

PerspECCtive

Theme:

**The Next 50 Years: Capturing Transformational Possibilities**

# Improving the Future of Construction Productivity

Addressing Near-Term Fundamentals and Long-Term Advancements



Year:

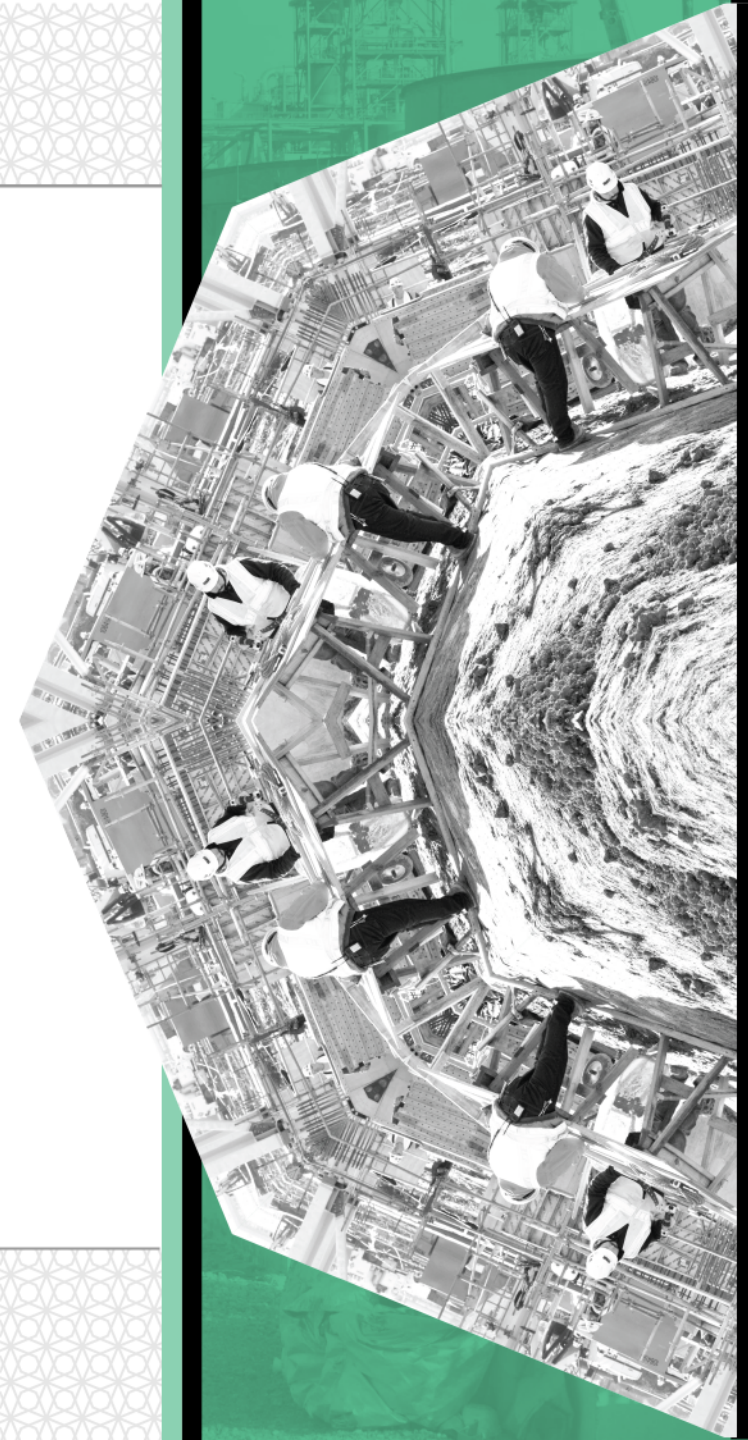
**2018**

Date:

**Sept. 5-8**

Location:

