into the contract as a modification. Notice that the change must contain the three elements of a construction contract: scope, price, and time. If any of these elements are missing you have an incomplete and possibly an invalid (non-legal) change.

1. Do you always check to see that every change answers the question of scope, price, and time?
2. What should you do if there is no change to an item? For example, that it is understood that there is no need for an extension to the original contract time?

CONSTRUCTION CHANGE DIRECTIVE

A CONSTRUCTION CHANGE DIRECTIVE IS ISSUED FOR A CHANGE WITHIN THE ORIGINAL SCOPE OF WORK WHEN THE OWNER (OR HIS REPRESENTATIVE, SUCH AS THE ARCHITECT) AND CONTRACTOR ARE NOT IN MUTUAL AGREEMENT AS TO THE TIME AND/OR MONEY REQUIRED FOR THE CHANGE

- THE OWNER MAY ISSUE A CONSTRUCTION CHANGE DIRECTIVE IN LIEU OF A CHANGE ORDER IF MUTUAL AGREEMENT AS TO TIME AND/OR MONEY CAN NOT BE REACHED
- THE CONTRACTOR MUST PROCEED WITH A CHANGE DIRECTIVE AS HE WOULD A CHANGE ORDER

EXAMPLE: THE OWNER AND CONTRACTOR CANNOT AGREE ON THE PRICE FOR REMOVING AND REBUILDING THE WALL IN ANOTHER LOCATION. AT THIS INSTANCE, THE OWNER CAN DIRECT THAT THE CONTRACTOR PROCEED WITH THE WORK UNDER THE PROVISIONS OF A CHANGE DIRECTIVE

In this workshop, where appropriate, the term change order also includes the term construction change directive. The new AIA general conditions call for a construction change directive. Change directives are bound to become used more due to differences between the owner, designer and the contractor as to what is in the original scope of work and what is a legitimate change.

Actually, the change directive can work to the contractor's advantage, but only if the method of accounting for these costs is agreed to before hand.

1. Is your accounting system sufficient to handle each new change as a separate item in costing labor, materials, equipment, and subcontracts?
2. Do modern automated accounting systems lessen the contractor's burden in accounting for costing of directed changes?

CLAIMS

THE CONTRACTOR MAY FILE A CLAIM FOR THE ADDITIONAL TIME AND/OR MONEY HE FEELS IS DUE WITH RESPECT TO A CHANGE DIRECTIVE

EXAMPLE: THE CONTRACTOR'S CLAIM WILL BE FOR THE DIFFERENCE BETWEEN THE AMOUNT OFFERED BY THE OWNER AND THE AMOUNT THE CONTRACTOR BELIEVES IS DUE FOR THE CHANGE

Claims occur as the result of difference between the owner and contractor regarding scope, price, and time. It is very important that you follow the contract provisions on change notification. Failure to follow the notification provision of when you notify the owner and reply to a request for proposal will negate or lose your claim rights. In other words, by failing to follow the notification provisions you lose your contract right of adequate reimbursement.

The best time to clear up any misunderstanding regarding notifications is prior to contract signing. After an agreement has been reached you can make an amendment to the contract before signing. The new edition of the AIA general conditions gives detailed deadlines regarding the claim process.

On residential work to avoid claims to the owner for non-payment of changes, it is recommended that the contractor be paid before commencing work, or amend the contract and/or loan agreement and place the money in escrow. Being paid up front or placing the money in escrow avoids default in payment that is difficult to collect at final payment. Regardless of type of construction, you should include the portion of the change order work accomplished in your monthly pay request.

1. What are your contract provisions regarding time?
2. Does your contract have notification provisions?

CHANGE ORDER DOCUMENTATION

1. CHANGE ORDER PROPOSAL
2. SUPPORTING DOCUMENTATION
 - SCOPE OF WORK
 - DRAWING OR SKETCH
 - ESTIMATE
 - QUOTES
 - INVOICES
 - SCHEDULES

Change order documentation is something that the contractor must always do. Unlike the original contract documents where you normally have sufficient plans and specification to calculate a price, changes usually have insufficient information on which to make your estimating accurate at the original contract bid and price.

By setting up a system that helps produce each change's documentation, you lessen the risk of missing a construction item that you will not be paid for. In later lessons you will learn how to request and develop the documentation to lessen the risk of pricing and contract modification.

CHANGE ORDER PROBLEMS

1. **SCOPE OF WORK**
 - LACK OF DEFINITIVE SCOPE
 - MISUNDERSTOOD SCOPE
 - MISSING ITEMS
 - INCOMPLETE SCOPE
 - NEW CONTRACT SCOPE

2. **PRICE**
 - INADEQUATE PRICING
 - MISSING PRICES
 - INCORRECT SUBCONTRACTOR MARKUP
 - MISSING GENERAL CONDITIONS ITEMS
 - INCORRECT GENERAL CONTRACTOR MARKUP

3. **SCHEDULE**
 - APPROVAL DELAYS
 - UNFORESEEN SCHEDULE DELAYS
 - PROBLEM WITH DISRUPTIVE CHANGES
 - PRODUCTIVITY DELAYS
 - CLAIMS FOR EXTENSION OF TIME

Above are some of the major problems associated with arriving at an answer to scope, price, and time.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Problem #1: Identifying Change Problems**

You are the owner of a small construction firm grossing \$3-to-\$5 million in annual reviews. The company does small homes and commercial remodeling. The average job is \$150,000. In December, the bookkeeper reports that the company has averaged only 1% net profit on changes. The general superintendent lists the following problems for the low profit margin.

For each problem list a possible solution, even though it may not be possible at this time. Compare your problems and solutions with those of your fellow attenders.

Problem	Solution
A. SCOPE OF WORK	
1. Lack of definitive scope	-----
2. Misunderstood scope	-----
3. Missing item	-----
4. Incomplete scope	-----
5. New contract scope	-----
B. PRICE	
1. Inadequate pricing	-----
2. Missing prices	-----
3. Incorrect subcontract markup	-----
4. Missing general conditions	-----
5. Incorrect G.C. markup	-----
C. SCHEDULE	
1. Approval delays	-----
2. Unforeseen schedule delays	-----
3. Disruptive changes	-----
4. Delayed productivity	-----
5. Time extension claims	-----

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Solution #1: Identifying Change Problems**

Compare your problems and solution with those below. Share your view with those of the rest of the class.

Problem	Solution
A. SCOPE OF WORK	
1. Lack of definitive scope	First agree on scope
2. Misunderstood scope	Use sketches and photos
3. Missing item	Review scope with subcontracts
4. Incomplete scope	Meet with owner and designer
5. New contract scope	Revise or renegotiate contract

Problem	Solution
B. PRICE	
1. Inadequate pricing	Check/recheck items & totals
2. Missing prices	First analyze the change
3. Incorrect subcontract markup	Markup subcontract item
4. Missing general conditions	Use master checklist
5. Incorrect G.C. markup	Contract standard markup

Problem	Solution
C. SCHEDULE	
1. Approval delays	Meeting times in contract
2. Unforeseen schedule delays	Analyze the change
3. Disruptive changes	Charge for disruptions
4. Delayed productivity	Charge for lost productivity
5. Time Extension claims	Reserve time rights

LESSON #2 - YOUR CHANGE ORDER RIGHTS**OBJECTIVES**

1. RIGHTS OF THE OWNER, DESIGNER, GENERAL CONTRACTOR, AND SUBCONTRACTOR.
2. RESPONSIBILITIES OF THE OWNER, DESIGNER, GENERAL CONTRACTOR, AND SUBCONTRACTOR.
3. REMEDIES OF THE OWNER, DESIGNER, GENERAL CONTRACTOR, AND SUBCONTRACTOR.

This lesson explains your contract obligations regarding change orders. Knowing your contractual rights, responsibilities, and remedies is very often overlooked by contractors. Yet, knowledge of the contract obligations can be your valuable ally in systematic estimating and processing of changes. Let us explain.

There are only two parties to the contract: the owner and the contractor. However, the designer is linked to the primary contract by means of a contract with the owner. As you know, to get all of these parties to work together is difficult. The process does work when all three parties correctly perform their rights, responsibilities, and remedies.

This chapter will help you understand how to deal with changes contractually. Armed with this knowledge you can process changes correctly and promptly.

COC PROFIT TIP #2

KNOW YOUR RIGHTS, RESPONSIBILITIES, AND REMEDIES IN THE CHANGE ORDER PROCESS FOR EACH CONTRACT.

The key words in the above profit tip are "each contract". Each contract is unique to its job. Even though contracts use the same standard contract language, such as the AIA General Conditions, it still is a different contract. It is different because the three parties to the contract are different. The new general contractor, owner, and designer bring to the contract different views as to how changes should be executed.

One of the most important things in change order processing is to realize that each party is different and may not know how to perform so as not to violate your rights, responsibilities, and remedies. If you have a thorough understanding of the contract you can educate the other parties. This lesson reviews the three party's contract rights.

OWNER'S RIGHTS

1. INITIATE CHANGE ORDER REQUEST
2. APPROVE ALL CHANGE ORDERS
3. REQUIRE CONTRACTOR TO PERFORM CHANGE

The owner has the ultimate responsibility to initiate a change order. Sometimes, however, the contractor will submit a change order proposal. This right also entails timely approval of necessary changes. The owner's rights include the timely execution of the work and right of inspection and approval of the work.

A major shortcoming of owners is their inability to recognize their role in the change order process. Early on, sometimes even before contract signing, you must raise the issue to the owner regarding everyone's change order responsibilities. These Agreements and understands are incorporated into the contract in the form of amendments, preconstruction conferences, meeting minutes, and correspondence.

1. Have you ever had a situation where the owner has delayed change order approval and this delay cost you money?
2. Do you think this could have been prevented if there was a better understanding of the approval process prior to contract signing?

OWNER'S RESPONSIBILITIES

1. GRANTING THE CONTRACTOR'S REASONABLE REQUEST FOR TIME AND/OR MONEY.
2. PAY FOR WORK PERFORMED.

The root of all problems and disputes in construction is the lack of money. Contractors may make the mistake of doing work without an approved change order and subsequently not getting paid. You are under no obligation to do the work without a signed agreement for the change and have assurance that the owner will pay.

Getting paid for changes is the same as getting paid for the original contract. This is to say, you have to set inspection times for the owner and designer to approve the work and promptly pay. The best way to ensure payment is to include the undisputed costs of the change in the application for payment.

1. Have you known of any contractor who has done work without an approved change order and did not get paid?
2. How could this have been avoided so the contractor did not lose money?

OWNER'S REMEDIES

1. **NEGOTIATE**
2. **ARBITRATE**
3. **LITIGATE**

In the event of a dispute, the owner has the right to negotiate, arbitrate, or litigate. It is recommended that you avoid going to court. The only people that win in court are attorneys because they get paid regardless of the outcome. Smart contractors, owners, and designers are aware of this and try to avoid conflicts by negotiation. If negotiating fails to solve the conflict a less expensive and more common alternative is to refer the matter to arbitration.

Read the contract and know the owners remedies on handling disputes. Whenever possible, negotiating change orders is best during regularly scheduled meetings with the owner and designer.

1. Do you believe most contractors, owners, and designers realize it is in their best interest to stay out of court?
2. Have you been involved with a dispute that ended up in court? Is it still pending?

DESIGNER'S RIGHTS

1. INITIATE CHANGE ORDER REQUEST
2. RECOMMEND DESIGN CHANGES
3. PROVIDE INITIAL ESTIMATE

Designers also need to know that they play a key role in the change order approval process. While they may not provide the design or the estimate for the change, designers must provide sufficient information to the contractor so he can sketch and estimate the change.

Designers do not normally have the money to process change orders. This may require that the contractor explain to the owner the necessity of the designer to provide design assistance so the change can be properly estimated and approved. One way to do this is to inform the owner that delays by the designer will result in further change orders or claims for time lost and/or extension of time.

DESIGNER'S RESPONSIBILITIES

1. PROVIDE IMPARTIAL, FAIR, AND RESPONSIBLE COUNSEL TO THE OWNER WITH RESPECT TO CHANGE ORDERS
2. ACT AS AN IMPARTIAL, FAIR, AND RESPONSIBLE MEDIATOR BETWEEN THE OWNER AND CONTRACTOR WITH RESPECT TO CHANGE ORDERS
3. ISSUE APPROVED CHANGE ORDERS
4. INSPECT AND ACCEPT THE WORK PERFORMED PURSUANT TO CHANGE ORDERS
5. APPROVE REQUESTS FOR PAYMENT PURSUANT TO CHANGE ORDERS

The previous discussion focused on the designer's rights. In order for the designer to have rights he must execute his responsibilities. The contractor, in contract negotiation and preconstruction conferences, needs to inform the owner and the designer as to the time limits for processing change order proposals, information, inspections, etc. Again, any delays may result in additional cost to the owner. The contractor must make the owner aware of possible damages due to the designer's non-performance of his responsibilities before the contract signing.

