Construction Restart Readiness Assessment
## Agenda

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<td>The Construction Readiness Assessment in the COVID-19 Environment</td>
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<tr>
<td>Question/Answer</td>
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</table>
INTRODUCTION
Presenters

Steve Cabano  
President  
Pathfinder, LLC

Jimmy Cravens  
Vice President  
Pathfinder, LLC

Mike Pappas  
Associate Director for Deployment  
Construction Industry Institute
INDUSTRY PERSPECTIVE
Industry Perspective

There are several issues facing our capital project execution environment:

- The Engineering/Construction market is ever changing
- This has never been truer than what we are experiencing today
- Many projects have been suspended until we can recover from the impacts of COVID-19
- These project slowdowns/shutdowns are being planned for 6 months, a year, or possibly longer
- The expectation is that the economy will return, and the projects will be needed
- Big question: How do we assure that our projects do not experience excessive negative impacts due to these execution slowdowns/shutdowns?
- What will the construction impacts be when we do return to full activity levels?

On 12 May 2020, CII conducted a webinar on CII tools and practices that support the restart of projects that have been shutdown/slowed down as a result of COVID-19. The session had over 700 attendees.

This session will dive into one of these tools - the “Construction Readiness Assessment”
CONSTRUCTION READINESS ASSESSMENT (CRA) TOOL
Construction Readiness Assessment (CRA) Tool

Let’s start off with an example
<table>
<thead>
<tr>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
<th>SAT</th>
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<td>31</td>
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March 2017
Project
Warehouse
Understaffed Team
Chain of Poor Performance

- Schedule Slippage
- Productivity Loss
- Cost Overrun
- Change Orders
- Rework
Construction Readiness

A series of activities and procedures that should be completed or substantially completed prior to construction, in order to productively start and sustain construction operations.
Research Objectives

- Pinpoint key missing factors
- Organize actions and recommend best practices
- Quantitatively assess project construction-readiness
Research Team Representative Companies

BOLDT
Day & Zimmermann
FLUOR
Kiewit
WorleyParsons
andeavor
Huntsman
Benham
CDI Corp.
EASTMAN
Koch Industries Inc.
TechnipFMC
Dow
Odebrecht
Robert Wood Johnson
Zachry
Pathfinder
# Readiness Factors

<table>
<thead>
<tr>
<th>Category</th>
<th>Factors</th>
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</thead>
<tbody>
<tr>
<td>Project Team</td>
<td>24 Factors</td>
</tr>
<tr>
<td>Engineering</td>
<td>17 Factors</td>
</tr>
<tr>
<td>Planning</td>
<td>27 Factors</td>
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<tr>
<td>HSSE</td>
<td>20 Factors</td>
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<tr>
<td>Execution</td>
<td>21 Factors</td>
</tr>
<tr>
<td>Tools &amp; Equipment</td>
<td>13 Factors</td>
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<tr>
<td>Quality Mgmt.</td>
<td>12 Factors</td>
</tr>
<tr>
<td>Change Mgmt.</td>
<td>15 Factors</td>
</tr>
<tr>
<td>Contract Mgmt.</td>
<td>15 Factors</td>
</tr>
<tr>
<td>Human Resources Mgmt.</td>
<td>17 Factors</td>
</tr>
<tr>
<td>Stakeholder Mgmt.</td>
<td>5 Factors</td>
</tr>
<tr>
<td>Risk Assessment &amp; Mgmt.</td>
<td>5 Factors</td>
</tr>
<tr>
<td>Procurement &amp; Material Mgmt.</td>
<td>14 Factors</td>
</tr>
<tr>
<td>Commissioning</td>
<td>14 Factors</td>
</tr>
<tr>
<td>Project Controls</td>
<td>9 Factors</td>
</tr>
<tr>
<td><strong>Total Categories</strong></td>
<td><strong>15 Categories</strong></td>
</tr>
<tr>
<td><strong>Total Factors</strong></td>
<td><strong>228 Factors</strong></td>
</tr>
</tbody>
</table>
Readiness Factors

