WorkFace
Planning a COAA
Best Practice
FRONT END PLANNING

WHAT DOES IT INCLUDE?
AGENDA

• Overview of WFP Process
• WFP Requirements
• WFP Within Project Life Cycle
• Lessons Learned and Best Practices
• Feedback
Workface Planning is a concept that has been developing across the industry over the past several years as a way to address lagging productivity. The guiding principle is that productivity is driven by how effectively we deliver Information Tools and Materials to the work face.

The process of Workface planning breaks up CWPs into discipline specific, constructible, independent micro projects that contain work instructions and projected earned hours that are derived from project baselines. This breakup allows detailed and controlled progress and performance monitoring, accurate material management control, predictable manpower loading and predictable resource allocation.
“WorkFace Planning is the process of organizing and delivering all the elements necessary, before the work is started, to enable craft persons to perform quality work in a safe, effective and efficient manner”
“Field Installation Work Package (FIWP) is a grouping of tasks targeted at one shift in duration. These FIWPs will contain all of the necessary documents and descriptions required to carry out the task required.”
Where Crews Traditionally spend their time:

- Tool Time: 37%
- Wait Time: 15%
- Crew Movement: 15%
- Crew Planning: 11%
- Early Quits & Breaks: 14%
• 10% more tool time is a 25% improvement in productivity
• Safety, morale and predictability improvements
What are we going to do today?

Is this the right part?

Good plan, but we’re missing something.

Good design, good plan, right materials, right equipment and tools, good support, I know what I’m doing, I have everything I need!

No Workface Planning

Workface Planning
The Objective

WorkFace Planning is a method to get the right things, to the right place, at the right time.
Remember this planning “will” occur. The only questions are when, by whom, with what quality, integration and at what level of detail?

Begin with the end in mind

• Systems drive commissioning and start-up
• Commissioning and start-up drive construction
• Construction drives engineering and procurement
Plan forward and prioritize (sequence) backward
Ideal Construction Sequence
Based on Turnover Systems

- Drawings Issued
- Materials Delivery
- Installation Complete
- Testing Complete
- Completion Date

- Engineering
- Delivery
- Installation
- Testing
- Systems Turnover

Definition of Priorities
**WorkFace Planning Prerequisites**

**Contracting**
The nature of the contracting strategy (Lump sum, Cost Reimbursable, or Unit Rate) is irrelevant to WorkFace Planning with the exception that in Lump Sum or Unit Rate the need to specify WorkFace Planning as a contractual requirement is greater.

**Engineering**
The way in which the project is engineered will not change but the order of delivery of the engineering documents will change. The engineering of the FIWP must be complete in order for the packages to be finalized.
WorkFace Planning Requirements
Requiremnts

1. Appoint Dedicated Planners
2. Develop Level 3 Schedule prior to Detailed Engineering
3. FIWP complete 4 weeks prior to starting actual work
4. Workface Planners have access to latest information
5. Assign Integration Coordinator
6. Assign responsibilities for signoff of FIWP
7. FIWP’s signed off before release to the field
8. Track progress of FIWP’s
9. Develop backlog of FIWP’s
10. Include WorkFace Planning into Contract
11. Audit the process
WorkFace Planning
Within the Project Life Cycle
FIWP Preparation

Timeline 120 Days

Pre IFC
- Develop path of construction
- Pre IFC develop Engineering document/CWP/ FIWP release plans
- Workface Planner manpower requirements based on release plan
- Develop FIWP templates

120 days EWP's IFC
- FIWP checklist
- Release IFC EWP's as per agreed upon schedule
- 30 days to develop CWP's

90 days CWPs IFC
- CWP Checklist
- Order short
- Purchase field material
- Order tools and equipment
- Confirm material suppliers will meet Required at Site dates
- Subcontractor contractor requirements

60 days begin FIWP development
- Begin calculating FIWP's
- Confirm material, tool and equipment delivery dates
- Check resources
- FIWP readiness checklist
- Develop Back Log or "Plan B" FIWP's

30 days FIWP ready for release
- Integrate plans with other disciplines
- Add to 3-4 week look ahead
- Confirm material and equipment received
- Get sign off

10 days print FIWP hard copy
- Print Hard Copy of FIWP's that are 100% ready

Note: Initial procurement is outside the scope of this timeline
Workface Planning Flowchart:
An Example of the Processes that are Involved in Workface Planning

Contract is Cost Reimburseable

**Legend:**
- Construction Management Team
- Owner
- Engineer
- Construction Contractor

**Process/Action:**
- Planning
- Decision
- Deliverable

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*Note: Path of Construction activities are used by the Construction Management Team and involve the Construction Contractor, Owner, and Engineer. The path of construction represents the sequence in which work will be engaged in for planning and execution.*
DESIGN BASIS MEMORANDUM (DBM)

