Tips for a Successful Healthcare Project

HEALTH CARE CONSTRUCTION SUMMIT

Tuesday, May 27, 2008

Electrical
Topics for Discussion

- Why is health care construction different?
  - Health care construction in California vs. other states
- What is unique to your trade on a hospital project?
- Health care construction: The Ideal State vs. Reality
  - What is supposed to happen
  - What does happen
  - Common slip-ups to avoid
- Resources available to help contractors succeed?
- How to get involved in health care construction jobs
Health Care Construction is Different

“It’s a matter of life or death”

- Patient and staff safety depend on the proper operation of the systems in hospitals

- **Life Support**
  - *Emergency Power Systems*
  - *Medical Gas Systems*

- **Infection Control**
  - *Ventilation Systems*
  - *Plumbing Systems*
  - *Architectural Finishes*

- **Earthquakes**
Health Care Construction is Unique

Higher Standards for Performance

- Commercial buildings may not be repairable or functional following a “Design Event” (fire, earthquake, etc.)
- Hospitals must function following an incident
- Fire philosophy is to “defend in place”
  - Patients may be too ill to evacuate
  - Patients are moved to adjacent “compartments”
- Earthquake philosophy: Hospitals must be reasonably capable of providing services to the public
  - Limited damage
  - Critical equipment and systems remain operational
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What is Supposed to Happen

- The Hospital Design Team (Architects, Engineers, etc.)
  - Identify existing conditions
  - Design a code compliant project

- OSHPD Reviewers
  - Identify every code deficiency and see they are corrected

- Contractors
  - Build according to the approved drawings

- IORs and OSHPD Field Staff
  - Inspect for conformance with the approved drawings
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What Does Happen

- The Hospital Design Team ....
  - Designs a code compliant project based on the information they have and constraints of time and budget

- OSHPD Reviewers
  - Identify major code deficiencies, major coordination issues

- Contractors
  - Builds according to the approved drawings, accounting for variations in the existing conditions and uncertainty in the code and drawings, corrects “unbuildable” conditions

- IORs and OSHPD Field Staff
  - Inspect for conformance with the approved drawings and the code – identifying major and minor code deficiencies
  - Attempts to be flexible when code is “unclear” or where the design is “unbuildable”
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*Keys to a Successful Project*

- Familiarity with the building code
- Coordination with other trades
- Craftsmanship!
- Foresight-
  - Identify potential problems
  - Clarify before you build
- Team effort – not a battle of wills
Types of problems you may encounter

- Unforeseen Conditions
- Work the does not match the approved drawings
- Code deficiencies that were not caught in plan review
- Code interpretation issues

When problems occur resources are available

On-site resources

- IOR’s
- OSHPD Field Staff
How to get involved in health care construction jobs

- Contact your Trade Association
  - www.necanet.org
  - www.thequalityconnection.org

Industry resources

- Training & Certification Classes
  - www.njatc.org
  - www.electrifyingcareers.com

OSHPD

- www.oshpd.ca.gov/fdd/
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The Quality Connection

www.thequalityconnection.org
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National Joint Apprenticeship and Training Committee of NECA and IBEW
www.njatc.org

WELCOME

The finest electrical workers in the country receive their training through the National Joint Apprenticeship and Training Committee of National Electrical Contractors Association (NECA) and International Brotherhood of Electrical Workers (IBEW).

It’s a model education partnership which produces the best-trained, most up-to-date electrical apprentices and journeymen in the country. All of the $100 million annually spent is privately funded.

WHAT'S NEW

Announcing the 2008/2009 Inside Curriculum. Throughout the past year, the NJATC’s Directors and Curriculum Specialists, along with Curriculum Workgroup members, labored diligently to revise the NJATC curricula, and create new textbooks and workbooks that meet the critical needs of our NJATC (A)ATCs.

HELMETS TO HARDHATS

Learn about it here.
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Electrifying Careers
www.electrifyingcareers.com
Facilities Development Division (FDD) - Plan Review & Construction Observation

Plan Review and Construction Compliance Goal:
Plan Review and Construction Compliance will (a) provide quality service to our clients by being efficient, flexible, responsive and accountable, and (b) will review plans, specifications, and observe health care facilities construction to ensure compliance with applicable codes and regulations.

PLAN REVIEW & CONSTRUCTION OBSERVATION

- Plan Review Process
- 60/30/30 Program
- Over the Counter (OTC)
- Standard Comments
- Alternate Method of Compliance
- Comment and Process Review (CFR)
- Required Weight & Size
- Plan Approval with Comments

- Construction Observation Process
- Testing Inspection Observation (TIO)
- Hospital Inspector Certification Program
- Field Reviews - FREER
- SB 1838 Exemption from Plan Review for Projects of $50,000.00 or less
- AB 2632 Project Review
- SB 224 Project Review
- Licensed Clinics
General Tips

- Ensure you have a building permit before you start
- Have a copy of the OSHPD approved plans and specifications (contract documents) onsite
- Conduct a pre-job conference with the foreman, Inspector of Record (IOR) and OSHPD prior to installation.
General Tips

- Plan to execute the work shown on the approved contract documents.
- Don’t perform work that is not shown on the approved contract documents which alters the intent, scope or function of the project until approved by OSHPD.
- Avoid redesign and material substitutions after construction starts.
General Tips

- Timely submittals of changes, redesign, alternate means or methods and material substitutions
- Install materials in accordance with the contract documents, manufactures installation instructions and/or approved listings
- Make sure your installation instructions and material submittals are available to the inspectors
Tips for a Successful Project

- Use only certified electricians – AB-931, AB-2481 & AB-1087
- Use only equipment certified by NRTL
- If substituting equipment layout room to verify it fits and all required clearances are maintained
- Fully understand Article 517 – Health Care Facilities
- Fully understand the types of Patient Care Areas and the special requirements associated with each
Installation Methods

- Provide redundant grounding for patient care areas, i.e. no flexible conduit (metal raceway or metallic cable armor must qualify as an equip. grounding return path – must be listed for hospital use)
- Properly install all grounding fittings per listing – proprietary (have installation instructions on hand)
- Ground transformers to building grounding system, not to closest cold water pipe
- No PVC conduit underground in patient care areas – grounding/bonding issues
- Do not run different voltages in same box/raceway
42 circuits max. in any one circuit board
Do not cut segments out of 90-degree bends and offsets – use benders/proper equip. and do it right
Provide location or area on panel schedule
Provide rigid support of junction boxes
Provide independent support of light fixtures
When determining max. conduit and box fill do not forget to include the redundant ground
Installation Methods

- Ensure that all large boxes, conduits and cable trays are seismically braced
- Use the approved plans – not shop drawings
- Receptacles in patient toilet/shower rooms require GFI protection – may be at the over-current protection device breaker or a weatherproof cover
- Provide elevator seismic switch annunciator connected to the essential electrical system in the elevator machine room
- Derate conductors for home runs in large raceway
Use Reminder Lists

Fire and Life Safety Forms

- FLSO 2001 Fire Alarm Annunciation Approval
- FLSO 2001 Fire Sprinkler Approval
- 2001 FLSO Check List
- FLSO 2007 Fire Alarm Annunciation Approval
- FLSO 2007 Fire Sprinkler Approval
- 2007 FLSO Check List
Use Reminder Lists

Fire and Life Safety Reminder Lists

- EPSS Generator
- Construction
- Quality Assurance
- Fire Alarm - Plan Review
- Helistops
- Post Approval Documents Field Triage
- Sprinkler System - Plan Review
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Q & A