

Building Systems Optimization Through Commissioning

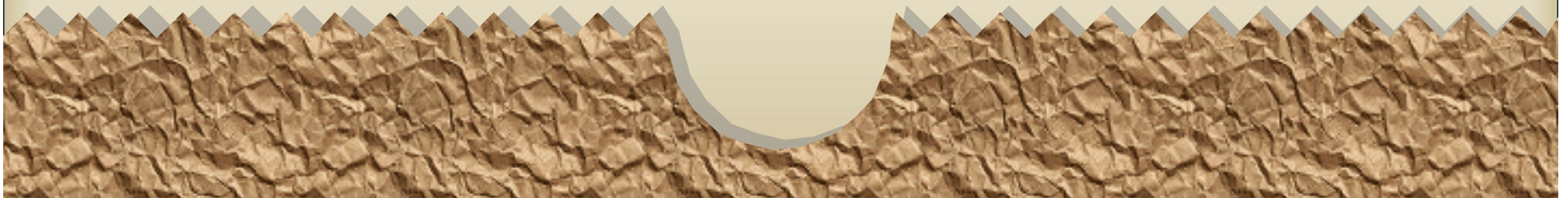
Atlantic County ASBO

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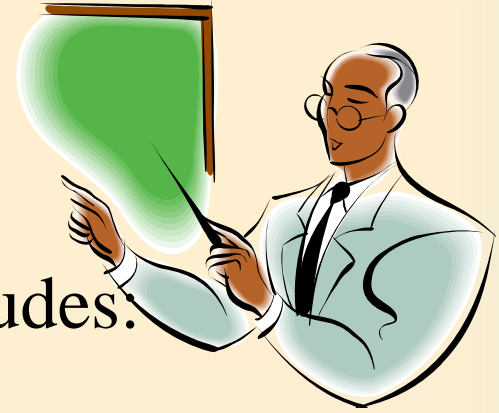


Presenters & Objective

- Bill Pappalardo, Project Executive
- Rob Notley, LEED AP, Project Executive
 - **GREYHAWK** Construction Managers & Consultants
- Commissioning will enhance the success of your next construction project:
 - Building systems commissioning
 - Full-building commissioning



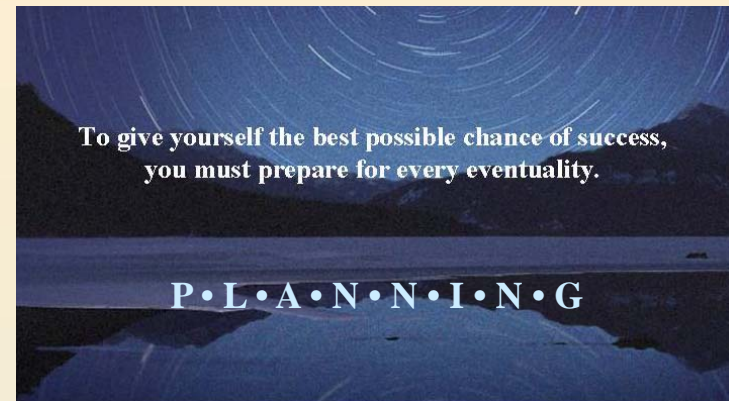
What is Commissioning?



- “Fundamental” Commissioning includes:
 - Construction Phase Cx
 - HVAC & Lighting Controls
- “Enhanced” Commissioning can also include:
 - Building Envelope/ Doors and Windows
 - Life Safety Systems
 - Communications and Security Systems
 - Pre-Construction & Post Construction Phase Cx

Commissioning Team

- An independent third-party group of professionals
 - Mechanical engineers
 - Electrical engineers
 - Plumbing engineers
 - Architects
 - LEED AP's
- EUS – extraordinary unspecified services
- This is not a low-bid process for selection!



Team Approach



- Commissioning agent adds value throughout the entire project cycle
- CxA helps ensure that Owner's Project Requirements are:
 - Developed and implemented in Design Phase
 - Not compromised if “Value Engineering” is required
 - Actually implemented in Construction Phase
 - Still being met post-occupancy

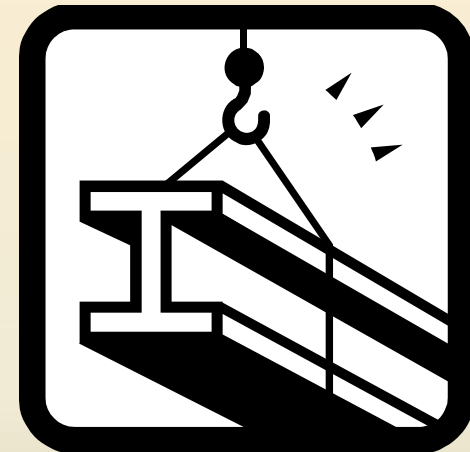
CxA Pre-Construction Activities

- Preconstruction Activities:
 - Ensure that OPR (Owner's Project Requirements) have been developed
 - Review plans and specs during Design Phase through the Owner's lens
 - **“Does this Design meet the OPR”?**
 - Report directly to the Owner
 - **Not through the A/E or CM**



CxA Construction Activities

- Periodic inspections during construction to verify that commissioned systems are built in accordance with plans and specs
- Pre-functional testing
- Start-up supervision
- Functional testing
- O & M Manual review



CxA Post-Construction Activities

- Training supervision
- Post-occupancy visits
 - 3 month, 6 month, 9 month, 1 year
 - Verify that operating systems meet Owner's requirements



LEED and Commissioning



- LEED prerequisite for Fundamental Commissioning
 - Projects cannot achieve LEED Certification without commissioning of HVAC, lighting controls, domestic hot water systems and renewable energy systems
- LEED EA (Energy and Atmosphere) point for Enhanced Commissioning
 - CxA involved with Design Phase, verification of training, post-occupancy review of building operation

Plan for Success



- Establish realistic expectations, identify and consider viable options
- Develop a realistic budget, project schedule and provide a safe contingency
- Consider impact on operations/maintenance, and current/future needs
- Document decisions and develop clear, concise contract documents
- Careful selection of CxA, maintain team approach, include all stakeholders and get advice!

Q&A

GREYHAWK Construction Managers & Consultants

Bill Pappalardo, Project Executive

- 2150 Highway 35 Suite 250
- Sea Girt, NJ 08750
- (732) 223-6899
- bpappalardo@greyhawk.com

Rob Notley, LEED AP, Project Executive

- 224 Strawbridge Drive Suite 100
- Moorestown, NJ 08057
- (856) 722-1800
- rnotley@greyhawk.com

