Life without BIM tools
BIMworkflow® & BIMLogistics

- Defining BIMworkflow®
  - BIM=Software Tools
  - Workflow= New methods to utilize the tools to optimize results

- BIMLogistics-Provisional Patent
  - Integrates IPv6 to the electrical device level
  - Need to develop standards, systems and processes
  - Large new and retrofit market for electrical devices
  - Integration with Design, Supply Chain and Construction
BIM Evolution

- Hand Drawing
- 2D CAD
- 3D CAD
- BIM 3D/4D/5D..XD

Evolution
Coordination Room
Field Collaboration
Planned vs. Actual
Healthcare Example
Curtain Walls
Fabrication from the Model

Automated Fabrication Process

3D BIM Model → 2D Paper Shop Drawings → Submittals/Approvals → CNC Machine: Automation → Field Installation
Fabrication
Monitor to shop floor
Laser Scanning
Virtual Mock Up
4D Logistics Planning
Top 5 Smart Grid Trends of 2011

Integration is the name of the smart grid game, whether it’s making good on corporate acquisitions or ensuring smart grid systems live up to their promises.

If you had to pick one word to sum up the key imperative for the smart grid industry at the close of 2011, it would have to be "integration."

That word means different things when taken in different contexts, of course. But whether we’re talking about corporate acquisition activity in the smart grid space or the increasing pressure on utilities and vendors to tie together formerly separate systems in a working whole, it’s a useful concept to apply to some of the most important smart grid trends we’ve seen over the past year, as well as the challenges the industry faces in the year to come.
For the first time, construction owners responding to the annual CMAA/FMI Owners Survey have ranked “Transitioning to ongoing operations and maintenance” as the most important area in which they expect their Construction Managers to make significant contributions to their success.

The finding was one of several that reflect continued adoption among owners of a “more holistic, life-cycle view” of their projects.
BIMLogistics with IPv6

- IP to the device level
- Model Management
- Coordination
- Procurement
- Demand Response
- Manufacturing Execution System (MES)
- Installation
- System Integration
- Digital Facility Management
BIMLogistics-Provisional Patent

- Database of IP addresses for the Construction Industry
- Pre-Construction Modeling
- Construction Coordination
- Building Systems Integration
- BIM System Integration
  - 3D Model
  - Database of building systems
  - Centralized Control
  - Efficient Energy, Facility and Operations Management
Value Proposition
BIM Pre-Construction Services

Scott Arfsten

BIM Detailing
- Damian Dudley
- Brandon Gingery
- Steve England
- Thanh Nguyen
- Alan Minami
- Steve Beaken
- Anders Hench
- Bill Campbell

Chris Alexander
- Brandon Kotez
- Dave Anderson
- Tom Hart
- Brent Caldwell
- Darrell Haussler
- Richard Murray
- Sanveo

Prefabrication Detailing
- Mike Perry
- Albert Sales
- Jose Gonzales

Trimble Total Station
- Brandon Quibelan

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CEI BIMworkflow®

“Optimizing Speed, Cost, Quality and Safety”

**Estimating**
- Accubid®
  - Conceptual estimate
  - Detailed estimate
  - Budget estimate

**Engineering**
- Autodesk®
  - AutoCAD MEP 2012
  - Establish standards
  - Communicate BIM execution plan to team
  - LEED®

**Detailing**
- 3D Models
  - AutoCAD MEP 2012
  - Coordination
  - WebEx®
  - Weekly updates
  - File management process

**Pre-Fab**
- Shop work
  - Increased safety
  - Increased speed
  - Reduced cost
  - Improved quality
  - FabPro 10

**Construction**
- Navisworks®
  - Consolidated models
  - Clash detection
  - Virtual build
  - Identify issues early
  - Lean construction
  - Trimble Total Station®

**Digital Project Database**
- CEI IT Systems
  - Link to 3D model
  - Capture content in digital format
  - Scanned submittals
  - Native CAD files
  - FM information
  - Additional charges may apply
3D Detailing
Laser Scan Example
Laser Scanning

- Variety of Scanners
- Typically 1:3 ratio to model
- Very precise
- Fast, efficient, cost effective
Point Cloud Model
Model from Point Cloud
Adding Conduit
Facility Management
Performing Arts Center
Q&A