The best way to do this is to include in the contract a statement such as:

"The designer will approve or disapprove all proposal requests within 5 working days of receipt. Changes affecting the critical path will be approved or disapproved within 3 working days."

Finally, AIA documents have the architect as third party interpreter with respect to changes. Residential work may not use the AIA documents and have reference to third party interpretations. Therefore some means has to be agreed upon beforehand on how changes will be interpreted and agreed upon. The best method is to modify the contract that the contractor will be the final arbitrator of changes to the contract such as:

"Changes to the contract may be recommended by the owner, designer, or contractor. The contractor will be the sole arbitrator as to the scope of the changes, modifications of the contract, and method of payment."

DESIGNER'S REMEDIES

1. NOT APPLICABLE - DESIGNER IS NOT A PARTY TO THE CONTRACT.

The designer is responsible for the performance and enforcement of the obligations of the parties to the contract. However, since the designer is not a party to the contract he has no remedies. Further, all correspondence from the contractor and the owner should be sent directly to the owner. To ensure that this is understood the following statement should be included in the contract:

"The contractor's correspondence will be only to the owner with a copy to the designer".

This notifies the owner to be responsible for the performance of the designer.

In the case of a claim, the designer can seek damages from the owner due to the contractor's non performance. Non performance on the contractor's part might be late delivery of information and proposal.

CONTRACTOR'S RIGHTS

1. INITIATE CHANGE ORDER REQUEST
2. RECEIVE SUFFICIENT NOTICE AND INFORMATION
 - FOR TIMELY AND ADEQUATE ESTIMATING
 - FOR PERFORMING THE WORK
3. RECEIVE TIMELY PAYMENT
4. CLAIM ADDITIONAL TIME AND/OR MONEY
5. NOT REQUIRED TO PERFORM WORK BEYOND ORIGINAL SCOPE

Like the owner and designer, the contractor has the right to initiate a change order. It is the designer's responsibility to prepare the proper documentation. Many times this proposal is the result of problems discovered during the construction process.

Contractors can protect their rights by following the notification process as stated in the contract. But before you can do this you must read and understand the contract.

1. Are changes usually initiated by the contractor, owner, or designer?
2. Who is in the best position to forecast or spot the likelihood of a potential future change, the owner, contractor, or designer?

CONTRACTOR'S RESPONSIBILITIES

1. PROVIDE REASONABLE PRICING AND REQUESTS FOR EXTENSIONS
2. PERFORM THE WORK IN ACCORDANCE WITH CHANGE ORDERS

It is the contractor's responsibility to draw a sketch of the pending change order and to accurately estimate the change. Whenever possible, the contractor should obtain a minimum of three quotes or verify the quotes of subcontractors. Accurate pricing indicates due diligence by the contractor in securing the correct price for the work.

The contractor needs to establish a systematic way to obtain quotes regarding change orders. If you can provide accurate prices to the owner and designer they are more likely to approve the change order because they will understand your figures.

1. What happens if the owner wants you to use the lowest price quote but you recommend not using it for reasons of quality?
2. What are your rights and remedies in this situation?

CONTRACTOR'S REMEDIES

1. **NEGOTIATE**
2. **ARBITRATE**
3. **LITIGATE**

The contractor's remedies are the same as the owners. Again, avoid going to court because only the attorneys to both parties become the financial winners.

SUBCONTRACTOR'S RIGHTS

1. INITIATE CHANGE ORDER REQUEST
2. RECEIVE SUFFICIENT NOTICE AND INFORMATION
 - FOR TIMELY AND ADEQUATE ESTIMATING
 - FOR PERFORMING THE WORK
3. RECEIVE TIMELY PAYMENT
4. CLAIM ADDITIONAL TIME AND/OR MONEY
5. NOT REQUIRED TO PERFORM WORK BEYOND ORIGINAL SCOPE

The subcontractor's rights are the same as the prime contractor. In order to ensure these rights, however, the general contractor must set up the change order process. It is the subcontractor's responsibility to make sure that the general contractor has protected his rights, such as timely submittal of quotes. Otherwise, the subcontractor may lose the right to collect damages.

These rights are best protected by subcontract amendments. Subcontractor rights are further detailed during preconstruction conferences documented in the minutes of the meetings. It is worthwhile for the subcontractor to raise the issue before subcontract signing. The subcontractor is already selected by the prime contractor, and subcontracts become part of general contractor's negotiations.

SUBCONTRACTOR'S RESPONSIBILITIES

1. PROVIDE REASONABLE PRICING AND REQUESTS FOR EXTENSIONS
2. PERFORM WORK IN ACCORDANCE WITH CHANGE ORDERS

It is the subcontractor's responsibility to prepare any information needed by the contractor and ultimately by the owner and the designer. The subcontractor knows what is required to make the proposed change, therefore, he is to sketch and estimate the change. The contractor will support the subcontractor's request provided it can be justified.

1. What is the best way for the general contractor to obtain subcontract quotes?
2. What has to be considered by the contractor and subcontractor during the change quote phase?

SUBCONTRACTOR'S REMEDIES

1. **NEGOTIATE**
2. **ARBITRATE**
3. **LITIGATE**

Again, negotiation and arbitration are the best alternative to settling contractor/subcontractor disputes. Most attorneys do not understand the construction process, therefore, they may be acting as your representative on something they are not familiar with. You are your best counsel in a remedy situation, but make certain you have sufficient documentation to reinforce your rights.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Problem #2: Owner, General Contractor, Subcontractor Rights and Responsibilities

You are the owner of a small construction firm. After having listed some of your major problems and solutions, you decide to get in your mind the rights and responsibilities of yourself, the owner, and the subcontractor. For each of the item listed identify the corresponding right and responsibility. Compare your answer with the solution and that of your fellow attenders.

GENERAL CONTRACTOR/OWNER RELATIONSHIP

General Contractor's Rights

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Owner's Responsibilities

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

General Contractor's Responsibilities

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Owner's Rights

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

CONTRACTOR/SUBCONTRACTOR RELATIONSHIP

General Contractor's Rights

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Subcontractor's Responsibilities

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

General Contractor's Responsibilities

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Subcontractor's Rights

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Solution #2: Owner, General Contractor, Subcontractor Rights and Responsibilities**

Compare your solution with those listed below. Share your views with those of the rest of the class.

GENERAL CONTRACTOR/OWNER RELATIONSHIP**General Contractor's Rights**

1. Initiate C.O. request

2. Receive timely C.O. notice

3. Receive adequate info.

4. Submit pay request

5. Receive timely payment

General Contractors's Responsibilities

1. Timely response

2. Timely compliance to C.O.

3. Comply with C.D.

4. Perform C.O.

5. Document costs

Owner's Responsibilities

1. Process request promptly

2. Give timely consideration

3. Give adequate info.

4. Approve pay request

5. Pay in timely manner

Owner's Rights

1. Initiate C.O.

2. Approve C.O.

3. Require C.D.

4. Have C.O. performed

5. Have costs documented

GENERAL CONTRACTOR/SUBCONTRACTOR RELATIONSHIP

General Contractor's Rights

1. Initiate C.O.

2. Receive reasonable price

3. Do not work beyond scope

4. Require C.O. quotes

5.

General Contractor's Responsibilities

1. Process request

2. Give adequate info.

3. Pay in timely manner

4. Approve claims

5. Comply with specs.

Subcontractor's Responsibilities

1. Timely compliance

2. Provide reasonable price

3. Comply with specs

4. Estimate C.O.

5.

Subcontractor's Rights

1. Initiate C.O. request

2. Receive adequate info.

3. Receive timely payment

4. Claims for more time

5. Do not work beyond scope

LESSON #3 - CONTRACT DOCUMENTS**OBJECTIVES**

1. **POTENTIAL PROBLEMS AND PROSPECTIVE CHANGES ASSOCIATED WITH CONTRACT DOCUMENTS**
2. **CHANGE ORDER PROVISIONS OF THE PRIME CONTRACT**
3. **CHANGE ORDER PROVISIONS FOR SUBCONTRACTS**

One of the most prevalent problems associated with change orders is the misunderstanding of the contract by contractors. The first step in understanding the contract is reading the contract. This lesson will discuss methods in which the contractor can improve the ways in which he looks at and interprets the contract provisions with respect to change orders.

COC PROFIT TIP #3

READ THE CONTRACT, STUDY THE CONTRACT, UNDERSTAND THE CONTRACT, AND FOLLOW THE CONTRACT

This profit tip is one of the most valuable in this course. As a contractor, you should always read, study, and understand the contract. Many contractors rush to signing the contract before reading and understanding its provisions.

Many problems arise because the contractor in haste to construct and does not follow the contract. If either party, owner or contractor, does not follow the contract there is no longer a contract. Follow the contract. If you cannot follow the contract ask for changes.

1. Have you ever signed a contract before have reading it?
2. Have you ever deviated from a contract? What happened?

PRELIMINARY TO THE CONTRACT

1. REVIEW CONTRACT DOCUMENTS FOR CHANGE PROCESSING REQUIREMENTS
2. REVIEW SPECIFICATIONS AND DRAWINGS FOR POTENTIAL PROBLEMS LEADING TO CHANGE ORDERS
3. LIST ALL PROBLEMS AND NOTIFY OWNER OR GENERAL CONTRACTOR

Each contract is unique to a particular job, therefore, you must always read and understand the provisions in the contract. Pay particular attention to the change order provisions. If the change order processing requirements are not followed you will lose your right to a claim.

By reviewing the specifications and drawings the contractor will be able to determine where there might be possible change orders. If you provide the owner with this information at the beginning of the job, you have put the owner on notice of future changes, thereby protecting your rights. Also, the designer is put on notice so he can make the necessary revisions early on in the project.

PRIME CONTRACT

1. INCORPORATE CHANGE ORDER POLICY AS A CONTRACT ADDENDUM
2. ADHERE TO THE CHANGE ORDER POLICY
3. INCLUDE PROVISION LIMITING CONTRACTOR'S OBLIGATION TO ESTIMATE CHANGE ORDERS WITHOUT COMPENSATION
 - REQUIRES OWNER AND DESIGNER TO THOROUGHLY CONSIDER INITIATING CHANGE ORDER
 - LIMITS THE CONTRACTOR'S EXPOSURE TO THE TIME AND COST OF OPEN-ENDED ESTIMATING OF CHANGE ORDERS
 - ESTIMATING LIMITS CAN BE EXPRESSED IN DOLLAR AMOUNTS OR A PERCENTAGE OF THE CONTRACT SUM
 - ESTABLISH AN HOURLY FEE FOR ESTIMATING CHANGES BEYOND THE ESTIMATING LIMITS
4. SPECIFY CHANGE ORDER REPRESENTATIVES AND LIMITS OF THEIR AUTHORITY

An area where designers and contractors may disagree is the change order provisions of the contract. A solution to this problem is to include, as part of the contract, your company's change order policy. This ensure's that all parties are aware of the policy and that it is followed by everyone.

Many profit dollars are lost because contractors do not get paid for estimating change orders. It is common practice to estimate changes totaling 5% of the cost of the job at no cost to the owner. For example, you would estimate at no cost on a \$100,000 contract \$5,000 in approved or unapproved change orders. All changes estimated above \$5,000 is paid for by the owner.

0% - 5% of job cost	Normal
5% - 10% of job cost	Above Normal
> 10% of job cost	Burdensome

Agree beforehand on what you will estimate at no cost and the price of estimating work above this percentage and include this in the contract.

Figure 3.1 Letter to Subcontractor Regarding Submittals

TO: _____

DATE: _____ 19____

PROJECT: _____

NO: _____

ATTN: _____

SUBCONTR/P.O. NO: _____

SUBJECT: SUBMITTAL REQUIREMENTS
 SECTION(S) _____

GENTLEMEN:

THE FOLLOWING ITEMS ARE REQUIRED TO BE SUBMITTED BY THE CONTRACT PLANS AND SPECIFICATIONS. ANY ITEM OMITTED BY YOU DOES NOT RELIEVE YOU OF THE REQUIREMENT. THIS LIST IS FOR YOUR CONVENIENCE ONLY AND IS NOT MEANT TO BE A COMPLETE LIST.

___ CERT. OF INSURANCE	___ INSTALLATION INSTRUCTIONS
___ PERFORMANCE BOND	___ DEL. TIME AFTER APPROVAL
___ LAB. & MAT. PAYMENT BOND	___ ERECTION/INSTALLATION TIME
___ CERTIFIED PAYROLL REPORTS	___ TEST/TEST RESULTS
___ SHOP DRAWINGS; ___ COPIES	___ GUARANTEES/WARRANTIES
___ ERECTION DRAWINGS; ___ COPIES	_____
___ PRODUCT SPECIFICATIONS	_____
___ EMPLOYER EEO REPORTS	_____

IF YOU DO NOT POSSESS THE NECESSARY PLANS AND SPECIFICATIONS, PLEASE CONTACT THIS OFFICE IMMEDIATELY. COPIES OF THE CONTRACT, PLANS, SPECIFICATIONS, ALL APPROVED SHOP DRAWINGS OF ALL SUBCONTRACTORS, AND THE PROJECT CONSTRUCTION SCHEDULE ARE AVAILABLE AT THE JOB SITE FOR INSPECTION.

