HealingbyDesign

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Photo by David Lena

Inside:

Healthcare Construction Costs in Light of the Current Economy

By: Sandy Gray, Regional Vice President, Cumming Corporation

After twenty years of relatively stable construction cost escalation (1% to 4% annually), unprecedented volatility arrived in Q1 2004 resulting in escalation of 20% (2004), 17.5% (2005), and 8% (2006) in the healthcare market. In 2009, we are now experiencing an unforeseen dip in construction costs (as much as 15% below June 2008 prices). The purpose of this report is to understand and predict these unprecedented swings, and help HMC clients take advantage of decreased construction costs.

To start, we will briefly identify the key drivers of construction costs:

1. Global and Domestic Economic Trends

The International Monetary Fund (IMF) is projecting the world gross domestic product (GDP) to contract 1.3% in 2009 and grow 1.9% in 2010. The US GDP is projected to contract 2.8% in 2009, and remain flat in 2010. Slackened GDP means a reduced need for goods and services, and capital investment in construction.

Another critical factor to global economic trends is currency exchange rates. The US dollar lost close to 20% of its value compared to the Yen and the Euro from 2002 to 2005. As commodities and processed materials are acquired on a global market, the US was procuring materials with 80-cent dollars in 2004 when the global construction market was heating up. Conversely, the US dollar has quickly increased in currency value since June 2008, resulting from worldwide economic instability and the perception that the US is a “safe haven” during this economic upheaval. Both GDP and currency trends are driving construction costs lower by reducing the work volume in the healthcare market.

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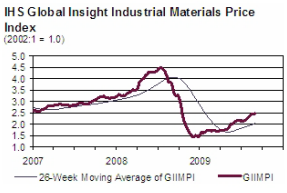

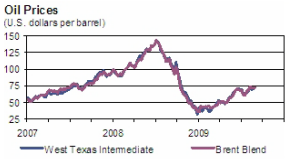

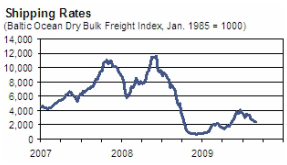

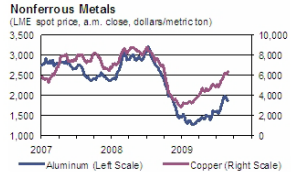

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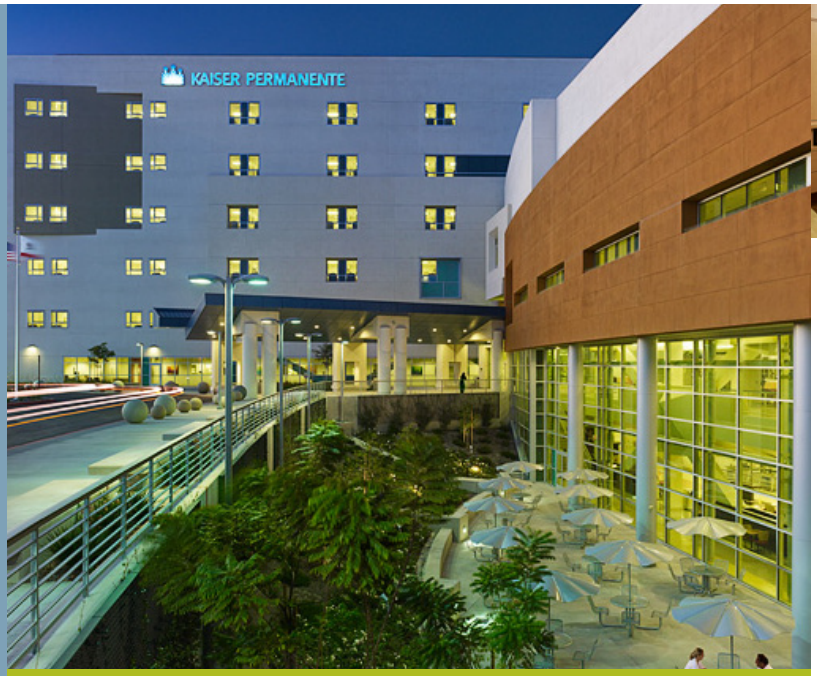
Photos by David Lena

Fun Facts

- The total amount of concrete poured was approximately 40,000 cubic yards—enough to cover approximately 16 miles of two-lane road.
- The total amount of drywall used was approximately 3.5 million square feet—enough to build approximately 500 average-size homes.
- The total amount of water used at the facility is approximately 3,000,000 gallons per day—enough to serve approximately 10,600 households of five residents each.
- The total capacity of the normal utility electric power system in this facility could power approximately 800 average-size homes in California.
- The generating capacity of the five 2,000KW diesel generators could serve approximately 680 average-size homes in California.