**JW Marriott Hill Country  
San Antonio, TX**



# Introducing our panelists

## Moderator



**wood.**

**Jim Rammell**

Vice President  
of Operations

## Panel Members



**Ira Samm**

EPC Value  
Integration Manager



**Randy Mill**

Project Manager  
Tiger AO4 Project



**FLUOR®**

**Todd Novak**

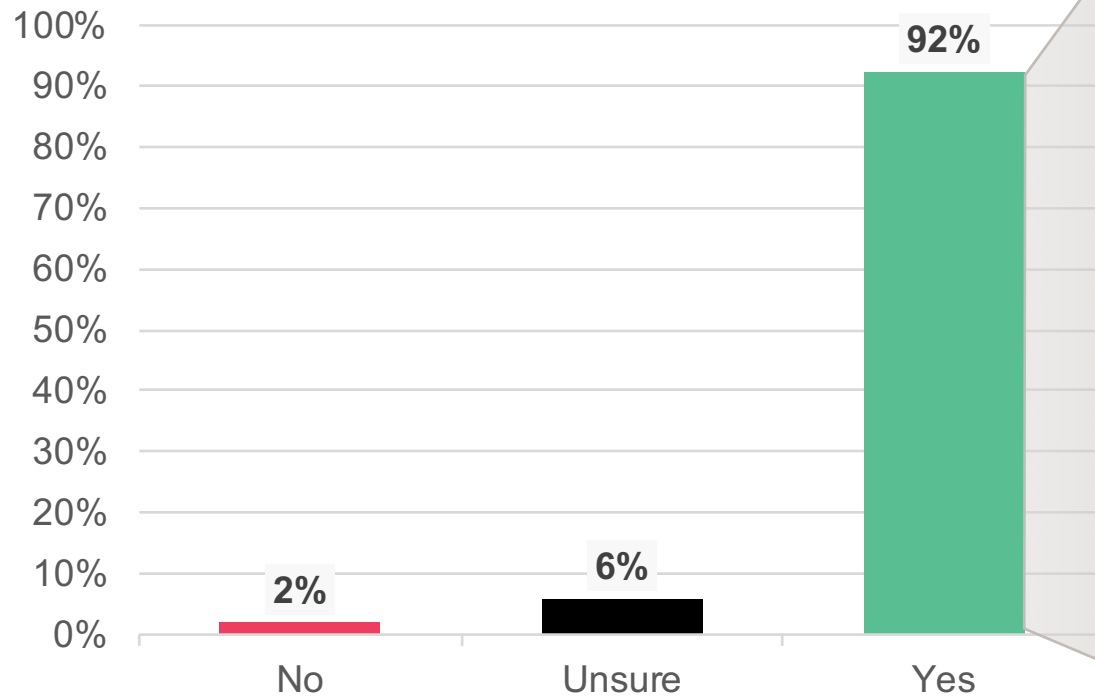
Regional  
Construction Director

## 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

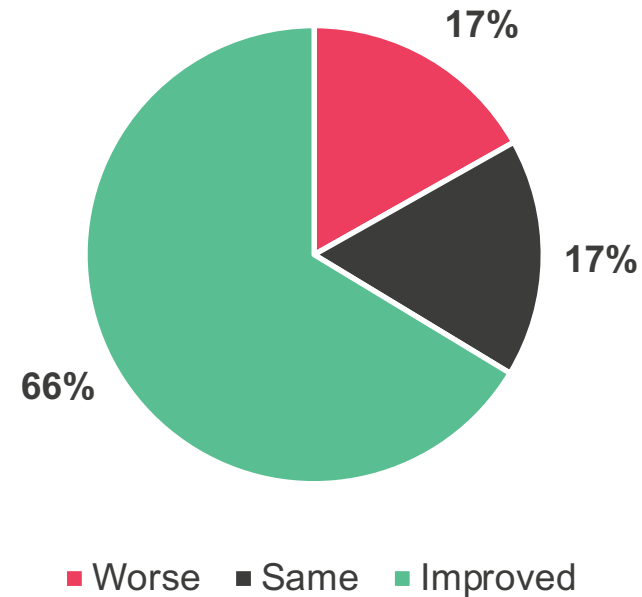
Do you think construction productivity **CAN BE** improved within the next 10 years?

