SIX EARLY 2024 CONSTRUCTION TRENDS

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Construction

2024 is starting off with significant concerns about an industry slowdown with optimism that artificial intelligence (AI) may help solve many industry issues. The industry continues to innovate and, in this issue of our trends update, we will discuss trends relating to:

1. Signs of the market slowing down
2. Approaches contractors are taking to address an anticipated slowdown
3. The rise of AI and robotics
4. An experimental government contracting approach
5. Embodied carbon
6. Changes to Davis-Bacon and related acts

SIGNS OF THE MARKET SLOWING DOWN

Evidence is coming from multiple sources that the Federal Reserve's interest rate hikes are starting to impact the industry at the same time that increased federal spending on government priorities is hitting the market. The result is a mixed industry where the market in some sectors, like multifamily, is slowing, while the market in other sectors, like civil infrastructure and water, is still growing.

Signs of a slowdown are showing up in architectural billings and reduced planning. The American Institute of Architects (AIA) partners with Deltek to publish the monthly Architectural Billings Index (ABI). A score below 50 represents a decline in billings. After declining in 8 of the 12 months in 2023, it finished the year at 45.4.[1] Despite this reduction, AIA reported strong backlogs of 6.7 months in December and that clients were still interested in new projects, but they were not signing as many contracts.[1]

The Dodge Momentum Index (DMI) measures the value of nonresidential building projects going into planning. It uses a baseline score of 100 based on planning activity in the year 2000. In December 2022, the index was at 222.2 and rising from 208.3 in the prior month. However, by January 2024, it had declined to 184.1.[2] The DMI showed a mixed market, with commercial planning falling 1.0% (largely in warehouse work) and institutional planning (primarily in education and healthcare) improving by 2.1%.[3] Some of the largest commercial projects included a hotel in Dallas, Texas, and a data center in Virginia, while institutional projects included the National Renewable Energy Laboratory (NREL) in Golden, Colorado.

Evidence of the slowdown is also showing up in employment data and the bottom lines for many of the largest contractors. AGC employment data shows a 2.6% YOY increase in construction employment as of November 2023, compared to 4.4% in November 2022.[4] The impact of increased mortgage rates can also be seen, as the 2022 data showed much higher growth in residential construction than in nonresidential (5.5% vs 3.6%), but the most recent data showed nonresidential employment growing twice as fast as residential (3.2% vs 1.6%).[4]

Fourth-quarter financial reports from publicly held contractors report strength in infrastructure spending, but weakness in commercial real estate (CRE).[5][6]

While we believe federal stimulus is benefiting several market sectors, government support does not always result in growth. For example, in 2022, the CHIPS Act created $53 billion in incentives to fabricate microchips in the US. This launched the construction of several plants, including a $20 billion plant in Ohio, but the owner of that plant recently announced that it was delaying construction due to a slowdown in the chip market.[7] Likewise, while the electric vehicle (EV) market has grown tremendously, spurring the construction of new battery and vehicle assembly plants, there is a concern that the EV market has peaked and several manufacturers are pulling back on EV investments.

APPROACHES CONTRACTORS ARE TAKING TO ADDRESS AN ANTICIPATED SLOWDOWN

Construction has always been a cyclical industry, and the traditional solution to industry slowdowns was to reduce the overall workforce. Over the past several years, however, contractors have been plagued by labor shortages and will be reluctant to let people go, as they are unlikely to get them back when the market recovers. Indeed, many observers believe that the Federal Reserve will reduce rates in 2024, leading to increased construction activity.

To avoid this problem, contractors have been advised to focus on three issues. The first is to build new relationships and nurture existing relationships. This is always a good marketing practice and becomes even more important when there are fewer projects to bid on.

Second, contractors are advised to work on preconstruction processes. Most firms charge a small fee for preconstruction services to work with designers to leverage contractor expertise to make for a better design and smoother construction process. This fee is usually a loss leader that does not fully compensate the contractor for the work performed but results in other contractors being excluded from competition. Preconstruction work, however, is also a form of extended interview. If the owner does not see value or the relationship goes sour early in the preconstruction phase, then the contractor loses the value of providing the services for the relatively

small fee. Accordingly, it is best to develop a relatively robust plan using experienced professionals to help plan out the project and offer advice.

Third, contractors must begin to embrace new technologies. If your staff is light on work, this is an ideal time to develop their skills by training them in these technologies, many of which are discussed in the following segment on AI.

THE RISE OF AI AND ROBOTICS

At its core, AI is an attempt to make computers think by analyzing data and running simulations to predict future results. It is also used to allow robots to learn from their own performance, so the robot adjusts its performance in the same way humans adjust their own performance.