HMC Architects



Kaiser Permanente Downey Medical Center, Courtyard and LDRP Room

Project Spotlight: The Kaiser Permanente Downey Story

"Providing New Strategies for Improved Delivery"

A commitment to partnering, sustainable designs, and new technologies all contributed to the success of Kaiser Permanente Downey Medical Center.

Plans for this new 818,000-SF campus on a "greenfield" site began in 2001, with a team composed of Kaiser Permanente Permanente, HMC Architects, and McCarthy Building Company. What began as a traditional design-bid-build delivery process quickly became something else; a more integrated project approach long before the concept became an industry movement. The result: a state-of-the-art hospital completed three months ahead of schedule and approximately $50 million under budget, without scope changes.

A True Partnership

A partnership was formed at the onset of the project between Kaiser Permanente, HMC, McCarthy, and a team of consultants and subcontractors. Real-time project scheduling and cost estimating was top priority, and master plans, programs, and schematic designs were quickly developed. A web-based software allowed more than 50 stakeholders to develop and review one set of documents, simultaneously obtaining current backgrounds, reviewing project criteria, and maintaining project control.

A New Delivery Process for OHSPD

HMC met with officials at Office of Statewide Health Planning and Development (OSHPD) to present a new strategy. HMC proposed to submit the documents package for approval in nine separate increments for the site, the hospital, and the central plant projects. This allowed for a phased review process that corresponded with the construction schedule, allowing the project to proceed more quickly. This was one of the first times OSHPD implemented this type of review process. The sucess of this project is evident in the increased number of projects utilizing this approach today.

Separating MEP to Design-Build

Upon completion of design development, it was decided to subcontract the mechanical, electrical, and plumbing (MEP) to a design-build team. Southland Industries and SASCO were able to incorporate 3D modeling into the MEP package. As Building Information Modeling was still in its infancy in 2003, the project team was able to run clash detections for the MEP systems, fire sprinklers, and pneumatic tube systems, identifying and resolving conflicts and interferences prior to permits being issued. For example, vertical plumbing system and overhead utility coordination identified beam interferences and wall adjustments. HMC was able to resolve these issues creating the least impact to the project. The result was an improved, value-engineered MEP package for the hospital, which led to considerable cost savings.

Together, the project team developed innovative solutions to respond to unforeseen circumstances, enabling real-time work in the construction field. The senior architects, engineers, and contractors established an environment of honesty and integrity while working collaboratively on-site every day to deliver a new flagship hospital to Kaiser Permanente Permanente and its members.

New Beginnings

Kaiser Permanente Downey Medical Center opened its doors on September 15, and within two hours the first baby was delivered in the hospital.

Healthcare Construction Costs in Light of the Current Economy

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The difference between the 3-month London Inter-Bank Offered Rate (LIBOR) and the 3-month Treasury rate represents the "TED Spread" (or the cost of money to banks for lending purposes). That rate surged from less than 1% in August 2008, to 4% in October 2008. This illustrated a lack of trust between banks and froze the credit market. Speculative projects could no longer get funding, whereas projects with a high probability of success had to pay higher rates for loans. Since then, the TED Spread has improved and dropped 19 basis points last month to 0.34%.

The cost of money to lend for banks is at its lowest level in years. However, the volume of lending for business purposes is not increasing. The original $700 billion "bailout" last October has had minimal effect.

We are learning this is a crisis of insolvency rather than illiquidity. The troubled banks are currently insolvent because of risky lending practices combined with undercapitalized and highly leveraged portfolios. This new reality has tremendously impacted the healthcare construction volume.

2. Commodity Trends/International Demand/Energy

Commodity prices have tumbled the last 12 months. A good indicator of this trend is the Global Insight Industrial Materials Price Index (GIIMPI). With base 2002 $1=1.0, after a steep run-up to June 2008, the GIIMPI was running at a factor of 4.5 (350% greater than base 2002). The GIIMPI then dropped to 1.5 (only 50% higher than base 2002) by the end of 2008. This clearly indicates that the reduction in global demand and the drop in energy costs have had a downward effect on construction costs.