PLEASE INCLUDE OUR JOB NUMBER AND YOUR CONTRACT NUMBER AS INDICATED ABOVE ON ALL JOB CORRESPONDENCE RELATING TO THIS PROJECT.

THANK YOU FOR YOUR COOPERATION.

VERY TRULY YOURS,

PROJECT MANAGER

CC: PROJECT SUPERINTENDENT

Figure 3.2 Letter to Subcontractor Requesting Change Order Quote

TO: _____ DATE: _____ 19____

 RE: (JOB NO.)
 (JOB NAME & DESC.)
 SUBJECT: (C.O. FILE NUMBER)
 (CHANGE DESCRIPTION)

MR. (MS.) _____ :

ATTACHED IS THE (ATTACH ENCLOSURES NECESSARY TO PRICE THE CHANGE).

IF THE CHANGE DOES NOT AFFECT YOUR TRADE SUBMIT A WRITTEN NOTICE TO THIS OFFICE CONFIRMING NO CHANGE IN CONTRACT TIME OR PRICE.

IF THE CHANGE AFFECTS YOUR TRADE PLEASE SUBMIT:

____ PRICE TO COMPLETE THE CHANGED WORK
 ____ ANY APPLICABLE CREDIT FOR CONTRACT WORK
 ____ ALL SUBSTANTIATING LABOR AND MATERIAL BREAKDOWNS
 ____ MATERIAL AND EQUIPMENT DELIVERY TIMES AFTER C.O. APPROVAL
 ____ TIME REQUIRED TO PERFORM WORK
 ____ WORK OF ANY OTHER TRADE AFFECTED
 ____ ALL CONDITIONS REQUIRED TO PERFORM THE WORK
 ____ ALL OTHER APPLICABLE INFORMATION

PLEASE REFER TO (INSERT GENERAL CONDITIONS ARTICLE OR SUBCONTRACT ARTICLE REFERENCE) FOR THE PROPER FORMAT AND REQUIRED LEVEL OF DETAIL. IF YOU HAVE ANY QUESTIONS CONTACT ME IMMEDIATELY.

FAILURE TO PROVIDE THE NECESSARY INFORMATION IN A TIMELY MANNER WILL RESULT IN A PRICE BEING ASSIGNED TO YOUR WORK.

VERY TRULY YOURS,

PROJECT MANAGER

CC: PROJECT SUPERINTENDENT

Figure 3.3 Letter to Subcontractor Regarding C.O. Price Assignment

TO: _____

 DATE: _____ 19____
 RE: (JOB NO.)
 (JOB NAME & DESC.)
 SUBJECT: (C.O. FILE NUMBER)
 (C.O. DESCRIPTION)
 C.O. PRICE BY DEFAULT

MR. (MS.) _____:

YOUR CONTINUED FAILURE TO RESPOND TO REPEATED REQUESTS FOR CHANGE ORDER QUOTATIONS IS NOW DELAYING PROJECT CLOSE-OUT AND GENERATING UNNECESSARY AND EXCESSIVE OVERHEAD EXPENSES. IF YOUR PRICE IS NOT RECEIVED BY (TWO DAYS AFTER ABOVE DATE) A CHANGE ORDER PRICE WILL BE ASSIGNED FOR YOU IN THE AMOUNT OF (\$). AT THAT TIME THE FILE WILL BE CLOSED AND THERE WILL BE NO OPPORTUNITY FOR FURTHER REVIEW.

BE ADVISED THAT ANY DAMAGES DUE TO YOUR LACK OF ATTENTION WILL BE BACK CHARGED TO YOUR ACCOUNT. ALL RIGHTS ARE RESERVED TO CLAIM ALL DAMAGES RESULTING FROM YOUR UNTIMELY RESPONSE.

PLEASE TAKE NOTICE.

VERY TRULY YOURS,

PROJECT MANAGER

CC: PROJECT SUPERINTENDENT

SUBCONTRACTS

1. INCORPORATE CHANGE ORDER POLICY AS PART OF SUBCONTRACT
2. INCORPORATE INTO SUBCONTRACT ANY PROVISIONS OF PRIME CONTRACT THAT REFLECT WORK BY SUBCONTRACT
3. ADHERE TO POLICY
4. OBLIGATE SUBCONTRACTORS TO ESTIMATE CHANGES
 - ESTABLISH TIME LIMITS FOR SUBCONTRACTORS TO RESPOND TO A REQUEST FOR QUOTE
 - INCLUDE PROVISION FOR ASSIGNING A PRICE BY THE GENERAL CONTRACTOR IF SUBCONTRACTOR FAILS TO RESPOND IN A TIMELY MANNER
5. REQUIRE SUBCONTRACTORS TO SUBMIT DETAILED SCHEDULE OF VALUES
 - FOR PRICING
 - FOR SUBCONTRACTOR PAYMENT REQUESTS
 - FOR ASSIGNING A PRICE BY GENERAL CONTRACTOR
6. INCLUDE SUBCONTRACTOR'S LIABILITY
7. SPECIFY SUBCONTRACTOR'S REPRESENTATIVES AND LIMITS TO THEIR AUTHORITY

Subcontractors are bound not only by their subcontract with the general contractor but also by the prime contractor's contract with the owner. Subcontractors should also read and understand both contracts, especially the change order provisions.

The best way to ensure that subcontractors are following the correct procedure is to include the prime contractor's change order policy in the subcontract. The policy should require the subcontractor to provide timely quotes. Additionally, the contractor should include a provision that states:

"Failure to submit a change order estimate in a timely manner will result in the contractor assigning a price for the work"

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Problem #3: Identifying Contract Problems and Solutions**

Recalling your most recent jobs or previous jobs you have been associated with list several contract provisions that lead to problems. Propose your solutions.

Problem**Solution****A. SCOPE OF WORK**1. -----
-----2. -----
-----3. -----
-----4. -----
-----5. -----
-----**Problem****Solution****B. PRICE**1. -----
-----2. -----
-----3. -----
-----4. -----
-----5. -----
-----**Problem****Solution****C. SCHEDULE**1. -----
-----2. -----
-----3. -----
-----4. -----
-----5. -----

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Solution #3: Identifying Contract Problems and Solutions**

Compare your problem and solution with those listed below. Share your views with the those of the rest of the class.

Problem	Solution
A. SCOPE OF WORK	
1. Definition of scope	Concise definition of scope
2. Drawings and specs	Put owner and A/E on notice
3. Work between subs	C.O. defines each subcontract
4. No drawings	C.O. requires drawings
5. No specifications	C.O. requires specifications

Problem	Solution
B. PRICE	
1. Inadequate C.O. estimating	Sequential C.O. estimating
2. Bid qualifications	Pre-qualify subcontractors
3. Bid alternatives	Approve alternatives
4. Supplier schedule of values	Require schedule of values
5. Sub schedule of values	Require schedule of values

Problem	Solution
C. SCHEDULE	
1. Time frame for approvals	Initiate deadlines
2. Extensions of time	Approve necessary extensions
3. Provisions for delay	Initiate penalties
4. Substantial completion	Require date
5.	

LESSON #4 - PROCESSING PRIOR TO CHANGE ORDERS

1. **KNOW HOW CHANGE ORDERS ARE INCORPORATED INTO THE PRECONSTRUCTION CONFERENCE**
2. **KNOW AND UNDERSTAND CHANGE ORDER NOTIFICATION PROCEDURES**
3. **KNOW AND UNDERSTAND WHAT AN EMERGENCY CHANGE ORDER IS**

It is the contractor's responsibility to ensure that all parties to the contract understand the change order process. Many times profit is lost due to incorrect procedures on the part of the contractor. With this in mind, the contractor will include, as part of the preconstruction conference meeting, the procedures that he expects each party to follow concerning change orders.

As stated in previous lessons, the contractor must read and understand the contract. The contractor can protect his rights by understanding the notification procedures regarding change orders.

In the event of an unforeseen situation the contractor must know whether it can be classified as an emergency change order. The contractor must know the rationale, procedure, and pricing policy regarding an emergency change order.

1. Are you aware that you can require the other parties to the contract follow your change order policy?
2. Do you know where your contract specifies notification procedures?

COC PROFIT TIP #4

**ADDRESS THE CHANGE ORDER PROCESS AT THE PROJECTS
COMMENCEMENT, THEN STICK TO THE FORMAL CHANGE ORDER
PROCESS THROUGHOUT THE PROJECT**

The change order process is outlined in detail during the preconstruction conference. In addition, all parties to the contract are required to understand and follow the process. This enables each party to know what their responsibilities are regarding the change order process.

1. How many times are you aware of that the change order process was interrupted because the policy not adhered to?
2. Was the interruption corrected?

PRECONSTRUCTION CONFERENCE

1. **ATTENDERS**
2. **AGENDA**
3. **REVIEW THE PRECONSTRUCTION CONFERENCE CHECKLIST**

The preconstruction conference allows the parties to the contract the opportunity to communicate with each other what is expected during the course of the project. The owner or owner's representative, designer, contractor, subcontractors, and major suppliers are usually required to be in attendance at the conference. Because change orders are inevitable, the discussion on change orders is always part of the agenda.

1. Who should attend the preconstruction conference?
2. Are change orders a normal part of the preconstruction conference agenda?

REQUIRED NOTIFICATIONS

1. LETTER OF AUTHORITY
2. CHANGE ORDER LOG
4. STANDARD CONTRACT AMENDMENTS

Before construction begins on a project each person must be made aware of the others responsibilities and authority by means of a letter. This letter of authority provides the names of legal representatives and is distributed to each party to the contract. With this information, each party is made aware of who can initiate and approve change orders.

As with any submittal, change orders must be tracked with the use of a change order submittal log. This is necessary for the contractor to protect his change order rights. A change order is a modification that becomes part of the contract and documentation of the change is critical.

1. Who should submit a letter of authority?
2. Who should receive a copy of the letter of authority?

Figure 4.1 Contract Authority Letter

TO: (OWNER)

RE: (JOB NO.)
(JOB NAME & DESC.)

DATE: _____ 19 _____

SUBJECT: CONTRACT AUTHORITY

DEAR MR. (MS.) _____:

THE CONTRACT PROVIDES CERTAIN AREAS OF AUTHORITY TO THE OWNER AND THE OWNER'S REPRESENTATIVE. IN THE OWNER'S ABSENCE, WE EXPECT THAT AN ON-SITE REPRESENTATIVE BE PROVIDED TO INSURE THE CONTRACT IS EXECUTED IN A TIMELY MANNER.

WE EXPECT FULL COOPERATION FOR THE OWNER'S REPRESENTATIVE.

WE DO NOT EXPECT ANY INTERFERENCE WITH OUR SUPERVISORS OR FIELD FORCES. WE EXPECT THAT THE REPRESENTATIVE WILL ACT AS THE OWNER'S "EYES AND EARS" AND THAT HIS ROLE WILL BE PREDOMINANTLY A REPORTER TO THE OWNER. DIRECTIONS TO CHANGE METHODS AND MATERIALS WILL NOT BE ACCEPTED UNLESS WE ARE INFORMED EXPRESSLY IN WRITING THAT HE HAS THE AUTHORITY TO ISSUE DIRECTIONS.

IF AUTHORITY IS GIVEN, WE ARE INSTRUCTED TO PERFORM IN A MANNER CONTRARY TO THE SPECIFICATIONS, WE WILL CONSIDER IT A CONSTRUCTION CHANGE DIRECTIVE, AND WILL ACT AS WE WOULD TO A FORMAL WRITTEN CHANGE, AND EXPECT PAYMENT IN THE TIME PROVIDED.

THE PROFESSIONAL AND TIMELY EXECUTION OF THE ON-SITE REPRESENTATIVE'S RESPONSIBILITIES ARE ESSENTIAL TO TIMELY COMPLETION, AND ARE ESSENTIAL TO THE AVOIDANCE OF DAMAGES CAUSED BY DELAYS.

WE EXPECT THAT ALL PARTIES RECOGNIZE THAT "TIME IS OF THE ESSENCE" IN CONSTRUCTION AND THIS CONTRACT, THAT WE HAVE ENTERED INTO SUBCONTRACTS, AND DELAY ON ANY PART MAY SUBJECT THEM TO DAMAGES. THIS ESPECIALLY APPLIES TO APPROVALS, SUBMITTALS, WORKING DRAWINGS, AND INSPECTION FOR PAYMENT.

