National Healthcare Facilities Benchmarking Program

Healthcare Facilities Symposium & Expo
October 2, 2012
10:00 AM – 11:00 AM
Presenters

• Stephen Mulva, Ph.D.
  – Associate Director, Construction Industry Institute
  – University of Texas

• Russell Manning, LEED AP
  – Senior Health System Planner
  – U.S. Department of Defense, Military Health System

• Noah Kahn, AIA
  – National Manager, Project Metrics
  – Kaiser Permanente

• Jay Sztuk, AIA NCARB
  – Director, Cost Estimating Service
  – U.S. Department of Veterans Affairs
Learning Objectives

• Describe the benefits of an external benchmarking program for the delivery of capital projects

• Learn methods used to compare projects from different organizations and validate estimates

• Learn how benchmarking can assist improvement initiatives

• Explore how benchmarking can serve as a basis for facility planning
Trim Capital Spending by 25%

• McKinsey & Company

“The management of capital investment has an enormous effect on profitability and competitiveness, yet few companies do it effectively. We believe that the use of evaluation tools, disciplined processes, and best practices can help companies trim capital spending by up to a quarter without reducing capacity or functionality - and improve their operating costs and revenues through better investment decisions.”
Cost Growth (Owner)

Average budget = $44 million, n=127 (submitted after 2002)

CII Best Practice Usage
(Best Practice Index)
Schedule Growth (Owner)

Average planned duration = 131 weeks, n=155 (submitted after 2002)

CII Best Practice Usage (Best Practice Index)

- Minimal Implementation
- Robust Implementation

Schedule Growth

Better

28.8%
CII Benchmarking Process

Three-step Process

Online Questionnaire → Benchmarking Database → Data Mining and Reporting Engine
PAS – Data Mining
U.S. Healthcare

• Represents 15.3% of GDP (Highest in the World)

• Healthcare Insurance
  – 2007: 50 Million Uninsured, 25 Million Underinsured
  – 2010: 30+ Million Newly-Insured
    • Places Burden on Healthcare Services
    • Places Burden on Healthcare Facilities
      – 3.6 Hospital Beds / 1,000 People in 2009
      – #27 of 29 industrialized nations

• 6,000+ U.S. Hospitals

• Improvement in the Delivery of Healthcare is Crucial for Government and Private Industry
Healthcare Facilities Benchmarking History

• History of Benchmarking
  – 1992 Children’s Hospital Engineering Benchmarks (12 Organizations)
  – 1996 Hospital Operations Benchmarks (51 Organizations)
  – Kaiser Permanente’s Search
    • No One Facilitated External Benchmarking
    • Joined CII in October 2007

• CII Healthcare Facilities Benchmarking Program
  – 2008 Initial Meetings
  – 2009 - 2011 Development Meetings (CII Members)

• October 2011 Program Funded by VA and DOD (TMA/MHS) via NIBS
  – March 2012 Healthcare Questionnaire Beta Launch
  – July 2012 Healthcare Program National Launch & Training
Healthcare Facilities Benchmarking

• Primary Participating Organizations (to date):
  – U.S. Department of Defense (Tricare Management Activity / Military Health System)
  – U.S. Department of Veterans Affairs
  – Kaiser Permanente
  – Mortenson (Chicago)
  – Barton Malow (Detroit)
  – U.S. Army Corps of Engineers (HFPA)

• Other Participants:
  – University of California (San Francisco)
  – Exempla (Denver)
  – Cincinnati Children’s Hospital
    • CHCA (Child Health Corp. of America) – 43 Children’s Hospitals
  – Clarian Health System (Indianapolis)
  – Premier GPO (Charlotte)
  – RehabCare/Triumph (St. Louis)
  – Etc.
## CII Healthcare Facilities Benchmarking Program

