Improving the Future of Construction Productivity

Addressing Near-Term Fundamentals and Long-Term Advancements

Year: 2018
Date: Sept. 5-8
Location: JW Marriott Hill Country
San Antonio, TX
Introducing our panelists

Moderator

Jim Rammell
Vice President of Operations

Panel Members

Ira Samm
EPC Value Integration Manager

Randy Mill
Project Manager
Tiger AO4 Project

Todd Novak
Regional Construction Director
ECC Survey Results:
While most think that construction productivity CAN BE improved within the next 10 years, not all are convinced it WILL BE improved.

**Do you think construction productivity CAN BE improved within the next 10 years?**
Percentage of respondents

- Yes: 92%
- No: 2%
- Unsure: 6%

**What do you think the state of construction productivity WILL BE in 10 years?**
Percentage of respondents

- Improved: 66%
- Same: 17%
- Worse: 17%

What barriers must be overcome to improve the future state?
What Do Critical Fundamentals of Project Execution Look Like at Your Company?
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Todd Novak
Fluor Regional Construction Director

Construction-Driven Execution

- Aligns engineering and procurement deliverables with paths of construction through AWP (advanced work packaging)
- Focus on TIC (total installed cost), not engineering man-hours or lowest PO (purchase order) cost
- Focus on minimizing site man-hours (proven by the business case)
  - Modularization, pre-cast, pre-assembly
  - The smaller construction workforce, the more control you have on performance
You Can’t Build What You Don’t Have…

- **Supply Chain Issues**
  - Material arriving out of sequence or late
  - Incomplete materials for a work front

- **Supplier Management**
  - Manage IFC releases to paths of construction
  - Penalize, incentivize, payment retention

*Improving the Future of Construction Productivity*
What Do Critical Fundamentals of Project Execution Look Like at Your Company?

Randy Mill – Shell Project Manager Shell Tiger AO4 Project
What Do Critical Fundamentals of Project Execution Look Like at Your Company?

Randy Mill
Shell Project Manager Tiger AO4 Project

- **Strong, Startup-Driven Front-End**
  - AWP practices/management in FEL-2
  - Develop schedule in accordance with startup requirements
  - Back integrate construction & EP in accordance

- **Empowered and Aggressive Change Value Management**
  - Bring visibility to potential changes similar to incident reporting
  - Establish expectation that unfavorable change be combated with favorable change - Seek to win!
What Do Critical Fundamentals of Project Execution Look Like at Your Company?

- **Interface Management & End to End Integration**
  - Anticipate barriers at interface of phases and organizations
  - Example: Vendor data - Can obtain with early funding
  - Overall success mirrors success of piping account

- **People and Processes**
  - Collaborative alliance; diverse levels of experience; unchanging goal
  - Implement new technology with new work processes
  - Establishes belief that “Excellence is No Accident, but Better is Possible”
What Do Critical Fundamentals of Project Execution Look Like at Your Company?

Ira Samm
Bechtel EPC Value Integration Manager

- Bid Phase: Time & Location Oriented Parametric Indirects
  - Construction equipment
  - Indirect labor
  - Tools and consumables
  - Temporary facilities
  - Training

- Information at the Workfront
  - Uncompromised field computing near work fronts
  - Smart phones replace radios, mobile/tablet apps only when sensible
What Do Critical Fundamentals of Project Execution Look Like at Your Company?

- Optical Sensing & Computer Vision
  - Safety
  - Progress measurement
  - Craft density measurement
  - Laydown management
- Elimination of Construction Trailers
- Largely Automated Industrial & Process Design Engineering
Deep Dive:
Key Opportunity Areas for Improving the Future of Construction Productivity
Future of Construction Productivity – Open Dialogue

Discuss the importance of Supply Chain Management

- Fired Heater Example; Value of Patience: Onsite Availability of Materials
- Managing the Piping Supply Chain
- Discrete Event Simulation for Tangible and Non-Tangible Value
Future of Construction Productivity – Open Dialogue

Discuss Tools of the Trade / Automation of Construction Activities

• Focus on where the hours are - it’s where the money is!

• Opportunity to improve completions

• Formal engagement with workforce – find out what they really need
  • Workflow automation – leverage the model
Future of Construction Productivity – Open Dialogue

Discuss Digitalization of work processes

• Keeping the Foreman with the crew

• Integration of people and processes/tools

• Get the Information to the workfront and keep the workers out of the trailer
  • Leverage the tools of today and prepare for the future
Summary: Improving the Future of Construction Productivity

**Near Term - Focus on the Critical Fundamentals**
- Construction Driven Execution
- Supply Chain, Supplier Management
- Strong, Construction Driven, Front-End Loading
- Empowered and Aggressive Change Value Management
- Interface Management & End to End Integration
- People and Processes

**Long Term - Key Opportunity Areas for Improving the Future of Construction Productivity**
- Supply Chain Management
- Tools of the Trade/Automation of Construction Activities
- Digitalization of Administrative Work Processes

Open for Audience Questions
Thank You