Percentage of respondents



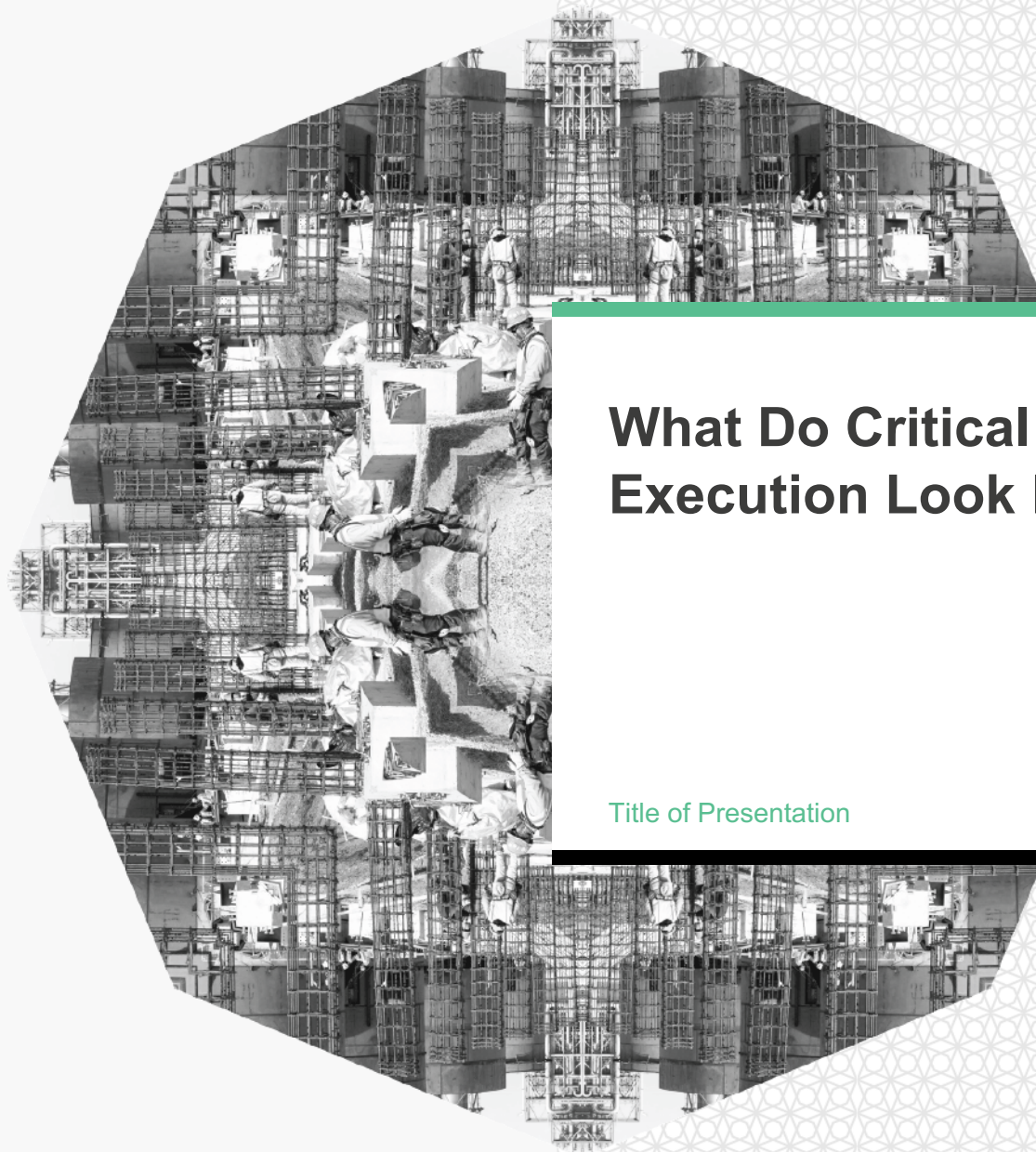
What do you think the state of construction productivity **WILL BE** in 10 years?

Percentage of respondents



What barriers must be overcome to improve the future state?





# What Do Critical Fundamentals of Project Execution Look Like at Your Company?

Title of Presentation



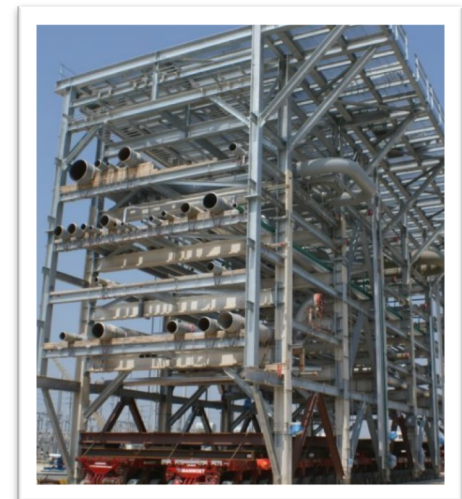
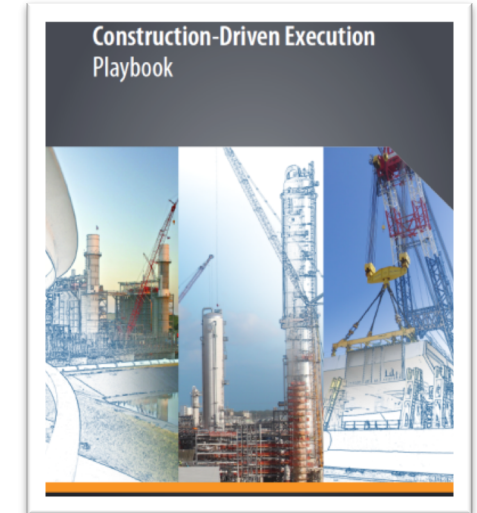
# What Do Critical Fundamentals of Project Execution Look Like at Your Company?



