# 2. [ADVANCED WORK PACKAGING: DESIGN THROUGH WORKFACE EXECUTION, VERSION 2.1 (RS272-1)](https://www.construction-institute.org/advanced-work-packaging-design-through-workface-execution-version-2-1)

**Report Summary:** Advanced work packaging (AWP) is the overall process flow of all the separate work packages. It is a planned, executable process that encompasses all the work for an engineering, procurement, and construction (EPC) project, beginning with the initial planning and continuing through the detailed design process and construction execution. AWP provides the framework for productive and progressive construction and presumes the existence of a construction execution plan. AWP emphasizes the collaboration of various project stakeholders (engineering, procurement, construction) from the outset of the project to ensure comprehensive planning and execution. It aligns EPC activities by defining and sequencing work packages early in the project. This alignment ensures that all necessary resources and information are available when needed, thereby enhancing project performance and predictability.

This research provides a model execution process and detailed recommendations for effective work packaging that can be incorporated into current execution practices, from project definition through construction and turnover. Implementation guidance is provided through assessment tools, templates and checklists, functional role descriptions, elaboration of existing project processes on the AWP interface, and recommendations for contractual requirements also are included. The benefits of this product include improved productivity and predictability of cost and schedule.

**Key Takeaways:**

## (1) Adopt advanced work packaging (AWP) recommendations. Note that success is evident with only partial adoption, particularly with regard to installation work packaging (IWP).

## (Project Phase: Feasibility through Commissioning and Start-up)

* Develop and implement an integrated process model that includes clear definitions of construction work packaging (CWP), engineering work packaging (EWP), and IWP.
* Review and update existing project processes to ensure alignment with AWP recommended practices and IWP definitions.
* Provide training and guidance to contractors regarding the implementation of IWP best practices, including functional role descriptions and process elaboration.
* Conduct regular assessments and monitor to evaluate contractor compliance with IWP recommendations and to identify areas for improvement.
* Consider mandating work packaging practices across capital project programs.

## (2) Commit, plan, and execute well with champions.

## (Project Phase: Feasibility through Commissioning and Start-up)

* Develop a clear understanding of AWP best practices and their benefits to ensure successful implementation.
* Identify and appoint champions within the organization who can facilitate adoption and drive cultural change.
* Establish a comprehensive planning process that integrates with existing project processes and includes early engagement with the engineering team.
* Provide training and guidance to stakeholders about the importance of effective planning, including lessons learned from previous projects.
* Monitor progress and assess the effectiveness of AWP implementation, making adjustments as needed to ensure successful execution.

## (3) Ensure effective materials management, document control, and project control systems, and consider electronic management.

## (Project Phase: Feasibility through Commissioning and Start-up)

* Develop a comprehensive materials management plan to ensure the timely delivery of required materials.
* Establish a centralized document control system to track and manage all project-related documents.
* Implement an integrated project control system that includes scheduling, budgeting, and reporting tools.
* Consider implementing an electronic management system for tracking and managing project data and documentation.

## (4) Designate a separate workface planner/planning lead to ensure success in all project phases.

## (Project Phase: Feasibility through Commissioning and Start-up)

* Appoint a dedicated workface planning lead to oversee front-end planning and the transition to jobsite coordination.
* Ensure that this workface planning lead has sufficient understanding of engineering, procurement, and construction processes.
* Assign multiple workface planners under the lead workface planner to prepare discipline-specific IWP with required support from other departments.
* Require these workface planners to have a deep understanding of construction practices for effective project execution.
* Empower the workface planning team to provide essential coordination among engineering, procurement, and construction personnel throughout all project phases.

## (4) Recognize that all projects include some level of work packaging.

## (Project Phase: Feasibility through Commissioning and Start-up)

* Identify: Determine the scope and complexity of each project to understand its unique requirements.
* Define: Establish clear expectations with stakeholders about the components that constitute a complete project deliverable.
* Develop: Create a comprehensive work breakdown structure (WBS) for each project to ensure that all tasks are taken into account.
* Coordinate: Collaborate with construction management, engineering, and other departments to align the work packages and execution plans.
* Verify: Regularly review and validate the completeness of projects against their respective WBS.

