The change-order process can be one of the most difficult aspects of the entire construction undertaking, but it doesn’t have to be that way. Of course, it’s almost inevitable that at some point change orders will be issued during a construction project, but the manner in which the change orders are proposed, submitted, and resolved can either be contentious or it can be a fairly smooth operation.

The AIA A201 General Conditions document defines a change order as a written order to the contractor, signed by the architect and the owner, that’s issued after the contract has been executed, authorizing a change in the scope of work or an adjustment in the contract sum, contract time, or both.

The contentious part of the process, however, involves three basic elements:

- An interpretation of what constitutes a change in the scope of the contract work
- The cost of the work
- How this change or changes affect the completion time of the project

Owners and their design consultants seem to have the following problems with contractors’ change orders:

- Contractors don’t clearly define the nature of the change order when submitted except when it is in response to an A/E-generated revision, complete with drawing revisions/specification changes or detailed instructions.
The contractor does not provide sufficient cost information with detailed breakdowns, thus allowing the reviewing party to thoroughly examine and understand all costs associated with the change.

The contractor (project manager) has not scrutinized all accompanying subcontractor/vendor proposals to insure that they have correctly identified the changes, that the requests are legitimate, the costs reasonable, and that the terms and conditions of the contract, such as allowable overhead and profit percentages, have been met.

Each of these elements that cloud the change-order process, if approached professionally, will result in a prompt and equitable closure. If approached haphazardly, a feeling of mistrust among the participants will develop and pervade the entire project. Therefore, this chapter deals with the procedures that allow for effective change-order processing, and points out the many pitfalls to avoid.

A Cardinal Rule

An important rule-of-thumb when preparing a change-order request is to first change your perspective. View this request as though you were the recipient and you were being asked to pay out a substantial amount of money for this change in work. Would you approve such a request?

Starting off on the right foot

Establishing the proper procedures for the submission of change orders needs to be presented at the beginning of the project. Even though the project manager has successfully worked with the owner and their design consultants, as well as various subcontractors on previous projects, it's wise to review the steps required to present and implement a change order. At the commencement of the project, the project manager can review the Protocol for Change Orders referenced in Chap. 6 with all the subcontractors, and let everyone know what is to be expected if they intend to respond to a change-order request.

Change-order work will generally involve the following:

- Changes in scope requested by an owner, design consultant, or a general contractor or subcontractor for which a lump-sum proposal will be required
- Time and material work requested by an owner for additional work
- Premium time costs for work that must extend beyond normal working hours
Winter conditions, if not included in the contract as a lump sum, or included as an allowance item requiring documentation of costs prior to reconciliation

Reviewing the Important Contents of a Change-Order Request

The following portions of any change order should be reviewed:

- Each proposed change order should contain a brief explanation of the nature of the change, and the party initiating it (for instance, the owner, A/E, contractor, subcontractor). All supporting documentation such as letters from the owner, drawings/sketches from the A/E, requests from the subcontractor, and so on should be attached.

- If the scope of work is increased or decreased, the prior condition and revised conditions should be stated (for example, 20-lf railing added between Cols 9–10 per A-3.4 dtd 06/04/06: 5-lf railing indicated on A-3.4 dtd 04/23/06—add of 15 lf).

- All costs submitted for self-performed work should be broken down into labor hourly rates multiplied by the number of hours required. The detailed breakdown of each hourly wage rate should include the burden for trades involved. Materials should be listed in lineal or square feet, as appropriate, and the unit cost for each should be noted (attach copies of vendor invoices if applicable). Allowable overhead and profit should be added as a separate entry, not included in each line item.

- Equipment costs should indicate whether the machines are contractor-owned or rentals. The hourly rate and the number of hours idle or active should be listed. Signed receipts documenting the delivery and return of the equipment should also be included.

Note: Some owner contracts stipulate that if an hourly rate is used but equipment is rented for more than 5 hours, the daily rate will apply. Likewise, if the equipment is used for more than three days, a weekly (not daily) rate will be applied. Read the owner’s contract to determine if such a provision is included.

One further note about equipment: There can be both active and idle equipment rates for contractor-owned equipment. Idle rates for contractor-owned equipment will not only reflect deducting costs for the operator and fuel, but should also include a deduction for maintenance since the equipment is not operating and therefore will require less maintenance.
If work is time and material, follow all the previous procedures.

If requested by the owner, the owner’s representative may elect to be present when change-order negotiations with subcontractors/vendors take place.

(This last statement will provide the owner with some assurance that all such negotiations are open and above board—if they had any doubts to the contrary.)

**Time and material work**

The project superintendent should obtain daily tickets for all self-performed T&M work and sign a copy of each ticket indicating acceptance of the number of hours worked, the number of workers, and the equipment provided (both active and idle time and the materials consumed).

For subcontracted work, daily tickets from each subcontractor should list the number of hours each tradesman worked and the task performed. These tickets must be signed by the project superintendent at the end of each day. Tickets should include the equipment and materials used and a brief description of the work task.

It is imperative that these tickets be signed at the end of each day when the work was performed and not gathered together at the end of the week for signing. Any discrepancies noted daily may have been forgotten by week’s end.

On both self-performed work and subcontracted work, a description of the work being performed is not only necessary for the owner’s edification but for the contractor as well. Some proposed change-order requests linger at the architect or owner’s office for months and when they are finally reviewed, raise a number of questions that tax memories: “What exactly was that carpenter doing for the 32 hours you’re billing us for on October 23, 24, and 25?” “Where was that underground conduit extension that was required but not shown on ES-1.1?” A brief description of work included on every daily work ticket will prove invaluable in explaining work performed four months earlier that’s just now being reviewed by the owner.