**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



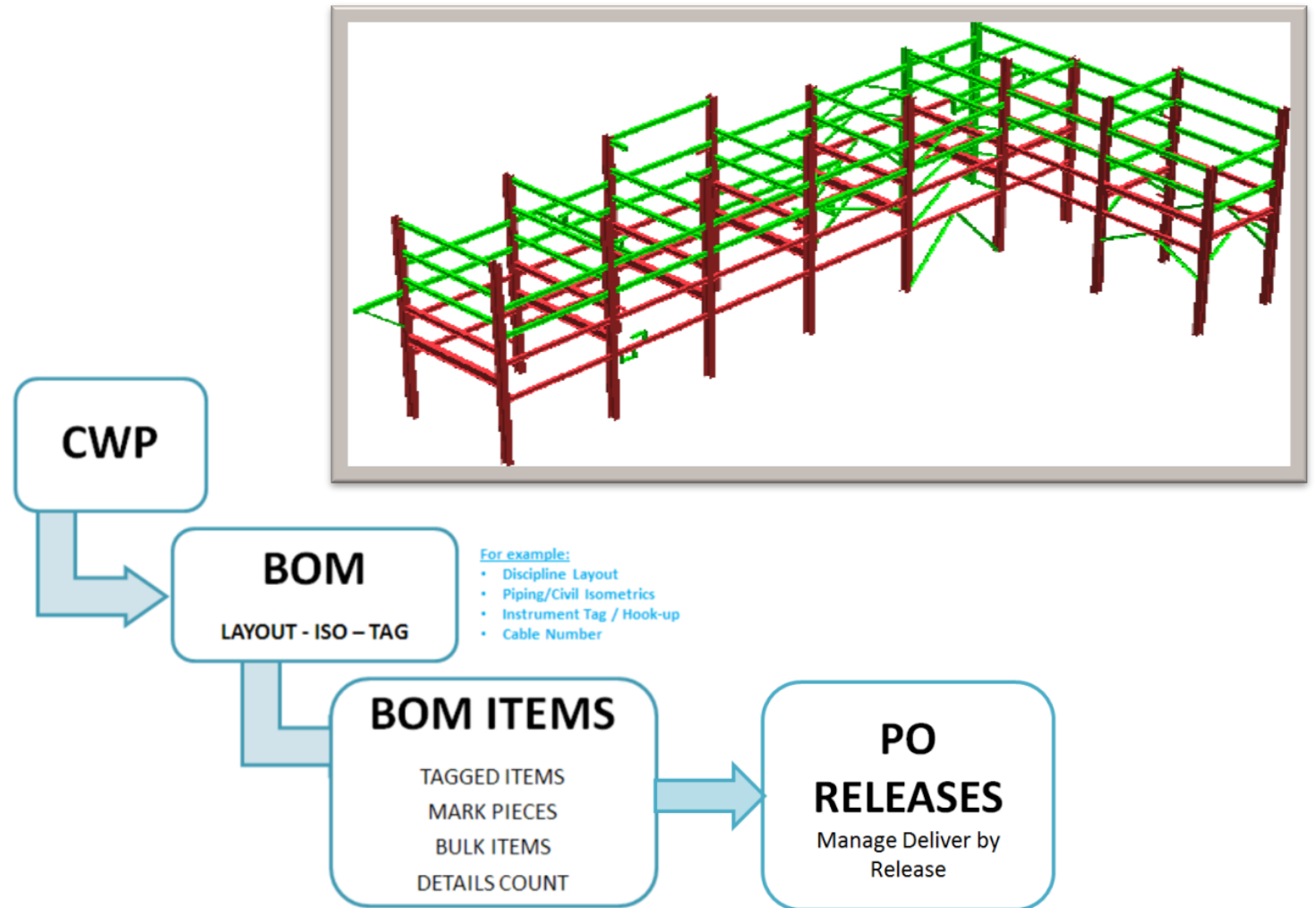
# You Can't Build What You Don't Have...

