THE BAY DIMENSION

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tbd consultants

Construction Management Specialists
111 Pine Street, Suite 1315
San Francisco, CA 94111
(415) 981-9430
www.TBDconsultants.com

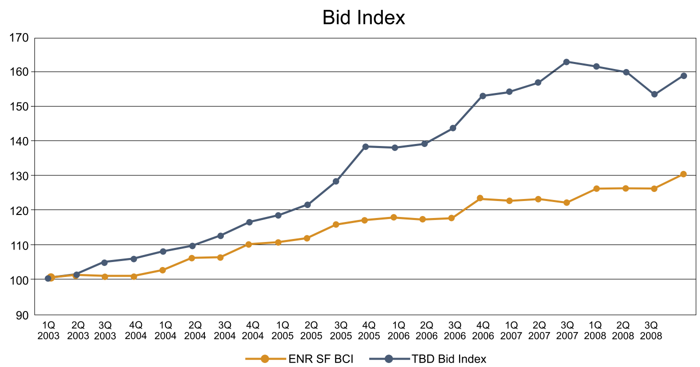
In this Edition:

Oiling Inflation

The latest round of labor increases and the rise in steel prices (which are backtracking at the time of writing) have reversed the falling trend in our Bid Index, at least in the short term.

Rising oil prices have also been driving up prices across the board, and hindering the effects of increasing competition. In this article we will look into what is driving the oil price rises that we have been seeing, and look at some of the effects we are likely to see in the future.

Back in the 1960's some doom-sayers were claiming global oil supplies would be drying up within 20 years. That obviously did not happen, but the predictions were based on the then-known exploitable oil reserves and the way oil consumption was increasing.



Then we had the first oil crisis, resulting from the Yom Kippur war and the Arab oil embargo of 1973, which resulted in the price of a barrel of oil more than tripling, and stemmed the rapid increase in oil usage. That price increase also made more oil sources viable, and also spurred the search for more oilfields. The second oil crisis, around 1980 (resulting from the Iran-Iraq war), had oil prices more than doubling, but new fields were brought on stream and demand continued to falter, with the result that by 1986 oil prices had fallen below the rates they had been in 1978.

However, oil remains a limited resource. Twenty years ago there were fifteen oilfields that could produce over 1 million barrels/day, whereas today there are four. It appears that crude oil production peaked in 2005 (US oil production peaked around 1970) and since then world oil production has remained around 73 – 74 million barrels a day (New Scientist magazine, 28 June 2008 edition). Oil consumption is now about 87 million barrels per day, with the difference between production and consumption being absorbed by use of liquefied natural gas and dipping into oil reserves. The growing economies in Asia, Africa and the Middle East are pushing demand for oil, while US oil usage is declining slightly.

Oil companies are still doing their best to meet demands, including squeezing more out of dwindling wells (and even ones previously considered exhausted) by pumping carbon dioxide into them to eke out more oil, but the International Energy Agency predicts serious supply concerns after 2011. There is also the fear of terrorist activity disrupting supplies, and making recent price raises pale to insignificance. As an example, Iran threatened to block the Strait of Hormuz if it is attacked, and about 40% of the world's oil passes through there.

70% of the oil in the US goes for fueling cars and other vehicles, the remainder of the oil being for things like heating, fueling industry, and the production of plastics as well as many solvents and pharmaceuticals.

So, what are some of the alternatives to the use of oil?

Hydrogen has long been suggested as an alternative fuel for vehicles, but it has storage problems and has not seen much adoption yet.

Solar/PV power sources have shown about a 15% increase between 2003 and 2007, and while they currently provide less than 1% of US electrical power, by 2030 that could be up to 10% or more.

Wind power has shown about 190% increase between 2003 and 2007, and it has been suggested that it could provide 20% of US energy by 2030.

Wave power is another option, but hasn't seen much use yet.

Biofuels have been blamed for taking away food-producing land, but they can also use biological waste from food production, effectively using the same land for two purposes.

Geothermal energy is limited to suitable geologic regions, but has shown about a 5% increase between 2003 and 2007, and its adoption is now increasing.

There are likely to be some infrastructure changes as we wean ourselves off of oil dependence, including a push for high-speed rail and light-rail systems, partly replacing fuel-inefficient air travel and inner-city automobile traffic respectively.

GMP Negotiation, Pt 1

Matt Craske

Over the past two editions of the Bay Dimension we have looked at the Preconstruction Services that can be associated with the GMP delivery method. In this edition we move on to the GMP Negotiation stage.

The following section outlines industry standard methodologies for negotiating and establishing a fair GMP that will ensure the project is completed within budget, schedule and meets all parties' objectives.

GENERAL CONDITIONS

Early during the estimating and budgeting process general conditions are often calculated as a percentage of the cost of work [COW], however this is not a very accurate approach. General conditions are not necessarily a product of the COW, but are a product of construction duration, site logistics and project complexity. Applying a detailed estimating methodology as early as possible will produce a greater level of accuracy.

Another outcome of applying a detailed estimating methodology is establishing clear understandings of what items are to be included in the COW and what is deemed to be included in the GCs overhead.

The industry range for a reasonably large project with normal complexity and duration is 6% to 9%.

SITE REQUIREMENTS

Predominantly site requirement items are included in the COW, but there are several grey areas. Defining what is to be included in COW and what is overhead as early as possible during estimating will make the GMP negotiations much easier.