WHERE VAGARIES EXIST IN THE SPECIFICATIONS IT IS THE OWNER'S RESPONSIBILITY TO CLEAR THEM UP IN A TIMELY MANNER SO THAT THE WORK CAN PROCEED AS ESTIMATED. FAILURE BY PARTIES TO SUPPLY TIMELY INFORMATION TO MAINTAIN CONSTRUCTION PROGRESS CAUSES DELAYS AND IS SUBJECT TO DAMAGES.

VERY TRULY YOURS,

PRESIDENT

CC: PROJECT FILE
DESIGNER

EMERGENCY CHANGE ORDER

1. RATIONALE OF AN EMERGENCY CHANGE ORDER
2. EMERGENCY CHANGE ORDER PROCEDURE
3. PRICING AN EMERGENCY CHANGE ORDER

A circumstance that precludes the time allowed for processing a change order might be adverse weather conditions such as a hurricane or tornado. In this situation an emergency change order is initiated with the mutual agreement of all parties. It is understood that the change order is in the best interest of the project. In the event of a hurricane, material may not be available in the future and the contractor advises the owner to approve a change regarding purchasing the necessary material.

An emergency change order is orally approved by the owner, designer, and contractor. Its initial documentation is annotated to show the date and time of the oral approval and the designer immediately commences with the written documentation. Included with the written documentation are drawings, specifications, pricing policy, and other pertinent information.

The contract specifies the pricing policy for an emergency change order. All labor, materials, subcontracts, etc. shall be billed at cost and the contractor's profit is a predetermined percentage of the cost.

1. What circumstances would call for an emergency change order?
2. Have you ever been involved with a situation that involved an emergency change order?

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Problem #4: Circumstances requiring an emergency change order**

You are the owner of a small construction firm. You have experienced many situations that delayed and increased the costs of your jobs; many of which were beyond your control. These may have called for an emergency change order. List the circumstances that would require an emergency change order.

CIRCUMSTANCE

1.

2.

3.

4.

5.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Solution #4: Circumstances requiring an emergency change order**

Compare your answers with those listed below. Discuss your answers with the rest of the class.

CIRCUMSTANCE

1. Hurricane necessitates extraordinary measures to protect existing work resulting in additional expenses and lost time. Additional expenses resulting from the extra time
2. A strike by workers at the steel fabrication plant creates the possibility that required steel will not be available in the future. This necessitates placing the order now, resulting in additional costs due to storage
3. Excessive rain creates a cave-in of an open excavation for the foundation requiring clean-up and sheeting and shoring. This results in additional expenses for additional material and lost time
4. Bankruptcy of structural concrete subcontractor during the the period of large structural concrete pours requires hiring a new subcontractor at a higher cost to continue pours and to continue on schedule
5. Fire at a local material supplier's warehouse puts supplier out of business. Additional expense as a result of having to buy from a different supplier at a higher cost

LESSON #5 - INITIATION PHASE

1. ANY OF THE THREE RESPONSIBLE PARTIES TO THE CONTRACT MAY INITIATE A CHANGE ORDER FOR CONSIDERATION.

The authority to initiate a change order is given only to those identified in the letter of authority. Owners and designers are known for requesting a change. However, a contractor may initiate a change order whenever necessary.

1. When will a contractor initiate a change order?
2. Have you initiated a change order?

COC PROFIT TIP #5

**INITIATE EACH AND EVERY CHANGE (CHANGE ORDER) AS EARLY AS
POSSIBLE IN THE DESIGN AND CONSTRUCTION PROCESS.**

The earlier a change is initiated, the easier and less costly it will be to implement the change.

DESIGNER

1. **PREPARES AND SIGNS DOCUMENTATION**
 - FOR CHANGE ORDER
2. **MAKES RECOMMENDATIONS TO THE OWNER**

Upon initiation of a change order, the designer will prepare preliminary documentation for the owner. He will assist the owner in making decisions regarding the changes to be made and give approximate costs for each change.

OWNER

1. APPROVES CHANGE ORDER PROPOSAL

<OR>

2. REJECTION

- CHANGE ORDER DROPPED

- CONSTRUCTION CHANGE DIRECTIVE PREPARED

The owner has the option of accepting the change order proposal or rejecting it altogether. If it is determined that the change will exceed the budget the owner will either reject the proposal or have the designer revise the proposal. If the owner insists on the change being performed the designer can issue a construction change directive to the contractor.

1. Have you ever proceeded with a change under a construction change directive?
2. Did you receive the price that you expected?

Figure 5.1 General Letter to the Owner Regarding ChangesTO: _____

DATE: _____ 19 _____

RE: (JOB NO.)
(JOB NAME & DESC.)SUBJECT: PROCEDURE TO
MINIMIZE C.O.
DISRUPTIONS

MR. (MS.) _____:

AS YOU ARE AWARE, MULTIPLE CHANGES IN THE WORK ALWAYS DISRUPT WORKER PERFORMANCE, CAUSING LOSS OF PRODUCTIVITY AND INCREASED COSTS.

TO PREVENT MULTIPLE CHANGES WE URGE YOU AND THE ARCHITECT TO REVIEW THE DOCUMENTS FOR ERRORS, OMISSIONS, IMPOSSIBILITIES, AND PREVIOUSLY UNFORESEEN NEEDS NOW. WE ASK THIS SO THAT ANY CHANGES NECESSARY CAN BE INCORPORATED INTO THE WORK WITH MINIMUM INTERFERENCE AND ASSOCIATED COSTS.

THANK YOU FOR YOUR PROMPT ATTENTION.

VERY TRULY YOURS,

PROJECT MANAGER

CC: DESIGNER
OWNER'S REPRESENTATIVE
PROJECT SUPERINTENDENT

CHANGE ORDER FILE

1. **CHANGE ORDER ANALYSIS**
 - **CONSTRUCTION ANALYSIS**
 - **START AND FINISH DATES**
 - **SEQUENCE OF CONSTRUCTION**
 - **SUBCONTRACTORS AND SUPPLIERS**
 - **INFORMATION NEEDS**
 - **START AND FINISH DATES**
 - **SPECIFICATION AND DRAWINGS**
 - **SUBCONTRACTORS AND SUPPLIERS**
2. **CHANGE ORDER LOG**

Before coming to the job site, the job supervisor should make up pre-numbered folders, listing each change order number. These pre-numbered files are called change order files -- one for each change. A change order file is just a list of pre-numbered folders for keeping all information about the change.

The change order file is a contains all the current information on the change. Immediately upon a request for change, including the likelihood of a change, the job supervisor opens a change order file.

Immediately upon learning about a change order, the job supervisor takes the next folder and records it number and title on the change order log. The file will enable the contractor to track all the information about the change until the change is completed and paid.

The three major items in the change order file are the change order analysis and the change order log.

1. Is there a change order file on every job that you have been associated with?
2. Do you have a systematic way in which to keep track of the information necessary to estimate and control the change?

Figure 5.2 Change Order Analysis

DATE: October 1, 1992

RE: 101-93
Custom Home

SUBJECT: CO-101-93-#3

1. DESCRIPTION OF CHANGE: Remove wall and relocate.

Shore up ceiling. Install structural load bearing beams to support roof rafters. Remove existing 20 foot wall. Reconstruct wall 10 feet away. Work is on the critical path, so estimate general conditions costs for time extension.

2. CHANGE ANALYSIS:

Start Date Finish Date	Construction Task	Subcontractor	Supplier
Oct. 10-12	Shoring	ABC Shoring	ABC Shoring
Oct. 13-15	Install Beam	ABC Shoring	XYZ Truss
Oct. 17-19	Remove Wall	General Contr.	DEF Brick
Oct. 20-22	Rebuild Wall	General Contr.	DEF Brick
10 Days	General Cond.	General Contr.	

3. INFORMATION NEEDS

Request/Due Date	Specification Drawing No.	Subcontractor	Supplier
Oct. 1/Oct. 2.	Dwg. A-15	ABC Shoring	ABC Shoring
Oct. 1/Oct. 5	Dwg. A-16	ABC Shoring	XYZ Truss
Oct. 1/Oct. 5	Dwg. A-17	General Contr.	DEF Brick
Oct. 1/Oct. 5	Dwg. A-17	General Contr.	DEF Brick
Oct. 1/Oct. 5	General Cond.	General Contr.	

4. REMARKS: Send engineering analysis to ABC Shoring and XYZ Truss by close of business Oct. 2. Estimated two weeks extra general conditions at \$200 per day or \$2,000.

CHANGE ORDER LOG

1. DESCRIPTION
2. CHANGE ORDER DRAWING NUMBER
3. SUBMITTAL DRAWING NUMBER
4. CONTROL AND STATUS DATES
 - CHANGE ORDER NUMBER
 - WORK ORDER NUMBER
 - DATE INITIATED
 - DESCRIPTION
 - DATE C.O. RECEIVED
 - PROPOSAL SUBMITTED
 - PROPOSAL RETURNED
 - PROPOSAL SUBMITTED
 - PROPOSAL RETURNED
 - DATE NEGOTIATED
 - MODIFICATION RECEIVED
 - COST AMOUNT

The change order control log provides the current status of each change. Each change order file that is opened is recorded on the change order log. Recorded is the status of submittals, re-submittals and who receives final copy of the change.

The change order control log is kept separate from the change order file. It is best to keep all opened and unapproved change order files on your desk. Having easy access insures that information that is received is easily placed in the file.

For example, change information, especially quotes, arrive in various forms such as telephone quotes, mailed quotes, and back of envelop estimates. As each of these quotes arrives, including other information, it is deposited in the change order file.

Upon deciding to prepare the change order, the supervisor opens the file and uses the quotes and information collected to develop an estimate of the change.

As the change is submitted and resubmitted, the change order log records its status. It is good practice to review the status of all changes weekly in the company and with the owner and designer.

Figure 5.3 Change Order Control Log

Project No.: _____ Phone: _____
 Owner: _____ Contact Person: _____
 Designer: _____

C.O. NO.	W.O. NO.	DATE INIT	DESCR	DATE C.O. REC'D	PROP SUBM	PROP RET'D	PROP SUBM	PROP RET'D	DATE NEG.	MOD. REC'D	COST
92-112	345	11/21	Patio from brick to SOG w/marb. tile	11/24	11/30	12/8					\$6,525

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Problem #5: Initiating a Change**

You are the site supervisor for a custom home. Today, Monday, November 1, the owner and designer have visited the site and requested that a 50' x 50' brick patio of brick on grade be changed to a 6" concrete slab reinforced with temperature steel and covered with 1' x 1' marble.

ABC Concrete will supply all labor and materials for the concrete pad. You will have to make a change to XYZ Tile contract from brick to marble.

The work is due to begin two weeks from today on Monday, November 15. You have one week to form and pour pad and one week to set marble tile. This will add two weeks to the job at \$250 per day general conditions.

Using your experience complete the change order analysis on the next page.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Problem #5: Initiating a Change

DATE: November 1, 199X

**RE: 101-9X
Custom Home**

SUBJECT: CO-101-9X-#3

1. DESCRIPTION OF CHANGE:

2. CHANGE ANALYSIS:

Start Date Finish Date	Construction Task	Subcontractor	Supplier

3. INFORMATION NEEDS

Request/Due Date	Specification Drawing No.	Subcontractor	Supplier

4. REMARKS:

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Solution #5: Initiating a Change

DATE: November 1, 199X

**RE: 101-9X
Custom Home**

SUBJECT: CO-101-9X-#3

1. DESCRIPTION OF CHANGE: Changed Patio to Concrete Slab and Marble Tile

Excavate for 50' x 50', 6" concrete pad. Form, set temperature steel, pour concrete, finish, cure, remove forms, and back fill. Replace brick on sand bed with one foot square marble tile.

2. CHANGE ANALYSIS:

Start Date Finish Date	Construction Task	Subcontractor	Supplier
Nov. 15-19	Form & Pour	ABC Concrete	ABC Concrete
Nov. 22-26	Marble Tile	XYZ Tile	XYZ Tile

3. INFORMATION NEEDS

Request/Due Date	Specification Drawing No.	Subcontractor	Supplier
Nov. 1/Nov. 5.	Dwg. A-15	ABC Concrete	ABC Concrete
Nov. 1/Nov. 5	Dwg. A-16	XYZ Tile	XYZ Tile

4. REMARKS: Provide \$2,500 credit to XYZ tile to cover original bid of brick placement. Estimated two weeks extra general conditions at \$250 per day or \$2,500.

LESSON #6 - ESTIMATING AND PRICING PHASE

1. COMPONENT COSTS OF THE CHANGE ORDER
2. PRICING THE CHANGE ORDER
3. CHANGE ORDER ESTIMATE

The owner and designer consider the contractor to be more knowledgeable about construction. Therefore, the responsibility is left to the contractor for justifying the change order budget, scope and time. Without proper knowledge of estimating change orders, profits that the contractor is entitled to may not be realized.

1. Are change orders estimated any differently than regular job estimates?
2. How does your company estimate changes?

PROFIT TIP #6

PREPARE A THOROUGH ESTIMATE OF THE CHANGE ORDER BEFORE PROVIDING A PRICE TO THE OWNER.