While many large contractors have focused on technology, there are many in the industry who have not embraced any changes. A recent study found that 52% of subs still print plans for estimating and other general uses. Contractors have also reported that they spend an average of 18% of their time looking at data.[8] To the extent that AI can be used to address these tasks, it has the potential to make huge impacts on productivity and profits.

Indeed, many contractors are already using AI to improve both productivity and profits. On the front end, contractors are using AI applications to review construction contracts, insurance policies, and project specifications to identify key risks without time-consuming review from lawyers and other professionals. Architects, engineers, and contractors are also using AI to search building codes to avoid code violations that can lead to delays and costly rework. AI is also helpful in identifying durations for various schedule activities, and helping contractors with scheduling and cost estimating.

On the design side, AI is helping designers design more quickly. It is also now being used in the concrete industry to suggest new mix designs.

In the field, contractors are using AI to identify new techniques to improve safety — which has the benefits of reducing both insurance claims and productivity losses from accidents. Specifically, AI can be used with jobsite cameras to spot workers who are not wearing hardhats or other PPE. AI can find patterns that lead to a safer workplace by analyzing past incidents and applying lessons to predict future risks. AI has also been used to identify the number of safety observations, leading to significant safety improvements.

Outside of safety, AI can be paired with jobsite photos to detect non-conforming work for quality control.

One of the most exciting applications for contractors experiencing labor shortages is the possibility of pairing AI with robotics to increase productivity. Rebar-laying robots are advertised as being able to place 5,000 lbs. of rebar per hour in all weather conditions. A TyBot can then be used to tie the rebar. Robots can also open the labor pool to workers who are disabled or suffer from health conditions that prevent them from performing heavy physical labor because someone in a wheelchair or with a bad knee can still operate a robot. Robotics also reduces worker exposure to hazards and harmful conditions. For example, a stump-grinding machine can be operated using a remote controller, so the operator is not exposed to vibrations during the grinding.

AN EXPERIMENTAL GOVERNMENT CONTRACTING APPROACH

Traditional contracting approaches all involve some amount of conflict, and industry participants have been working for years to find approaches that avoid that conflict, such as integrative project delivery and collaborative contracting.[9] A recent attempt along these lines is being pioneered by NREL and termed the Cooperative Construction Contracting Approach or CCCA.

CCCA involves an integrated project delivery approach, but instead of being limited to a single project, the owner uses a competitive process to enter into a "partnership with a single entity for the delivery of a construction portfolio."[10] The partner serves as a design-build contractor, working both as an advisor performing preconstruction services and as the ultimate contractor delivering individual projects under various task orders under a master agreement. Under this approach, the partnership is contracted out as a one-year contract with annual one-year renewal options.

In January 2024, NREL issued its first award under the CCCA to build a $224 million energy material processing facility.[11] By creating a multiyear, multi-project relationship, CCCA goes about as far away from the traditional sealed bidding approach as one can get. The annual renewal process provides a strong incentive for the contractor to provide good value to preserve the relationship while giving the contractor a means to exit the relationship if the owner turns abusive. Also, because the process is nonexclusive — allowing the owner to award smaller contracts outside of the CCCA — the owner retains the option to compare the performance of other advice.

EMBODIED CARBON

We have previously reported on the emerging emphasis on embodied carbon in construction — referring to the carbon imprint created during the extraction, manufacturing, and transportation of materials used in construction. Under Executive Order 14057, the federal government has developed the Buy Clean Task Force to expand consideration of embodied carbon in federal procurement and federally funded projects.[12] Industry groups are now working to create increasing recognition of embodied carbon, and we believe 2024 will see embodied carbon becoming increasingly significant in design and construction in federal, state, local, and private construction.

Since 2020, Building Transparency has worked with contractors, owners, and material suppliers to create various carbon action networks (CAN) grouped by industry participants. Some of the country's largest contractors have formed the Contractors Carbon Action Network (ContractorsCAN), while materials suppliers have formed MaterialsCAN, and owners have formed OwnersCAN.

These CANs seek to improve awareness of embodied carbon throughout the industry. As part of this effort, Building Transparency has created and is continuously updating the Embodied Carbon in Construction Calculator (EC3), which is a database of environmental product declarations (EPDs). Much like the USGBC's efforts to improve sustainability through the LEED system, EC3 allows industry participants to score materials based on embodied carbon with the goal of reducing embodied carbon.

Specifically, OwnersCAN has developed an embodied carbon action plan that calls for setting embodied carbon targets in predesign, and requiring embodied carbon accounting and estimating in the preconstruction phase. As part of this effort, OwnersCAN seeks to create low carbon bid documents and include provisions in contract documents to minimize carbon emissions in material transport and on-site construction activities.[13] We see this emphasis on embodied carbon expanding, much in the same way that other green building efforts, such as LEED and Energy Star, have expanded. However, while LEED and Energy Star were mainly concerned with energy and water usage during a project's operational phase, embodied carbon is mainly concerned with the processes preceding construction.

