“Health care projects are very complex, and extensive planning is required to deliver them. Hundreds of participants, thousands of products and systems, and tens of thousands of decisions must be orchestrated on the path to final completion” (Burgun, Sprague, Stein, & Atkins, 2008, p.119). Healthcare construction may create conditions that are dangerous to a hospital’s patients, staff, and visitors; therefore, it is essential to include in the process provisions for infection control; risk assessment; life safety; protection of occupants during construction (including planned or unplanned outages, movement of debris, traffic flow, cleanup, and so forth); plans for disruption of services; measures to be taken to train hospital staff, employees, visitors, and construction personnel; and commissioning processes. Still, this list represents just a few of the factors that must be considered while constructing, expanding, renovating, or restoring a healthcare facility.

In general, the management team of any construction project should pay careful attention to items such as construction contracting, project management, value engineering, construction methods, project controls, scheduling and estimating, workforce supervision, construction equipment, construction safety, technology, and commissioning. However, because healthcare construction deals with unique and very complicated structures and systems (e.g., nuclear, electromagnetic, gases, radiation, chemical, and concentrated gases), these items assume higher levels of importance and criticality for the success of a project.

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Owners of new healthcare facilities are very conscious of the three items that dominate project delivery components: cost, time, and quality. In addition, they are aware that healthcare technology and processes are evolving at an ever-increasing speed. Therefore, they require flexibility and tend to postpone final Program of Requirements decision making to the last minute to avoid chaotic changes to the program (Ward, Liker, Cristiano, & Sobek, 1996). As a result, once a decision is made, there is an incentive to bring the project to successful completion as soon as possible at the lowest cost with the best quality and technology available. However, these owners are quickly coming to the realization that any attempt to drive down costs and time and also increase quality is futile, because it frequently results in more costly projects. A traditional construction project delivery dictum states that any two of these items can be achieved, but not all three (Dinsmore & Cooke-Davies, 2005).

Recently, healthcare owners have begun teaming up with designers, contractors, subcontractors, suppliers, and vendors (stakeholders in the supply chain) who provide Lean construction project delivery services, and they have found that by focusing on minimizing the waste on a project, they can achieve all three: reduced upfront cost, reduced project delivery time, and increased quality (Koskela, Howell, Ballard, & Tommelein, 2002). The waste at hand is not only material and information waste (caused by conflicts, errors, and omissions detected with the use of building information modeling, nth-Dimension computer-assisted design, and computerized models), but also from planned weekly activities that do not occur for various reasons (e.g., “Will try,” “Will do my best,” problems with other projects, conflict with other trades). Studies have shown that in the United States a typical project has an average plan percent complete (PPC) of approximately 54%, which is very good compared with other countries (Cain, 2004). What this means is that in any given project construction week, approximately 50% of the activities planned are carried out correctly and under strict time limits. Lean construction projects have been able to achieve an average of 80% PPC (Abdelhamid, El-Gafy, & Salem, 2008). The difference between 54% and 80% PPC is attributable to all kinds of direct/indirect, hidden/obvious, excused/not excused, evitable/inevitable waste. Achieving a higher PPC is not an easy feat, because it requires impeccable performance among other drivers (Ballard & Howell, 1998). It cannot be enforced by the schedule, nor by contracts, but by involving the last planner (the one doing the work) in the actual execution process (Koskela et al., 2002).

The preceding examples come from projects that have used the Lean construction approach—a methodology implemented by the typical construction team on typical complex construction projects (Bertelsen, 2003; Fernández-Solís, 2008). Interestingly, slightly more than 50% of the projects using Lean construction initiatives since 2000 have been in the healthcare sector (Aherne & Whelton, in press; Miller, 2005). Owners of healthcare systems were among the first to see the advantages in the design, construc-
tion, and maintenance of healthcare facilities using advanced project delivery techniques and processes, because they tend to own, operate, and maintain these facilities.

The link between competency, profit, and the way property is managed has been discussed in the literature (Douglas, 1996). Facility management seems to deal with the management of noncore company assets (Alexander, Atkin, Brochner, & Haugen, 2004), which includes a very long list of responsibilities, among them the cost of occupancy, maintenance and operations, function and use, environmental health, comfort, and many others. Therefore, it can be concluded that facility management is multidisciplinary, because it aims to combine all aspects related to the people, places, processes, and technologies of an organization (International Facility Management Association, 2009). Another perspective holds that facility management is the practice that integrates decisions across the major areas of concern—physical, human, functional, and financial—for the improvement of performance and the productivity of built facilities (Atkin & Brooks, 2000; Nutt, 1999). Thus, successful facility management depends heavily on cost and efficiency (Lavy & Shohet, 2004).

Healthcare facility management can be considered one of the key elements for the successful delivery of healthcare services. Rees (1997, 1998) found that the healthcare sector tends to integrate noncore services (risk management, energy efficiency, cleaning, and security) under the umbrella of facility management. All of these sources and examples reinforce the understanding that the growth and continuing development of the facility management profession also will increase the effectiveness of providing healthcare service.

Clearly, healthcare facility management is to some extent different from any other sector or type of building management, such as office buildings, or educational or industrial facilities. Healthcare systems tend to plan, build, own, operate, and maintain their own facilities; as a result, they are more concerned than developers of other types of buildings about the service life, systems, and components of their buildings. A unique combination of factors—patients and personnel with whom hospitals must be concerned; the fact that some of these patients are on life support and therefore vulnerable and dependent; the massive infrastructure that supports daily, ongoing operations; and the effect of decisions made in the early design stages on subsequent medical outcomes, among others—contributes to the notion that healthcare facility management can be considered one of the key elements for the successful delivery of healthcare services.
healthcare facility management is an area that requires more investigation and study. This can be accomplished by joining forces in collaboration with academicians, who understand research processes and methods, together with practitioners, who bring experience and knowledge of the processes involved in managing these unique, complex, and multifaceted facilities.

This special issue of the Health Environments Research & Design Journal contains research studies about the complex issues of healthcare construction and facility management. Manuscripts were submitted and reviewed by some of the best researchers in the world specializing in these areas, and we are pleased to provide the results to our readers.

References