**The verbal authorization to proceed**

Although verbal authorization to proceed with change-order work is used frequently, written confirmation must follow promptly to avoid any misunderstandings of what was authorized and their associated costs. And there’s no time like the present to do so. If confirmation is not forthcoming from the architect within a reasonable period of time, the project manager can prepare a short and simple letter to the owner/architect such as:
As of (date work was authorized), (general contractor) is proceeding with (work task) based on your authorization to do so. The cost of this work, as mutually agreed is $_________ (or state that it will proceed on the basis of time and material) and includes X percentage for general contractor’s overhead and profit.

It does not appear that this work will have any impact on the construction schedule (or if it will have an impact but the number of days can’t currently be determined, state “The impact on the schedule cannot be determined at this time. We would appreciate receiving your formal change order at your earliest convenience”).

The project manager should remember that although there has now been a verbal authorization to proceed, followed by a written confirmation, it is still important to obtain that formal change order from the architect. Although the extra work may be completed promptly, it cannot be included on a requisition for payment until the formal change order has been issued and signed by all parties. For that reason alone, it is prudent to press for prompt processing of the formal change order.

What Constitutes “Cost”

Certain elements of change-order preparation require some rethinking. One of which is: What constitutes allowable, reimbursable costs?

Article 7 of the AIA 201 document is a good guide to follow and states that costs include

- The cost of labor, including fringe benefits
- The cost of materials, supplies, and equipment, as well as the cost of transportation
- Rental costs of machinery and equipment, excluding hand tools, whether rented from the contractor or from a rental agency
- The cost of premiums for bonds and insurance, permits, fees, sales, and use tax
- The additional cost of supervision and field office personnel directly attributable to the change

Other considerations can also impact cost, such as:

- What effect will this work have on the completion of the project and will any general conditions costs be affected?
- Will the work in question require premium-time labor to complete in order to keep pace with the schedule, or can it be accomplished during normal working hours with the manpower available?
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Will the materials or equipment to be incorporated into the work be unloaded and distributed throughout the building? If so, what costs will this entail?

Will additional drawings or other reproducibles be required, and will they need to be distributed to subcontractors and/or field personnel so this work can be performed? If so, the costs for these reproducibles and any express delivery costs are legitimate costs and should be incorporated into the change order.

Will additional winter protection be required to complete this work, and if so, what are the costs?

What about the additional costs of the utilities required to complete the work? (For example, if the building has reached the point where permanent utilities are operable and the contractor is paying the cost of their operation, the daily cost of these utilities will be substantial. A change order at this point should thus include costs to cover a portion of those utilities, particularly if the contract time will be extended.)

What about the cost of expensive, depreciable tools such as diamond blades for masonry and concrete cutting? If the work involved requires considerable cutting, a $500 diamond blade may have its useful life shortened considerably.

When hoisting or lifting equipment is required, remember to add the cost of the equipment and the wages of the operator. Also, don’t forget fuel costs in this age of soaring gas and diesel prices.

Consider whether additional cleaning costs will be incurred and what the added costs will be to dispose of any debris generated by the change-order work.

The project manager may wish to develop a checklist of all potential costs to be considered when preparing a change order to insure that all costs are incorporated in future change orders.

Completion Time and the Change Order

Is the nature and timing of the change-order work apt to affect the contract completion date of the project or impact any subcontractor’s work schedule? Will the work extend the completion date or will it actually decrease construction time? In the case of completion time, even if a liquidated damages clause is not part of the contract, the general conditions portion of the budget may be impacted, causing delays of subcontracted work not associated with the change-order work.

Consequential damages

Although consequential damages may have been excluded from the contract with the owner and from agreements between the general contractor and
subcontractor, a brief discussion of the subject will illuminate some concepts important to change-order work.

There are several types of costs involved in delayed completion time: direct costs or losses, and indirect or consequential damages or losses. Direct costs are rather easy to understand: the increased cost of rental equipment, increased salaries of management personnel stationed on the jobsite, extended field office expenses, and so forth. But consequential damages are not so easy to define. They include an owner’s lost profits due to late delivery of their project, increased interest on their construction loan, perhaps increased rental at their current location, taxes, and so on.

A general contractor or subcontractor may also incur added expenses when the project’s completion is delayed through no fault of their own. A contractor or subcontractor may be prohibited from bidding on new work because their management staff is still tied up on the delayed project or their bonding capacity is affected, thus their corporate overhead will also be impacted and their reputation possibly tarnished.

**Will contract time remain the same, be reduced, or be extended?**

There is a line item in AIA Document G701 (change-order form) that refers to contract time: *The architect is to confirm that the contract time will be increased, decreased or remain the same with the execution of this change order.* A space is included for the contractor to insert the number of days for the anticipated increase or decrease due to the proposed change in work. Another line directly below that one has a space in which to insert a revised date of substantial completion, if that date will change. The project manager should include in their proposed change-order request to the architect any potential for change in the contract completion time. If unknown at the time, the change-order proposal submitted by the project manager can write in that space “To Be Determined.”

Most architects are reluctant to sign a document with such an open-ended condition—understandably so. But at that time, the contractor doesn’t really know if the change order will impact the schedule. If that “TBD” is not acceptable to the architect, insert a number of days that will be more than adequate.

Theoretically, any increase in contract completion time, if accepted, can result in a contractor’s request for extended general conditions costs covering the period of time for that extension, such as:

- Additional field supervision
- Additional field office expenses, including field office rental and supplies
- Added temporary heat and/or power
- Added temporary sanitary control
- Additional cleaning costs and debris removal associated with the work
When a request for an extension of time is strongly debated by the architect, try another approach. Get the architect to agree to the job completion extension time with the proviso that, if the project is complete within the original contract time frame, no claim will be made for extended general conditions. If the completion extends beyond the contract date, the contractor will receive a reimbursement of the general conditions for the cumulative time extensions included in the change-order proposal(s).