3. Regional Construction Activity

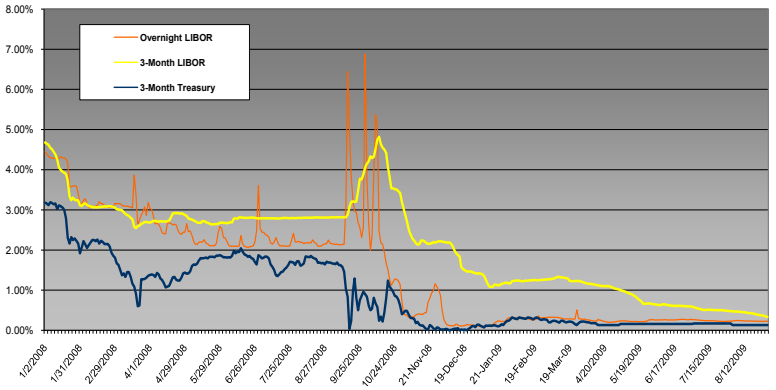
The single biggest impact to construction costs is regional construction activity in relationship to subcontractor capacity. In 2000, Dr. Paul Carr, a professor at Cornell University, set out to establish empirical data determining the impact of the quantity of bidders to the cost of a project. The results showed a definite relationship between the number of bidders and the variance to the engineer's estimate as follows:

Number of Bidders	Low Bid Deviation Rate
1	1.15
2	1.11
3	1.07
4	1.01
5	0.95
6	0.91
7	0.89
8	0.88

This study falls in line with our experience at Cumming:

Number of Bidders	Variance from Estimate
1	+15% to +40%
2-3	+8% to +12%
4-5	-4% to +4%
7-8	-5% to -7%
9+	-12% to -25%

Total construction volume in California has dropped to $3.02 billion monthly (a 46.3% drop from May 2008 levels). With construction labor employment declining 21.5% below levels one year ago, an excess of labor capacity over available work volume exists. This has been devastating to contractors and their margins/bidding practices. Whether a project can capitalize on such an opportune condition depends on variables, including: delivery method, size/complexity, market capacity, schedule/phasing, bid time, owner reputation, and general requirements.



4. Labor Costs

Labor costs have grown steadily over the last few years. The many new labor agreements signed in 2008, were based on prior work demands of the market. Agreed increases in cost may be offset by improved productivity levels within the contractor's team(s). This is due to significant personnel cutbacks resulting in subcontractors keeping their "A players" only.

Conclusions

How well can the healthcare market capture the potential savings resulting from the added subcontractor competition?

Many healthcare projects require specialized expertise of skilled tradesmen (of which there are limited resources) that can detract from the owner's ability to capitalize on a hungry submarket. This is especially evident in MEP, steel, and drywall trades which can account for more than 50% of healthcare construction costs. In addition, many healthcare projects are delivered by negotiated delivery methods that do not necessarily offer the full depth of savings as a hard bid situation.

We see the reduction in healthcare construction costs experienced over the last 12 months continuing through to Q4 2011. It is unlikely these costs will experience quite the same level of cost reduction as education, municipal, office, and other sectors. In terms of a rebound in 2011, stimulus spending, attrition, rising labor, and fuel costs, combined with a turning economy, will all be contributing factors.

Healthcare organizations have the unique opportunity to revisit their long-term plans, to look for ways to take advantage of the reduced construction costs.

The First People's Hospital, Shunde District, China

Team Spotlight

Craig Semingson, AIA, ACHA

As the principal for healthcare planning, based in HMC's Los Angeles office, Craig has 35 years of experience that spans across the US and from India to the Pacific Rim.

He has led complex programming, planning, and design assignments for more than 70 hospitals and research facilities, including Cedars-Sinai Medical Center, UCLA Medical Center, Torrance Memorial Medical Center, and Kaiser Permanente Fontana Medical Center. Though these facilities are enormous in scale, Craig's focus is on helping clients provide a more efficient healthcare delivery model that positively affects patient outcomes. In early 2009, Craig was an inaugural recipient of the HMC President's Award. As presented by HMC's President and CEO Randy Peterson:

"Craig's extensive knowledge and experience in healthcare planning and design has provided HMC with invaluable expertise in the medical field. He spends a tremendous amount of personal time collecting data, materials, and references to establish a healthcare design library and develop planning guidelines for the company.