## (5) Do not implement AWP midstream or without thought, preparation, and the commitment of adequate resources.

## (Project Phase: Feasibility through Commissioning and Start-up)

* Plan: Develop a comprehensive project plan that includes all necessary steps and timelines before implementing AWP.
* Prepare: Ensure that all stakeholders, including planning team members, engineers, and contractors, are informed and committed to the implementation of AWP.
* Assess: Conduct a thorough assessment of current processes and resources to determine the changes that will be needed to support the successful implementation of AWP.
* Resource: Commit adequate resources (e.g., personnel and budget) to support the implementation of AWP, including training for planners and other stakeholders as necessary.
* Validate: Regularly validate that all steps are being taken to ensure a smooth transition to AWP, and make adjustments as needed.

## (6) Prepare a rollout plan for AWP.

## (Project Phase: Feasibility through Commissioning and Start-up)

* Develop an implementation timeline to roll out AWP across all projects and teams.
* Identify key stakeholders who will be involved in the AWP process and provide training regarding definitions and procedures.
* Establish clear communication channels with project managers, planners, and other team members to ensure a smooth transition.
* Define the roles and responsibilities for each stakeholder group to avoid confusion or duplication of effort.
* Conduct regular progress monitoring and reporting to track implementation success and to identify areas for improvement.

## (7) Align with all project disciplines, with emphasis on coordination between the engineering and construction teams.

## (Project Phase: Feasibility through Commissioning and Start-up)

* Develop a comprehensive understanding of each discipline's requirements and expectations to ensure effective integration.
* Collaborate with engineering contractors, supply chain teams, and other stakeholders to develop CWP that aligns with the scope of work.
* Review and approve CWP deliverables to ensure that they meet the project execution plan and WBS requirements.
* Establish clear communication channels with all disciplines to facilitate information sharing and minimize misunderstanding.
* Conduct regular progress monitoring and reporting to track alignment across all project disciplines.

## [(8) Tool: Advanced Work Packaging: Design through Workface Execution, V. 3.1 (IR272-2)](https://www.construction-institute.org/advanced-work-packaging-design-through-workface-execution-version-3-1)

## Vol. 1: Advanced Work Packaging: Design through Workface Execution.

## (Project Phase: Feasibility through Commissioning and Start-up)

This tool does the following:

* Develops an IWP process that includes a work package summary, description of work, location, system or facility code, originator, contact information, sequenced work steps, reference documents, estimate of work hours and quantities, cost codes, witness or hold points, and special comments.
* Creates a flow chart for IWP development, execution, and closeout, with each stage having its own narrative explanation.
* Mitigates any constraints before issuing IWP to the field by involving responsible stakeholders in the process.
* Provides further narrative detail to support each process step, including scope, assumptions, and recommendations, as part of the IWP creation process.
* Closes out the IWP process by ensuring that all deliverables are met, lessons learned are documented, and a final report is submitted.

[**(9) Tool: Advanced Work Packaging: Design through Workface Execution, V. 3.1 (IR272-2)**](https://www.construction-institute.org/advanced-work-packaging-design-through-workface-execution-version-3-1)

## Vol. 2: Advanced Work Packaging: Implementation.

## (Project Phase: Feasibility through Commissioning and Start-up)

This tool does the following:

* Identifies revision history elements for CWP, including identifier, description, date created, and signature/approval process.
* Uses a CWP template as the basis for creation and reference, accommodating varying amounts of detail or formatting.
* Develops consistent practices regarding detail and style to meet client or stakeholder requirements by using formats such as narrative text, lists, references, or diagrams.
* Organizes the EWP template per guidance found in this tool reflect commonly accessed information in sequence, with contact information at the end for quick reference.
* Considers EWP as a deliverable that provides engineering and procurement support throughout the project’s lifecycle.

[**(10) Tool: Advanced Work Packaging: Design through Workface Execution, V. 3.1 (IR272-2)**](https://www.construction-institute.org/advanced-work-packaging-design-through-workface-execution-version-3-1)

## Vol 3: Advanced Work Packaging: Implementation Case Studies and Expert Interviews.

## (Project Phase: Feasibility through Commissioning and Start-up)

This tool does the following:

* Tracks work packaging using appropriate rules of credit to accurately measure progress and earned value.
* Develops a physical document for IWP for distribution to the field; each IWP document contains a one-to-two page cover sheet that shows the required steps.
* Creates sub-IWP documents that are labeled by area using alphanumeric notation, thereby dividing the content into separate binders, such as IWP 100-A, B, and C.
* Uses IWP to assist superintendents in carrying out their work, not as a measure for punishment if target dates are not met.
* Includes relevant reference information, such as drawings, specifications, and work steps, which are required for IWP.