



The Effective Use of Allowances in Design Documents

An Online Continuing Education Course for Engineers

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The Effective Use of Allowances in Design Documents

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1) Introduction/What Has Created the Need for Allowances

Several factors in today's current design environment make it challenging if not impossible to create a 100 percent complete set of design documents at the time of the project's bid. This in addition with how project budgets are set can create problems with budget overruns.

Most common reasons for cost overruns to be incurred on construction projects are described below.

Methods of Communication:

One of the primary factors for incomplete drawings leading to budget overruns for construction projects is our current technology and the communication system of mass emails, conference calls, ftp sites, and get it now information. This rapid but sometimes undisciplined form of communication has worked to create a design environment that often times puts engineers and architects too far ahead of required information to adequately complete their own tasks of work. Changes and updates to projects can be sent out across emails and internet servers at the touch of a button. Revisions or new information can constantly be streaming into the design professional's office at any time during the project. Often times the only way a sense of closure is brought about is through an issue of design drawings (issue for permit, construction, etc). Additionally, any time for project review/wrap up is often sacrificed due to the need to meet this issue date.

Owners have become accustomed to this same current type of instant communication/email environment and expect to be able to make last minute decisions on very important aspects of their projects. It is often expected that these last minute decisions have little or no effect on the projects schedule or budget.

Budget and Initial Prices Set Too Low:

Often in an effort to meet a budget that has been set too low or to simply get a project cut loose, contractors and owners can both be guilty of removing any cost contingences or allowances for a project in a "cost cutting" measure.

Early Project Awards:

Owners taking competitive bids too early in during the design process or material constraints that include long lead times or possible price escalations can lead to contractors being released earlier to proceed with a project than the design team may have anticipated.

Put all of this together and a project can be left with designers having little time to work with all required information to complete their work, contractors bidding work

and being released to proceed on assumptions and less than complete documents, vendor/subcontractor pricing based on assumptions or qualifications, and owners expecting schedules to be held and prices not to move up during completion of the project.

Together all of these factors make maintaining the original project's budget and schedule difficult at best and can even lead to an environment with all parties involved feeling as if they have been put into a somewhat compromising situation. These projects can be filled with revisions, addendums, and changes all of which can lead to significant cost overruns.

One of the worst ways to upset an owner or put a project in peril is to incur significant cost overruns after a project's budget has been set and financing is in place. These cost overruns can lead to finger pointing and blame assigning.

One of the best ways to prevent these cost overruns is by the effective use of allowances in bid documents. These allowances can vary from firm dollar amounts for specific items to material quantity allowances. This paper will further look at when and how to use these allowances.

2) How Budgets are Set and How This Can Create Cost Overruns

Often owners go through several rounds of determining their budget for a project. The typical first round of budgeting for a project usually comes from one of several sources. These can include by the use of historical data to generate costs, by hired cost consults, or from estimates and feedback from the architect and design team. These are typically used to determine if the project is viable and often prices are given in ranges and not firm numbers. This is often done to define exactly what will be the scope of the project, and is often done before the designers have begun the bulk of their work. If the results of these budgeting exercises are in the range of what the owner can afford, then the design team may be released to begin or continue their work.

Often the next step in the process of determining the project's budget is for the owner to consult with contractors during the design phase. Frequently this is done very early in the design process and this can further narrow the projected budget for the project.

One major problem that is often generated in this budgeting step is that the owner is not "consulting" with a contractor but is "soliciting" (sometimes competitive) pricing from (sometimes multiple) contractors. This in turn can lead to competition between contractors. While this competition among contractors can result in lower perceived upfront prices, it also can result in an award of the project before an award is expected by the design team or before all associated costs for the project are clearly

defined on the design documents.

Today it seems much more common for owners and general contractors to set and establish project pricing (often guaranteed maximum prices) based on design development or other preliminary design issued drawings than it does for these prices to be based off of issued for construction documents.

The above mentioned project budgeting can create initial budgets that are too low and set the project up to incur significant cost overruns before completion.

Cost overruns are defined as the difference between the cost the owner had expect to pay for completing the project and the cost the owner actually pays to complete a project. Many different factors can lead to these cost overruns. Some are owner driven (a change in scope), some are the result of unknown or uncontrollable issues (unsuitable soil conditions, material cost increases) and some are the result of incomplete design drawings.

3) Reasons for/Reactions to Cost Overruns

Owner Driven Change:

An owner driven change in scope is typically the type of cost overrun that comes with the least resistance. This is because the owner is getting something more, better, or different for the additional cost incurred. This could be an increase in square footage of a building, an upgrade on the flooring type, or countless other things that the owner can both recognize and request.

Normally, the only surprises with owner driven changes are related to these changes possible being more costly than expected. Typically there is the option to go back to the original scope and no additional costs will be incurred.

It should be noted that schedule can be effected by the decision making process of evaluating this possible change to the project.