1) Develop WFP execution strategy
2) Assign WFP sponsors and champions
3) Define WFP as required for all participants
4) Project Milestone Schedule (PMS) (level 1)
5) Develop WFP execution plan
6) High-level project review with construction input
7) Design a server to host the databases used by all participants
8) Demonstrate capacity to support WFP
9) Write WFP requirements in contracts
10) Design Area Definition
11) Path of Construction
12) Demonstrate capacity to apply WFP
ENGINEERING DESIGN SPECIFICATION (EDS)

11) Ensure all databases are provided with the latest data

15) Project Summary Schedule (PSS) (level 2)

16) Review and Approve PSS

17) Define and Issue CWP Release Plan

18) Appoint Lead Planner; Commence WFP Process

14) Review and integrate WFP processes and support functions

* Proactively resolve conflicts between project participants

20) Define and Issue EWP Release Plan by Design Area

21) Project Master Schedule (PMaS) (level 3)

17) Define and Issue FIWP Release Plan
DETAILED ENGINEERING

22) Engineer develops and releases EWPs

23) Construction develops and releases CWPs

25) Review and approve PMaS

24) Detailed Area Schedule (level 4)

26) Break up CWP into Field Installation Work Packages (FIWP)
CONSTRUCTION PHASE

31) Review and update Engineering

30) Issue Request for Information

29) Need for extra information?

34) Identify “Work to Go” items

37) Document the lessons learned

36) Approve results and initiate lessons-learned meeting

27) Implement and release FIWP (Dynamic Planning) (level 5)

28) Execute FIWP

32) Conduct Q/C verification

33) FIWP completed?

35) Deliver FIWP and present results
Field Installation Work Package Life Cycle

#3 IWP Issuance to the Field

1. See FIWP Life Cycle Document Control
2. See FIWP Life Cycle Control in the Field

Planner Receives FIWP from Doc Control

Planner files both copies of FIWP until constraints are removed

IPC Drawings Schedule Materials Fabrication Lay down preparation and prefab Craft availability Construction Equipment schedule Scaffolding Safety requirements Predecessors Completed

Has all constraints been met?

Release FIWP to applicable superintendent

Send confirmation of start to support craft

Is it feasible to hold packages as is

YES YES

Monitor Constraints

NO

At Monday morning crew meeting superintendent walks through both this week's FIWPs and next.

Field Executes the work in FIWP

Regularly report progress on predetermined interval

YES

NO

See FIWP Life Cycle
See FIWP Life Cycle
See FIWP Life Cycle
Virtual FIWP Creation
FIWP Control in Field
FIWP Control in Field
Front End Best Practices

• **EWP’s**
  – Utilize EWP Checklists to ensure they are complete (which will reduce rework in the field – at both CWP and FIWP level)
  – Utilize formalized signoff of EWP’s prior to release
  – Contractually tie scheduled release of COMPLETE EWP’s to progress payments
  – Utilize Change Management process to reduce rework of EWP’s
Front End Lessons Learned

• **EWP IFC late due to LATE VENDOR DATA**
  – Contractually tie progress payments to vendor to ensure early release of data (use this as incentive)
  – Tie deliveries dates of the vendor data to meet EWP IFC release dates.
Front End Lessons Learned

• **Contracting Strategy not complete (affects schedule and overall costs)**
  – Duplications or gaps in scopes of work - ensure a gap analysis is done timely
  – Adjust the resources required to manage the interfaces
  – Try to ensure scopes don’t cross geographic “silos” to minimize interface problems
Front End Lessons Learned

- **Late Equipment Deliveries (eg. Vendor Skids)**
  - Ensure timely shop inspections to review progress and controls release to field
  - Ensure shop inspections include technical analysis to ensure the equipment MEETS the project specifications
  - Tie payments to vendor so that delivery is high percentage of overall progress payments
Front End Lessons Learned

• **Late delivery of bulk materials**
  – Ensure transmittal process of material is flawless (bulk materials can be centralized and be for multiple of contracts with inadequate documentation of actual release to constructor)
  – Utilize process of min/max “bins” for common items such as small fittings and valves.
Front End Lessons Learned

• **Warehousing / laydown areas inadequate**
  – Ensure this is key part of pre-planning the project
  – Ensure responsibility matrix is developed early
  – Assign responsibility for care and preservation of equipment until released to contractor
  – Ensure vendor documents available to contractor when the equipment/material is released to ensure care and preservation meets vendor’s requirements (which might affect warrantee).
Workface Planning Benefits:

- Improved site safety
- Up to ~10% reduction in TIC
- Better Coordination of Crews
- Greater predictability
- Lower Costs
- Greater Quality
- Less Rework
- Improved Project morale
- Ability to Compare across Contractors
- Schedule Optimization