



Transitioning from Area to System Based Construction

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COAA Workforce Planning Forum
Calgary, Alberta December 1 2010



Opening

System Based Construction

- The challenges common to most projects can be anticipated.
- Because these challenges can be anticipated, they can be planned for.

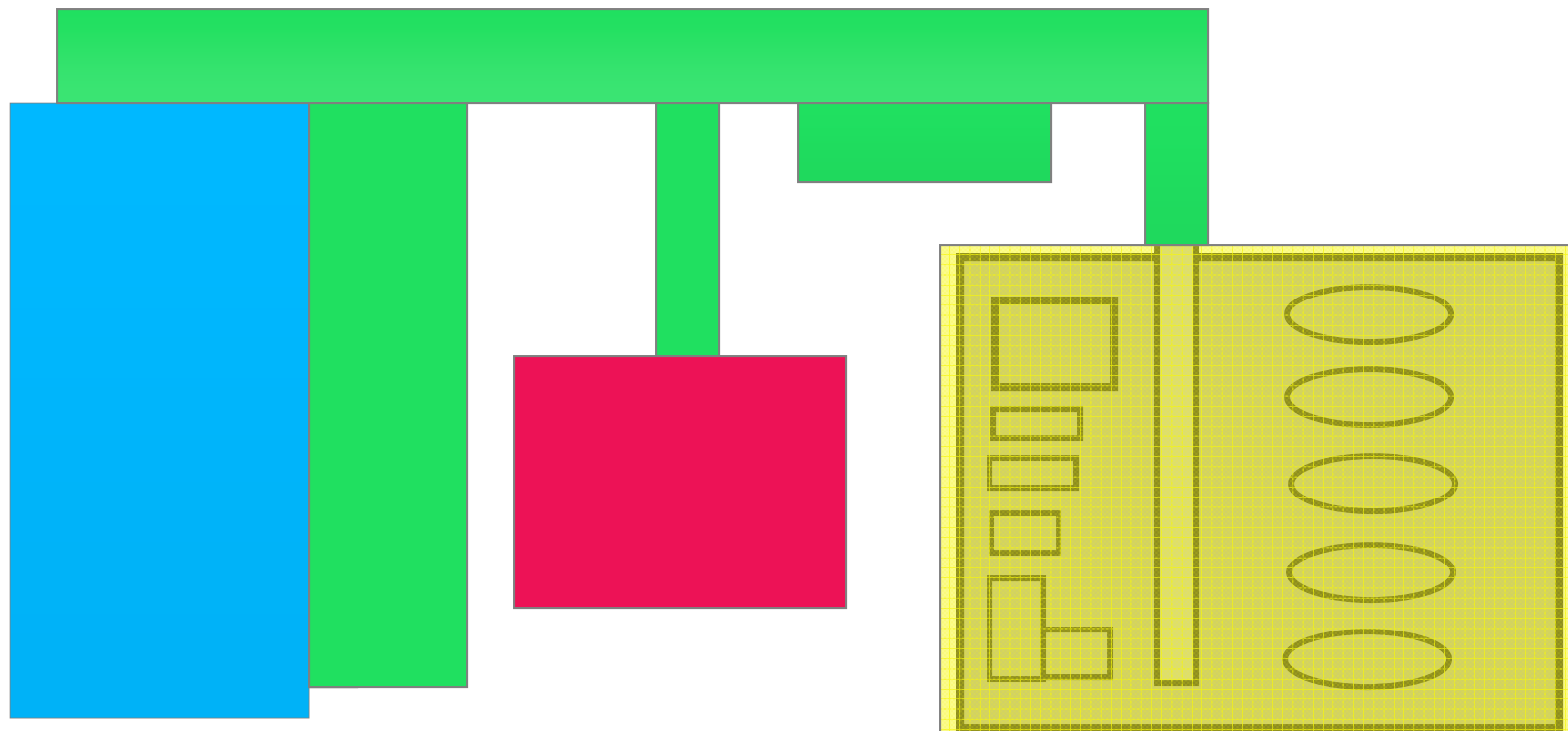


Presentation Outline

- **Define Area vs. System based Construction.**
- **Why & how the transition occurs. Is transitioning the problem?**
- **What are the significant challenges we face during system construction?**
- **What are some of the mitigating actions we may take to reduce their impact.**