Approximate estimates are necessary to provide preliminary budgets for allowances, additional work orders, alternates, and changes. However, never give the owner a final price on the change order until the estimate is complete. Incomplete estimates will lead to tension between the owner and contractor and will prove difficult for the contractor to recoup any lost profits on changes.

1. Have you ever given an owner a price for a change order before the estimate was complete?
2. Did you lose money?

COMPONENT COSTS OF A CHANGE ORDER

1. **DIRECT COSTS**
2. **INDIRECT COSTS**
3. **CONSEQUENTIAL COSTS**

Changes are priced four ways: lump-sum, unit price, itemized, or accounting; all of which must include materials, labor, equipment, and subcontract costs. Before estimating can begin the component costs of the change order must be understood.

Direct costs are those costs that are clearly, specifically, and uniquely attributable to the change and can be easily documented.

Indirect costs are those costs caused by the change but are difficult to assign to any specific work item.

Consequential costs are cost resulting from the varied effects triggered by the change. For example, time delays and additional costs as a result of the delays.

1. How does your company price change orders?
2. Do your change order estimates include these three component costs?

PRICING THE CHANGE ORDER

1. DETAILED QUANTITY SURVEY
2. SOLICIT QUOTATIONS
3. QUOTATION CONTROL LOG

In order to accurately estimate a change order quotations must be obtained. This includes suppliers and all subcontractors affected by the change. Without quotes the contractor cannot submit an accurate change order estimate.

To ensure accuracy, quotes should be registered in a quotation control log. The log includes items such as companies from which quotes were requested, dates, and quote amount. This type of documentation further protects the contractors claim rights.

1. Do you solicit quotes for estimating a change order?
2. Do you enter quotes into a quotation control log?

SOLICITING QUOTES

1. QUOTATION CONTROL LOG
2. TELEPHONE QUOTATION FORM
3. CONFIRMATION LETTER

The following forms are useful in systematic handling of solicitation of quotes. While these forms may not always apply they may lead you to developing something similar for your type of construction.

The quotation control log records the item, source of quote, method of solicitation, date, means of response, date, and quotation. Besides tracking the status of all solicitations and quotes, the quotation control log has other uses. Sometimes you can show the owner that you have obtained prices from more than one source, thereby providing the lowest possible quote. Also, proof of delay in subcontractor and supplier quote is useful in proving to the owner and the designer that the delay is not due to any cause of your own.

The telephone quotation form records the quote and is proof of having received a firm quote.

The letter to the subcontractor or supplier confirming telephone quote acknowledges receipt of the quote and asks for formal confirmation.

1. Do you see other reasons and uses for the telephone quotation form?
2. What is the recording the telephone quote and asking for confirmation by letter.

Figure 6.1 Quotation Control Log

No. 101-93 Job: Custom Home Change No. CO-101-93-#3						
QUOTATION CONTROL LOG						
ITEM	SOURCE	SOLICIT	DATE	OFFER	DATE	QUOTE
Shoring	ABC Shoring	Letter	Oct. 1	Tel.	Oct. 2	\$1,000
Beam	XYZ Truss	Letter	Oct. 1	Letter	Oct. 5	\$500
Brick	DEF Brick	Tel.	Oct. 1	Tel.	Oct. 3	\$500

The quotation control log is similar to an a control log used in during estimating to record subcontractor and supplier prices.

Figure 6.2 Telephone Quotation Form

TELEPHONE QUOTATION FORM

DATE: _____ 19 _____ COMPANY: _____

PROJECT: _____

NO: _____ BY: _____

CHANGE NO.: _____ PHONE: (____) _____

DOCUMENTS INCLUDED:

<u>DESCRIPTION</u>	<u>DATE/REV.</u>	<u>DESCRIPTION</u>	<u>DATE/REV.</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

_____ PRICE INCREASE: \$ _____ SALES TAX INCLUDED? _____
 _____ PRICE DECREASE: \$ _____ BONDS SUPPLIED? _____
 _____ NO CHANGE IN PRICE

MATERIAL/EQUIPMENT DELIVERY LEAD TIMES AFTER C.O. APPROVAL: _____

TIME REQUIRED TO COMPLETE THE WORK (SEPARATE THE MAJOR ITEMS): _____

WORK OF ANY OTHER TRADE AFFECTED: _____

SPECIAL CONDITIONS REQUIRED TO PERFORM WORK: _____

SIGNIFICANT WEATHER, SITE, OR OTHER CONSTRAINTS: _____

OTHER APPLICABLE INFORMATION: _____

ALTERNATES, QUALIFICATIONS, EXCLUSIONS: _____

TAKEN BY: _____

Figure 6.3 Letter to Subcontractor Confirming Telephone Quote

DATE: _____ 19 ____

CERTIFIED MAIL/RETURN RECEIPT

TO: (SUBCONTRACTOR)

RE: (JOB NO.)
(JOB NAME & DESC.)

SUBJECT: (C.O. FILE NO.)
(C.O. DESCRIPTION)
CONFIRMATION OF C.O.
TELEPHONE QUOTE

MR. (MS.) _____ :

PER OUR CONVERSATION OF (DATE OF TELEPHONE QUOTE), ATTACHED IS THE SUBJECT CHANGE ORDER TELEPHONE QUOTE FORM. PLEASE CONFIRM ALL INFORMATION AS INDICATED BY INITIALING THE QUOTE FORM AND AFFIXING YOUR SIGNATURE IN THE SPACE PROVIDED BELOW. PLEASE RETURN BOTH THIS LETTER AND THE QUOTE FORM TO MY ATTENTION.

YOUR RESPONSE IS REQUESTED BY (DATE).

ACCEPTED BY: _____
TITLE: _____
DATE: _____

VERY TRULY YOURS,

PROJECT MANAGER

CHANGE ORDER ESTIMATE

1. RESTORATION OF WORK TO ORIGINAL CONDITION
2. CONSTRUCTION OF NEW WORK
3. ADDS AND DEDUCTS
4. MARK-UP FOR INDIRECT COSTS AND PROFIT
5. TIME

You should be prepared to show the owner and designer how you arrived at the total estimated cost of the change. The estimated cost is more easily understood if you break the cost into the five categories shown above.

A change order estimate is prepared and presented in the same manner as a good estimate. The front of the change order shows quantities and prices for direct, indirect, and delay costs. These costs are further broken down in a clear "audit trail" of how these quantities were derived.

The construction already in place may need to be dismantled in order to perform the required change. Included in this portion are all direct costs that apply. For example, in removing a wall the subcontract prices may be adjusted if the new quantity is less than originally estimated. Sketches or polaroids of the existing work can expedite change order approvals.

Estimating the new work reflects the work required by the change and includes any adds and deducts.

Also, you should include the price of indirect costs, sometimes called overhead, and profit. Remember to agree to this markup for indirect costs and profit beforehand and include in the contract. For example, the markup might be indirect cost at 10 percent of direct costs and profit at 5 percent of direct costs.

Many changes require an extension of the contract time and this request must be included with each change order. Remember to agree beforehand on the amount of dollars per day for extension of contract time, such as \$250 per day, and include this in the contract.

Figure 6.4 Change Order Estimate

No. 101-93 Job: Custom Home Change No. CO-101-93-#3						
CHANGE ORDER ESTIMATE OF PRICE						
ITEM	QUANT'Y	LABOR (\$)	MATL'S (\$)	EQUIP. (\$)	SUBS. (\$)	PRICE (\$)
Shoring	20 LF	\$1,000	\$500			\$1,500
Wall	20 LF	\$500		\$200		700
1. Restore/Prepare Work for Change						\$2,200
Wall	20 LF	\$1,000	\$500			\$1,500
2. Construct New Work						\$1,500
None						
3. Adds and Deducts						- 0 -
Subtotal Direct Costs (1 + 2 + 3)						\$1,500
Indirec	10% X	Direct	Costs			\$150
Profit	5% X	Direct	Costs			\$75
4. Indirect Costs & Profit						\$225
Gen/Con	\$2,000					\$2,000
5. Time						\$2,000
Change Order Estimate of Price (1 + 2 + 3 + 4 + 5)						\$3,725

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Problem #6: Change Order Estimate**

You are the site supervisor for a custom home estimating the change for the new patio described in the previous chapter. The change is for a 50' x 50' brick patio of brick on grade be changed to a 6" concrete slab reinforced with temperature steel and covered with 1' x 1' marble. ABC Concrete will supply all labor and materials for the concrete pad. You will have make a change to XYZ Tile contract from brick to marble and give XYZ Tile a credit of \$500 for brick.

Markup for indirect costs is 10 percent of direct costs. Markup for profit is 5 percent of direct costs. The change will add two weeks to the job at \$250 per day general conditions or ($\$250/\text{day} \times 10 \text{ days}$) = \$2,500.

On the next page is the telephone control log. Estimate the cost of the change on the change order estimate form.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Problem #6: Change Order Estimate

No. 101-93 Job: Custom Home Change No. CO-101-93-#3						
CHANGE ORDER ESTIMATE OF PRICE						
ITEM	QUANT'Y	LABOR (\$)	MATL'S (\$)	EQUIP. (\$)	SUBS. (\$)	PRICE (\$)
N/A						
1. Restore/Prepare Work for Change						- 0 -
Pad	2,500					
Tile	2,500					
2. Construct New Work						
Brick	2,500					
3. Adds and Deducts						
Subtotal Direct Costs (1 + 2 + 3)						
Indirec	10% X	Direct	Costs			
Profit	5% X	Direct	Costs			
4. Indirect Costs & Profit						
Gen/Con						
5. Time						
Change Order Estimate of Price (1 + 2 + 3 + 4 + 5)						

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Solution #6 Change Order Estimate

No. 101-93 Job: Custom Home Change No. CO-101-93-#3						
CHANGE ORDER ESTIMATE OF PRICE						
ITEM	QUANT'Y	LABOR (\$)	MATL'S (\$)	EQUIP. (\$)	SUBS. (\$)	PRICE (\$)
N/A						
1. Restore/Prepare Work for Change						- 0 -
Pad	2,500SF				\$3,000	\$3,000
Tile	2,500SF				\$1,000	\$1,000
2. Construct New Work						\$4,000
Brick	2,500SF				<\$500>	<\$500>
3. Adds and Deducts						<\$500>
Subtotal Direct Costs (1 + 2 + 3)						\$3,500
Indirec	10% X	Direct	Costs			\$350
Profit	5% X	Direct	Costs			\$175
4. Indirect Costs & Profit						\$525
Gen/Con	\$2,500					\$2,500
5. Time						\$2,500
Change Order Estimate of Price (1 + 2 + 3 + 4 + 5)						\$6,525

LESSON #7 - NEGOTIATION PHASE

1. DESIGNER
2. CONTRACTOR
3. OWNER

Change order estimating and control concludes with negotiation. While the contractor may price the change it still must be accepted by the owner. If the change is not accepted, the owner can still elect to issue a change directive. Under the change directive the contractor must account for the cost of the change in an approved manner.

As a matter of policy, each party should have only one individual negotiate changes. Having different parties negotiate the changes prohibits continuity of change negotiation. The person negotiating the change is backed up by others in the company.

1. Who negotiates the majority of changes for your company?
2. What advantages do you see to having the same person negotiate all changes for a job?

COC PROFIT TIP #7

**DO NOT ACCEPT UNPROFITABLE CHANGES BECAUSE
IT IS THE OWNER'S RESPONSIBILITY TO FUND THE CHANGE**

Many times, contractors break even or loose money on changes by lowering the price. As strange as it may seem, the contractor feels obligated to accept doing the work for less than estimated. There are several reasons for this unprofitable and bad business practice.

Out of mistaken loyalty, the contractor may feel obligated to the owner for the original contract. Sometime, the contractor decides to take the lower price, hoping to make up the loss or profit in future changes. Or the owner states that this change profit will be made up in subsequent, contemplated changes.

There should be a compelling reason for accepting non-profitable changes. If the change has been correctly initiated and estimated, the contractor has every reasonable right to have it accepted.

The root cause for owners not accepting the offer to do work at a specified amount is cost. The owner's lack of ability to pay is the primary reason for change rejection. The profitable contractor understands that it is the owner's responsibility to provide funds, and acts accordingly.

DESIGNER

1. PREPARES DETAILED DOCUMENTATION
2. PREPARES DETAILED BUDGET ESTIMATE
3. SENDS CHANGE ORDER TO CONTRACTOR FOR ESTIMATING

For the designer, the negotiation phase is when the detailed paperwork is prepared. He submits the change order to the owner and contractor for signing.