- IFC drawings
- Clash and interference checks
- Standards and specifications
- Timely Responding to RFIs
# Readiness Factors

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<td>12</td>
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<tr>
<td>Change Mgmt.</td>
<td>15</td>
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</table>

- Evaluation and quantification of changes
- Communication of change orders
- Updating and tracking changes
General Information: 17 Questions
Readiness Factors: 228 Questions
Performance Indicators: 22 Questions
Feedback: 5 Questions

264 Questions
Ready Projects Significantly Outperform Not-Ready Projects

- **Cost Savings:** 20%
- **Schedule Reduction:** 22%
- **Productivity Improvement:** 29%
- **Less Rework:** 7%
- **Less Change:** 21%
Readiness Factors

- NOT READY
- BORDERLINE
- READY

- 0%
- 25%
- 50%
- 75%
- 100%
Construction Readiness Assessment (CRA) Tool
<table>
<thead>
<tr>
<th></th>
<th>Project Team Factors</th>
<th>Yes</th>
<th>No</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Have the project goals been defined?</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Have the project drivers (cost/schedule) been agreed on by the team?</td>
<td>?</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>3.</td>
<td>Have the goals and objectives been documented?</td>
<td>?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Has the team communicated project goals among themselves?</td>
<td>?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Has the (Responsible, Accountable, Consulted and Informed) RACI matrix been developed for the project?</td>
<td>?</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>6.</td>
<td>Has an organizational chart been developed to assign roles and functions?</td>
<td>?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Has the organizational chart been distributed and communicated to all pertinent parties?</td>
<td>?</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Review 1

Please select from one of the following analysis results:

- Gauge
- Spider Chart
- Action Items
- Best Practices

Back to Dashboard  Compare Trials
The above figure displays your project’s overall readiness score against the industry threshold.
### Missing Key Factors

The factors below are arranged in descending order of weights (the highest weight is at the top). Please double-click a factor to add corrective action(s). This process can be repeated until you have successfully added a list of Actions to all necessary factors. By following these instructions and re-running the assessment tools with updated values, you may increase your Construction Readiness score. If no questions display in the box, you are fully Construction Ready.

Please click the Sort button to toggle between sorting by category and sorting by overall importance.

<table>
<thead>
<tr>
<th>Category</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>Is the schedule for design deliverables compatible with the sequence of construction?</td>
</tr>
<tr>
<td>02</td>
<td>Is the process for reporting RFIs impacting schedule and cost clear?</td>
</tr>
<tr>
<td>15</td>
<td>Is there a process in place to monitor and control productivity?</td>
</tr>
<tr>
<td>02</td>
<td>Have engineering responsibilities been clearly defined?</td>
</tr>
<tr>
<td>02</td>
<td>Have inter-disciplinary checks been completed?</td>
</tr>
<tr>
<td>02</td>
<td>Have discipline design interfaces been well coordinated?</td>
</tr>
<tr>
<td>14</td>
<td>Is the as-built documentation procedure understood by the project team?</td>
</tr>
</tbody>
</table>
Please complete the action item for the following factor. Note that you can select the status of the action (Open / Closed)

**Review 1**

**02. Engineering Factors**
Is the schedule for design deliverables compatible with the sequence of construction?

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1. Action to be taken:</td>
<td>Hold a coordination meeting between the engineering and execution teams</td>
</tr>
<tr>
<td>2. Responsible person:</td>
<td>Michael W. Ibrahim &amp; Youssef N. Labib</td>
</tr>
<tr>
<td>3. Date to be completed by:</td>
<td>Sept. 25th, 2019</td>
</tr>
<tr>
<td>4. Additional notes:</td>
<td>Invite key subcontractors to the meeting</td>
</tr>
</tbody>
</table>

**Buttons:**
- Back
- Delete Action
- Finish
Select Review

Please create a new review by clicking the New Review button. Otherwise, you can select one of the previous reviews to edit/inspect.