Get it in writing. One word of caution about requesting time extensions, members of the project team can change jobs during the life of a construction project. Although the project manager may have developed a harmonious working relationship with the original Owner-A/E team, new faces may appear, and previously friendly relationships can turn cool or outright cold. If the architect or owner’s representative had previously stated that formal time extensions were not necessary, because when the time came they would agree to them if need be, the new “team” may completely disavow any previous verbal commitments. To avoid such situations, it’s wise to prepare for the worst and request confirmation of all time extensions if, and when, they are justified. A project manager can always use the “what if I’m hit by a car” scenario so as not to imply that the owner-architect representative can’t be trusted. Simply stated, if there is mutual agreement that a job extension is warranted, it should be so indicated in the change order. After all, suppose one of the team members is hit by a car tomorrow and there is no documentation to support the verbal commitment?

Small-tool costs

Some subcontractors submit proposals in which they include a “small tools” expense as a function of a tradesman’s hourly rate. Some are rather generous with these numbers, perhaps adding $2.55/h × 40 hours for a total of $102/week. That buys an awful lot of hammers and screwdrivers, and both owners and architects are sensitive to charges like this. There is, of course, some validity to “small tools” charges if they’re reasonable and proper.

Will some hand tools need to be purchased specifically for this additional work? Generally, hand tools are excluded from “reimbursable” costs, except where a case can be made for reimbursement of special tools needed for the change-order work in question.

Residual value of tools and equipment. When a cost plus or GMP type contract is in effect, the purchase of some expensive power tools or other equipment may be required for the work. Depending upon the length of
the project and the use to which these tools or equipment have been put to use, they may have considerable residual value.

Power tools have limited life but may have some residual life after the job is complete, so a cost representing depreciation of the power tool is a reasonable one to be included in the change order as a cost of work.

If a contractor decides to purchase such tools or equipment, and the purchase price is included in the change order, then a residual value should be established and included in those costs. For example, if a miter saw is required for some detailed millwork, the change-order entry for this equipment might be entered as follows:

Makita—Model 485 Miter Saw $485
Less residual value 100
Cost of equipment in this PCO $385

If this procedure is rejected by the owner, forego the purchase and rent the equipment, possibly at a higher rate to that owner.

When there's a chance the extra work might extend over a lengthy period of time, the general contractor may consider purchasing a tool on a lease-purchase agreement and then charging the owner sufficient rental costs which would ultimately pay for the tool.

What costs other than bricks and mortar should be considered?

Building permit and bond costs. Building permit costs will generally grow as the cost of a project increases from the value included in the initial permit. Many building departments monitor the cost of a project as it proceeds and establish procedures that require builders to pay additional fees when costs increase significantly. It is rather easy to establish a percentage of the total cost of each change order in anticipation of having to pay increased permit costs when the project has been completed.

The same is true of bond costs. The cost of the initial bond will rise incrementally as change orders increase the original contract sum. At the end of the project, the bonding company will review the total project costs and assess additional premiums based upon those increased costs. A call to the bonding company will determine the percentage to be added to each change order to cover these added project costs.

Temporary utility costs. When substantial completion of a building has been reached and the architect issues a Certificate of Substantial Completion, the building’s temporary utilities—gas, water, electricity, and telephone systems—are transferred from the builder’s account to the owner’s, unless indicated otherwise in the contract. Change-order
work authorized after this transfer of utilities will obviously have no impact on light, heat, or power costs.

But when substantial completion is near but not achieved, the project manager must assess the potential for increased heating/cooling or power costs if change-order work is requested that may extend the original completion date of the project. At that point in time, whether it be summer or winter, the permanent heating and cooling systems will be in full operation and, depending on the size and nature of the project, utility costs could be running at $1000 a day—or more.

Get together with the owner and their architect and establish a daily rate for utility costs by presenting invoices from each local utility company in order to substantiate those costs. And don’t forget the cost of those fasteners—nails, screws, and expansion bolts! More than one project manager has been shocked to find a $2000 bill for stainless steel expansion bolts purchased for change-order work which was not included in the cost of the work.

What overhead and profit fees can be included in change-order work?

The application of allowable overhead and profit percentages to change orders is normally established in the bid documents and carried through to the contract. Typical restrictions, frequently included in the general or supplementary conditions of a contract, or in Division 1 of the specifications, will state:

The undersigned (general contractor) agrees that the total percentage for overhead and profit which can be added to the net cost of the work shall be as follows:

For work performed by the general contractor’s own forces _____%  
For subcontracted work _____%  

Some requirements limit the percentage of overhead and profit on a sliding scale.

For the contractor, for work performed by their own forces:

Up to and including $100K allow 15%  
$101K to and including $200K allow 10%  
$201K and over allow 5%  

The same fee structure usually applies to subcontractors, but with additional restrictions on allowable fees that can be added by their lower-tier subcontractors, such as:

For each subcontractor, for work performed by the subcontractor’s subcontractor, 5 percent of the amount due the sub-subcontractor.

There may even be a provision that limits the total allowable overhead and profit percentage for the entire change order, such as: Total fees to the project are limited to 20 percent.
A project manager should review all subcontractor and vendor proposals to ensure that they have complied with the “contract” overhead and profit percentages in order to avert questions from the owner and architect if any OH&P percentages exceed those limits. The architect may also insert a clause in the specifications that dictate the way in which overhead and profit is to be computed on certain types of change orders.

When credits and charges both apply
A statement may be included dealing with the method of establishing net cost when changes in the work result in cost increases or credits. Scrutiny of subcontractor proposals should include their method of applying overhead and profit percentages. Some subcontractors will add overhead and profit to the add portion of their proposal before deducting their credits, which will surely be detected by the architect. If no such procedure is established in the contract, and even if it is, this information needs to be communicated to subcontractors to avoid future misunderstandings.

