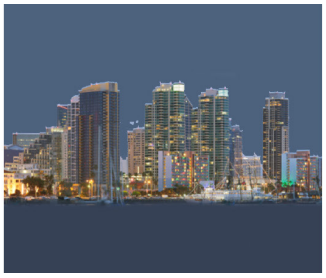



THE BROAD DIMENSION

the newsletter of tbd consultants - 1st quarter 2018

tbd consultants

Construction Management Specialists

111 Pine Street, Suite 1315
San Francisco, CA 94111
(415) 981-9430 (San Francisco office)

6518 Lonetree Blvd., Suite 164
Rocklin, CA 95765
(916) 742-1770 (Sacramento office)

9449 Balboa Avenue, Suite 270
San Diego, CA 92123
(619) 518-5648 (San Diego office)

8538 173rd Avenue NE, Redmond, WA 98052
(206) 571-0128 (Seattle office)

2063 Grant Road, Los Altos, CA 94024
(650) 386-1728 (South Bay office)

7083 Hollywood Blvd, 4th floor
Los Angeles, CA 90028
(424) 343-2652 (Los Angeles, CA, office)

78 Heathervue, Greystones
Wicklow, A63Y997, Ireland
+353 86-600-1352 (Europe office)

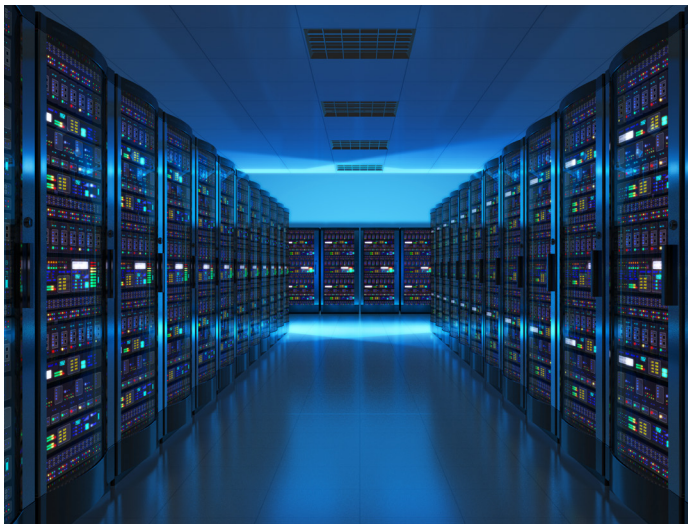
www.TBDconsultants.com

In this Edition:

Data Centers

Sometimes we seem to be drowning in data these days, but we still have an insatiable thirst for more. And we want access to it instantly. It is no wonder that data center construction is booming.

Whether you want to look up a recipe for the party you are planning, want to find out what is gaining potential customers' interests so you can market your new product successfully, or simply want to keep up with the latest developments of science or politics, it is the mountain of information residing in public and private data centers that you go to first.



Data centers can range from a collection of servers in a backroom serving the needs of a particular company, to massive buildings housing aisles filled to the roof with servers. These large data centers may be colocation centers serving the needs of multiple companies, or the data centers of major players in the Internet superstructure serving up webpages and Web services to industry and the public.

The Internet can be accessed at the speed of light from anywhere in the world, so these large data centers have traditionally been built in out-of-the-way places, where they can still have access to a reliable power source (often a renewable source such as hydroelectric) and trained or trainable staff. Often these locations have been in colder climates, so that the cooling needs of the myriad servers and other electrical equipment can be met cheaply.

But sometimes the speed of light can seem too slow, when the information is coming from part way around the globe. It is not just the vanishing attention span of people that is driving the need for faster data access, but the increase in automation and the Internet of Things. Take the advent of autonomous vehicles as an example. For these vehicles to keep us safe on the roads, especially while there are still erratic human drivers around as well, they need instant access to road and traffic conditions which may be being received over a wireless link from remote sources, not just from inbuilt sensors. A fraction of a second delay could prove fatal.

To overcome this delay, there is a move to bring data centers closer to the large centers of population, but the ‘big warehouse’ image doesn’t work too well there. Consequently, we have been seeing more interesting architectural design being incorporated, although the large adaptable space inside still needs to be achieved. The excess heat needs to be disposed of, and innovative uses for it, to serve the surrounding area are being devised. Incorporating data centers into other developments that make use of the excess heat and other resources is one solution, but maintaining the security of the data center can become more of an issue.

