



*COAA Construction Owners Association of Alberta*

# Advanced Work Packaging

A SUMMARY

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## Introduction

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In 2012, a partnership between the Construction Industry Institute (CII) and COAA was established, and a co-funded joint research project was initiated. Based out of the University of Texas at Austin, CII and COAA researchers developed a series of recommendations and best practices for work packaging techniques that include detailed front-end planning and enhanced construction execution planning and management.

The research team (coined RT-272) released the first series of reports from this study at the 2013 COAA WorkFace Planning Conference. The concept of Advanced Work Packaging (or AWP) is a series of processes intended to improve construction performance from concept to commissioning, very much like the intended effects and scope of WorkFace Planning, although the current vision of the AWP model considers WorkFace Planning to be most relevant to the field-level execution (construction) stage of the project, while the AWP concepts have the most relevance in the front-end planning stages. The AWP model is presented, along with challenges and benefits in the RT-272 report, published by and available through CII. Here, we provide a brief overview of AWP, with a special focus on how AWP and WFP fit together. More information about AWP will be presented here in the future.

## Proposed AWP Benefits

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Traditionally, contractors face a large amount of rework due to both poor field planning and poor coordination between engineering and construction. The loss of productivity caused by rework can be harnessed and turned around if the work packaging process is implemented properly. Early project planning that integrates work packaging with engineering, procurement, construction, and project controls increases the probability of the following:

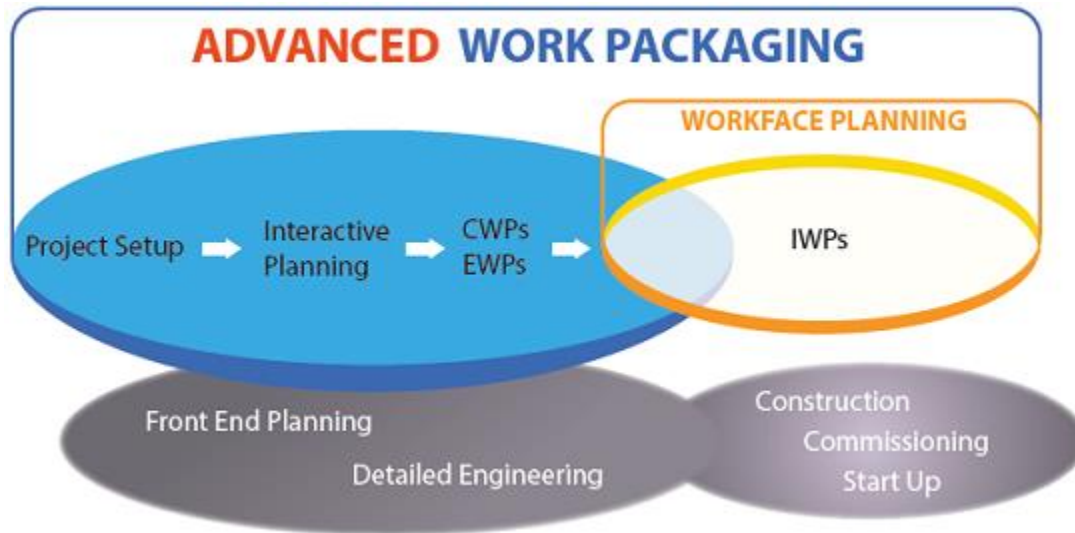
- The engineering team supports the construction sequence and schedule.
- Vendor-supplied equipment remains on schedule.
- Materials are purchased and delivered to support construction.
- Communication of specific work tasks is improved at the workforce, from the superintendent level through the craft ranks. (Throughout this document the team uses the term workforce; this term is interchangeable with the term work front.)
- Constraints such as craft availability, material laydown, scaffolding, and IFC drawings are better managed.
- Work toward closeout and turnover is better controlled.

While this is not an exhaustive list of the potential improvements from advanced work packaging, it provides a snapshot of the areas that are most often vulnerable to failure on construction projects. The case studies performed by RT 272 revealed that the effective implementation of work packaging techniques improves productivity and increases predictability of project performance.

## AWP at-a-glance

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Advanced Work Packaging (AWP) is a disciplined approach to improving project productivity and predictability. It accomplishes this by aligning planning and execution activities throughout the project life cycle, from project set-up to start-up and turnover. The essence of AWP is conveyed in the below figure (which also demonstrates how WorkFace Planning fits within the AWP model):



AWP activities span the entire project. Front end planning and detailed engineering activities support enhanced execution at the work front. Project set-up and planning sessions establish the basis for coordinated construction and engineering work packages (CWPs and EWPs). These packages then enable time progress of work through orderly planning, execution, and monitoring of installation work packages (IWPs). Management of IWPs is also known as workface planning.

## AWP Resources added to WFP

The COAA online library contains these resources for WorkFace Planning and Advanced Work Packaging.

Area	WFP Resource	AWP Resource
Best Practice Report	WFP Best Practice	AWP Summary (main best practice is on CII website)
Procedures	COAA Scorecard – are you ready to implement? WFP Prerequisites WFP Infrastructure WFP Timelines Rules of WFP Path of Construction Inputs, Tools, Outputs RASCI	Overview of Project Integration Flowcharts Overviews of each responsibility along flowcharts: owner, PM, CM, Eng, Supply chain, constructor
Work Flowcharts	Path of construction IWP Lifecycle flowcharts and narratives	Project Integration Stages 1,2,3, Swimlanes
Templates, others	IWP – Piping IWP – Electrical IWP – Structural Steel Sample IWP package EWP template CWP template Job Descriptions for workface planner, materials management, scaffold, etc	Job Descriptions for integration positions: AWP champion at Constructor, Construction Management, Engineer, Owner, Project management, Supply chain
Checklists	Path of Construction Cable Tray Civil Foundations Civil Piling Electrical Instrument Cable Install Electrical Junction Box Install Equipment Setting Hydrotesting Instrument Install Instrument Raceway Install Insulation Piping Structural Steel Tracing Install Underground Piping	

## More information about AWP and CII

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The CII Research Team RT-272 developed (this study) in response to known AWP implementation challenges. While not addressing all the barriers to successful AWP implementation, the team developed tools and assessments that were felt to address most of the primary challenges.

Implementers at all levels—from those getting started to those who are sophisticated practitioners of AWP—should benefit from (this guidance). [Please click here to contact CII for more information.](#)

### ***Construction Industry Institute:***

Founded in 1983, the Construction Industry Institute (CII), based at The University of Texas at Austin, is a non-profit consortium of more than 100 owner, engineering-contractor, and supplier firms from both the public and private arenas. [For more information, please visit https://www.construction-institute.org](https://www.construction-institute.org)