The construction change directive—The CCD
Article 7 of the 1997 edition of the AIA General Conditions document A201 contains a term that first appeared in the 1987 edition: the Construction Change Directive. This directive is an order prepared by the architect and signed by the owner directing a change in the work affecting the contract sum or contract time, or both. The CCD allows the architect to authorize extra work when there is either no time to compile and submit costs or when there is a lack of agreement on the terms of the change order, which usually means a disagreement over cost.

The cost of the work to be incorporated into the CCD is to be determined by either a mutually accepted lump sum, by any unit prices in the contract or by “costs to be determined in a manner agreed upon by the parties,” which is loosely interpreted to mean a negotiated sum.

The distinct advantage of this CCD provision is that it breaks the logjam when neither the architect/engineer nor the general contractor can agree on a cost of work but the change-order work must proceed. In such cases, the general contractor can start the extra work and provide the architect with documented costs that include:

- The cost of labor including all fringe benefits
- The cost of materials and equipment, including transportation expenses
- Rental costs of machinery and equipment, excluding hand tools, whether rented from the contractor or others
Costs of premiums for bonds, insurance, permits, and fees

Additional costs of supervision and field-office personnel directly attributable to the change

This article specifically states that in the event of an increase in one item and a decrease in another, the contractor’s overhead and profit shall be calculated according to the net increase. Another advantage of performing work under the CCD guidelines is that the architects will accept additional field supervision costs which they might otherwise question if components of a lump sum proposal are submitted.

Be alert to other contract provisions relating to change-order work

Standard contracts modified by the owner can include provisions relating to change-order work in sections that appear to be unrelated to the change-order work—yet another reason to become familiar with all the provisions of the construction contract.

A “should have known” provision can be tricky if worded like the following:

The contractor has constructed several projects of this type and has knowledge of the construction and finished product. The contractor shall immediately notify the architect and owner of any details that do not meet good construction practices. By proceeding with the work, the contractor indicates that all details, construction procedures, and materials shown or specified in the contract documents are consistent with sound, standard, and acceptable practices.

Try to get a reimbursement for some extra work with this provision in the contract! Then there’s the provision that doesn’t allow the contractor to request extended general conditions when being granted a time extension:

Any extension of time in which to complete the work that has been granted by the owner for items beyond the contractor’s control shall be the contractor’s sole remedy for any delay, hindrance in performance of work, loss of productivity, impact damages, or other similar claims.

This effectively bars any requests for relief of damages that may surface from subcontractors impacted by these changes. This is yet another reason for the pass-through provision in the subcontract agreement that will pass this owner-imposed restriction to the general contractor.

Public Works and the Change-Order Process

A number of government agency equitable adjustment contract clauses (change orders) exist, which fall into 10 basic categories:
Change orders to the work issued by the owner with full agreement by all parties regarding time, cost, and scope

- Constructive changes—changes that are accidental or unintended (for example, correcting a defect in the contract drawings or specifications)
- Differing or changed site conditions
- Suspension of work by the owner
- Constructive suspension of work—acts or omissions by the owner which have the effect of unreasonably delaying the contractor’s work
- Delays (explained more fully later in this chapter)
- Acceleration—owner demands contract completion, but recognizes that justified delays have occurred to warrant an extended completion date
- Constructive acceleration—an unintended shortening of the completion time
- Termination for convenience—where the owner can terminate a project prior to its completion or delete major portions of the work
- Termination for cause or default—generally due to poor or nonperformance by the contractor

When work is performed for municipal, state, or federal agencies, additional restrictions, qualifications and procedures can be expected. Some governmental authorities will honor a change order only if one of the following conditions exist:

- The time required to complete the project is to be increased because of conditions beyond the control of the contracting parties.
- Revisions in the plans and specifications, ordered by the local authority, will result in an increase or decrease in the cost of construction.
- Unpredictable underground or superstructure conditions are encountered which will increase or decrease the cost of construction.

Some government agencies may only accept change orders that result in project “betterments,” thus it is incumbent upon the contractor to prove that the change order request meets that criteria. The project manager must carefully read the “boilerplate” in all public works contracts to familiarize themselves with the terms and conditions required for change-order work.

Roadblocks to Acceptance of Change Orders

Why is the change order process so fraught with problems and frustrations? Aren’t change orders inevitable in the design and construction process?
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After all, what could be simpler: a change in the work under contract is requested, the nature of the work is discussed, a price is negotiated, and the work is completed and paid for on the next requisition. However, each participant in the change-order process has their own perspective on these events.

The owner’s perspective

Owners of construction projects select a team of design consultants to turn their building program into a set of plans and specifications. A contract is then awarded to a builder to build the project. The owner has bargained for a complete package, so why is the builder submitting change orders when the owner has not made any changes to the project? Sophisticated owners know the answer, even if they sometimes refuse to acknowledge it. The plans and specifications are not perfect and a contractor may not be aware of those imperfections until various components begin to come together as construction progresses. If known at the time the project was estimated, these drawing deficiencies would have, most likely, generated a series of RFIs to the design consultants, and also probably added to the cost of the work. So it’s almost like a “pay me now or pay me later” scenario. Although a few contractors have exploited the change-order concept to their advantage, most contractors would be content to never issue a change order unless the owner has directed them to change the initial scope of work.

When owner resistance to change orders appears, the contractor needs to clearly explain the events that created the need for this additional work.

The contractor’s perspective

The contract prepared by the owner will usually include a general conditions exhibit, and that exhibit will frequently be AIA A201-General Conditions of the Contract for Construction. This document, prepared by the owner’s architect, is specific as to the contractor’s obligations.

Article 3.2.1 requires the contractor to “carefully study and compare the various drawings. These obligations are for the purpose of facilitating construction and not for the purpose of discovering errors, omissions, or inconsistencies . . . however, any errors, inconsistencies, or omissions . . . shall be reported promptly to the architect.”

Article 3.2.2 goes on to state that “the contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, and building codes.”