He is a patient mentor and teacher to young professionals and is always willing to listen and give advice. He draws from 35 years of experience and has a true passion for architecture."

Craig Semingson can be reached at 213-542-8300.

Planetree

HMC Architects was chosen as a certified member of the Planetree Visionary Design Network. This certiication recognizes HMC as an evidence-based healthcare design specialist committed to incorporating patient-centered care in healing environments. HMC is one of only five firms in the nation to be inducted as founding members into this network, and the only firm in the western region. The certification was announced at the annual Planetree conference on October 7, in Baltimore, MD.

HMC is pleased to offer a complimentary presentation on Planetree for those organizations who wish to learn more.

Please contact Jessica Hensler at 619-744-4077 for more details.

HMC Enters China

HMC recently teamed with Shunde Architectural Design Institute to participate in a competition to design The First People's Hospital in the Shunde District of Foshan, People's Republic of China. Invited to be one of the top five international teams to compete from over 50 teams who entered, HMC and Shunde were awarded the project last month.

This 2.2 million square-foot, 2,000-bed hospital combines innovations in western healthcare planning and design with the best local practices. An in-depth profile of the design will be included in the Spring/Summer 2010 issue of *Healing by Design.*

The project can also be viewed on our website at www.hmcarchitects.com

Question: What is Lean, and How Does It Relate to Healthcare Design and Construction?

By: Rebecca Hathaway, Senior Vice President, Healthcare Practice, HMC Architects

Lean is a concept that has been around since the days of Benjamin Franklin, and more recently as Toyota's successful waste-eliminating process.

In the healthcare industry, lean is becoming more and more prominent each day. Through planning, design, and construction, HMC is implementing lean concepts that are compatible with healthcare when it comes to reform, operational efficiency, design, and construction.

When the lean philosophy was introduced in Japan with the Toyota Production System as a framework for continuous performance improvement, the goal was to achieve operational and financial excellence, which includes best cost, quality, efficient delivery, empowered employees, and a consumer-focused culture. These goals, in essence, are the same as those of healthcare reform—accessible, affordable, and appropriate care.

In healthcare design and construction, there are several key principles that are critical in the successful delivery of a lean project:

- Create stability and coordination in work flow and planning
- Establish production controls throughout the project
- Outline processes and their desired outcomes simultaneously
- Perform to set expectations at all levels of the project
- Reduce the cost and duration of every step
- Utilize the entire team to build reliability and collaboration

Design is called excellent when it is safe, profitable, enjoyable, and sustainable, as well as delivered on time, on budget, and without problems. In construction, excellence comes in the form of reducing or eliminating unnecessary steps, excess space, redundancy, and inefficiency. By utilizing these principles throughout design and construction, it reinforces the lean philosophy of "continuously improving towards the ideal through the relentless reduction of waste."

As French novelist Marcel Proust said, "the real voyage of discovery consists not in making new landscapes but in having new eyes." In other words, it is breaking away from the traditional to improve the design process.

In the next issue of *Healing by Design*, we will present a real-time case study outlining the integration of lean principles, making for an exciting learning experience and a successful design process.

Ask HMC

Do you ever have a question about your facility's design, your operational objectives, trends in healthcare, evidence-based design studies, or sustainable environments, and are unsure who to ask for a simple answer, without being marketed or charged? Ask HMC.

Simply submit your question to askhmc@hmcarchitects.com. Your question will be answered within two weeks by one of our many knowledgeable professionals best suited to provide you with the answer you need. If the question is topical or asked by a number of people, the answer will be published in our newsletter for everyone's benefit. This is one of many ways that HMC is working to become a business partner and thought leader to the healthcare clients we serve.

askhmc@
hmcarchitects.com

Recent Projects

Loma Linda University Medical Center
Pediatric Maternal Acute Care Center
Master Plan
Loma Linda, CA

The First People's Hospital
Shunde District, China

Banner Lassen Medical Center
Project Evaluations
Susanville, CA

California Hospital Medical Center - CHW
Women's Center
Los Angeles, CA

Martin Luther King, Jr. Hospital
Inpatient Tower Renovation and MACC
Los Angeles, CA

