Construction Contracting Challenges and Initiatives

Meet-the-Corps Day Briefing
12 February 2014

Purpose

1) Share Recent Initiatives
   - Acquisition Tools
   - Improvements Based on Customer Surveys
   - DPW Feedback

2) Cx Lessons Learned

Fort Sill TEMF

Keystone Bridge Replacement
Acquisition Tools

- **Current Direction (2012): 2 Step Selection for Design/Build (D/B)**
  - Engineering and Construction Bulletin 2012-23
  - Unified Acquisition Instruction 36.303-100
  - MILCON is exempt
  - 2 Step Selections – minimum 150 days
  - Impacts use of existing indefinite delivery contracts for D/B, if not competed by 2 step (e.g., POCAs)

- **Way Ahead**
  - New SATOCs (3) being procured
  - Planning for additional MATOCs and SATOCs
  - Use existing POCAs when possible (i.e., D-B-B & simple scope/workplan/construct)
2012 Customer Surveys - Areas of Improvement Needed: Engineering Design Quality, Construction Turnover, & Timely Completion of Construction

- **Pre-award**
  - Quality Control of RFP; properly resource selection boards; resolve conflicts with RFP & proposal
  - Better upfront coordination with Centers of Expertise; better planning for technical reviews of submittals
  - RFPs to better specify requirements, including milestones; design, testing, commissioning, & performance verification. Strengthen contract language to hold Designer of Record (DOR) accountable.
  - Realistic contract durations based on size & complexity rather than programmed amount

- **Post-award**
  - For Design/Build (D/B), ensure design comments are properly addressed, resolved, and closed out
  - For D/B, establish checklist of minimum QA design requirements for specific project. Includes spot checks of some critical calculations.
  - For D/B, distribute review schedule and required turnaround schedules
  - For D/B, schedule management meetings during design phase. Intensely manage schedule.
  - Fair & frequent CCASS appraisals. Consistently keep responsibility on the DOR and prime contractor to promote contract schedule adherence.
  - Establish communication between Contracting Officer & Prime Contractor
DPW Direct Feedback: BOD Slips Hard to Understand

- Construction “Deep Dive” at Fort Sill
- Data: 50 Contracts (>\$500K) from July 2012 to present
  - Late project: >14 days from BOD ➔ 13 of 50 Late
  - On time: within 14 days ± of BOD ➔ 23 of 50 On time
  - Early project: more than 14 days ahead of BOD ➔ 14 of 50 Early
- Focus on late projects: 5 had explainable time growth beyond any control, e.g., user changes.
  - focus group ➔ 8 late projects.
Construction Deep Dive – Common Factors

- 7 of 8 projects:
  - Design-build
  - Contractors new to working on the installation
  - Design duration >25% of total contract duration
  - Contractor field staff differed from proposal

- 6 of 8 awarded to small/small disadvantaged businesses

- 5 of 8 contractors experienced financial solvency issues

- 4 of 8 projects:
  - Infrastructure design or construction by others
  - Significant lag between design approval and actual start of construction

- 3 of 8 projects awarded by other than Tulsa District

- 1 of 8 had inadequate competition
Construction “Deep Dive” – Improvement Initiatives

- Improve design phase performance requirements of D/B contract
- Rely more heavily on local contracts (Tulsa District awards)
- Avoid separate infrastructure design/construction activities
- Add RFP requirements/criteria to better evaluate contractor’s understanding of HVAC test, balance and commissioning
Cx Lessons Learned

- Initiate a collaborative exchange with all mechanical stakeholders to fully develop the construction logic sequence and durations for Test, Balance & Commissioning (TB&C) activities

- Review/verify the proposed sequence of operation and validate system design with full participation by the Contractor, Designer of Record, Cx Authority and Mechanical/Controls subcontractors

- Overlay the psychrometric chart with planned operational control modes for a design degree day and check for possible “dead” zones
  - Start by plotting all control sequence trigger points

- Review all leaving coil discharge air temperatures as a qualitative check of system performance/capacity

- Integrate graphical trends of system operation into the controls start-up report; ensure functional performance is smooth over the full band of operation
Initial Operating Modes for 48° Dew point

Note enthalpy staging points are very close to DX cell EA conditions on a design day. This effectively locked out 2nd stage DX cooling required for dehumidification in almost all conditions below design day conditions.
Revised Operating Modes for 48° Dew point
Initial Operation Pre-Commissioning

1. DDC system is sensing suction pressure reading from condensing unit and trying to modulate the suction pressure to maintain a temperature at supply air dew point of 48F. Suction pressure changes too rapidly for effective control. The cooling coil is not getting cold enough for effective dehumidification to take place.

2. Staging for the compressors is based on outdoor enthalpy. The enthalpy staging point is too high (33 BTU/LBM) resulting in single compressor operation through most of this period. When enthalpy line goes above 33 BTU/LBM - 5/15/13 - the unit can start controlling the dew point.
Revised Operation Post-Commissioning