And following through with Article 3.2.3, the architect states that any added costs that arise from the contractor’s review and queries to
the architect subsequent to these reviews may be subject to a contractor’s claim for additional compensation.

Thus, the architects, acting in their capacity as the owners’ agents or representatives, have made a clear case for the creation of change orders if any of these criteria are met.

On the other hand, the contractors have represented themselves as professionals, and some of these errors, omissions, and inconsistencies that should have been picked up by a responsible contractor should probably not be presented to an owner as change-order work.

**The architect and engineer’s perspective**

In the preparation of plans and specifications for today’s complex project, by constraints of time and/or money, or both, it is nearly impossible for an architect and engineer to produce that *perfect* set of documents. The language in the standard contract documents prepared by the American Institute of Architects recognizes these limitations.

Some “errors and omissions” are minor in nature—for instance, a door shown on a floor plan as a 3070, but included in a Door Schedule as a 2868. Other design deficiencies may be more significant in scope and cost and the contractor should request clarification before determining whether a claim for an adjustment to the contract price is warranted. A whole series of minor inconsistencies throughout the drawings may have an impact on costs, but a single one may not. Thus, both contractor and architect need to review these types of matters in their proper context.

The contractor must show the architect that they will approach such matters with a degree of reasonableness, and the architect, in turn, must grant the contractor the same degree of reasonableness when proposed change orders are prepared due to design deficiencies.

That hard-working, conscientious architect, aware that there may be some missing details or missing dimensions in their plans and specifications, needs to be protected from that unscrupulous contractor who might be waiting to exploit these document shortcomings by generating lots of change orders. By the same token, that hard-working, conscientious contractor needs proper recognition from that less-than-perfect hard-working design consultant.

**What is the solution?** If owner, architect, and contractor can agree that problems will arise relating to the quality of construction documents, then the first hurdle in resolving these problems will have been broached. It would appear that the best solution to some of the controversies that arise over change-order work require that the owner, architect, and contractor be *reasonable and responsive* in their approach to these problems of extra cost.
Is it reasonable to assume that it is the contractor’s responsibility to ensure that the mechanical and electrical drawings have been properly coordinated with each other, as well as with the architectural drawings? If during the coordination process when construction is underway, it’s determined that the ductwork, sprinklers, and ceiling-mounted recessed light fixtures can’t fit in the space above the proposed ceiling, and the ceiling can’t be lowered, is this not the basis for a reasonable change-order request? On the other hand, if additional window blocking is required for proper and secure window installation and this blocking detail is either missing or not sufficiently shown on the drawings, is this a legitimate claim for an extra from the contractor?

The answer to the first question is “Yes.” The contractor should not be held responsible for the coordination of multidisciplinary drawings when a reasonable amount of above-ceiling space has not been allotted to accommodate all utilities.

The answer to the second question is “No.” It does not seem reasonable for an architect to precisely detail window blocking, or roof blocking or other similar types of blocking since different suppliers have different requirements and an experienced and competent general contractor ought to be familiar with the required blocking details. Similar questions regarding responsibility should be viewed with an eye to what is reasonable—and when reasonable parties come together, some of the difficulties in implementing and approving change-order work may be eliminated.

Can trade-offs help? The project manager should be sensitive to the fact that the architect does not relish advising their client that extra costs may be involved because of design errors, omissions, or inconsistencies in the drawings or specifications. Compromise solutions may resolve some of these problems.

One approach that an architect is often willing to accept is the “trade-off” solution. If the contractor is able to substitute another material or product of similar quality, but that material or product is somewhat less expensive and the savings would offset the added costs in the proposed change order, is the architect amenable to this solution? It is important that the contractor present these proposed changes or trade-offs honestly. If, in fact, the substitution is of lesser cost, but still retains the quality level the project requires, the contractor could possibly offer a slight credit using the balance of the savings to offset the added costs.

But sometimes when a reasonable approach does not prevail, the project manager must adopt a different tack when a proposed change order meets stiff resistance from the owner and architect. Using legal concepts in a nonconfrontational approach may be helpful.
Two legal terms might be offered up when an architect displays reluctance regarding the added cost of change-order work. The first is quantum meruit, and the second is unjust enrichment. Both present the project manager with two added approaches to resolving change orders.

Quantum meruit. The Latin term quantum meruit (pronounced “quantum mare-o-it”) is also referred to as a “quasicontract” method of recovery of costs associated with change orders. Both terms refer to the fact that this additional change-order work benefits the owner even though the extra work does not meet the specific contract language required to deal with the procedures for change-order approval. The contractor must prove that the owner has, in fact, benefited by the work that was completed and accepted by the owner. Recovery of costs is based on the owner’s implied promise to pay for the benefit received by the incorporation of work into their project. If there is a dispute between the owner and contractor over change-order work, and whether it was performed within the terms and conditions of the contract, the contractor may be able to base their claim for reimbursement on the quantity and quality of the extra work and the benefits that accrued to the owner after the additional work was completed.

Unjust enrichment. Requesting reimbursement for change-order work utilizing the theory of unjust enrichment is based upon a contractor claim that the owner has been enriched by the work performed by that contractor. The concept of “You can’t get something for nothing” is the essence of unjust enrichment. If the project manager proceeds with change-order work based on a good-faith verbal commitment from either the architect or the owner, and this oral agreement for extra work is not confirmed in a letter or memorandum, how can the project manager proceed? Now that the work has been completed, the project manager’s request for a change order is met with silence from the architect or owner who doesn’t recall authorizing the work or doesn’t recall any such high price being quoted. With no written authorization to document the approval of extra work, the project manager is now rightfully concerned about receiving payment for the cost of the work and their fee.

