



THE BROAD DIMENSION

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new office in Seattle, Washington, and we have projects in places like New Jersey, Atlanta, Salt Lake City, Las Vegas, and even as far afield as Moscow. The scope of our work has never been limited to the Bay Area, but with a growing proportion of our work being outside of our original home base it seemed appropriate to change our newsletter's name to one less limiting geographically. Hence, we are now The Broad Dimension, another backronym (reverse-acronym) of TBD.



In this Edition:

A Broader Dimension	1
Sustainability Base	2
How Green Is My Building?	3
Recession - One Year On	3

A Broader Dimension

Our newsletter started out four years ago as The Bay Dimension, and at that time TBD Consultants was a fairly new Bay Area company, so the name was appropriate. Now we have a second California office in San Diego, a

There are a number of other ways in which we consider that The Broad Dimension applies to our company:

- The size and type of projects we handle spans the full gamut, from small developments to major projects, and including both new build and alteration work.
- The construction sectors that we work in cover just about anything you can think of, including education, healthcare, transportation, industrial and commercial, retail, civic and military.
- The breadth of our services, including project management (with cost and schedule management) and litigation support.

- The technology we utilize in carrying out our work, from eye-balling documents for constructability reviews and the like, through traditional tools such as tape and measuring wheels on site, to the latest computer software including on-screen take-off, BIM systems, and the latest scheduling software.

But enough of this self-indulgence! While we have taken a bit of time to talk about ourselves while explaining the reason for the newsletter name-change, the real source of information about our company is our company Web site, or by contacting us.

The editorial policy of the newsletter remains the same as it always was, to take the big picture in bringing you the latest in market trends and developments affecting the construction industry. To that end, if you have suggestions for subjects we can address, or actual articles that we can consider for publication, then we will be delighted to receive them. We hope that you continue to find our newsletter informative and useful.

Sustainability Base

The latest addition to the NASA Ames campus is one that has spanned between two recessions and well illustrates the growth of the green building movement over that period. It started its life back in 2003 (as the country pulled out of the 2001 recession) as a fairly basic two-story office building that was planned to achieve LEED Silver. However, NASA budgets did not allow for the increasing prices in the



construction market that soon followed, and the launch of this project was put on indefinite hold.

Countdown restarted at the end of 2007, as NASA's architects, DMJM (now part of AECOM), started looking at options for the office development, which by that time had added a conference facility (as a separate building in some options) with the location changed to a site where a wind tunnel building had just been demolished.



The LEED/green-building element of the design had grown in importance. What developed into a three-story office building design now incorporated geothermal ground source heat pump HVAC (with other HVAC options being evaluated, including using waste water from an adjacent facility), sunshading, PVs, and solar hot water.

But the bidding market at that time was pushing construction prices to record highs, and it looked as though the project would be put on hold again.

Instead it took a sideways leap. William McDonough & Partners were brought in as part of the design review process, and they suggested the idea of the "first moon base on earth". In essence, this was to make the sustainability element prominent, and get the building to be as close to meeting its energy needs as possible, with the aim of reducing operating costs and hopefully gaining additional upfront budget to allow the project to proceed.

A third site was selected, nearer the campus entry, making the building more prominent and improving access for the contractor. By May 2009 AECOM/DMJM had brought the design to bid stage, and groundbreaking for the development took place close to the 40th anniversary of the first moon landing at Tranquility Base.

The timing of the bid period, which coincided with the Great Recession working its way through the construction market, certainly helped in the project meeting its budgetary goals.

What is now known as Sustainability Base incorporates rooftop PVs, Building Integrated PVs in conjunction with the exterior sunshading, blackwater treatment, light shelves, an HVAC system that uses geothermal buried loop and operable windows tied into the building management system, along with many other green-building features.

LEED Platinum is the target for the project.

How Green is My Building?

The LEED rating system is the best-known method for grading green buildings, but does this system really say how green the buildings are when all points are counted as equal? That question likely hinges on what “green” issues you consider as being the most important. Is it saving energy used for heating, cooling and lighting? Is it generating energy by means of PVs or other systems? Is it providing comfortable conditions for the occupants? The LEED system takes all of these, and others, into account, but it is still possible to argue about the importance of different elements in the rating system.

One issue that LEED doesn't directly address is cost, but cost is always an issue for building owners. “Green” HVAC



options are often more expensive than traditional systems, but result in savings for fuel costs, and sometimes in maintenance and renewal costs. Consequently, life cycle costing is a method frequently used to substantiate the use of such systems, by bringing initial and maintenance/renewal costs together to create an annual equivalent value, or cumulative present value. These methods can also be used to compare other alternative green options.

To compare one building with another, it has been proposed to rate buildings based on their percentage of energy usage – so those that use little energy and produce equivalent amounts would rate higher. These are sometimes referred to as Zero Energy Buildings (ZEBs) or Carbon Neutral designs. These kinds of metrics certainly encourage energy reduction, which has a major effect on the environment, but fail to address other issues, such as comfort of the occupants and issues of water usage etc.

