SAME MEETING, OMAHA CHAPTER – PRESENTATION ON IRWIN ARMY COMMUNITY HOSPITAL, FORT RILEY, KS

8 March 2012
Bios

• **John Andrews, AIA, NCARB**
  Sr. Project Manager and Health Facility Planner for Leo A Daly in Omaha, Nebraska, with 30 years of experience on $2.1B of healthcare design and construction projects. His most recent projects include the VA Medical Center Replacement in Omaha, NE and the Irwin Army Community Hospital Replacement at Ft Riley, KS.

• **Jonathan Fliege, AIA, NCARB**
  Senior Architect and Health Facility Planner for Leo A Daly in Omaha, Nebraska, with 18 years of experience on $1.6B of healthcare design and construction projects. His most recent projects include the VA Medical Center Replacement in Omaha, NE and the Irwin Army Community Hospital Replacement at Ft Riley, KS.
Agenda

• Project Overview
• Design Process & Early Contractor Involvement (ECI)
• BIM (Revit) Overview
  – Program Validation
  – Design Validation
  – Furnishings, Fixtures, & Equipment (FF&E)
  – Design Coordination
• Conclusion
Project name: Irwin Army Community Hospital Replacement
Project year: FY 08
Contract number: W912DQ-09-C-4024
Designer: Leo A Daly/RLF JV
Duration: 1178 calendar days from NTP

Program amount (PA): $404,000,000
Current working estimate (CWE): $339M
Construction contractor: Balfour Beatty/Walton JV
NTP: 3 May 10
Beneficial Occupancy Date (BOD): 24 Jul 2013
PROJECT OVERVIEW

Statistics:

Project Size: 577,988 sf

44-Bed Hospital
4 Operating Rooms
Large outpatient clinic
Healing Garden w/Labyrinth
Rooftop Gardens
Central Energy Plant
Ambulance Garage
653-space structured parking
28 Acres

Designed in accordance with DoD World Class principles and Evidence Based Design principles

LEED Silver – Goal (certification in progress)
Project divided into 5 design packages:

- DP-1: Site, Rough Grading
- DP-2: Deep Foundations
- DP-3: Structural Steel & Concrete
- DP-4: Exterior Shell & Core
- DP-5: Interior Fit-out

Design packages were jointly discussed & decided between architect/engineer, contractor, and USACE.

Each design package was bid by the ECI Contractor (Balfour Beatty-Walton JV) to subcontractors using required competition standards set by USACE.

Process has limited scope gaps and ensured construction pace could continue while design was completed.

Coordination
- Misc metal
- MEP long lead times
- Floor openings
Excellence beyond expectations

Early Contractor Involvement (ECI) Integration

Design packages were in various stages of completion at any given time during design period

- As indicated in the graphic, at Feb 2010:
  - DP-1 was complete, DP-2 was out to bid, and DP’s 3-5 were in progress

The goal of ECI is to achieve design-side Contractor integration but also to limit the possibility that design will continue too long into construction, thereby impacting construction processes

- As indicated in the attached graphic, the Fort Riley IACH Replacement had an 8 month overlap

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### Design Packages Status

<table>
<thead>
<tr>
<th>Percentage</th>
<th>DP1</th>
<th>DP2</th>
<th>DP3</th>
<th>DP4</th>
<th>DP5</th>
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<td>0-20% submittal</td>
<td>COMPLETED</td>
<td>OUT TO BID</td>
<td>IN DESIGN</td>
<td>IN DESIGN</td>
<td>IN DESIGN</td>
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<td>20-50% Review mtg</td>
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<td>50-60% submittal</td>
<td>52</td>
<td>62</td>
<td>106</td>
<td>136</td>
<td>3-May-10</td>
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<tr>
<td>60-80% Rev mtg</td>
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<td>24</td>
<td>26-Apr-10</td>
<td>21</td>
<td>24-May-10</td>
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<td>80% submittal (start bidding)</td>
<td>70</td>
<td>52</td>
<td>48</td>
<td>3-Mar-10</td>
<td>59</td>
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<tr>
<td>90% rev mtg</td>
<td>35</td>
<td>21</td>
<td>24-Mar-10</td>
<td>32</td>
<td>26-Jul-10</td>
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<td>100% submittal (changes from 90% clouded; ECI rev changes to inc in bids)</td>
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<td>21</td>
<td>4-Feb-10</td>
<td>22</td>
<td>15-Apr-10</td>
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<td>11-Feb-10</td>
<td>7</td>
<td>22-Apr-10</td>
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<tr>
<td>100% RTA (any changes incorb by mod)</td>
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<td>30-Nov-09</td>
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<td>18-Feb-10</td>
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### Time Measured in Months