CONSTRUCTION MANAGEMENT

Similar to site requirements, construction management should be evaluated by a detailed estimating methodology as soon as possible. Just like site requirements it is a product of construction duration, site logistics and project complexity. Also, similar to site requirements, it is important to define who is “chargeable” to a project and who is considered head office overhead.

A current trend in GMP project delivery is for the construction management costs to be calculated based on a resource’s W2 plus mutually agreed multiplier which is to cover benefits, burdens and profit. If this methodology is used, construction management costs are not subject to further mark-ups in terms of fee.

A more traditional approach is for the general contractor to provide a fee schedule by role. With either method it is important for the owner to have an onsite presence to verify that all construction management charges are valid.

INSURANCE AND BONDING

Insurance and bonding are products of the owner’s risk strategy, current state of insurance and the quality of subcontractors. It is recommended that insurances be purchased by the owner where possible or not be subject to additional mark-ups if purchased by the general contractor.

The industry range for a medium to large size project is 2% to 4%.

FEE

Fee is calculated on the COW, so it is important to determine as early as possible what is to be included and what is not. Reducing the cost of work by having the owner purchase equipment directly is a practical method of reducing the value of COW, and therefore the fee.

The industry range for the type of project we are discussing is 2% to 4%. As the value of a project increases the fee percentage usually decreases, due to advantages of scale, leading to more efficient use of resources.

Lastly it is important to consider all the avenues a GC has to make profit when negotiating a fee. For instance, if a cost incentive has been agreed then the fee is usually lower.

In the next edition we will look at the use of cost and schedule incentives and the different types of contingencies.

Construction Scheduling 101

Michelle Tobias

This article is Part I of a series of articles that will explore construction scheduling in all its aspects, including programs and software, schedule development and analysis. This issue will attempt to provide a general overview of what construction scheduling software has to offer to its users and some key ingredients for developing a successful construction schedule.

Construction scheduling software comes in all sizes from single-project scheduling tools to global systems that monitor hundreds of projects. It is a collection of programs, processes and information used to manage a construction project in all its phases. By implementing construction scheduling software, users are able to standardize processes, gain insight into existing and potential problems and increase the manageability of time and budget.

Before delving further into the specifics of scheduling software, let us first understand how a construction schedule program works and how it relates to Project Management. Project management is the discipline of planning, organizing and managing resources to bring about the successful completion of a project. The success or failure of a project is largely measured by two criteria:

1) the project will be completed within budget.
2) the project will be completed on time or in the least amount of time necessary.

A project management life cycle is comprised of phases that have to be carefully and methodically implemented and not left to chance.

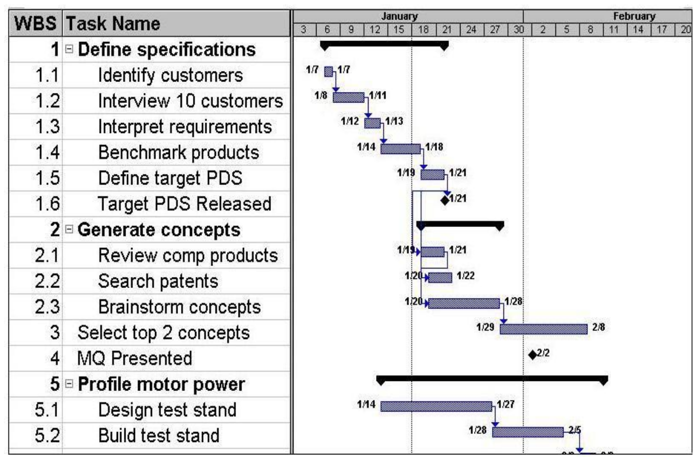
Construction scheduling software is the vehicle to successfully manage a project. When proper information is entered into the scheduling software, the processes and programs within the software perform essential activities which include, but are not limited to:

- monitoring and tracking of activities throughout the life of the project
- early identification of potential problems, and resolving these problems expeditiously, resulting in the mitigation of potential delays that could affect project schedule
- early warnings of poor performance, and taking steps to correct it
- linking costs with progress and performance
- providing information required to manage payments to contractors based on their actual performance.

Now let us talk about the key ingredients in developing a construction schedule. Below is a list of information required for almost all construction scheduling software to perform effectively and produce output to successfully track and monitor a project.

- Define the individual activities or tasks you must perform
- Identify the relationship and sequential logic between each activity (such as the sequence of tasks - what happens first, second, last or simultaneously)
- Document the resources you need, including money, personnel, equipment, material and other special services
- Determine the time (or duration) of each activity

A typical schedule used in the Construction Industry is a Gantt or BAR chart schedule (see below). It provides a graphical overview of the project and each task, its duration, relationship between other tasks and the start and finish dates.



The first attempt at creating the schedule usually becomes the initial baseline schedule, which the contractor, engineer, or architect uses to make adjustments to while scope of work is clarified, to ultimately become accepted as the approved baseline schedule. Once the baseline schedule is approved, it will be used as the measuring tool for all updated schedules during the construction period, unless a revised baseline schedule is approved to reflect major changes in the schedule.

A properly developed schedule provides an effective tool to successfully manage a project. With computer software creating schedules, managing projects has never been easier!

In the next issue, we will discuss how to update and monitor a construction schedule and expand on its versatility as an effective project management tool.