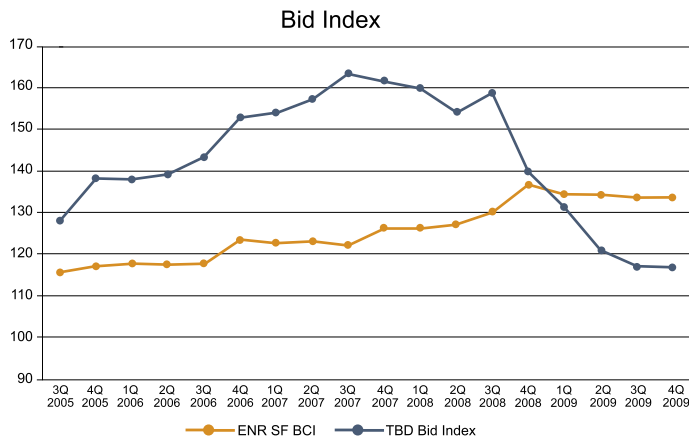
One must also remember that some issues, such as water usage, will vary from one region to another. Also, you have the matter of the usage of systems by building occupants, e.g. operable windows used in conjunction with HVAC systems that can be abused by users, negating HVAC effects (like having the air conditioning on in the car and driving with the windows down).

There is a long way to go to find a universally effective rating system (there is not even an agreed definition for ZEBs yet). In the meantime, systems such as LEED provide workable options that address all, or at least most, of the issues (even if weighting values can be argued). It is unlikely that a classification system can be achieved that will meet the needs of all people and fit all buildings or construction types, but the industry has come a long way in the past couple of decades, and the Green momentum continues to grow.

Recession – One Year On

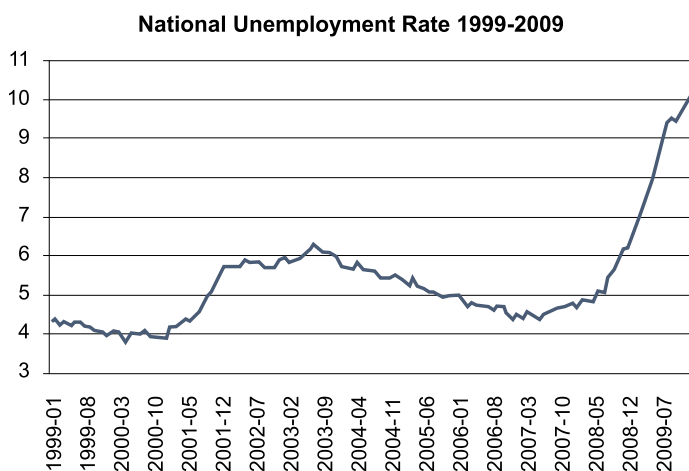
It is now one year since our “Recession Special” newsletter, and although the NBER (National Bureau of Economic Research) has not officially declared the end of the recession, it is anticipated that they will backdate the end to sometime in the latter half of 2009.

But it doesn't feel like the recession has gone away, and looking at our bid index we are not seeing any real improvement, although it is looking as though that market has bottomed out. But seeing that bid prices were already at or below cost in many instances, one could hope that they wouldn't drop further.



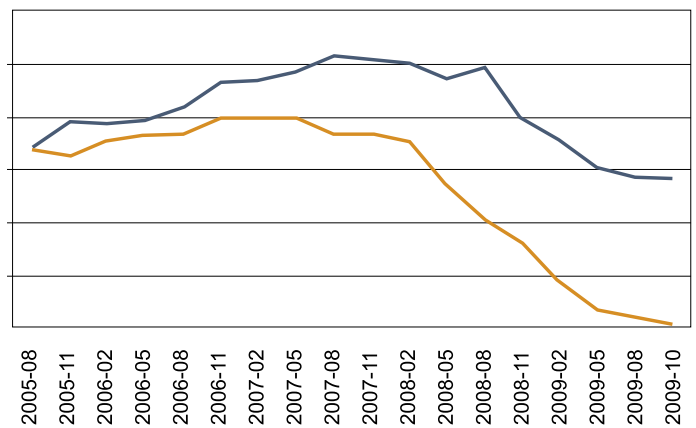
It was two years after end of 2001 recession before jobs began to be added on a consistent basis, and the current unemployment levels are expected to peak in mid 2010. Jobs will only begin to be added when employers are sure demand has returned. Lack of access to credit, especially for small business, will also be a deterrent to adding jobs.

The following chart is based on statistics from the Bureau of Labor Statistics:



Noting a kind of mirror image effect at the right-hand side of the bid index graphic and the unemployment chart, we tried inverting the unemployment graph and starting it at the same point as the bid index chart. The result was as follows:

Bid Index/Unemployment Comparison



Without the unemployment situation improving, and without the related improvement in consumer confidence, the likelihood of any immediate or near term improvement in the construction industry is slim. On top of that is the fact that local and state authorities are suffering from reductions in tax incomes, so have less money for development work, and although the \$130 billion ARRA construction money is having some effect in adding projects (or more frequently helping to keep projects moving that would otherwise be stopped), that the effects from that stimulus are going to tail off before long. As a consequence of these points, it becomes obvious that any recovery is going to be drawn out.

You will notice in the bid index/unemployment comparison that while the two follow the same sort of path, the bid index starts dropping later than the corresponding change in unemployment. The reverse is also likely to prove to be the case as well, with the unemployment situation improving before the construction market, and related bid levels, pick up. Unemployment is often called a trailing indicator, which must mean that the construction market is a real tail-end indicator.

But Congress is looking into ways to continue boosting the economy, with the emphasis on jobs. And since the construction industry is one of the top industries as far as unemployment goes (getting close to 20%), we can hope benefits accrue.

So, 2010 does not look like rounding out the first decade of the new millenium on a high note, at least as far as construction is concerned, but we should start to see some movement in the right direction. And we certainly wish our readers all the very best for the New Year.