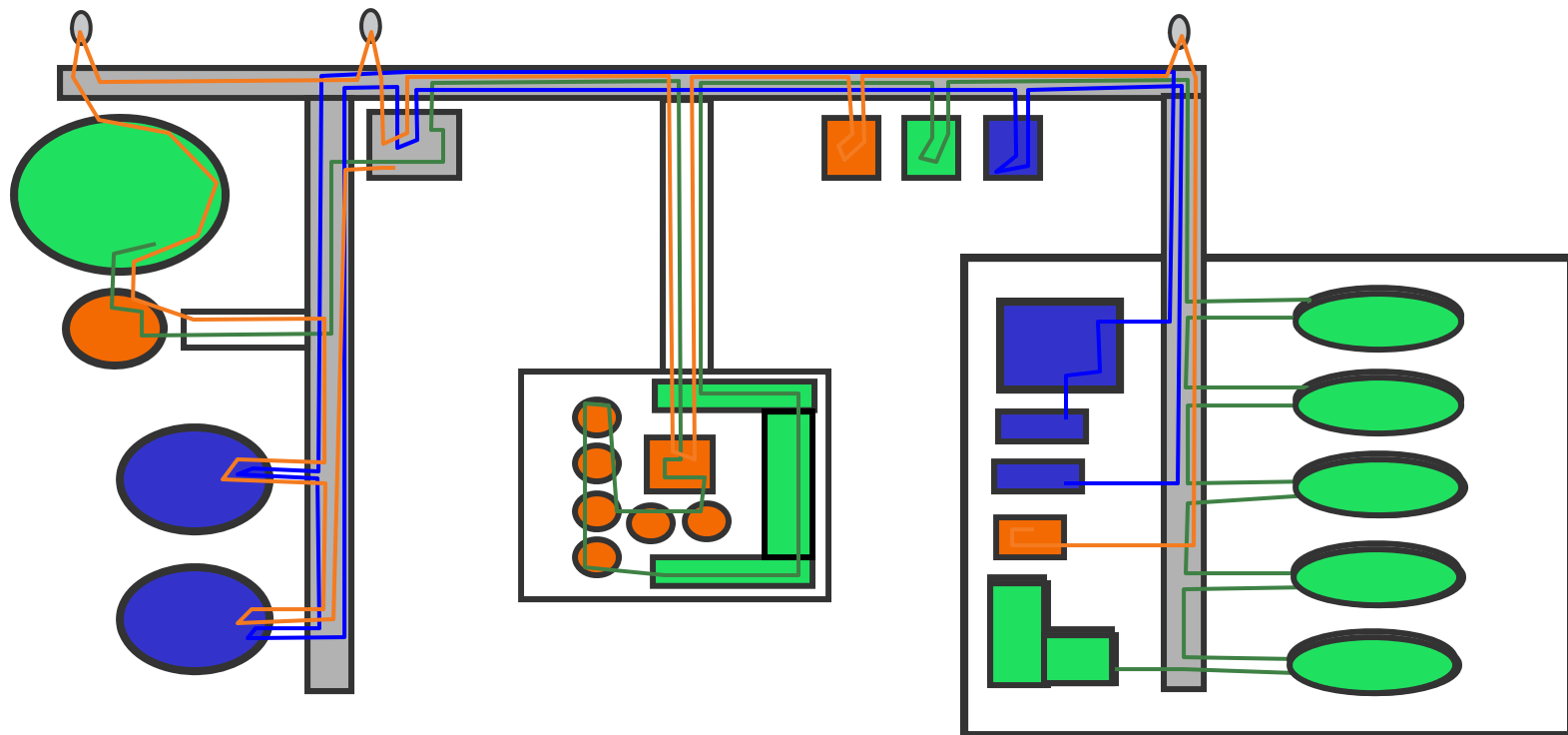
Area Versus System Based Construction

Area Construction

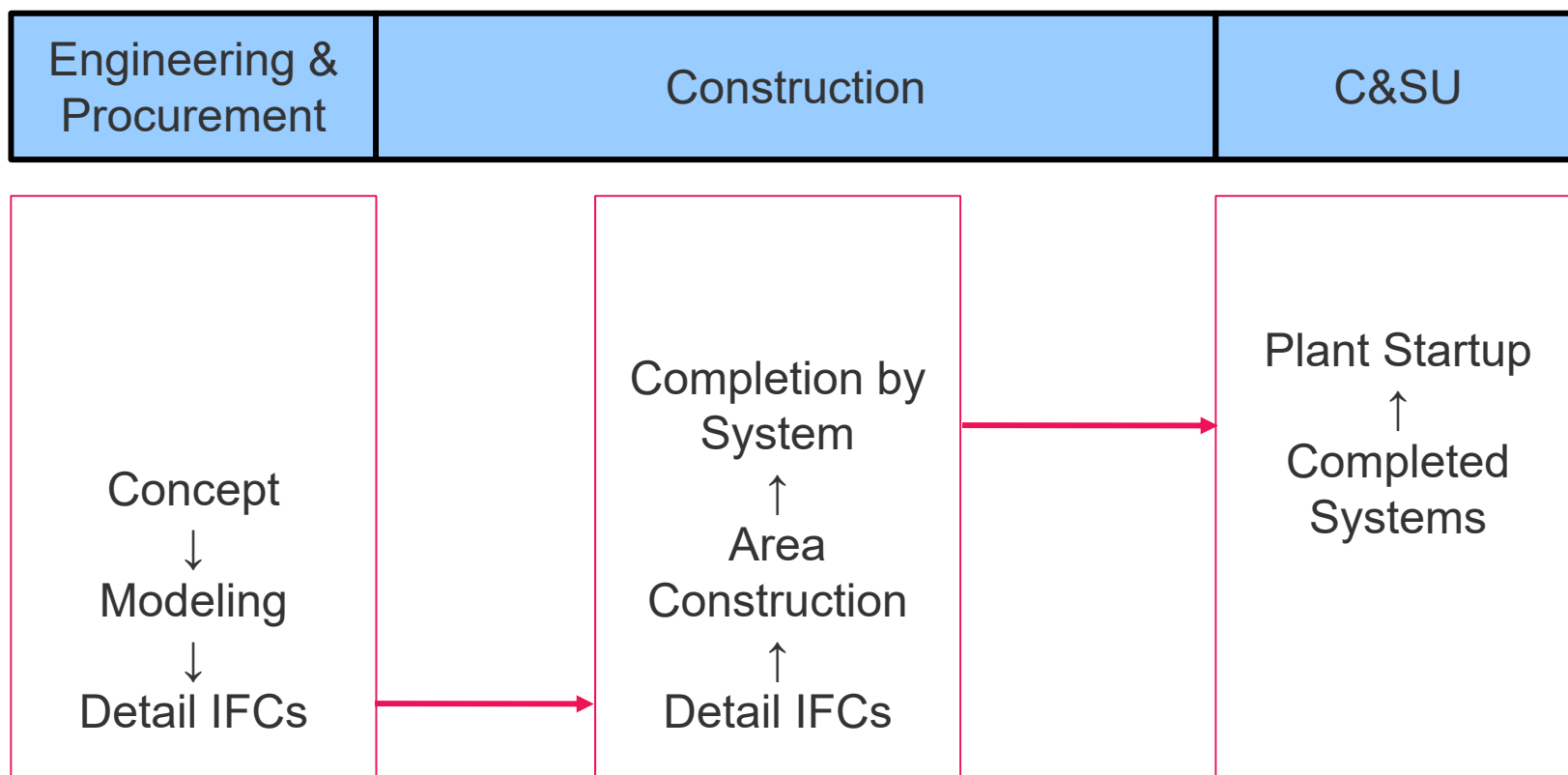


Area Versus System Based Construction

System Based Construction



Area to System Transitioning - Ideal



Area to System Transitioning - Real

IFC Work Packages, Materials, etc.

Engineering & Procurement

Construction

C&SU

Transition to System Based Construction

System Turnover

Common Challenges During System Construction



Quality Issues

Late Engineering & Materials

Productivity Issues

Progress & Productivity Measurement

Quality Issues

The Challenge

- Construction Deficiencies
- Vendor & Fabrication Deficiencies
- Engineering Deficiencies
- Documentation / Turnover Deficiencies

Potential Solutions

- Regular and meaningful Quality Audits. Identify trends early.
- Use of the “Scorecard” to not only verify progress but to perform targeted inspections during construction through In-Process Verification.
- Source Inspection with early involvement from Operations personnel.
- Early identification of RFI during Work Face Planning & Packaging.
- Early system definition which allows for effective packaging of quality records for system turnover.

Late Engineering & Materials

The Challenge

- Capacity to absorb late engineering changes or material deliveries decreases substantially.

Potential Solutions

- Early identification of pending engineering changes or late material deliveries to permit recovery planning.

Productivity Issues

The Challenge

- Increased Travel & Support Requirements.
- Increased Safety Awareness Requirements
- Motivational & Territorial Issues

Potential Solutions

- Find a middle ground between system priorities and area based efficiencies through effective Field Installation Work Packaging. Package deficiency work in same manner as original commodities.
- Work under system priority only as needed and accept that productivity will be impacted and plan accordingly.
- Integrated planning that anticipates energized systems, hydro test exclusion areas, etc.
- Work Packaging during System Based Construction adhering to geographic boundaries used during Area Construction.

Progress & Productivity Measurement

The Challenge

- Rate of progress drops significantly during system construction.

Potential Solutions

- We need to take a closer look at how we measure progress up to and during this stage of the project. Anticipated work is being performed however there is no progress to earn against.

Closing



These challenges are real and cannot be eliminated.

We can, however plan for them and manage our way through them.