Hypothetically, let’s assume that this change involved upgrading the specified birch hollow core doors to oak veneer, solid core doors. If 10 doors were involved, for example, and the additional cost of each upgrade was $200, the total cost of this extra work would be $2000 plus contractor mark-ups. The owner, very clearly, has had his project enriched by this contract modification, and value has obviously been added by the nature of this change in the work. If it appears that no change order will be forthcoming from the owner, the project manager should familiarize them with the concept of unjust enrichment while sending them a letter requesting a change order for the work.
The owner may argue the costs associated with this change and require documentation to substantiate every aspect of the $2000 plus change, but the argument that value has been added to the job by virtue of this change cannot be denied or dismissed. This is another approach to be pursued in order to get that written change order issued and approved.

**Betterments and enrichments.** The two terms, **betterments** and **enrichments**, are somewhat similar to the unjust enrichment concept in the previous paragraph, except that they’re likely to appear in some public works contracts. Therefore, the project manager should be familiar with their implication, which may find applicability in private sector work.

The example of the upgrade from birch doors to oak doors would be considered a **betterment**, and thus subject to the acceptance of a change order. However, if the fire marshal or building inspector conducted an inspection of the structure prior to the issuance of a certificate of occupancy and requested that additional exit or emergency lights be installed, along with more fire alarm pull stations or fire or smoke detectors, the general contractor may have difficulty submitting a claim for additional costs for this work in the public sector.

Remember that the contract provision limiting the contractor’s responsibility for compliance with local building codes was in the general conditions contract generally attached to private sector contract work. Public sector work may not use this same AIA A201 document, and therefore their contractor responsibilities may not include such provisions.

The public owner may interpret this additional fire protection work to be such that it does not make the project any “better,” but was required simply to comply with the local ordinances as interpreted by the local officials. The contractor, on the other hand, will certainly argue that these extra cost items are indeed **betterments**. Without these changes, a Certificate of Occupancy (C of O) would not have been issued, the building would not have been habitable, and would therefore have no value at all. The project would be **enriched** only when the Certificate of Occupancy was issued, and that would occur only after the extra work was completed.

**Liquidated Damages and the Change-Order Process**

When change orders increase the completion time of the project, extra costs may be warranted for such items as extended general conditions. Therefore, owner recognition of an extended schedule is important. When a liquidated damages (LD) clause is included in a contract with the owner, recognition of an extended schedule is critical to avoid costs imposed by the owner for late delivery of their project.
A liquidated damages clause stipulates that a certain monetary payment will be paid by the general contractor for failure to deliver the construction project on the date of completion set forth in the contract or adjusted by the change order. These payments are generally computed on a daily basis—for example, liquidated damages of $5000 per day will be assessed against the general contractor for every day work goes beyond the date of completion stipulated in the contract or adjusted for by any change orders. Any such extensions of time granted by the architect and owner and included in approved change orders will be taken into account in these calculations.

A typical liquidated damages clause

A liquidated damages clause will usually be inserted into the paragraph in the contract that refers to “contract time.” It will likely be similar to the following:

If the work is not substantially completed in accordance with the drawings and specifications, including any authorized changes, by the date specified above, or by such date to which the contract time may be extended, the contract sum stated in Article (whichever article contains the contract sum) shall be reduced by $______ (the daily value of liquidated damages) as liquidated damages for each day of delay until the date of substantial completion.

It is important to note whether the contract defines “day” as a calendar day or a workday.

Although the intent is to have the contractor pay the owner for damages incurred due to the late delivery of the building, the liquidated damages clause states that the total LD amount will, in actuality, be deducted from the final payment, since it has the effect of decreasing the contract sum.

The purpose of the liquidated damages clause. Some contractors view the liquidated damages clause as a penalty clause—a monetary slap on the wrist for late delivery of a construction project. But an LD clause in a contract is not a penalty, and if included as such, it must include a bonus clause for early completion of the project, or else in the eyes of the law, the LD clause is voided. The purpose of the LD clause is to compensate the owner for late delivery of the project without having to pursue a legal recourse to collect damages.

For example, an office building developer may have signed leases affording tenant occupancy on January 1st, but because of late delivery of the project by the contractor, occupancy must be extended to January 21st. Obviously, the landlord has been deprived of income for this three-week
period, and the LD will compensate them for this loss. The tenant may have had to extend their old lease and would expect to be reimbursed for those costs.

One of the key elements of the liquidated damages clause is a definition of what is meant by “complete.” The typical LD clause defines completion as “substantially complete,” a condition certified by the architect. Substantially complete means that the structure is at that point where it meets the purpose for which it has been designed. A certificate of occupancy from the local building department is notification that the building can be occupied, but the structure does not have to be 100 percent complete. The lack of carpet in the lobby or possibly unpainted walls do not affect occupancy nor the definition of substantial completion. So the issuance of a certificate of Substantial Completion or a Certificate of Occupancy, in most cases, is enough to stop the LD calendar while the building is still under construction.

Enforcement of the liquidated damages clause. Liquidated damages clauses will not be enforced by the courts if they are construed as penalties to be levied against the contractor. Even though the contract language states that the liquidated clause is not a penalty clause, that stipulation is not binding without meeting certain criteria.

1. The amount fixed as the daily dollar amount of damages must be a reasonable assessment of the costs the owner will incur if the project is not completed on time.

2. The effects of the breach of contract (inability to finish on time) must be very difficult to establish at the time of contract preparation.

The amount of the liquidated damages must bear a relationship to the real, not imagined, harm to the owner if completion is delayed. In a court case referred to as *Harty v. Bye*, 483 P.2d 458 (1971), the Supreme Court of Oregon ruled that, although a contract contained a liquidated damages clause and the contractor did not complete the project on time, the owner was unable to substantiate proof of actual losses due to the late completion. In another court case, known as *Nomellini Construction Company v. Department of Water Resources*, 96 Cal. 682 (1971), neither party could establish the amount of damages which were incurred as a result of the other party’s delays. The court said that if it is not able to discern a clear-cut distinction between the damages caused by the parties, liquidated damages cannot be assessed.

