Building Foreman’s Workface Packages

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Introduction to FIWP Planning

“Plan the Work”
- Dedicated Planner
- Materials & Equipment Coordinators

Field Installation Work Package
- Materials
- Tools
- Equipment
- Trades/Specialists
- Detailed Plan
- Drawings
- Vendor Info.
- Safety Requirements
- Supervisor Review
- Safety and QA

“Release the Work”

“Work the Plan”
- Supervisor

Scope
- Team
- Tools
- Tool Time Improvement

Prerequisites

Ready √
GOAL

The goal of Workface Planning is to improve performance by:

- Develop a usable and practical standard planning tool to significantly increase productivity, reduce rework and enhance the probability of project success
- Create and maintain discipline and foster honest communication to proactively resolve issues before and as they arise
- The FIWP process will be a continuously improving body of knowledge
- Based on the COAA Best Practices
A Field Installation Work Package is a comprehensive package of Information that describes a specific scope of work in detail and typically includes:

- Safety & Quality considerations
- Discipline Drawings
- Material requirements
- Inspection & Test Certification
- Estimated number of man-hours
- Schedule
- Additional information… (To benefit the construction/implementation team.)
• Design Area(s) are broken into a series of Construction Work Pkgs (CWP)
• CWPs are agreed to with Engineering prior to construction
Packaging Work for FIWP’s

2nd Step

1st Step (Typically determined by area)

3rd Step

Level 3 - Disciplines

CWP
CWP
CWP

FIWP’s

Level 4

Areas

mapping

Estimate & Manhours

Level 5

FIWP Step Listing

Task
Task
Task
Task
Task
Foreman’s Workface Package
Preparation Guiding Principles

- Keep it SIMPLE
- Practical and User Friendly
- Understandable
- Standardize Tools
- Continuous Improvement
Packaging Work for FIWP’s (cont’)

4th Step Create FIWP

- Dedicated AND Experienced planners break out CWP’s into specific Field Installation Work Packages (FIWP’s)
- The consideration for FIWP Packages is commended during the detailed engineering phase
1.0 Introduction

General overview of the scope of work to be undertaken with specific attention to any items needing consideration by Construction implementation.
2.0 Health Safety & Environmental

- Hazard Management Activities
- Work Pack Risk Assessment
- Material Safety Data Sheets
- Task Risk Assessment
- Manual Handling
- Specialist Safety Requirements
- Provision & Use of Work Equip.
- Toolbox Talks
3.0 Scope of Work

- Piping
- Mechanical
- Instruments
- Electrical
- Civil/Structural
- HVAC
- Job Cards / Activity Sheets
- Joint Completion Matrix
- Lifting Requirements
- Engineering Queries
- Hydro/ Integrity Testing
  - Planning
4.0 Drawings & Data

- Piping
- Mechanical
- Instruments
- Electrical
- Civil/ Structural
- HVAC
- Architectural
- Lifting Requirements
5.0 Materials

Material Requisitions

- Piping
- Mechanical
- Instruments
- Electrical
- Civil/Structural
- HVAC
FIWP - SmartPlant Materials Integration

- Forecasts are created by Field Installation Work Package (FIWP) priority
  - Only Inventory – Identify lines with 100% material on hand
  - Approved Purchase Orders – Create shortage reports
- Shortage reports forwarded to expediting group
  - Identify possible long lead items impacting schedule
  - Focus expediting efforts where most needed
- Material list added to FIWP package and signed off
- Pick tickets for 100% on hand inventory packages forwarded to the warehouse for bag & tag and staging
  - Release Authorization from warehouse
  - Picked heat numbers recorded for later user by Quality Assurance Department
Buildable List by FIWP

Reported by FIWP Package at Isometric Level

List of all Lines that are available to begin construction
6.0 Inspection & Test Certification