- **Healthcare Benchmarking Framework**

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Category</th>
<th>Work Type</th>
<th>Specialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>Quaternary</td>
<td>New</td>
<td>Children’s Orthopedic</td>
</tr>
<tr>
<td></td>
<td>Tertiary</td>
<td>Renovation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>Addition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>Replacement</td>
<td></td>
</tr>
<tr>
<td>Central Utility Plant (CUP)</td>
<td>Type B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Office Building (MOB)</td>
<td>Type I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Structure</td>
<td>Type B&amp;I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulatory Surgery Center</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Term Care Facility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Lab Facility</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Metrics: Effort vs. Value

Collection Effort

- Low
- High

Data Value

- Yes
- No
# CII Healthcare Facilities Benchmarking Program

- **150+ Healthcare Specific Metrics**

## Current Phase (of project):

**Phase**

<table>
<thead>
<tr>
<th>Description</th>
<th>Start</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predesign (Scoping / Functional / Space Programming):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schematic Design:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Development:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Documents:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Permit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bid:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction-to-Substantial Completion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate of Occupancy:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Completion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move-In:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closeout:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Metrics

<table>
<thead>
<tr>
<th>Current Phase (of project):</th>
<th>Plan</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predesign (Scoping / Functional / Space Programming):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schematic Design:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Development:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Documents:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Permit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bid:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction-to-Substantial Completion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate of Occupancy:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Completion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move-In:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closeout:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### CII Healthcare Facilities Benchmarking Program

- Component-Based Benchmarking

<table>
<thead>
<tr>
<th>Building Cost Line Item Definitions</th>
<th>Notes</th>
<th>Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SITE DEVELOPMENT: ON-SITE</strong></td>
<td>Hardware: Surface Parking is a component of the on-site development budget. Surface parking includes surface parking spaces, utilities from the property line to within 5 feet of the building, parking kiosks, curbs, gutters, site lighting, site signage, clearing, walkways, benches, etc. Softscape: Landscaping is a component of the on-site development budget. The guidelines include vegetation, irrigation.</td>
<td>$</td>
</tr>
<tr>
<td><strong>BUILDING CONSTRUCTION</strong></td>
<td>Building Construction includes: excavation, shoring, foundations, utility connections, structural components, mechanical and electrical, plumbing, fixed furniture and equipment provided by the contractor, installation of owner furnished, contractor installed equipment, earthquake mitigation of equipment and furniture, finishes, security, signage, contractor’s fee, general conditions, bonds, insurance and construction contingency. CSI Structure (see CSI).</td>
<td>$</td>
</tr>
<tr>
<td><strong>PROFESSIONAL FEES</strong></td>
<td>Includes all professional fees for complete design services, preconstruction consulting services, and specialty consultants (interior designer, equipment planner, artist consultant, etc.). Professional fees for complete design services include all consultants required to provide complete basic services for design through completion of the project. The budget includes architectural/engineering services, biomedical physicists, interior design, equipment planning, graphic consultants, traffic studies, and asbestos surveys. The professional fees may also include pre-schematic design services such as master planning, assessments, and programming, or pre-construction services.</td>
<td>$</td>
</tr>
<tr>
<td><strong>OWNERS’ MISCELLANEOUS</strong></td>
<td>Owner’s miscellaneous costs include Inspector of Record, testing lab, special inspections, design reimbursable costs, and permit and agency fees. Also includes capitalized special events.</td>
<td>$</td>
</tr>
<tr>
<td><strong>MOVEABLE EQUIPMENT</strong></td>
<td>Moveable equipment guidelines include the purchase of all new, owner-furnished equipment and the installation of owner-installed and equipment vendor-installed equipment for new facilities (OFDS). Guidelines for moveable equipment include purchase price for equipment, costs for refurbishing equipment in lieu of purchasing new, tax, freight, and installation including quality control, calibration, electrical testing. The guidelines also include the purchase price, tax, and freight for built-in equipment that is installed by the general contractor.</td>
<td>$</td>
</tr>
<tr>
<td><strong>IMAGING EQUIPMENT</strong></td>
<td>Guidelines include purchase price, quality control, installation, electrical testing, tax and freight.</td>
<td>$</td>
</tr>
<tr>
<td><strong>FURNISHINGS</strong></td>
<td>Furniture guidelines include purchase price for new, movable furniture, installation, tax, and freight.</td>
<td>$</td>
</tr>
<tr>
<td><strong>ARTWORK AND PLANTS</strong></td>
<td>Artwork guidelines include purchase price including commissions, shipping and framing costs. They also include costs for installation, plaques, and inventory.</td>
<td>$</td>
</tr>
</tbody>
</table>

