

Capital Project Solutions – June 2009

The Benefits of Conducting a Strategic Project Launch Readiness Assessment – Part 6 in a 13 Part Series

Guiding Design Principles – Your Vision Coming into View

David Carter, AIA
Consultant



Throughout 2009, Capital Project Solutions will be running a series of articles on Project Launch Preparedness. Last month's issue discussed Clinical and Operational Processes. This month's article explores the fifth spoke of the Strategic Project Launch Readiness Assessment (SPLRA) – Guiding Design Principles. Throughout a SPLRA, every major issue that could potentially impact your launch will be identified and explored. The SPLRA will keep you focused on all the elements that impact the "Big 3" of your project – scope, schedule, and budget. If you should miss any of the 13 articles in the series or to learn more about other strategies to ensure your project's success, visit KLMK Group at www.klmkgroup.com.

Along with the master plan and operational plan, understanding overall guiding design principles will further guide the space programming and design process for a new healthcare capital project. This issue of *Capital Project Solutions* will focus on a few of these principles. Major items that should be contemplated and need to be understood include:

- Is there a desire to implement the principles of Evidence Based Design and Sustainable Design?
- Is there a level of LEED certification that is desired or is required?
- What "feel" or "identity" is the Hospital trying to achieve?
- What is the expectation relative to major internal and external design elements (e.g. the patient room or exterior icons)?
- What is the plan for future flexibility and expansion?

Establishing these overarching principles early:

- Allows the project team to operate within an agreed upon set of guidelines.
- Adds further direction to the upcoming programming and design efforts.
- Helps establish the framework for budgeting, target costs, and benchmarks

Since the patient and his or her well being are the primary function of the hospital, it seems logical to discuss the elements of Evidence Based Design. Evaluation of room occupancy, noise levels, patient/visitor views, ventilation, lighting and proximity of services should all drive the early development of the guiding design principles as they relate to patient-centric services. While using these elements to help drive the principles it is likely that other ideas will surface relating to sustainability and quality of the fit, finish, and exterior of the facility.

Evidence Based Design:

The Roots of Evidence Based Design: In 1984, a study was conducted by Dr. Roger Ulrich (an environmental psychologist who conducted research that evaluated the impact of people's experiences with the environment on their psychological well-being, physiological systems, and health outcomes). The study stimulated the development of Evidence Based Design (EBD). Dr. Ulrich evaluated surgical patients who were randomly assigned to rooms on the same corridor that were identical except for the window view: half the patients overlooked trees; the other half viewed a brick wall. Patients with views of nature went home three-quarters of a day sooner, had \$500 lower cost per case, used fewer heavy medications, had fewer minor complications, and exhibited better emotional well being (Ulrich 1984).

Since this early study, hundreds of studies and articles have been conducted and written on EBD. Some of the research findings are common sense items (e.g. reduction in noise has a positive influence on patient outcomes) and some require more empirical evidence (e.g. the impact of lighting levels on NICU babies).

Evidence Based Design is not about hospitals simply being “nicer” or “fancier”, but rather the focus is to create hospitals that actually help patients recover quicker, be safer, and help staff perform better.

The goal The Center for Health Design defines EBD as “...*the process of basing decisions about the built environment on credible research to achieve the best possible outcomes.*”

There is still much debate about the value of EBD, but let the debate continue for the benefit of better designed facilities.

Capital Project Solutions – June 2009

Some of the more common design principles that are being applied to new healthcare facilities today are as follows:

- Develop a safe environment for patients, staff and visitors.
- Build a facility that is attractive to healthcare professionals to help recruit new physicians / staff and retain current employees.
- Ensure the new hospital is patient friendly, family centered, and easy to navigate.
- Design an interior that allows for efficient staff and patient flow.
- Plan for space that accommodates advanced technology now and into the future.
- Construct an economically feasible design.
- Create an environment that is supportive of higher education and allows on-site learning.
- Build a flexible, adaptable and visually appealing facility that allows for future expansion and brings pride to the community.

A few of the major elements of EBD are discussed below.