These efforts are having real impacts on the cement industry, which is notorious as a carbon source. For years, the cement industry has looked to create low-carbon cement by using fly ash or slag.

The CANs' efforts, along with the Buy Clean Task Force, are creating an increased demand for EPDs tracking embodied carbon in concrete.

This is also creating greater demand for fly ash and helping to reduce legacy waste. Fly ash supply is limited because it is a byproduct of burning coal — usually to produce electricity. As coal-fired electrical plants are retired, fly ash production is declining. To address this shortage, some cement producers are recycling old fly ash that has been stored in ponds.

CHANGES TO DAVIS-BACON AND RELATED ACTS

Davis-Bacon requires workers on federal construction projects to be paid "prevailing wages." Congress has applied this requirement to other federally funded projects through about 60 different laws, referred to as the "related acts."[14] Effective October 23, 2023, the Department of Labor issued new regulations to update Davis-Bacon and related acts regulations.[15] [16]

As contractors work through these changes, we see an increasing number of enforcement actions. This will be particularly true with respect to contactors performing work that is outside the traditional Davis-Bacon format. For example, federal funding for carbon capture means that many private projects are now subject to Davis-Bacon wages and the new regulations. As Davis-Bacon wages add 10%–20% to the cost of a project, contractors will need to pay significant attention to these requirements when bidding on projects.

Key changes to the regulations include the following:

1. **Expanded site definition**
   Traditionally, Davis-Bacon applied only to mechanics and laborers working on the construction site or adjacent to it. With the rise of modular construction, where much of the work is performed off-site, the new regulations have expanded the definition to sites dedicated exclusively or nearly exclusively to a covered project. As explained by the Department of Labor, this applies to places where modules are assembled but not to prefabricated component parts. This is likely to cause significant confusion, as the line between prefabrication and modular assembly may not always be clear.

2. **Expanded worker coverage**

   The new regulations expand coverage from laborers and mechanics employed by contractors and subcontractors to:

   - Workers performing demolition in aid of construction, but not in cases where future construction is not contemplated
   - Members of the survey crews
   - Workers instead of employees: accordingly an individual working as an independent contractor and being issued a 1099 is now subject to Davis-Bacon
   - Flaggers and those performing traffic control work near a primary construction site
   - Truckers working
     - Entirely within a site
     - Transporting a significant portion of a public work between secondary and primary sites
     - On-site work that is not de minimis based on the total time spent during a typical day or workweek[15]

What constitutes a significant portion, or being not de minimis, is somewhat subjective, and we believe this will need to be clarified through enforcement measures and litigation.

3. **Modified rates for non-base work**

   When a contract is bid using Davis-Bacon, the rates are frozen for the work in that contract, even if it takes place over several years. However, under the new regulations, new rates must be used on change order work, during times when contract performance is extended, or on work orders for indefinite delivery/indefinite quantity (IDIQ).[15] This may create issues with claims work. For example, if a contractor claims it is entitled to a change order for delays caused by the government, does it need to pay workers in the delay period based on the original rates or on the increased rates that apply during the extended period?

4. **Increased record keeping**

   Record-keeping requirements have been modified. This can be particularly difficult when workers are performing different tasks subject to different rates. For example, a cement mason who constructs a form may need to be paid the carpenter rate when constructing the form and the cement mason rate when working concrete. Accordingly, this time will need to be separately tracked. General contractors will need to pay special attention to how their subcontractors at every tier comply with this requirement. While the Department of Labor will enforce the new requirements against the employer in the first instance, if the employer is unable to pay the proper wages, the general contractor will be held liable for those wages.

CONCLUSION

As we enter 2024, there are multiple signs of slowing in many market sectors. Contractors should prepare themselves by working on relationships with their customers and key vendors/subcontractors, locking in future work through preconstruction efforts, and training their staff on the latest advances in AI and robotics.

The importance of implementing new technology cannot be underestimated. We are already seeing improvements in safety and scheduling through AI and productivity through robotics. With many new projects receiving federal funding, more and more contractors will find themselves having to comply with Davis-Bacon requirements, and it will be important to implement software that will be able to track hours and activities necessary to comply with expanded requirements. A side benefit to those making that kind of investment is that they will gain better data, which can be analyzed through AI to better run their business.

Finally, the green building revolution is here to stay. In both federally funded and private construction, there will be greater emphasis on embodied carbon. Contractors wishing to differentiate themselves from their competitors can assemble EPDs from their suppliers and use tools like EC3 to demonstrate their ability to further client goals on embodied carbon — just as contractors did by qualifying their staff as LEED APs.

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