Data centers have to abide by all the normal building codes, and would often want to exceed them as they are treated effectively as essential buildings. There are also specific ratings applicable to data centers, relating to things like fault tolerance and reliability of service. Also, the large corporations that own these data centers normally feel a need to demonstrate that they are being good neighbors, so green-building standards, such as LEED, also come into play.

Innovations in data storage technology may reduce space requirements over time, but the increasing volume of storage may compensate. But the constant change in the data industry will ensure that work on new data centers and adaptations and alterations to existing ones will remain a rich source for construction professionals for some time.

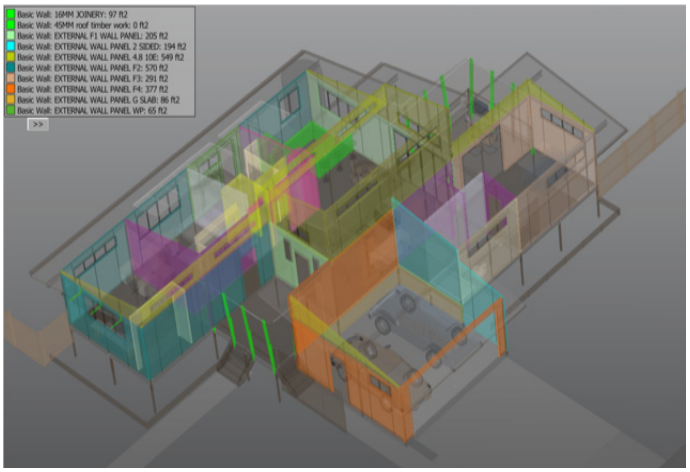
Pricing International Projects

Preparing an estimate for a different region, especially at conceptual level, can be problematic. Labor rates can vary from region to region, as can material costs to a lesser extent. Changes in tax structure can vary, and differing weather and geographic features can affect productivity. When it comes to comparing international projects, these issues can get compounded and you can also have the problem of currency fluctuations.

Companies like R.S. Means, Spons, and many others, produce regional indices to reflect differences from one region or country to another. There are two common methods for preparing these, and with international projects all regions are normally converted to a single currency, such as the dollar.

The first method used for preparing such indices involves pricing the same project at pricing levels applicable to the different regions, nations or cities. This method appears to give a good direct comparison, but a particular building specification has to be selected for the model, and that model may not be the most applicable in different regions. For instance, the flexibility provided by a steel-framed building might be appropriate for a seismically active region, while the rigidity provided by a concrete-framed might be more appropriate for others. Also, the cost difference from region A to region B for steel-framed construction may not be exactly the same as the difference for concrete-framed construction. There can also be technologies or materials that are simply not available in some areas of the world, so substitutions within the model will sometimes become inevitable.

The second method used to produce these indices is to look at actual construction costs for different types of buildings in different regions around the world. An index might, for instance, look at the bid prices for office buildings in different cities around the world, or they might produce different indices for a range of building types, such as offices, high-rise residential, warehouse buildings, and retail. This may sound more accurate than the first method, but it suffers from the fact that you can end up comparing apples with oranges. As mentioned, different types of construction are likely to be the norm in different regions, and different services may have to be accommodated within the building cost. For buildings in Chicago, snow-melting equipment can be very important, but no one would think of incorporating that technology in San Diego. When comparing the costs of office buildings, in the US it is common for the initial construction to include for fit-out of the main circulation and core areas only, with the actual office areas being left as shell space; in other areas of the world, the complete building might be fitted out.



There can also be differences in the measurement of the floor area of a building, which can throw off comparisons by at least a few percentage points. In different regions, the enclosed area of a building might be measured to the exterior face of external walls, to the mid-point of the wall, or to the inner face. There can also be differences between how covered-not-enclosed areas are treated, and in what size of floor openings should or should not be deducted.

A comparison of available indices for a city in a foreign country can be a valuable starting point for estimating a project there, but as we can see it does have its problems. One way of overcoming these drawbacks is to carry out a market survey in the region, meeting with contractors, subcontractors, architects and project managers to gain a good feel for the level of pricing there. Another method is to reach out to estimators or quantity surveyors who are working in the region, and find someone who can review the estimate and provide feedback. Both methods can be very effective.