### Schematic Design Costs

<table>
<thead>
<tr>
<th>Div. Code</th>
<th>Component Description</th>
<th>Total Cost</th>
<th>$/SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 010000</td>
<td>TOTAL GENERAL REQUIREMENTS</td>
<td>1,000.00</td>
<td></td>
</tr>
<tr>
<td>3 030000</td>
<td>TOTAL CONCRETE</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>4 040000</td>
<td>TOTAL MASONRY</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>5 050000</td>
<td>TOTAL METALS</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>6 060000</td>
<td>TOTAL WOOD AND PLASTICS</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>7 070000</td>
<td>TOTAL THERMAL and MOISTURE PROTECTION</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>8 080000</td>
<td>TOTAL DOORS and WINDOWS</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>9 090000</td>
<td>TOTAL FINISHES</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>10 100000</td>
<td>TOTAL SPECIALTIES</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>11 110000</td>
<td>TOTAL EQUIPMENT</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>12 120000</td>
<td>TOTAL FURNISHINGS</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>13 130000</td>
<td>TOTAL SPECIAL CONSTRUCTION</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>14 140000</td>
<td>TOTAL CONVEYING SYSTEMS</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>21 212000</td>
<td>TOTAL WATER SUPPRESSION</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>22 220000</td>
<td>TOTAL PLUMBING</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>23 230000</td>
<td>TOTAL HVAC</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>26 260000</td>
<td>TOTAL MECHANICAL (21+22+23)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>27 270000</td>
<td>TOTAL ELECTRICAL</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>28 280000</td>
<td>TOTAL ELECTRICAL SAFETY AND SECURITY</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL ELECTRICAL</strong></td>
<td>28+27+28</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>
National Healthcare Facilities Benchmarking Program

Noah Kahn
National Manager Project Metrics
National Facilities Services
Kaiser Permanente

October 2, 2012
## About Kaiser Permanente

### Recognized as one of America’s leading health care providers and not-for-profit health plans

| 8.9M members | $47.9B operating revenue | 15,853 physicians 167,178 employees | 9 states and the District of Columbia | 37 hospitals 615 medical offices |

- KP spends approximately $3B per year on capital facilities projects
# Kaiser Permanente: Focus on Clinical Quality and Satisfaction

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser Permanente Ranks Highest in J.D. Power and Associates Member Satisfaction Study (in five regions)</td>
<td>3/21/12</td>
</tr>
<tr>
<td>Kaiser Permanente Ranks No. 1 in Customer Loyalty in the 2012 Satmetrix Net Promoter® Benchmark Study</td>
<td>3/21/12</td>
</tr>
<tr>
<td>5 Kaiser Permanente Regions are Among the Top 10 Medicare Health Plans in the Country in NCQA’s Rankings</td>
<td>10/21/11</td>
</tr>
<tr>
<td>Kaiser Permanente Leads the Nation in 11 Effectiveness of Care Measures: 2011 National Committee for Quality Assurance’s Quality Compass</td>
<td>10/10/11</td>
</tr>
<tr>
<td>Kaiser Permanente’s Redesigned Treatment Detects Sepsis Risk Earlier and More Often</td>
<td>10/19/11</td>
</tr>
</tbody>
</table>

- Redesigned processes of care and evidence-based treatment algorithms led to earlier detection of patients at risk for sepsis.
- Sepsis is a severe infection that is spread via the bloodstream.
- Sepsis is the No. 1 cause of death in U.S. hospitals - U.S. DHHS.
KP National Facilities Services has a dedicated group to track health care facility project metrics.
Internal metrics:

