Building Enclosure Commissioning of a Student Athletic Facility

Presented by:

Paul Totten, PE, Senior Project Manager

BEST3 Conference
Atlanta, Georgia

3 April 2012
Presentation Outline

• Section 1: Project Overview

• Section 2: Enclosure Commissioning Process

• Section 3: Construction Phase - Athletic Facility
Student Athletic Facility
Student Athletic Facility
Enclosure Commissioning Process

SECTION 2
Building Enclosure Commissioning Process

- Pre-Design Phase
- Design Phase
- Construction Phase
- Occupancy and Operations Phase
Pre-Design Phase

- Owner’s Project Requirements
- Scope and Budget for Commissioning
- Commissioning Plan
Owner’s Project Requirements (OPR)

- Owner’s Vision
- Project Budget and Schedule
- Owner Directives
- Occupant Requirements
- System Performance Requirements

- Statistical and Quality Tools
- Benchmarking Requirements
- Operation and Maintenance
- Allowable Range of Operation
- Applicable Codes and Standards
Owner’s Project Requirements (OPR)

- System Integration Requirements
- Site Information
- Restrictions and Limitations
- Training Requirements
- Warranty Requirements
- Quality Requirements

- Insurance Requirements
- Owner Safety Requirements
- Constructability
- Project Documentation Requirements
- Others
Student Athletic Facility OPR

• **Building that is:**
  – Water tight
  – Air tight and properly ventilated
  – Thermally efficient
  – Naturally day lit
  – Sustainable and durable – enclosure systems meant to last longer prized by owner
  – Facilities for all athletics at school
  – Maintainable
Design Phase

- Basis of Design
- Architect’s Program
- Commissioning Process Requirements
- Construction Checklists
- Design Review
Basis of Design

- Building Description
- Site Design
- Sustainability
- Existing Facilities
- Program
- Exterior Envelope Thermal Performance
- Roofing
- Exterior Wall Systems
- Exterior Windows, Curtainwall and Storefront Systems
- Skylight Systems
- Exterior Doors
- Below Grade Wall and Horizontal Systems
- Slabs-on-Grade
- Miscellaneous Exterior Criteria
- Interior Finishes
- Accessibility
- Acoustical
- Other Criteria
Basis of Design: Commissioning New Roof

OPR

• Energy Consumption Goals
• Tolerance for Water Leaks

BOD

• Highly insulated roof and walls
• Hot-applied waterproofing
• Flashing and curtain wall integration
Architect’s Program

BOD

Program
Architect’s Program

• Architect’s Program
  – Program of requirements - describes how the designer intends to implement the BOD
  – Constantly updated throughout design
Design Reviews

• General Quality Review
• Coordination Review
• Building Enclosure System-Specific Review
• Building Enclosure Specification Review
Design Reviews

• Review of drawings and specifications
  – Compare to OPR and BOD
  – Completed at Schematic Design, Design Development, and Construction Document phases
  – Present a system options comparison
  – Review transitions between enclosure systems
  – Identify material compatibility issues
Construction Phase

- Verify Submittals
- Periodic Site Visits
- Functional Performance Tests
Shop Drawing and Submittal Review

• Review shop drawings for general conformance to the construction documents and OPR

• Review constructability issues

• Review sequencing issues

• Review proposed material substitutions
  – Discuss equivalency and risk
  – Allow the owner to make informed decisions
Periodic Construction Observation

- Noting of deficiencies in field reports
- Utilization of an unresolved items table
- Use of an issues log
- Follow-up observations to review deficiency correction
Below Grade Waterproofing
Below Grade Waterproofing
Air Barrier
Curtain Wall and Flashings
Curtain Wall and Flashings
Hot-Applied Waterproofing
Questions