• Owner Specification/ Code Inspection & Test requirements
• Mechanical Completion Certification
• Punch lists
• Joint Integrity Certificate
• Integrity Test Certificate
• Control Completion Certificate (process control items)
• System Handover Certificate
7.0 Operation & Maintenance

- Operating Manual Updates
- Maintenance Routine Updates
8.0 Additional Information

- Procedures/ Work Instructions
- Specifications
- Miscellaneous Data
- Weight Control
- Vendor Data
- Other Data
FIWP – Release The Work

- Responsible parties, which are to **always** include the Foreman, review the completeness and accuracy of the FIWP package prior to commencing work in the field
- Superintendents/PMs/Coordinators make final go/no-go decisions on FIWP release
- Foremen execute FIWP’s
- Project Controls monitor FIWP’s
- Quality Assurance audit FIWP’s
SUMMARY

The Ledcor Group…Workface Planning to improve performance by:

- Planning using Practical methods
- Making the “Bar” clear
- Creating discipline
- Proactively resolving issues
- Significantly increasing productivity
- Reducing rework
- Continuously Improving
How Big is an FIWP Package?

Use Common Sense: It is a package of work as would normally be given to a foreman to build.

• Work for an FIWP is to be discipline specific and to an individual Foreman’s crew.
• The size of an FIWP can depend on the complexity of the work. Therefore work may be of longer (or shorter) than 2-3 weeks in duration. (example - Large concrete foundation (4 weeks), setting a piece of equipment (4 days).)
• FIWP packaging needs to align with all systems. (i.e. Estimating, FWP, Schedule)
• An FIWP may remain ‘open’ for longer periods (on hold at <100% complete) awaiting the completion of dependant and integrated activities from another FIWP. (example - Final termination of a group of cables, may be on hold until the equipment is set.)
Clarifier Base – Concrete Pour
OIL SANDS PROJECT

Heavy lift of rotary crusher at C&C silo

First pipe module being set at U&O silo
Oilsands SAGD Expansion

Setting OTSG Stack
DIAMOND MINE – *Structural Steel*
Central Processing Plant – PIPERACK MODULES
HEAT TRACING
Progress Monitoring and Control of FIWPs
Field Installation Work Package (FIWP) Planning Interfaces

- MC2 Estimate
- Smart Plant 3D Design
- P6 Schedule
- FWP Progress
- FIWP Plan
- ToolHound Tools & Equipment
- QA / QC NDE Welder Log
- SmartPlant Materials
Foreman’s Workplace

- Foreman’s Planning Tool
- Compile Earned Progress
- Report Earned Progress by
  - Foreman
  - Schedule ID
  - JDE Cost Code
  - System
  - CWP
  - FIWP
- Data from IFC estimate information
- Worksheets continually updated to reflect current scope of work
FWP – Levels of Detail

PIPE
- Area
- CWP / EWP
- FIWP
- Line
- ISO
- Spool
- Installation Progress

CONCRETE
- Design Area
- CWP / EWP
- FIWP
- Foundation
Scorecard Components

Concrete:

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- Itemized scope of work
- Schedule IDs
- Estimate MHs
- Area/System/EWP/Line#/Iso#/Priority/etc…
- Activity steps
### FWP Main Screen

- Sort and filter immediately by any column
- Edit information directly on screen
- Progress activities by percentage complete
- Progress by standard sets of activities in a step-by-step manner
Construction to Production

FWP Seamless Transition...

- Typically do not receive complete detailed system definition until 75% complete
- Need system definition as early as possible
- FWP allows system information to be entered progressively as information becomes available
- Greatly enhances ability to plan and execute final system by system turnover

FWP ADVANTAGE
- Can switch between Standard and System Sorts on the fly
Construction to Production

- Change the way we approach scheduling execution.
- Use existing Ledcor systems to tie in EWP’s, FIWP’s and turnover packages to achieve optimum balance between construction and start up.
- At the early onset of the project, focus superintendents on the sequence of start up, not mechanical completion.
- Continuous cross discipline interactive planning from EWP release through construction to start up.