- Compare and improve performance
- Quantify risk
- Track changes over time
- Evaluate process impact on outcomes
- Reduce cost variation within a project type
- Increase predictability and performance
External Benchmarking

- There was no good way to obtain external health care facilities benchmarks, until now:
External Facilities Health Care Benchmarking

- External benchmarking provides an industry wide view:
  - Capital project approvals
  - Internal target validation
  - Augment expertise
  - The ability to data mine for industry best practices
  - An end to “casual benchmarking”
Participation

Next Steps:
- The value of this database is based on its size and quality
- Value will increase over time
- Registration in the program is free, benefits are high
- Data entry is required to receive reports
- Training is required to insure “apples to apples” comparisons
- Data is validated by CII prior to inclusion
- Data is secure
- Reports will be available in 2013

Benchmarking Associates (BA) Training for Healthcare

- July 11th, 2012, Washington, D.C.,
  Hosted by the U.S. Department of Veterans Affairs.
  To register, please contact us at info@healthcarebenchmarking.org.

- October 25th, 2012, Oakland, CA.
  Hosted by Kaiser Permanente.
  To register, please contact us at info@healthcarebenchmarking.org.
Questions?

Healthcare Benchmarking Video

Healthcare Benchmarking provides an impartial, confidential venue for healthcare organizations to compare their capital facilities projects to the rest of the industry and to obtain quantitative information to support decision-making.

Healthcare Benchmarking Web Site

https://www.healthcarebenchmarking.org/
• Mission
  – To fulfill President Lincoln's promise “To care for him who shall have borne the battle, and for his widow, and his orphan” by serving and honoring the men and women who are America’s veterans.

• Vision
  – To provide veterans the world-class benefits and services they have earned - and to do so by adhering to the highest standards of compassion, commitment, excellence, professionalism, integrity, accountability, and stewardship
VA Services for Veterans

• Health Care
  – 6.3 Million Unique Patients
  – 91 Million Outpatient Visits This Year
  – 61 Thousand Inpatients Per Day

• Benefits
  – 4.0 Million Veterans will receive Compensation
  – 1,000,000 Veterans will receive Education Support
  – 228,000 Veterans will receive Guaranteed Home Loans Support

• Memorial Benefit
  – 119,000 Burials in National Cemeteries
  – 3.2 Million Graves Maintained
  – 350,000 Headstones Provided for Veterans in Private Cemeteries
OEF/OIF Veterans
(data through FY 2011)

• 1,396,477 OEF/OIF Veterans have left Active Duty
  – 766,081 (55%) Former Active Duty Troops
  – 630,396 (45%) Reserve and National Guard

• 2.3 Million Troops Have Served

• 741,954 (53%) of Total Separated Obtained VA Health Care
  – 694,726 Seen As Outpatients
  – 47,228 Have Received Inpatient Hospitalization
  – 54% of Former Active Duty Troops
  – 52% of Reserve and National Guard
  – OEF/OIF Veterans Represent Approximate 8% of Veterans Provided Health Care Services
VA Facilities Inventory

- 5,500 Buildings
- 1,600 Leases
- 142,000,000 SF
- 34,000 Land acres
- Average age approaching 60 years
Path Forward

• Visit www.healthcarebenchmarking.org

• Attend Upcoming Training Sessions
  – October 25, 2012 – Pleasanton, CA
  – December 6, 2012 – Nashville, TN

• Submit Projects
  – By April 10, 2013
  – Data Cutoff for Summary Report
  – By September 25, 2013 (First Round)

• Receive Key Report(s)
Does Benchmarking Work?

CII Pharmaceutical and Biotech Projects

Cost Performance
6% Less

Schedule Performance
26% Less
Questions?

Stephen P. Mulva, Ph.D.
Associate Director
Construction Industry Institute
(512) 232-3013
smulva@cii.utexas.edu