CONTRACTOR

1. ESTIMATES PROPOSED CHANGE ORDER
2. PROVIDES COMMENTS WITH RESPECT TO PROPOSED CHANGE ORDER
3. NEGOTIATES PROPOSED CHANGE ORDER WITH THE OWNER AND/OR DESIGNER

During the negotiation phase the contractor estimates the proposed change order. This price can be either accepted or rejected by the owner. Many contractors may feel relieved that the owner has rejected his price for a change. Don't be. The new AIA General Conditions address the construction change directive in detail. It is the owner's option of dropping the change altogether or requesting a construction change directive. If the directive is issued the contractor can expect to be reimbursed for the work provided he has an adequate costing and accounting system. Even then it is not guaranteed the contractor will receive the amount he expects.

1. How can you ensure you will receive the amount you expect for a construction change directive?

Figure 7.1 Letter to Owner Regarding Pending Change Order

TO: _____ DATE: _____ 19__

RE: (JOB NO.)
 (JOB NAME & DESC.)

SUBJECT: (BRIEF DESC. OF WORK)
 RESPONSIBILITY

MR. (MS.) _____:

AS REVIEWED AT THE (DATE) JOB MEETING 4, THE (INSERT ITEM) IS NOT SPECIFIED IN EITHER SECTION ___ NOR SECTION ___.

IT APPEARS THAT THERE WILL BE AN INCREASE IN THE CONTRACT SUM TO COVER THE COST OF THE ADDITIONAL WORK, AND POSSIBLY AN INCREASE IN THE PROJECT TIME. WE ARE PROCEEDING WITH AN ESTIMATE AND WILL COMPLETE A DETAILED ANALYSIS OF THE EFFECT THIS WILL HAVE ON THE PROJECT. WHEN COMPLETED, A FINAL CHANGE ORDER PROPOSAL WILL BE SUBMITTED.

PLEASE CONSIDER THIS YOUR NOTIFICATION AS PER THE REQUIREMENTS IN THE GENERAL CONDITIONS ARTICLE 13.

VERY TRULY YOURS,

PROJECT MANAGER

CC: OWNER'S REPRESENTATIVE
 DESIGNER
 PROJECT SUPERINTENDENT
 (SUBCONTRACTORS)

Figure 7.2 Change Order Proposal Cover Letter

TO: _____

DATE: _____ 19__

RE: (JOB NO.)
(JOB NAME & DESC.)SUBJECT: (C.O. FILE NO.)
(CHANGE DESC.)
SUBMISSION # _____

MR. (MS.) _____:

OUR TOTAL PRICE TO PERFORM THE SUBJECT CHANGE WORK IS
\$(_____). ALL SUPPORTING DOCUMENTATION IS ATTACHED.

OUR ANALYSIS OF THE CHANGE DETERMINED AN ADDITIONAL _____ DAYS
WILL BE REQUIRED TO PERFORM THE CHANGE TO BE ADDED TO THE CONTRACT
TIME. THIS COST IS INCLUDED IN THE ABOVE PRICE.

YOUR APPROVAL IS REQUIRED BY (DATE). ACTION AFTER THAT DATE
WILL RESULT IN ADDITIONAL COSTS AND TIME, WHICH WILL THEN BE ADDED
TO THE ABOVE PRICE. WE RESERVE THE RIGHT TO QUOTE ON ALL COSTS
THAT MAY BE UNFORESEEN AT THIS TIME.

VERY TRULY YOURS,

PROJECT MANAGER

CC: OWNER'S REPRESENTATIVE
DESIGNER

Figure 7.3 Alternate Change Order Form or Subcontract Amendment

TO: _____

DATE: _____ 19__

RE: (JOB NO.)
(JOB NAME & DESC.)

MR. (MS.) _____:

YOUR PROPOSAL DATED (DATE) IN THE AMOUNT OF
\$(_____), _____
FOR _____

HAS BEEN ACCEPTED AND INCORPORATED INTO THE CONTRACT NO. _____
DATED (DATE) AS CHANGE ORDER NUMBER _____. THE CONTRACT IS BEING
(INCREASED)(DECREASED) BY THE SUM OF \$(_____). ALL OTHER
CONDITIONS OF THE CONTRACT REMAIN UNCHANGED.

1. ORIGINAL CONTRACT AMOUNT	\$ _____
2. PREVIOUS ADDITIONS	\$ _____
3. PREVIOUS DEDUCTIONS	\$ _____
4. PREVIOUS TOTALS	\$ _____
5. THIS CHANGE ORDER	\$ _____
6. NEW CONTRACT PRICE	\$ _____

THE CONTRACT TIME WILL (REMAIN UNCHANGED)(BE INCREASED)(BE
DECREASED) BY _____ (WORKING)(CALENDAR) DAYS, AND IS TO BE
COMPLETE ON (DATE).

ACCEPTED BY:

DATE: _____

DATE: _____

Figure 7.4 Letter to Owner Regarding Escalation Due to Untimely
Action

TO: _____

DATE: _____ 19__

RE: (JOB NO.)
(JOB NAME & DESC.)

SUBJECT: (C.O. FILE NO.)
(CHANGE DESC.)
SUBMISSION NO. ____

MR. (MS.) _____:

THE CHANGE PROPOSAL DATED (DATE) FOR THE SUBJECT WORK REQUIRED YOUR APPROVAL BY (DATE). NO RESPONSE HAS CREATED ADDITIONAL INTERFERENCE THAT WAS NOT INCLUDED IN THE ORIGINAL CONTRACT PRICE.

EACH DAY BEYOND THE REQUIRED DATE WILL RESULT IN AN ADDITIONAL \$(_____) PER DAY IN ADMINISTRATIVE COSTS ALONE. ADDITIONAL COSTS WILL BE ADDED TO THE PROJECT IN AN AMOUNT TO BE DETERMINED AFTER YOUR AUTHORIZATION TO PROCEED IS FINALLY RECEIVED. UPON RECEIPT OF YOUR APPROVAL, THE COSTS RESULTING FROM THESE ADDITIONAL EFFECTS WILL BE SUBMITTED TO CORRECT THE FINAL CHANGE ORDER PRICE.

ALL RIGHTS ARE RESERVED TO CLAIM ALL DAMAGES RESULTING FROM UNTIMELY APPROVAL ACTION.

PLEASE TAKE NOTICE.

VERY TRULY YOURS,

PROJECT MANAGER

CC: OWNER'S REPRESENTATIVE
DESIGNER
PROJECT SUPERINTENDENT

OWNER

1. APPROVES CHANGE ORDER
<OR>
2. ISSUES CHANGE DIRECTIVE
<OR>
3. REJECTS PROPOSED CHANGE ORDER

After the designer has submitted the priced change order to the owner it will be either approved or disapproved. If the change order is approved then the change order is executed. However, if the change order is not approved by the owner he may request a construction change directive be issued, in which case the contractor must proceed with the change and expect to be reimbursed later. The AIA general conditions allow for an agreed upon lump-sum, provided the contractor has an efficient accounting system, unit price, or a cost agreed upon by all parties.

1. Which change order pricing method are you most familiar?
2. Has there ever been a disagreement on the price of a change directive?

PRINCIPALS OF CHANGE NEGOTIATION

1. DETAILED SCOPE OF WORK
 - WRITTEN STATEMENT
 - SKETCHES
 - SPECIFICATION AND DRAWING
2. DETAILED ESTIMATE
 - QUOTATION CONTROL LOG
 - LOWEST PRICE FOR PERFORMANCE
 - CHECK AND RECHECK
3. PROVIDE AUDIT TRAIL
4. EXPLAIN

Every contractor has a favorite set of negotiation tactics. One of the most effective negotiation strategy to having the owner accept your price is full disclosure on how the price was arrived at. The owner is certain to balk at a quote of \$25,000 for a room addition, especially when he does not understand how the price was arrived at.

Besides breaking the change down into five easily understood categories of cost to 1) restore the work, 2) do new work, 3) adds and deducts, 4) indirect costs and profit, 5) time, the contractor must show how these costs were developed.

The first step in gaining the owner's understanding is presenting a written scope, including sketches, specification and drawings, either shown and/or referenced. In taking time to go over the changes many details, the owner begins to understand the complexity of the change.

Knowledge of the scope sets the stage for the next tactic -- detailed estimates. Here, the contractor presents detailed information on quantities, labor, materials, equipment, and subcontracts. For certain items the contractor may have solicited a minimum of three quotes, thereby having the lowest price for the required performance.

Scope and estimates should be arranged so that there is an audit trail, meaning that one can track an item in the scope to a price. Finally, patiently explain to the owner the realities of construction. Educating the owner to your price is the best negotiation strategy.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Problem #7: Change Order Negotiation

You are the site supervisor for a custom home. The owner has requested a change to the original brick-on-grade patio to a 6" reinforced concrete slab with marble tile. The change costs \$6,525 compared to the original contract price of \$500.

You know that the owner wishes to have the new patio, but may not like the cost of the change. Based on information in this course and your experience list the objections the owner might have and possible solutions regarding scope, budget, and schedule.

Problem	Solution
A. SCOPE	
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
B. BUDGET	
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
C. SCHEDULE	
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Solution #7: Change Order Negotiation

You are the site supervisor for a custom home. The owner has requested a change to the original brick on grade patio to a 6" reinforced concrete slab with marble tile. The change costs \$6,525 compared to the original contract price of \$500.

You know that the owner wishes to have the new patio, but may not like the cost of the change. Based on information in this course and your experience list the objections the owner might have and possible solutions regarding scope, budget, and schedule.

Problem	Solution
A. SCOPE	
1. Scope not understood -----	1. Explain details of scope -----
2. Scope is not what is wanted -----	2. Revise scope -----
3. Scope not in line with design -----	3. Recommend changed design -----
4. -----	4. -----
5. -----	5. -----
B. BUDGET	
1. Does not understand price -----	1. Explain details of price -----
2. Price above owner's budget -----	2. Revise scope -----
3. Cannot pay entire price now -----	3. Do incremental scope -----
4. -----	4. -----
5. -----	5. -----
C. SCHEDULE	
1. No change to completion time -----	1. Price include OT pay -----
2. -----	2. -----
3. -----	3. -----
4. -----	4. -----
5. -----	5. -----

LESSON #8 - THE CHANGE ORDER POLICY

1. **RATIONALE FOR THE CHANGE ORDER POLICY**
2. **PREPARATION OF THE CHANGE ORDER POLICY**
3. **FORMAT OF THE CHANGE ORDER POLICY**

The key to change order control is having a written change order policy, personnel that are trained in its execution, and monitored performance. Drafting a change order policy will put everyone in the company on notice as to the proper execution of change order processing; including proper documentation, processing, estimating, procedures and monitoring. The rationale for a change order policy is to increase the bottom line.

1. Do you have a written company change order policy?
2. Do you think a change order policy is necessary?

COC PROFIT TIP #8

DEVELOP A CHANGE ORDER POLICY FOR YOUR COMPANY AND FOLLOW IT FOR EACH CHANGE ORDER OF EVERY CONTRACT

Your change order policy is a contractor's key to performing profitable changes. No construction company can afford to function under unprofitable conditions for very long and the change order policy includes guidelines that must be followed in order to increase profits with respect to change orders.

1. Do you achieve expected profits on change orders?
2. How can you improve profits on change orders?

RATIONALE FOR A CHANGE ORDER POLICY

1. **STANDARDIZATION OF CHANGE ORDER PROCEDURES COMPANY WIDE AND PROJECT TO PROJECT**
2. **DISTRIBUTION OF CHANGE ORDER PROCEDURES TO ALL INVOLVED PARTIES**
3. **CONTROL THE CHANGE ORDER PROCESS AND ITS CONSEQUENT CONTRACTUAL OBLIGATIONS AND LIABILITIES**
4. **IMPLEMENTATION OF THE CHANGE ORDER PROCESS**
5. **ENSURE TIMELY AND ADEQUATE HANDLING OF CHANGE ORDERS**

It is not enough to have a change order policy. To make it work it must be distributed to every person involved. From initiation to payment the change order process must be followed.

Change orders can be a major source of company profits. Profitability depends largely on the understanding, training, and total commitment on the part of company personnel with regard to the change order policy.

1. Does everyone in your company have a copy of the change order policy?
2. Do you regard change orders as an opportunity to increase profits?

PREPARATION OF THE FORMAL CHANGE ORDER POLICY

1. RESPONSIBLE PARTIES
2. MODIFICATIONS OF THE CHANGE ORDER POLICY

Preparation of the change order policy takes the combined efforts of many people within the company. It is not one persons idea of what the policy should entail but the ideas and suggestions of all parties involved with the change order process. When everyone is involved with creating the change order policy the resistance to change will be less.

The change order policy must be revised as required. Once the policy is written it is not put on a shelf and forgotten. Changes in the contract requirements may require that all or part of the policy be modified.

1. Was your change order policy written by everyone involved in the change order process?
2. Is your change order policy revised regularly?

FORMAT AND CONTENT OF THE CHANGE ORDER POLICY

1. WRITTEN DOCUMENT FOR THE CHANGE ORDER POLICY
2. REVIEW THE CHANGE ORDER POLICY CHECKLIST

The format for the change order policy depends on the company for which it is written. It is necessary, however, for the language to be easy to read for everyone. The key here is that it must be written. Verbal agreements or policies are no longer accepted and will likely lead to trouble.