<table>
<thead>
<tr>
<th>Date Created</th>
<th>Date Modified</th>
<th>Review #</th>
</tr>
</thead>
</table>
The above figure displays your project's overall readiness score against the industry threshold.

Review 2: 94

Previous Trials: Overall Score List

- Review 1: 64
- Review 2: 94
SUSTAIN READINESS

COLLABORATE TO START READY

USE THE CRA TOOL

GET ALIGNED ON PROJECT STATUS

HAVE A SUCCESSFUL PROJECT
THE CONSTRUCTION READINESS ASSESSMENT IN A RESTART ENVIRONMENT
Construction Readiness Assessment in a Restart Environment

How is the application of the tool different?

- Standard CRA questions are generally applicable for new projects and need to be reconsidered when planning a restart.
- Restart adds different requirements for a “yes” answer.
- Requirements to answer “yes” may be unique to the specific cause of the stoppage (i.e. hurricane, geopolitical issues, Coronavirus, etc.).
- CRA must be applied as a snapshot of current situation: prior status is irrelevant.
- Multiple applications of the CRA will provide running record of progress toward restart.
- CRA can be used “off the shelf” modified to focus on specific restart topics.
Construction Readiness Assessment in a Restart Environment

Restart Questions may have different focus

- Have the project goals been defined?
- Have the project drivers (cost/schedule) been agreed on by the team?
- Have the goals and objectives been documented?

Modified / Consolidated Questions for Restart

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have project goals, objectives or drivers changed as result of the shutdown and have the changes been communicated?</td>
<td>Yes/No</td>
</tr>
</tbody>
</table>

Revised questions can be created as supplemental reference material
Construction Readiness Assessment in a Restart Environment

Example questions that relate to any construction restart

1. Has the delay impacted the business case?
2. Has the changed business case affected the project drivers and their priorities?
3. Has a restart plan been defined?
4. Are restart resources adequate?
5. Is training required for new employees?
6. Was delivered equipment stored properly?
7. Has required construction equipment been ordered?
8. Were assumptions in the original plan resolved for the restart?
9. Has the weather window changed due to the realignment of the schedule?
10. Etc.
THE CONSTRUCTION READINESS ASSESSMENT IN A COVID-19 RESTART ENVIRONMENT
Construction Readiness Assessment in a COVID-19 Restart Environment

Questions that are unique to COVID-19 (May be added as new section)

1. Has a virus testing plan been established for craft labor?
2. Will temperature monitoring be required for all resources, daily?
3. Has crew size planning been done to accommodate social distancing?
4. Has new technology been adopted to track distancing between workers?
5. Have policies been established for employees that test positive?
6. Have cleaning (equipment, meeting areas, etc.) procedures been updated?
7. Have break schedules been adjusted to align with social distancing requirements?
8. Have productivity influences been considered in the new resource plan and schedule?
9. Have resource availability issues been considered if all projects (across the industry) come back at the same time?
10. Etc.
Construction Readiness Assessment in a COVID-19 Restart Environment

Applying the Construction Restart Readiness Assessment (Traditional Project)

Where are we? What needs to be improved?

Complete the Project Restart Execution Plan

Restart
CRRA / PREP Interface

Match the Project Restart Execution Plan topical coverage area as closely to the CRRA topics as possible
Construction Readiness Assessment in a COVID-19 Restart Environment

Applying the CRRA and PREP (Complex project)

- CRRA #1
  - Where are we?
  - What needs to be improved?

- Prepare PREP
  - What is the plan for improvement?

- Corrective Actions
  - Working towards Restart

- Follow up CRRA #2
  - Where are we?
  - Are we ready?

On $1B+ size project, there may as many as 3-4 CRRA assessments completed