The Inpatient Room

The inpatient room remains a primary building block of the hospital facility and the overall functional organization of the room should be discussed prior to detailed design. Private rooms are the design standard in today's environment. Single occupancy rooms provide a higher level of patient satisfaction and result in:

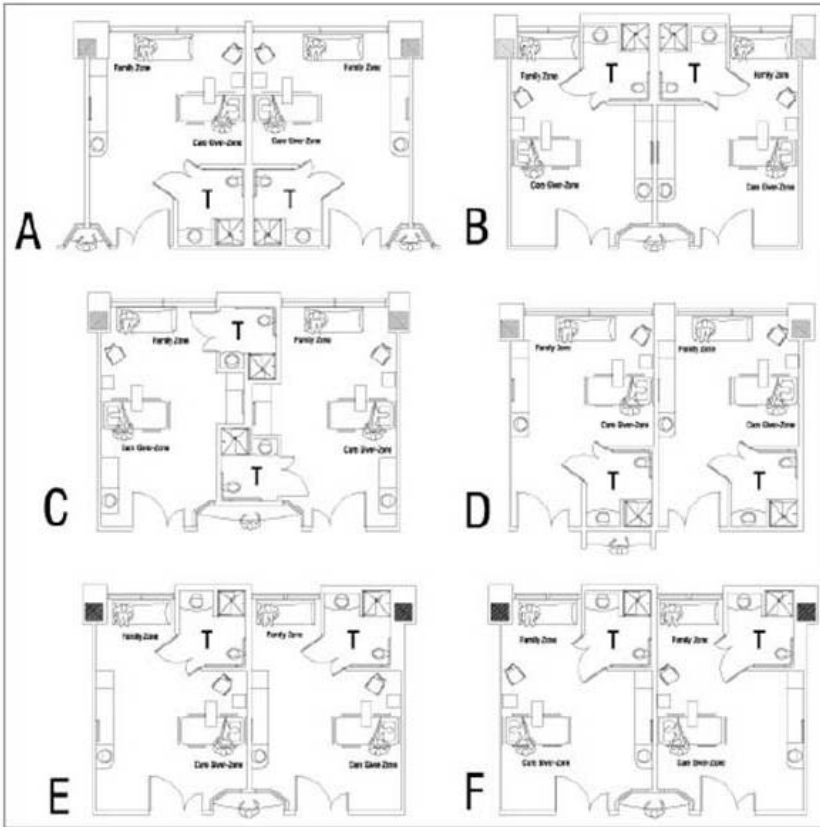
- Lower nosocomial infection rates
- Fewer patient transfers and associated medical errors
- Less noise
- Increased privacy and confidentiality
- Better communication between staff and patients
- Better family accommodations
- Lower transfer costs
- Higher overall occupancy rates
- Increased market demand

Additional major decisions surrounding room layout include:

- Toilet/shower room design: inboard, outboard, or stacked
- Acuity based design: will the room be acuity adaptable / universal in nature with the ability to care for both critical and non-critical care patients
- Handedness of the rooms: same-handed or mirrored
- Family zone: How will the family be intergraded into the design of the room



All of these decisions have direct impact to overall square footage, project budget, medical equipment, and furniture requirements. By establishing patient room design criteria early the team can focus on developing a room that meets both the client's needs and budget.



Noise Levels

Noise producing sources run rampant on inpatient floors and throughout most hospitals. Culprits include overhead paging, clinical equipment, EVS equipment, personnel, visitors, telephones, televisions, etc. Although it is virtually impossible to eliminate all noise it can be mitigated, ultimately, increasing patient satisfaction and improving the working environment for staff. Discussing these concepts early with hospital leadership will ensure that the design team clearly understands the priorities that are critical to the care delivery model.

Views of Nature

It is disappointing to walk into an area of the hospital that could have easily been provided a pleasant view to the outside only to have that view obstructed by mechanical spaces, exhaust vents, an adjacent wall or some other unsightly

building element. Providing pleasant views for the patient (and staff) does not have to be a cost burden if thought about early and maintained as a driver for the design. The additional cost of providing desirable views may be off-set through operational savings such as decreased length of stay and nursing satisfaction. It seems so elementary that such a simple gesture can afford both patients, visitors and staff so much benefit but often times is so easily overlooked.

Hospital leaders should proceed cautiously and plan prudently with common sense and with the proper research and debate at hand when incorporating EBD. (For additional information on EBD, access the Center for Health Design's website: <http://www.healthdesign.org>)

What is the LEED System?