The content of the change order policy, again, depends on the company. Using a change order policy checklist will enable a company to draft a policy and make modifications as required.

1. Is your change order policy easy to read and understand?
2. Was a change order policy checklist used when your policy was developed?

Figure 8.1 Company Change Order Policy

CHANGE ORDER POLICY

This change order policy is part of any contract involving the company.

A. INTRODUCTION**1. Scope**

This policy covers the rights, responsibilities and remedies regarding changes executed by the company for the owner, designer, subcontractors, and suppliers or any other party to a change involving this company.

2. Purpose

The purpose of this policy is to develop a clear understanding between all parties so that the change can be estimated, negotiated, and executed in the quickest possible time, as time is of the essence to the contract.

3. Amendment

This policy is an amendment to any contract involving this company, including those with its subcontractors and suppliers.

4. Authority

The owner will appoint a representative to act as his representative in all changes. If the owner has a designer a designer's representative will be appointed to handle changes. The company will appoint a representative on site to act as its representative. The company reserves the right to have another person, other than the site representative, to act on certain changes. Unless otherwise agreed to the owner of the subcontractor or supplier is the representative to act on changes.

B. CHANGE ORDER**1. Authorization**

Changes may be accomplished in one of three ways:

- a. By Change Order
- b. By Construction Change Directive
- c. By order for minor change to the work.

Changes are executed by different levels of authorization, as follows:

- a. Change orders are based upon agreement of the owner, designer, and contractor.
- b. Construction change directive result from agreement of the owner and designer and may or may be agreed to by the contractor.
- c. Orders for minor changes are issued by the designer alone.

2. Construction Change Directive

The construction change directive is issued by the owner when the contractor does not agree to changes in scope, price, and/or schedule.

In the event of construction change directive the contract sum will be adjusted by:

- a. Mutual acceptance of a lump sum with adequate substantiating information.
- b. Unit prices from the contract or as agreed upon.
- c. Cost, and a mutually acceptable fixed or percentage free.

Before commencing work on a construction change directive, the owner, designer, and contractor will agree on the method of accounting of costs, so that an accurate price can be determined.

3. Notification

At the first likelihood of a possible change, the party will notify the other parties to the contract. If possible, notification will be in writing, including minutes of meetings. All parties will adhere to the contract's notification provisions. If the primary contract does not set forth notification times, the following notification times apply. All times are in calendar days.

- a. Likelihood of change: 3 days
- b. Request for quotes: 3 days
- c. Changes to the critical path or time extension: 3 days

4. Change Estimating and Preparation

Requests for a change proposal will not be used to elicit from the contractor design and/or construction alternatives. The contractor agrees to estimate at no charge changes, whether approved or not, up to an amount of 5 percent of the original contract price. The owner will be charged for change at an hourly rate to be determined prior to contract signing and made part of the prime contract.

5. Meetings

The owner and the designer will meet weekly with the prime contractor at a designated time, usually, Thursday afternoon to review progress on change processing. The purpose of the meeting is to review job progress, including approving changes. Meetings will usually take place on the job site or the prime contractor's office.

In the event of the owner and/or designer are far distant from the meeting site, they will appoint a representative who has authority to act in their behalf. Regardless, the owner and designer will meet monthly with the prime contractor to review progress, including approved work for the monthly progress payment and changes.

Subcontractor site representative, usually the foreman, will meet on Wednesday afternoon to review progress, including changes. The subcontractor owner will meet monthly with the prime contractor to review progress, including approved work for the monthly progress payment and changes.

6. Payment

Changes will be included as a separate item in the monthly request for payment. Partial request for payment of a change is authorized for changes under construction and not yet completed. Payment provision for changes are the same as stated in the prime contract.

C. SCOPE OF CHANGE

The scope of the change will be defined in writing either by the owner, owner's representative or the prime contractor.

1. Information

The scope will be accompanied by sufficient information so the price and time can be accurately determined. Information will include sketches, drawings, specifications, other means to clearly define the change. Upon the prime contractor's request, the owner will provide sufficient details for the

change to be estimated and scheduled, including drawings and specifications. All details become part of the change.

D. PRICE

The price of the change will be defined in writing by the prime contractor.

1. Information

The price will be accompanied by sufficient information so the understand how costs were accurately determined. Information will be quotes, either telephone or written, supplier current price lists, and reference to costs in the prime contract, such as unit prices, indirect costs, and profit or any other means to accurately price the change. Upon the prime contractor's request, the owner will provide sufficient details for the change to be estimated. All pricing details become part of the change.

E. SCHEDULE

The schedule of the change, including changes to original contract completion dates, will be defined in writing by the prime contractor.

1. Information

The schedule will be accompanied by sufficient information so the understand how changes to contract time were accurately determined. Information will be revised schedules, materials delivery dates, subcontract agreements, and other means to accurately determine revised dates as the result of the change. Upon the prime contractor's request, the owner will provide sufficient details for the change to scheduled. All schedule details become part of the change.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL**Problem #8: Change Order Policy**

You are the site supervisor the a custom home. The owner has requested a change to the original brick on grade patio to a 6" reinforced concrete slab with marble tile.

The company has estimated the change at over \$6,000. The patio construction is one of the last tasks and must be completed to receive the final inspection and payment.

However, the owner delays in approving this last change. Subcontractors are on site do the patio now. If the patio construction is delayed, there will be extra costs for subcontractor re-mobilization. You also need your final payment to maintain a positive cash flow. Therefore you decide to go ahead with the unapproved change and include it in your request for final payment.

Unfortunately, the patio is built and the owner refuses to pay. So you accept the final payment, less the patio price. You pay the subcontractors and break even on the job. You decide to establish better change order procedures, so this and other problems do not occur or are lessened on future jobs.

Based on what you have learned in this course, list problems and solutions the common change order problems. The solutions would be included in the company policy.

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Problem #8: Change Order Policy

Problem	Solution
A. OWNER	
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
B. DESIGNER	
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
C. SUBCONTRACTORS AND SUPPLIERS	
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

CASE STUDY: CHANGE ORDER ESTIMATING AND CONTROL

Solution #8: Change Order Policy

Problem

Solution

A. OWNER

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

B. DESIGNER

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

C. SUBCONTRACTORS AND SUPPLIERS

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

CHANGE ORDER PROCESSING AND CONTROL

INSTRUCTOR NOTES

INSTRUCTOR NOTES

This course is intended primarily for the small contractor, grossing less than approximately \$5 million annually. However, larger contractors can also gain important profit making tips. The course will have attenders with construction experience ranging from a few years to several decades. Attenders will include a wide range of positions, including foremen, superintendents, project managers, general superintendents, office personnel, and company owners. The instructors biggest problem will be to keep this diverse audience interested.

Based on teaching this course and companion courses, implementing the following suggestions may make instruction less difficult and more effective for the instructor while being more appealing and worthwhile to the student.

There are two kinds of instructors. One type of instructor is the lecturer who may not wish to use the accompanying video tape, but teach directly from the manual. The advantage of this approach is that informal contact and interaction is increased between the instructor and student.

The other type of instructor is the moderator who will use the video tape to present each lesson's content. Afterward viewing each lesson's video tape, the moderator will cover the respective lesson's material in more detail if necessary, usually by asking for student questions and comments.

Both the lecturer and moderator will explain the case study problems and solutions provided with each lesson, including asking for student questions and comments.

Although this is an eight hour course, nothing prevents it being made longer or shorter, including conducting the course over a period of several days.

EFFECTIVE INSTRUCTION

Following are some guidelines for making instruction more effective and better ensuring that the students feel attendance is worthwhile.

1. **Know the Material:** The best way to allay your fears or nervousness in teaching is to be well prepared. Read and become thoroughly familiar with all the material, including each lesson's problems and solutions. Use a highlighter to mark important material in your manual which you wish to emphasize. Make additional notes in your manual. Preparation helps ensure you cover each lesson's important points.

2. **Meet Student Expectations:** During the course introduction session, ask each student to state their expectation(s) from attending the course. Ask frequently (after each lesson, before each break, and at end of the course) "What important ideas or tips did you learn?" Poll each person, asking them to state what they believe to be worthwhile. Use this positive response technique to stress important points, summarize material, and motivate attenders.
3. **Increase Communications:** Communication is a key element in successful learning. Make certain you have a room that accommodates your audience, as to size, acoustics, lighting, and comfort. It is helpful to have an instructor's table in front of the class with student tables in a U shaped arrangement facing the instructor's table. Try not to overly impose the instructor's table between yourself and the students. You can sit on the instructor's table, thereby increasing the informality of the arrangement. Movement by the instructor helps keep the presentation flowing and maintain student interest.
4. **Use Visual Aids:** Use the accompanying video tape to introduce the material. Make view graphs (for use with overhead projector) of the manual's key points, important figures, and problem work sheets and solutions. Place the overhead projector on one side of the instructor's table, thus making it easier to explain the materials while maintaining eye contact with the students. Have available (placed on the side opposite from the projector) a blackboard and/or an easel with blank chart paper. The blackboard and/or chart paper can be used to further illustrate points which are not adequately addressed by the manual or your view graphs.
5. **Lesson Plans:** Included in this section of the manual are lesson plans for each of the course's eight lessons. The lesson plans are designed with one hour allotted for each lesson. Review the lesson plans to get an idea of how much time to spend on each lesson's respective objectives. The time allocations may be considered relative guidelines if more or less than one hour is to be used for a lesson. For example, if 6 minutes is assigned to a particular lesson topic, then it is approximately 10 percent of the lesson's assigned time based on the lesson plan allotted time of one hour.

CLASS ADMINISTRATION

Consider the following key elements in conducting your workshop.

1. **Cooperate with Sponsor:** Make certain you meet all your contract arrangements with whomever is sponsoring the course,

including meeting the sponsor's expectations of you as an instructor.

2. **Inspect Classroom:** Inspect the classroom the day before class. Explain to whomever is in-charge what arrangement you wish, leaving a list of what needs to be done prior to class commencement.
3. **Registration:** Registration usually commences a half-hour before starting the first lesson. Have available for the students a registration table with registration or sign-in forms (if required), manuals, name tags, pencils, and highlighters for students.
4. **Name Tags and Place Cards:** Provide a name tag and place card for each student. By calling on each person by name from time to time, you can increase individual participation and enhance student-instructor rapport.
5. **Note Taking Materials:** Provide pencils and highlighters for note taking. If the manual is printed each page single sided, advise students that they may make notes on the blank page opposite the material in question. If the manual is printed double sided, students can make notes at the bottom of the page or in the margins.
6. **Breaks:** Hold regular breaks at least every two hours. Breaks are usually five to fifteen minutes.
7. **Smoking and Refreshment Policy:** Allow smoking outside the classroom at breaks, not in the classroom. If possible, have coffee and other refreshments available at the back of the classroom or in the corridor. Place the refreshments so as not to disturb attenders during class.

MATERIAL PRESENTATION

Following are some techniques in teaching which may be helpful when presenting the workshop.

1. **Voice, Repetition, and Motivation:** Practice your presentation. During the introduction session, ask if everyone can hear you. Emphasize and repeat important words and concepts, especially those that concern the topic you are explaining. Repetition is a good teaching method. Motivate students by mentioning savings, such as improved bottom line. If you do not sound convincing, then the students will not be convinced.
2. **Body Language:** Body language plays a major part in influencing the students attention and willingness to learn.

If you are nervous, your audience will be nervous. The best way to make your audience relax is to be relaxed yourself. Stand unaffectedly, feet slightly apart, do not rock back and forth; move smoothly and purposely before your audience as you speak.

3. **Hand Gestures:** Control your hands and use them to ease the effort of instruction. Avoid making fists, hand wringing, or other nervous gestures. Avoid grasping at clothes or placing your hands in your pockets. Use smooth flowing, deliberate gestures to emphasize points.
4. **Eye Contact:** Frequent individual eye contact is invaluable for keeping your audience with you. Eye contact with each attender is a key to keeping everyone progressing with you as you teach the workshop. Vary eye contact, do not just scan back and forth from left to right. Talk to one side of the audience, then to the other, moving frequently at random among your audience.
5. **Focus Attention:** Eye contact must be made with the students to capture their attention. When attention is given to the individual student, the student will return the attention. Once attention focuses, the listening and learning processes are enhanced. Focus on one individual at a time, speaking to that person until the point or thought is complete. Then move on, to the next individual or switch to the opposite side of the room.
6. **Regaining Contact:** If you feel you are losing someone, or they are not convinced, or they do not understand, then move closer to that person. Ask them specific questions, but not to the extent of producing uneasiness in the student. Then provide a direct specific answer if you can, or offer to get back to them after you have further researched the matter. Hint: in some cases it is best to ask another class member to answer the question. Hearing the answer from one's peers often boosts learning and retention.
7. **Blackboard:** Use a blackboard and/or chart paper to explain material, including working computations and drawing sketches. Place the blackboard and/or easel with chart paper on the side of the room opposite overhead projector.
8. **Overhead Transparencies:** Use overhead transparencies (view graphs). Explain each transparency in a systematic manner. For example, state: "This is the foreman's labor budget. Along the top is information regarding the project. Along the left side is information for each task, including cost code and construction task."
9. **Pointer:** Use a retractable pointer. Place the retracted

pointer on overhead transparencies to emphasize important items. Use the extended pointer to indicate important items on the blackboard and chart paper.