Hemet Heart Hospital/MediCity
Master Plan
Hemet, CA

Kaiser Permanente San Marcos Medical Center
Outpatient Treatment Center Building No. 4
San Marcos, CA

Kaiser Permanente West Los Angeles Medical Center
NICU
Los Angeles, CA

Ridgecrest Medical Center
Facilities Assessment and Master Plan
Ridgecrest, CA

Carson Tahoe Regional Medical Center
Sierra Nevada Cardiology Associates Tenant Improvement
Carson City, NV

Completed Projects

Kaiser Permanente Downey Medical Center
Downey, CA

Wellish Vision Center
Las Vegas, NV

Kaiser Permanente Rancho Bernardo Clinic
Rancho Bernardo, CA

Scripps Green Hospital
Pharmacy
La Jolla, CA

VA Medical Center
5th Floor Master Plan
La Jolla, CA

The Impact of Healthcare IT

By: Nate Larmore, Associate Principal/Director of Technology Consulting, Sparling; Rebecca Hathaway, Senior Vice President, Healthcare Practice, HMC Architects

No one can deny that technology has played an important role in healthcare delivery and reform and will continue to do so.

Access to affordable and appropriate care has multiple points of impact, and information technology is clearly one of the most important. The number one priority on the top ten list of healthcare technology issues is electronic medical records or electronic health records (EHR). On February 17, President Obama's signature on the 1,100-page American Recovery and Reinvestment Act (ARRA) was hailed as a watershed moment for healthcare information technologies (IT). Healthcare Information and Management Systems Society President Sever Lieber described ARRA as "the most important legislation to ever impact health IT." Others have compared the anticipated results of ARRA with the technical advancements of the Project Apollo.

Structure of the Act

ARRA's impact on healthcare IT can be organized into three categories: governance, funding, and privacy.

- Governance includes the creation of an office of the national coordinator, to be supported by a policy committee and standards committee.
- Funding includes provisions for provider loans, as well as Medicare and Medicaid incentives.
- Privacy and security provisions address improved rights to individuals regarding disclosures and expansion of HIPAA regulations to include new business entities.

Financial Provisions

The financial provisions of ARRA exceed $20 billion. They are intended to incentivize the development of IT infrastructure, as well as the implementation and utilization of EHR over the next five to seven years. However, the imbalance between the huge amount of funding and the narrow disbursement window leaves many healthcare IT executives doubtful. Healthcare technology does not have a reputation for being nimble; more similar to a lazy river than the raging rapids that lie ahead. With payments scheduled to begin in FY2011 to those hospitals demonstrating "meaningful use of certified use of EHR," there is little time for adequate planning. Some even speculate that healthcare organizations may choose non-compliance penalties rather than participate in ARRA.

What's the Hesitation?

Analysts, physicians, and hospital executives have entered into a wide-ranging debate that has filled trade publications and dotted cyberspace. Some of these deliberations include:

- Inability to connect the records in hospitals with those in private physician offices, where billions of dollars have already been spent
- Ambiguity regarding performance expectations for EHR including clunky ROI models and inconclusive efficiency enhancement projections
- Overemphasis on the implementation of a technology tool without an adequate strategy to guide its usage, risking significant waste of resources
- Incapability of current EHR products to adequately address operational needs within a single organization, not to mention an entire industry
- Inadequacy of incentives to cover the actual cost of EHR implementation, training, and maintenance
- Incomplete definitions of qualifying terms within ARRA such as "certified EHR technology," "meaningful use," and "meaningful user"
- Inability of various EHR products to communicate, as well as a lack of standardization and core infrastructure may create islands of data

In the absence of clear analysis or executable recommendations, conjecture has run rampant. Rather than being given direction, inquiring executives have often found directionless speculation and small-print caveats passing the responsibility to independent legal counsel.

So What Now?

Healthcare organizations currently implementing or approaching implementations of EHR are moving forward as planned. For those organizations still in the planning process, the complexity of the act and the ambiguity of the language has created a "wait and see" approach.

ARRA is an opportunity to redefine the application of technology within the healthcare environment. In an industry that desperately needs leadership that goes beyond sound bites, speeches, and politics, this is an unprecedented call to action. However, if healthcare organizations get lost in the cloud of confusion surrounding the act, they may find the ship has already sailed.