LEADERSHIP in ENERGY and ENVIRONMENTAL DESIGN

A leading-edge system for certifying DESIGN, CONSTRUCTION, & OPERATIONS of the greenest buildings in the world



Scores are tallied for different aspects of efficiency and design in appropriate categories.

For instance, LEED assesses in detail:

1. Site Planning
2. Water Management
3. Energy Management
4. Material Use
5. Indoor Environmental Air Quality
6. Innovation & Design Process



Sustainable Design – LEED:

Most facilities seek to incorporate Sustainable Design elements into their project and may seek LEED certification. What is LEED? Leadership in Energy and Environmental Design is a voluntary program created by the U.S. Green Building Council to establish standards for defining buildings as “green”. Buildings can be rated as Certified, Silver, Gold and Platinum depending upon the number of submitted credits accepted by USGBC. Certified is the least rigorous (and least costly) level to achieve with Platinum being the most rigorous (and most costly).

There are five areas of credit:

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Material & Resources
- Indoor Environmental Quality

A point is awarded for achieving 120+ credits within each area. Hospital Executives should convene a “LEED workgroup” of experts to discuss the costs and benefits to achieving a level of LEED certification.

Interior and Exterior Vision

Discussion around the vision and “feel” of the interior and exterior elements requires debate and discussion. Will the facility:

- Look and feel like a luxury hotel?
- Convey an institutional medical presence?
- Integrate elements of the local community?
- Impart a health system “brand”?
- Be easy to navigate both inside and out?

Addressing these vision elements will establish a set of standards that will directly impact patient, staff, and visitor perception of the facility and help communicate the visual message the hospital wants to provide to patients, community and staff.

Establishing the guiding principles early opens communication between the design team, planners, programmers, hospital executives and hospital staff thus enabling the design team to truly understand where priorities lie. This type of communication and early decision making will help prevent

Capital Project Solutions – June 2009

hours of re-work and re-design that can occur when such principles are not defined and left to chance. Following and implementing a sound set of guiding design principles during the capital improvement process will help to enhance patient care outcomes, satisfaction, and safety; staff satisfaction; and market position.

Below is a Case Study from an actual client highlighting the use of Guiding Design Principles in their new facility.

Case Study – Southern General Hospital (pseudonym)

Southern General Hospital (SGH), a community hospital located in the Southeast, is in the process of designing a replacement facility on a green-field campus. SGH is a member of Southern Health System (SHS) and is located approximately 40 miles from SHS’s flagship tertiary care facility. In designing the new facility, many guiding design principles have been discussed. A few highlights include:

General Medical / Surgical Inpatient Room Layout:

SGH decided on private same-handed rooms (all rooms have the patient headwall and other elements in the same location) with an inboard toilet room (toilet room on the interior / corridor wall). The rationale for the toilet location was to:

- Create more privacy (visual and auditory) for the patient
- Increase window size
- Increase flow of natural light
- Maximize the family zone
- Place family zone out of the general flow of the patient care and staff areas

Levels of
LEED
Ratings

Green Buildings worldwide are certified with a voluntary, consensus-based rating system. USGBC has four levels of LEED.



The “same-handed” layout was viewed as a safer design that could limit medical errors and increase standardization. Cost was considered, and yet while the room may prove to be slightly more expensive to build, the benefits to patient privacy, family comfort / involvement, noise reduction, staff flow, and potential positive impact to safety outweighed the potential cost.

Sustainability - Level of LEED to be Achieved. It was recommended by the SGH LEED Task Force and has been agreed upon by the Facility Planning Committee of SGH that the hospital will incorporate Sustainable Design elements into the project and will seek LEED Certification for the replacement campus. While *LEED Silver* was desired, given the challenges to



Capital Project Solutions – June 2009

achieve this level and the potential initial costs associated, *LEED Certification* was chosen to implement.

Building Exterior Concepts: Discussion around major external design elements has focused on site layout, building relationships, campus feel, and façade / external design. Exterior concepts have gone through several edits and refinements and are being finalized. Balance is sought between designing a unique facility with character befitting the local community and a facility that is branded as a part of the Southern Hospital System, all the while taking cost into consideration.

There are many guiding design principles and each facility / team must identify the principles that are appropriate for their project. It is important to explore options and establish these principles early in the process as they will serve as a cornerstone for decision making.