COURSE CONTENT

Following are suggestions for dealing with the varied backgrounds of your students.

1. **Student Background:** Quickly learn each student's background and expectation(s) from attending the course. Try to meet each student's specific expectations each hour.
2. **Course Content:** Explain that the course was developed from contacts with smaller contractors like themselves. Materials were developed in an attempt to meet the average contractor's needs. Explain that the material has been field tested, including the updating of previous course material.
3. **New Ideas:** Some of the ideas presented in the course may be new to you or the student. Explain that these approaches are the result of input by successful contractors. Most of the material can be used as presented or is easily adaptable to individual situations.
4. **Material Adaptation:** Do not hesitate to adjust the focus to the background and comprehension of your particular class. If you have mostly superintendents and foremen, stress the practical field aspects of job management. If you have company owners and project managers, stress how to implement the material at the managerial level. Remember students are there to learn, so do not hesitate to present any of the material, even if it is new to you. Just present the material in a manner that is tailored to the needs of that particular class.
5. **Student Manual:** The course material is developed so that you and the student have everything in one manual. It is generally best to start the class by covering the courses objectives and reasons why each objective is important. Then start each lesson by addressing that lesson's objectives and why they are important.

When you print the student manual, omit this section, "Instructor Notes".

6. **Read Manual:** You can ask the students to read certain material in the manual and then explain it in more detail. Reading varies the instructional technique.
7. **Student Teams:** Have student's work the case study problems in teams (groups of two or three, depending on the size and

experience level of the class). Teaming students often improves the learning process as students learn from their peer's experiences.

8. **Explain the Case Study Problems:** Be certain to thoroughly explain the case study problems. Many attenders may not have been in a classroom in many years and consequently may not be sure what is expected of them during the case study problem solving portion of the lesson. Walk around the class, review how well individuals and teams are solving the problem. Provide individual assistance as needed. If you see that most students are making the same mistake, stop work and re-explain how to address the problem. Ensure everyone knows that the case study problems are a learning experience only and not a means of student grading or evaluation. Make everyone comfortable with this portion of the lesson.
9. **Student Solutions:** Ask attenders to present their individual or group solution to the class. Student solutions facilitate the learning process.

SPECIAL INSTRUCTIONS

1. Have students express their thoughts on what they have learned.
2. Summarize the course for the class.
3. Have students complete the evaluation form for your report to the BCIAC.
4. Award certificates of completion.

CHECKLIST

The following checklist may be useful for class logistics.

A. Administration

- Student roster
- Registration forms
- Student manuals
- Pencils and highlighters
- Name cards and place cards
- Certificates of completion

B. Classroom

- Instructor's table
- Student tables and chairs appropriately arranged
- Blackboard, chalk, eraser
- Chart paper, easel, marking pens
- Waste paper basket
- Overhead projector
- TV and video cassette player

C. Refreshments

- Table, table cloth, napkins
- Coffee pot, coffee, cups
- Sugar, cream, stir sticks
- Waste paper basket(s)
- Soap and paper towels in rest rooms

LESSON PLAN: INTRODUCTION

CHANGE ORDER PROCESSING AND CONTROL

- A. SUBJECT: Introduction to Workshop
- B. OBJECTIVE: To familiarize the student with the instructor's background, each fellow student's background, getting your money's worth from the course, course administration, and course objectives.

C. LOCATION: Classroom

D. LESSON OUTLINE:

SUBJECT:	TIME REQUIRED:
1. Introduction Objectives	1 MIN
2. Instructor's Background	3 MIN
3. Student's Background	10 MIN
4. Getting Your Money's Worth	5 MIN
5. Course Administration	4 MIN
6. Course Objectives	2 MIN
7. Student Questions	5 MIN

E. STUDENT ASSIGNMENT:

1. Read Introduction.
2. Student's Background.
3. Student Questions.

F. TEACHING AIDS:

1. Introduction Objectives
2. Instructor's Background
3. Student's Background
4. Getting Your Money's Worth
5. Administration
6. Course Objectives

LESSON PLAN #1

1. **SUBJECT:** Modifications
2. **OBJECTIVE:** To familiarize the student with the primary causes of delays and cost overruns, the definition and types of modifications, and potential change order problems.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Primary Causes of Delays.....	5 min
B. Types of Modifications.....	15 min
C. Change Order Documentation.....	10 min
D. Change Order Problems.....	15 min
E. Practical Exercise.....	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #1
 - B. Provide solutions for the given problems related to change orders.
6. **TEACHING AIDS**
 1. Overhead 1.1 Lesson #1 Objectives
 2. Overhead 1.2 COC Profit Tip #1
 3. Overhead 1.3 Major Sources of Delays
 4. Overhead 1.4 Practical Exercise #1
 5. Overhead 1.5 Practical Exercise Solution
7. **HANDOUTS**
 1. Practical Exercise #1 Solutions

LESSON PLAN #2

1. **SUBJECT:** Your Change Order Rights
2. **OBJECTIVE:** To familiarize the student with the rights, responsibilities, and remedies of the owner, designer, general contractor, and subcontractor.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Lesson 2 Introduction.....	5 min
B. Owner's Rights, Resp., and Remedies.....	10 min
C. Designer's Rights, Resp, and Remedies....	10 min
D. Contractor's Rights, Resp, and Remedies..	10 min
E. Subs Rights, Resp, and Remedies.....	10 min
F. Practical Exercise #2.....	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #2
 - B. List examples of the rights, responsibilities, and remedies in the Owner/Contractor relationship and Contractor/Subcontractor relationship.
6. **TEACHING AIDS**
 1. Overhead 2.1 Lesson #2 Objectives
 2. Overhead 2.2 COC Profit Tip #2
 3. Overhead 2.3 Owner's Rights
 4. Overhead 2.4 Owner's Responsibilities
 5. Overhead 2.5 Owner's Remedies
 6. Overhead 2.6 Contractor's Rights
 7. Overhead 2.7 Contractor's Responsibilities
 8. Overhead 2.8 Contractor's Remedies
 9. Overhead 2.9 Practical Exercise #2
 10. Overhead 2.10 Practical Exercise Solutions
7. **HANDOUTS**
 1. Practical Exercise #2 Solutions

LESSON PLAN #3

1. **SUBJECT:** Contract Documents
2. **OBJECTIVE:** To familiarize the student with potential problems and prospective changes associated with contract documents, change order provisions of the prime contract and subcontract.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Lesson 3 Introduction.....	5 min
B. COC Profit Tip #3.....	5 min
C. Prime Contract.....	10 min
D. Subcontractor Submittals.....	5 min
E. Subcontractor Change Order Quote.....	5 min
F. Subcontractor Price Assignment.....	5 min
G. Subcontracts.....	10 min
H. Practical Exercise #3.....	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #3
 - B.
6. **TEACHING AIDS**
 1. Overhead 3.1 Lesson #3 Objectives
 2. Overhead 3.2 COC Profit Tip #3
 3. Overhead 3.3 Prime Contract
 4. Overhead 3.4 Subcontracts
 5. Overhead 3.5 Practical Exercise #3
 6. Overhead 3.6 Practical Exercise Solutions
7. **HANDOUTS**
 1. Practical Exercise #3 Solutions

LESSON PLAN #4

1. **SUBJECT:** Processing Prior To Change Orders
2. **OBJECTIVE:** To familiarize the student with knowing how to incorporate change orders into a preconstruction conference, notification procedures, and emergency change orders.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Lesson 4 Introduction.....	5 min
B. COC Profit Tip #4.....	5 min
C. Preconstruction Conference.....	10 min
D. Required Notifications.....	10 min
E. Emergency Change Order.....	15 min
F. Practical Exercise #4.....	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #4
 - B.
6. **TEACHING AIDS**
 1. Overhead 4.1 Lesson #4 Objectives
 2. Overhead 4.2 COC Profit Tip #4
 3. Overhead 4.3 Preconstruction Conference
 4. Overhead 4.4 Required Notifications
 5. Overhead 4.5 Emergency Change Order
 6. Overhead 4.6 Practical Exercise #4
 7. Overhead 4.7 Practical Exercise Solutions
7. **HANDOUTS**
 1. Practical Exercise #4 Solutions

LESSON PLAN #5

1. **SUBJECT:** Initiation Phase
2. **OBJECTIVE:** To familiarize the student with the initiation of a change order and who can initiate changes.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Lesson 5 Introduction.....	5 min
B. COC Profit Tip #5.....	5 min
C. Owner and Designer.....	5 min
D. Change Order File.....	10 min
E. Change Order Analysis.....	10 min
F. Change Order Log.....	10 min
G. Practical Exercise.....	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #5
 - B. Complete a change order analysis
6. **TEACHING AIDS**
 1. Overhead 5.1 Lesson #5 Objectives
 2. Overhead 5.2 COC Profit Tip #5
 3. Overhead 5.3 Change Order Analysis
 4. Overhead 5.4 Change Order Control Log
 5. Overhead 5.5 Practical Exercise #5
 6. Overhead 5.6 Practical Exercise Solution
7. **HANDOUTS**
 1. Practical Exercise #5 Solutions

LESSON PLAN #6

1. **SUBJECT:** Estimating and Pricing Phase
2. **OBJECTIVE:** To familiarize the student with the component costs of change orders, pricing a change order, and estimating the change order.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Lesson 6 Introduction.....	5 min
B. COC Profit Tip #6.....	5 min
C. Component Costs.....	10 min
D. Pricing the Change Order.....	10 min
E. Soliciting Quotes.....	5 min
F. Change Order Estimate.....	10 min
G. Practical Exercise.....	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #6
 - B. Estimate the cost of a change order using information gathered on a telephone quote log.
6. **TEACHING AIDS**
 1. Overhead 6.1 Lesson #6 Objectives
 2. Overhead 6.2 COC Profit Tip #6
 3. Overhead 6.3 Component Costs of a Change Order
 4. Overhead 6.4 Change Order Pricing
 5. Overhead 6.5 Telephone Quote Form
 6. Overhead 6.6 Change Order Estimate
 7. Overhead 6.7 Practical Exercise #6
 8. Overhead 6.8 Practical Exercise Solution
7. **HANDOUTS**
 1. Practical Exercise #6 Solutions

LESSON PLAN #7

1. **SUBJECT:** Negotiation Phase
2. **OBJECTIVE:** To familiarize the student with the responsibilities of the designer, contractor, and owner while negotiation changes.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Lesson 7 Introduction.....	5 min
B. COC Profit Tip #7.....	5 min
C. Designer's Duties.....	5 min
D. Contractor's Duties.....	5 min
E. Owner's Duties.....	5 min
F. Negotiation Principles.....	20 min
G. Practical Exercise	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #7
 - B. List the objections the owner may have and possible solutions regarding scope, budget, and schedule.
6. **TEACHING AIDS**
 1. Overhead 7.1 Lesson #7 Objectives
 2. Overhead 7.2 COC Profit Tip #7
 3. Overhead 7.3 Practical Exercise #7
 4. Overhead 7.4 Practical Exercise Solution
7. **HANDOUTS**
 1. Practical Exercise #7 Solutions

LESSON PLAN #8

1. **SUBJECT:** Negotiation Phase
2. **OBJECTIVE:** To familiarize the student with the rationale, the preparation, and the format of the change order policy.
3. **LOCATION:** Classroom
4. **LESSON OUTLINE:**

SUBJECT:	TIME REQUIRED:
A. Lesson 8 Introduction.....	5 min
B. COC Profit Tip #8.....	5 min
C. Change Order Rationale.....	5 min
D. Change Order Preparation.....	10 min
E. Format and Content.....	10 min
F. Change Order Policy.....	10 min
G. Practical Exercise #8.....	15 min
5. **STUDENT ASSIGNMENT**
 - A. Read Lesson #8
 - B. List problems and solution that are common to change orders.
6. **TEACHING AIDS**
 1. Overhead 8.1 Lesson #8 Objectives
 2. Overhead 8.2 COC Profit Tip #8
 3. Overhead 8.3 Change Order Policy
 4. Overhead 8.4 Practical Exercise #8
 5. Overhead 8.5 Practical Exercise Solution
7. **HANDOUTS**
 1. Practical Exercise #8 Solutions
7. **SPECIAL INSTRUCTIONS**
 1. Have students express their thoughts on what they have learned.
 2. Summarize the course for the class.
 3. Have students complete the evaluation form for your report to the BCIAC.
 4. Award certificates of completion.

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