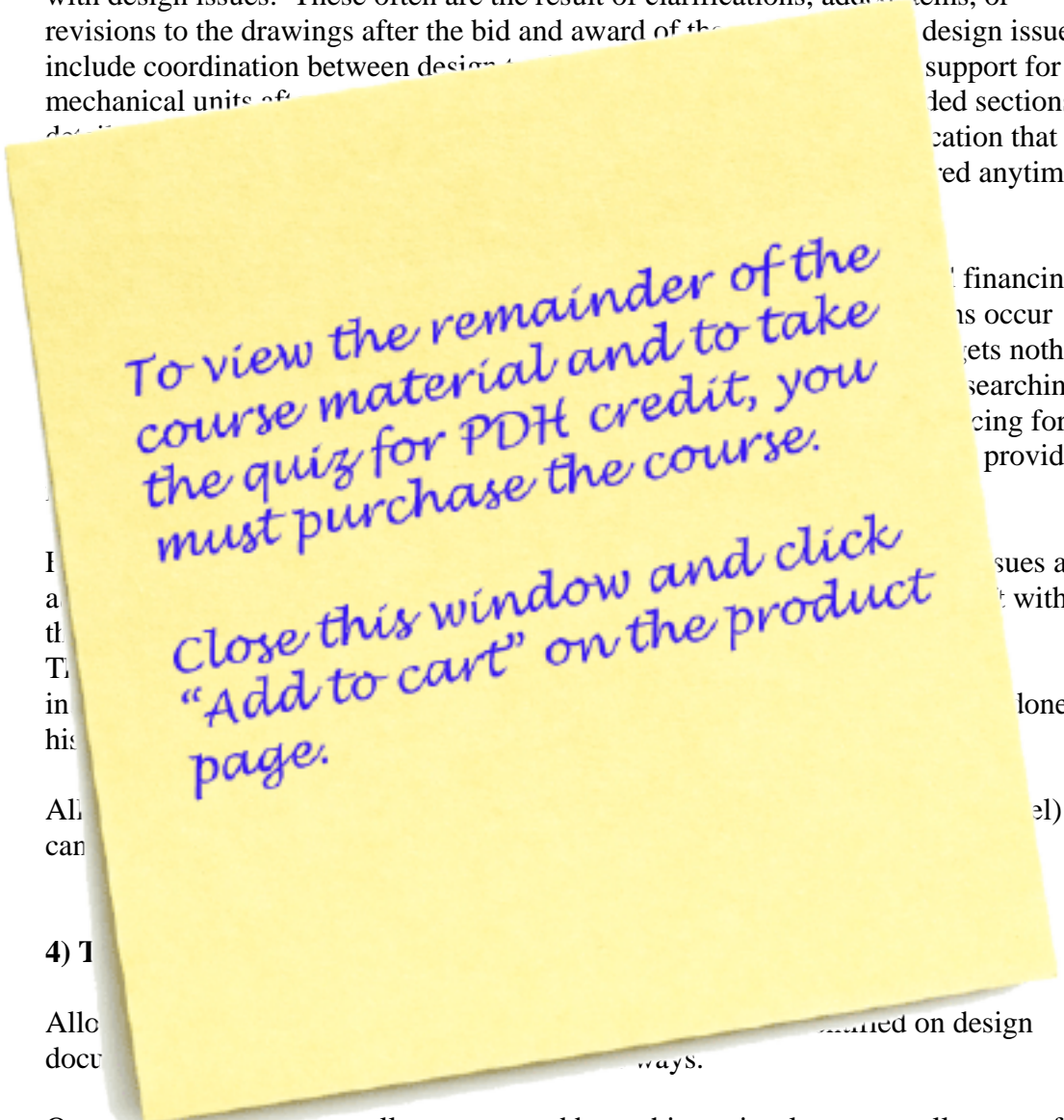
Uncontrollable/Unknown/Unforeseen Issues:

On some occasions, projects can incur cost overruns from uncontrollable or unknown sources. These can be a result of a change during code review by local building officials as owner supplied MSDS sheets can effect sprinkler, fireproofing, or exit requirements, unknown soil or ground water issues sometimes due to inadequate number of soil borings, inadequate water pressure at the project site to support required sprinkler systems, unknown or incorrect impact fees for utilities, costs due to LEAD or green building certifications, or many other possible issues. These are the type costs that are typically meant to be handled by any funds meant to handle any general contingencies for the project. These types of cost overruns can lead to some

surprise to an owner, but often do not result any perceived blame being directed toward the design team.

Design Issues:

Typically the cost overruns that are both the biggest surprise to an owner and that can lead to blame being place on the design team are cost overruns that are associated with design issues. These often are the result of clarifications, added items, or revisions to the drawings after the bid and award of the project. Design issues include coordination between design disciplines, support for mechanical units of equipment, and design of details and sections or elevation that are not shown or specified anytime.



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One of the most common allowances used by architects is a lump sum allowance for an item yet to be fully defined. Often times these allowances are used on items that are considered to be architectural features and can be isolated or separated from the rest of the project. Canopies, trellises, or monumental stairs that are not yet clearly defined on the design documents are all examples of items that can receive lump sum allowances.