A further illustration of unenforceability is the case of *Mosler Safe Company v. Maiden Lane Safe Deposit Co.*, 199 N.Y. 479 (1910). There was a liquidated damages clause in the construction contract and when
the contractor completed the work later than the date specified in the contract, final payment was requested. The owner, however, was determined to invoke liquidated damages. During the court action, the contractor stated that they had been delayed because the architect required the work to be installed in a manner different from that indicated in the contract drawings. The contractor also claimed that the architect delayed the job by not acting promptly on shop drawings submitted for review. The court ruled that when delays are caused by both parties, it will attempt to apportion the damages and will refuse to enforce the liquidated damages provision in the contract.

**When the contract does not include an LD clause.** Just because a construction contract does not include a liquidated damages clause, the contractor may still be subject to “actual” damages, which in some cases may exceed those of the liquidated damages. Delays in completing a project where LDs are not included may subject the contractor to the actual damages the owner incurs due to failure to meet the contract completion date. So what’s the difference?

When a liquidated damages clause is to be inserted in the owner’s contract, the owner calculates the added costs they will incur if the project is late. Costs such as interest on construction loans, loss of revenue from rental income if an office building is involved, or possibly loss of income from operations for a hotel or manufacturing plant are calculated. These costs, assembled as accurately as possible, may fluctuate during the length of construction as interest costs increase or economic conditions change. Under the LD concept, the owner can only collect the damages in the per diem amount indicated in the contract even if their actual costs exceed that per diem. The concept of “actual damages” does not limit the owner to a specific amount, but they can collect as much as they can prove in a court of law. As a general rule of law, damages do not have to be precisely calculated or even documented, but they must stand the scrutiny of what is reasonable.

**Change Orders Reflecting Costs Due to Job Delays**

Some delays encountered by the contractor allow them to extend the completion time of the project and be compensated accordingly via change orders. Some delays do not.

Delays occurring in construction projects can be categorized as follows:

- **Excusable.** The contractor is granted a time extension, but no monetary compensation.
Concurrent. Delays occur, but neither the contractor nor the owner can collect monies for damages due to these delays.

Compensable. Delays for which either the owner or the contractor is entitled to additional monies.

Excusable delays
Excusable delays allow the contractor to extend the completion date of the contract but may not allow them to recover costs associated with the delays. This list of excusable delays includes:

- Acts of God
- Fires or other significant accidents
- Illness or death of one or more of the contractors
- Transportation delays over which the contractor has no control
- Labor strikes or disputes
- Unusually severe weather

Concurrent delays
Concurrent delays happen when two or more delays occur within the same time frame, both or all of which impact the project’s completion date. These types of delays are also called overlapping delays, for obvious reasons. Concurrent delays may be caused by the owner or the contractor, but if it appears that both are responsible and these delays overlap, neither party will be able to recover damages; the owner can’t assess liquidated damages and the contractor cannot collect for damages due to the delay.

Compensable delays
Compensable delays, as defined by several court decisions, are those delays for which damages can be claimed. Compensable delays include delays caused by elements beyond the control of the contractor, but within the control of the owner (including their design team). Changes in the work, access to the site, and site conditions differing materially from those specified in the contract are some other examples of compensable delays. Specific court cases established some delays as “compensable.” These are listed next:

- Delays in the approval of shop drawings submitted by the contractor [Specialty Assembling and Packing Co. v. United States, 274 Ct.Cl. 153 (166)]
Delays caused by the owner’s improper inspection procedures [Gannon Company v. United States, 189 Ct.Cl. 328 (1969)]

Inadequate or defective drawings or specifications [United States v. Spearin, 248 U.S. 132 (1918) and J.D. Hedin Construction Co. v. United States, 171 Ct.Cl. 70 (1965)]

Contract changes when the nature of the work changed affects the original or unchanged work and causes an extension of time [Conduit and Foundation Corp v. State of New York, 425 N.Y.S. 2d 874 (App.Div. 1980)]

Owner work-force interference. The owner, complying with the provisions of the contract is allowed to award separate contracts for work on the project and this may affect the general contractor’s work. Such a situation could arise on a union construction worksite when an owner engages nonunion subcontractors and jurisdictional disputes lead to work stoppages. [Bateson Construction Co. v. United States. 319 F.2d 135 (Ct.Cl.19630)]

Documentation required for excusable delays. With respect to excusable delays (those delays that extend the contract time but won’t support a claim for additional monies), the project manager should submit a written request for a project extension whenever it occurs, even if it appears at a time when the job is ahead of schedule. If unforeseen events create delays of any nature as the project progresses, this early request may prove the necessary cushion to offset potentially costly penalties assessed by an owner.

When a request for a project completion extension is submitted, there may not be an immediate response from the architect or owner. If a response has not been received after a week or so, it is prudent to write another letter referring to the first request and stating that if there is no response to the second request within, say, five (5) days after receipt, it will be assumed that the delays have been accepted and therefore the contract completion time will be extended by the requested number of days. This will surely trigger a fast response.

Weather delay documentation. Severe or adverse weather delay procedures may be defined in the construction contract but if no mention is made, actual weather delays are generally measured against the 10-year average for the specific time of the year and the location of the project. If the number of actual delay days is not unusual for the area at that time of the year, the contractor may not be entitled to a delay no matter how severe.

It is important that the job superintendent or project manager diligently document weather conditions on the daily time sheet or daily diary, and they should be reported at the start of the workday, at noon, and at mid-afternoon. If inclement weather delayed the start of work or canceled
the entire day's work, the report should contain an entry such as: *No work day today due to extremely heavy rains from 6:30 A.M. to 10:30 A.M.*

If any workers had reported for work awaiting a decision on whether the day would be considered a “no-work” day, that should also be noted in the report identifying these workers by name. A visit to the local weather bureau’s Web site to determine the amount of rainfall during that period is also advisable, and a download can be attached to the daily log.