When bid prices for a project can commonly cover a spread of 30% or more, cost estimating can always be somewhat problematic, and estimating a project in a different region of the world can add to the problems. But there are ways and means of doing it.

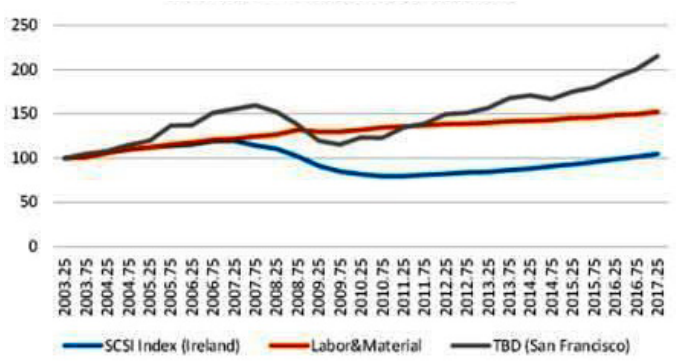
Construction Prospects in the US & Europe

The US construction market continues to follow the economy, which, in general, is prospering very nicely. Some regions are prospering more than others, of course, but the differences between regions of Europe are even more profound.

The recovery from the Great Recession has proved to be a bit slower in Europe, although things are moving in the right direction. Growth has been seen in nearly all EU countries since 2014, although it has tended to be slower in southern Europe, in countries such as Portugal, Spain, and Italy.

The European construction market has seen substantial growth in many areas. For instance, in Ireland the construction industry has seen output expanding over 10% in recent years. However, Ireland was one of the hardest-hit nations during the recession, with construction volume reducing to about a third of what it had been, i.e. a 66% drop. The average drop in construction levels across Europe was more like 25%. Despite rapid growth in recent years, construction levels in Ireland are still well below the highs of the 'Celtic Tiger' era, and are expected to remain so for a few years to come.

Irish and Construction Markets

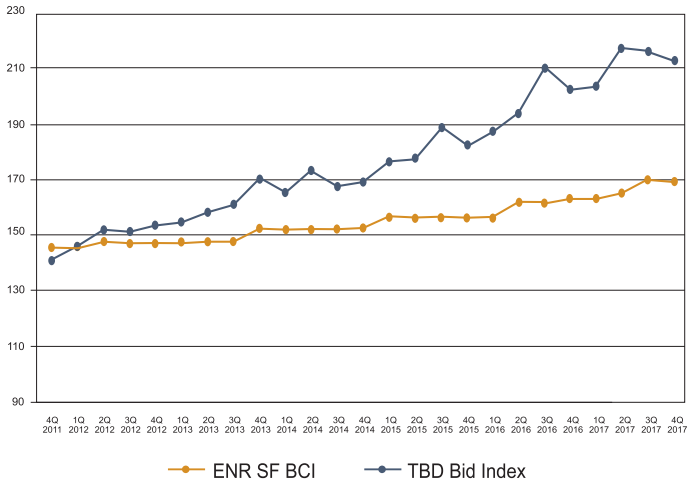


On the above chart we have plotted our San Francisco Bay Area bid index against the Irish construction cost index (prepared by the SCSI) and the labor and material increases (which are virtually the same for both areas). For comparison purposes, the starting point of all three indices has been adjusted to 100 for the start of 2003.

The EU is actively promoting the adoption of new technology in construction, and is promoting green buildings, especially with regard to energy efficiency. With the construction industry contribution almost 10% of the EU GDP, promoting growth in this sector helps the regions economy overall.

As with the US, the European construction market is suffering from a lack of skilled personnel. The recession saw many people leaving the industry, and it has been hard to attract them back to a notoriously cyclical workplace. Couple that with the fact that the younger generations are tending to avoid an industry that they view as largely technically outdated, and it becomes obvious that innovation in how construction is carried out is becoming essential, if the construction needs are to be met. Such innovations are likely to include prefabrication of large portions of a building offsite, and autonomous, or robotic, site equipment drawing information from the GPS network and directly from the BIM files.

Bid Index



One concern in the US is that the rising cost of construction will be starting to deter investors. However, the latest CONFINDEX report shows that the construction industry in the US is expressing optimism for at least the next year, and the prospects for Europe appear to be at least as healthy.

Happy New Year to all!

Geoff Canham, Editor, TBD San Francisco

and

Colin Fulham, TBD Europe office, Ireland

Newsletter designed by Katie Levine