



LONMARK[®]
Connection

LonWorks Technology in Federal Facilities

Using the U.S. Army Corps of
Engineer's Specifications

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The U.S. Army Corps of Engineers is the Design and Construction Agent for Army and Air Force Military Facilities and Many Other Government Agencies.



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Outline

- How we got to LON
- Military funding
- Current Corps LON projects
- The good, the bad and the ugly
- Doing business with the bureaucrats
- Getting better all the time



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How we got LON Specifications

- Procurement restrictions
- Many different systems
- Locked in to proprietary systems
- Cost
- Customer satisfaction
- We needed an enforceable standard



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Corps of Engineers Guide Specifications and Design Criteria for LON Systems

UFGS 25 10 10 (13801): Utility and Monitoring and Control Systems

UFGS 23 09 23 (15951): DDC for HVAC and Building-Level Controls

UFC 3-401-01FA: Utility Monitoring and Control Systems (Design Criteria)

UFC 3-410-02A: DDC for HVAC and Building-Level Controls (Design Criteria)

We need both the UMCS specification and the Building Level Controls specification for a complete system



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LON Specifications

Utility Monitoring and Control System (UMCS)

- UFGS 25 10 10 (replaced 13801)
- Central supervisory monitoring and control system
- Interface to one or more multi-vendor building-level DDC systems
- Unlike the old UMCS specification, does not specify/include the building-level control



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LON Specifications

Direct Digital Control for HVAC and Other Local Building Systems

- UFGS 23 09 23 (replaced 15951)
- Building-level control systems and communications network (based on ANSI-709.1 communications protocol)
- Focus is on HVAC controls (supports other technologies)



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Funding for Military Facilities

- O&M (Operations and Maintenance)
 - Local
- MILCON (Military Construction)
 - Congress and HQ



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MILCON Funded Projects

- New construction and major renovations
 - Most will probably need controls; usually low bidder as a sub to the prime gets the work
- Basewide Utility Monitoring and Control Systems (UMCS)
 - Usually awarded to a controls manufacturer or systems integrator



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MILCON Funded Projects

Three possible scenarios for UMCS:

1. No existing Direct Digital Control (DDC) system or the existing system is to be completely replaced:
Design to Corps criteria; award based on best value.
2. The new energy management system must interface to the existing DDC system:
Sole source procurement to DDC system supplier or use gateways. Lose some functionality with gateways.
3. The new energy management system will operate independently of the existing DDC system:
Standard design and procurement; usually not a good solution.



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MILCON Funded Projects

Best bets for a successful DDC System installation in new construction:

- Require use of Corps design standards for LON systems and use of the LON Building Level Controls Specification, UFGS 23 09 23 (15951)
- Remove the building controls from the project and procure separately. This rarely happens as problems arise regarding who is responsible for which system.



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O&M Funded Projects

- Local level funding
- Similar problems as MILCON funded projects, but with less restrictions on execution
- Local agency may write/edit specs
- Educate on value of Open



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Current Corps LON Projects

- Fort Sill, Oklahoma
 - Basewide UMCS (Energy Management System)
 - MILCON Funded
 - TAC
- NAVY Mechanicsburg, Pennsylvania
 - Single Building System
 - O&M Funded
 - TAC



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Current Corps LON Projects

- Fort Steward, Georgia
 - Awarded and submittals are under review
 - Basewide System
 - MILCON funded (ECIP)
 - Distech (as a subcontractor)
- Fort Hood, Texas
 - Working Delivery Order #2 under an ESPC
 - Have integrated Circon, Distech and TAC buildings
 - JCI
- Multiple Corps Projects with LON Controls Specified



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The Good

- Standard communication protocol
- Device interoperability
- Competitive pricing (new systems and building level expansions)
- Decentralized processing



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The Bad

- No canned applications; must engineer all new ones
- Many functional profiles are insufficient
- No standard method to setup and upload trend logs
- Must understand the Directorate of Information Management (DOIM)



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The Ugly

- Integration tools only sold to “authorized reps”
- Training only offered to “authorized reps”
- Poor documentation of building level DDC – hinders integration
- Vendor does not follow the specs and nobody notices until it’s too late
- Vendor works to protect market share through closed configurations



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Doing Business with the Bureaucrats

- Be patient
- Develop relationships at the installations and Army Corps Districts
- Be thorough w/ proposals, look at keywords
- Be honest, no sales bragging
- Use contracts that are already in place
- ID/IQ contracts, ESPC, GSA
- FedBizOps, use keywords to search



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Doing Business with the Bureaucrats

- Partner with another that has a contract
- Be a sub to the prime
- Be aware of funding from major programs
 - Energy Act of 2005: Mandate for Installation Metering (Get Lonmark Certification). May lead to BAS at sites.
- ECIP funding for UMCS projects
- Installation Management Command (IMCOM) funds for energy projects



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Doing Business with the Installations

- Establish relationship with Energy Engineers and DPW
- Identify the need for Open systems
- Educate/convince of the benefits
- Assist with statement of work. Include applications and engineering.
- No hooks or gotchas



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Doing Business with the Installations - 2

- Provide competitive proposal to local contracting or...
- If you have them, use in place contracting vehicles
 - ID/IQ
 - GSA
 - ESPC
- Every Installation needs a good Systems Integrator – be one.



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Doing Business with the Installations – 3

Traits of a good system integrator:

- Know and set local standards for sequences and functionality
- Recognize good handoff documentation from building level contractor
- Have experience dealing with LonWorks, and other proprietary systems and protocols
- Be factory trained and certified
- Have good network communication background and past working experience with DOIM. Network worthiness experience (DITSCAP).
- Have experience with all software, applications, operating systems, data transport techniques, graphics packages, energy reporting, database management tools, and plug-ins used on installation.
- Be able to define schedules, alarms points, priorities, and set up standard operating procedure for the operators to follow.
- Serve in approval chain of the PVT/acceptance procedures.



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Getting Better All the Time

- Contractors need to meet the current specification requirements for alarms, scheduling and trending
- Need better handoff documentation from building level contractor: applications, input variables, output variables, binding lists, points list, files, drawing details, and all things for successful integration. Major cost implications here.
- Owners need to specify what they want in graphical displays, reports, and application programs.



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Getting Better All the Time - 2

- Need to determine a method that protects the database from damage during merging operations.
- Need to coordinate and development a better understanding of the DOIM requirements.
- Need to improve the functional profiles.
- Develop an Open Market approach, not just systems



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Questions?



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