**Pitfalls to Avoid when Preparing Change Orders**

The initial submission of a proposed change order should be complete in every respect. Enough documentation should be attached to describe the changed condition, sufficient and detailed cost data to allow the architect to analyze the change request and any other explanatory information. It is important to avoid a series of questions raised by the architect regarding scope or price. The back and forth Q&A procedure that often accompanies the contractor's proposed change order is what prolongs its resolution.

The following pitfalls-to-avoid list may be helpful in that regard:

- **To avoid questions regarding the billable costs for labor and equipment**, prepare a detailed hourly rate for each type of labor that may be potentially incorporated in change-order work, and a schedule of hourly rates for equipment. Submit this list to the architect in the earliest stages of the project to obtain acceptance of these rates, which will help prevent future disputes over labor and equipment costs.

- **Hourly rental rates continue even though the equipment is idle.** If work is delayed pending certain decisions from the architect or owner and the equipment is idle, these costs should be included in the cost of the work. If the operator is also on standby, their hourly rate should be included just as though the piece of equipment was being operated. Costs billed as “idle” or “equipment downtime” should be submitted with a brief explanation: Backhoe—Active rate: $65.00/hour exclusive of operator; Idle rate: $50.00 reflects no fuel or maintenance costs.

- **Consider whether the cost of work will require premium-time work.** It may be beneficial to the owner to proceed with overtime work to avoid delay claims from other trades dependent upon this work in order to proceed on schedule the following day.

- **If overtime is required, particularly if extended periods of premium-time are involved**, consider the effect of lower worker productivity and increase the number of hours and the total cost of labor proportionately.

- **Lump-sum proposals from subcontractors must be broken down into labor, materials, and equipment, with overhead and profit added as a**
separate line item. Will an owner or architect be able to understand the nature and extent of all costs for which reimbursement is requested? Could you if you were an owner?

- Be specific about the reasons for requesting change-order work. Include copies of portions of the drawings or specification section—ASI, RFI, and SK—to clarify the claim and include them as additional back-up.
- What about costs to distribute materials or equipment from the delivery truck to those areas of the building where they are to be installed? Are they included?
- Review all potential general conditions costs such as added utility costs, equipment rentals, small tools, scaffolding (up and down) winter condition, additional copies of plans, and/or specifications required for distribution of subs and vendors.
- Review all scope issues to confirm that the proposed change does or does not involve deletion of any work that may create a credit to be applied against the added costs. How often have you heard “Where is my credit to delete 3 cubic yards of concrete for those sidewalk changes?”

The Change-Order Cost Checklist

Three categories of costs should be considered when preparing a change order: direct costs, indirect costs, and impact costs.

- **Direct Costs** Hard dollar costs required to complete the work, such as:
  - Bond premiums
  - Coordination of trades
  - Equipment—whether active or idle; with or without an operator
  - Estimating costs
  - Insurance premiums
  - Labor, fringe benefits, payroll taxes (*Tip*: When figuring the hourly rate for a salaried employee, don't forget they only work 50 weeks per year (assuming a 2-week vacation) so divide their yearly salary by 50 weeks and again by 40 hours to get the hourly rate)
  - Material rehandling costs
  - Materials, taxes, delivery costs
  - Phone calls
  - Photographs
  - Postage, express deliveries
  - Rental equipment or contractor-owned equipment equivalent rates
  - Restocking charges
  - Safety equipment
  - Subcontractor costs
Indirect Costs  Costs not allocated to any specific item of direct work. These fall into two basic categories:

**Field Overhead:**
- Project management staff
- Project engineer
- Project superintendent
- Field office and field office supplies
- Temporary utilities (light, heat, power, data communication, etc.)

**Home Office Overhead:**
- Accounting and payroll costs
- Corporate management
- Change-order preparation, research, negotiations
- Computers and office equipment
- Insurance

Impact Costs Costs associated with changes that impact project performance, such as:

- Loss of productivity due to trade stacking, or other inefficiencies
- Idle equipment and idle equipment maintenance
- Under absorbed corporate overhead
- Lack of availability of skilled tradesmen
- Cost of disruption to the orderly flow of work; working out-of-sequence
- Cost of extended warranties of equipment being installed during the project

Effective Change-Order Control

The following are some guidelines for effective change-order control:

- Alert all project participants (the project superintendent, foreman, and others with a role in the project) to be sensitive to all suspected changes in scope and report them to the project manager immediately. The project manager can then determine whether or not to pursue the change-order route.

- Instruct the project superintendent to identify and document any potential changes in their daily report or daily log. Better to err in regards to adding questionable events than to not create the written record.
When a change in scope affecting the contract sum is identified, notify the architect and owner ASAP, even if the exact cost of the work is not ascertained.

Any changes in scope of work or schedules reported from the field must be documented by referring to the drawing number and/or detail, finish schedule, specification section or name and position of person issuing verbal instructions to affect the change.

Don't let change-order proposals stack up, issue them as soon as they are prepared, and in most cases don't combine unrelated changes in one change order. In case one is disputed, the entire change-order will be delayed.

Don't wait until the end of the job to submit the change orders.

Don't forget to note the impact on the schedule. Will completion time increase, decrease, or remain the same?

Determine whether any escalation costs ought to be included in the change order if the work will extend the project’s completion date, or the work will be performed at a time when increased labor and/or material costs may be incurred.

Schedule a postconstruction meeting and review all issued and all missed change orders. Request that estimating, purchasing, and field supervision attend to review the extent and nature of those change orders for which the owner was billed, those change orders in which there was no owner reimbursement and those conditions where change orders could have been issued but weren’t. All attendees should benefit from what went right and what went wrong.