- Overall Project Timeline
- Construction Period
- Design Period

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**Ft Riley IACH**

**Gantt Chart**

**Design/Construction Overlap**
Design Coordination – Early Contractor Involvement

- Health Facility Planning Agency/Irwin Army Community Hospital
- U.S. Army Corps of Engineers Kansas City District
- Model Approval
- Approved Needs/Model Changes
- Navisworks Exports
- Contractor Clash Detection
- Approved model for Construction Team

Architect/Engineer Design & Modeling
2011 AIA Technology in Architectural Practice Building Information Modeling Award

2011 Honorable Mention for the Irwin Army Community Hospital

LEO A DALY / RLF Joint Venture
Program Validation

- Space Planning Tool
  - Onuma Planning System
  - Other Software Solution
- Revit Model Integration
- Direct Comparison between Program and Design
**Program Validation**

- Programmed vs. Planned
- Iterative Process

### Net Area Tabulations

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<th>Line #</th>
<th>Room Code</th>
<th>Room Name</th>
<th>Room Qty</th>
<th>Net Area Each (a)</th>
<th>Net Area Total (a)</th>
<th>Deviation</th>
<th>Notes</th>
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<td>SRT11</td>
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<td>-5.4%</td>
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**Totals for Functional Area Number 01:** 41, 7170, 7171, -209, -4.6%

### 2 - ACUITY ADAPTABLE NURSING UNIT

- **1. INPATIENT BEDROOMS**
  - 02A-101: Acuity Adaptable Bedroom, Isolation, Negative Pressure
  - 02A-102: Bedroom, Medical/Surgical, 1 Bed
  - 02A-103: Acuity Adaptable Bedroom
  - 02A-104: Intensive Care Unit
  - 02A-105: Dedicated Toilet/Shower

### 2 - FAMILY / VISITOR AREA

- 02A-201: Consultation Room
- 02A-202: Family Waiting / Day Room

### 3 - STAFF AND ADMINISTRATIVE AREAS

- 02A-301: Vending Machine Area
- 02A-302: Changing Locker Room, Male
- 02A-303: Changing Locker Room, Female
- 02A-304: Nurse Station
- 02A-305: Distributed Nursing Aide

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**US Army Corps of Engineers, Kansas City District**

**PN 47-05**

**2 - ACUITY ADAPTABLE NURSING UNIT**

**Leo A Daly PLLC**

**15 Nov 09**

**Company Logo**

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**EXCELLENCE BEYOND EXPECTATIONS**
Design Visualization / Validation

- BIM Technology enhances communication
- With owner, contractor and design team
- Feedback informs next iteration of design
Furniture, Fixtures and Equipment

- Owner review, validation, and use in procurement

**Irwin Army Community Hospital**
**Fort Riley, KS**

**Virtual Equipment Catalog**

Log Cat A equipment is Contractor Purchased, Contractor Installed
Log Cat C equipment is Owner Purchased, Owner Installed
Log Cat F equipment is Special Purchase, Special Installation

*CID cuts were removed from equipment database*

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**Link to:** [Irwin Army Community Hospital](#)

Please address questions about the Virtual Equipment Catalog to either:

Steven D. Hillier or Ralph A. Swinarski

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EXCELLENCE BEYOND EXPECTATIONS
Design Coordination

- Clash Detection finds major spatial conflicts
- Revit Models exported to Navisworks
- Floor-by-Floor Analysis
- Some elements intentionally filtered out
  - Piping less than 4”
  - Ducting less than 12”
- Report used to find and fix collisions
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