- **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





# 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

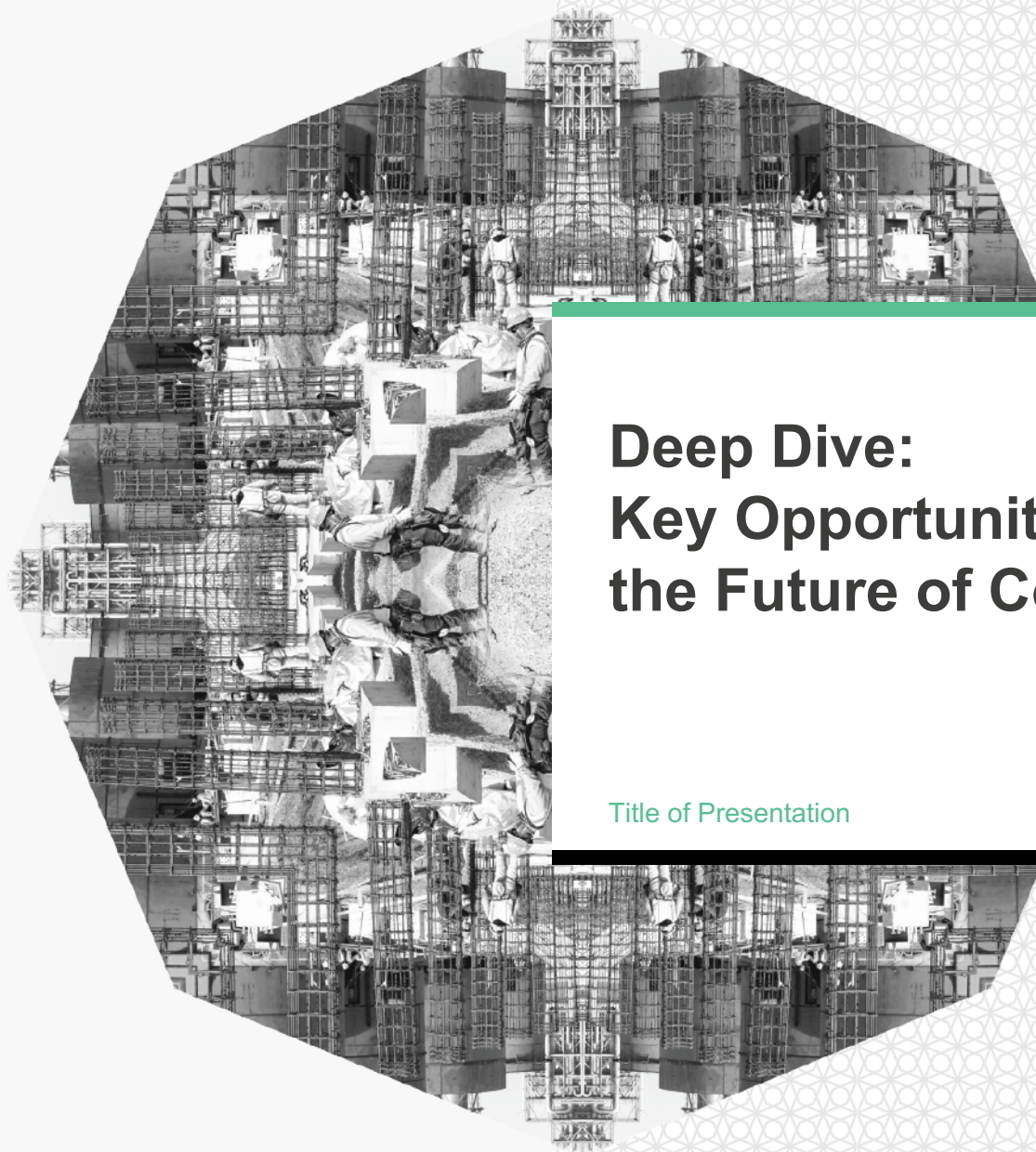




# What Do Critical Fundamentals of Project Execution Look Like at Your Company?

- **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**

Title of Presentation



# 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