

24TH ANNUAL



24TH LCI CONGRESS
OCTOBER 18-21

Trade Partner Prefabrication: Breaking the Mold

Andrew Rhodes, Jared Baughman, Arick Washington: Southland Industries

LEAN GUMBO: THE RIGHT INGREDIENTS FOR PROJECT SUCCESS

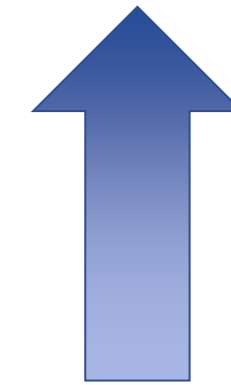
Wednesday October 19, 2022



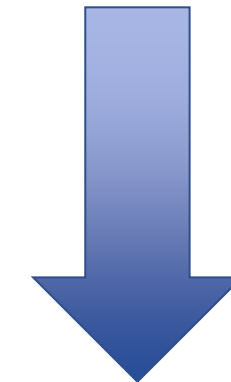
Strong Trade Partner Led
Planning + Execution = Better Project
Outcomes



A quick reminder: Prefab has many benefits!



Certainty of Outcome



Risk

Project Planning: Leading the Effort

- Get the right people in the room
- Start early
- Make cost an input to the design

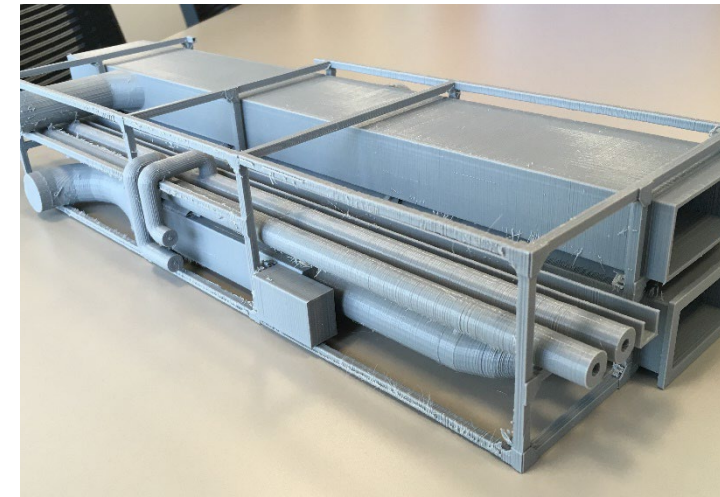
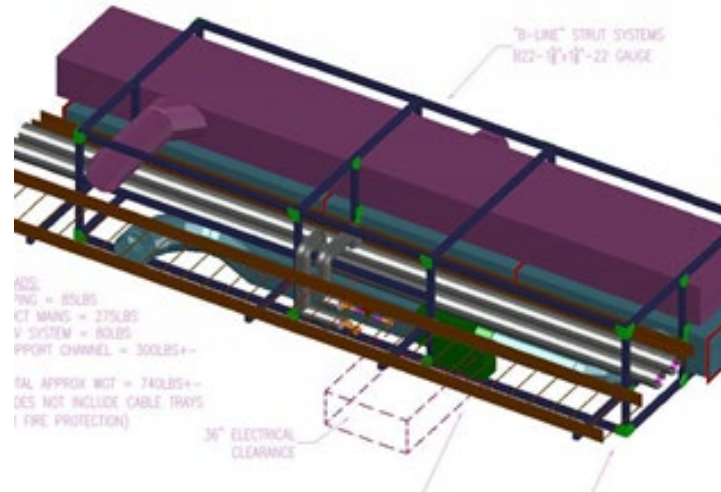
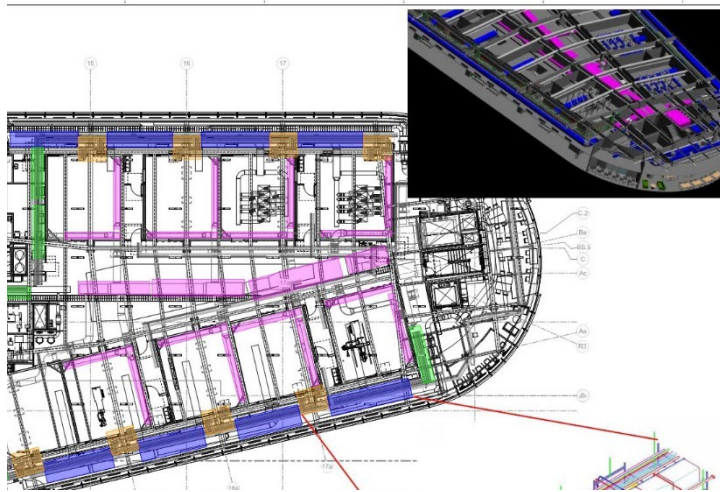


Get the right people in the room



- **PEOPLE**, not the brand
- Can the group speak to:
 - Design
 - Cost
 - Construction
- Waste is at the intersection of trades!
- How is success defined?

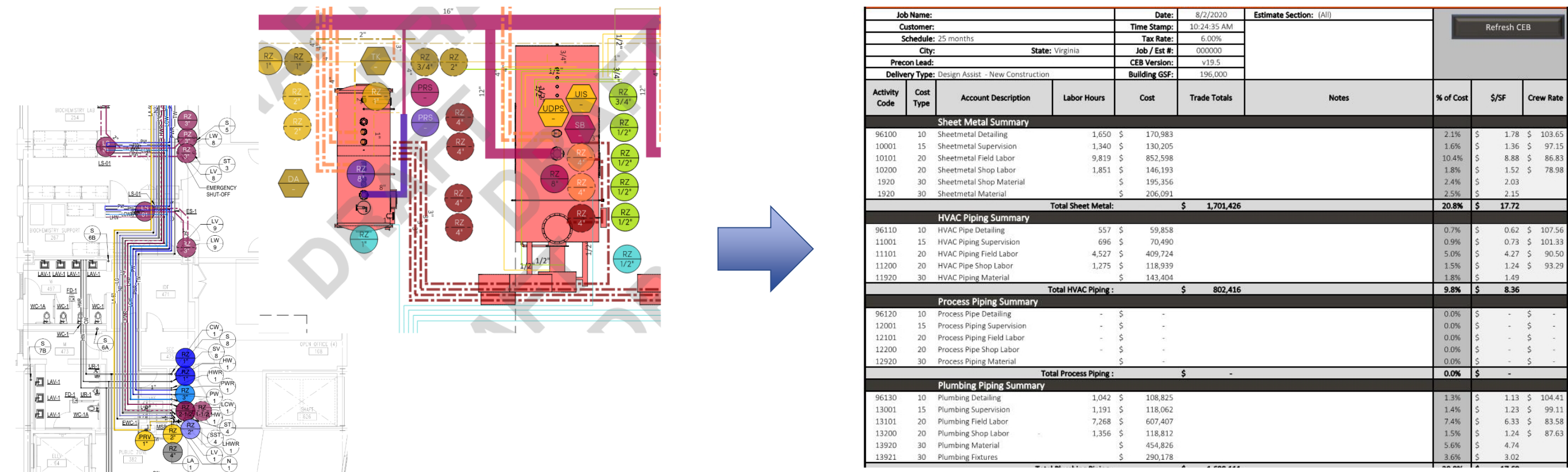
Start early



- Design for prefab
- Create design/construction schedule alignment

- Respect for people: Right resources at the right time minimizes impact to partners

Make cost an input to the design



- Conceptual Estimating + Rapid Feedback
- TVD / Set-Based Design / Innovation

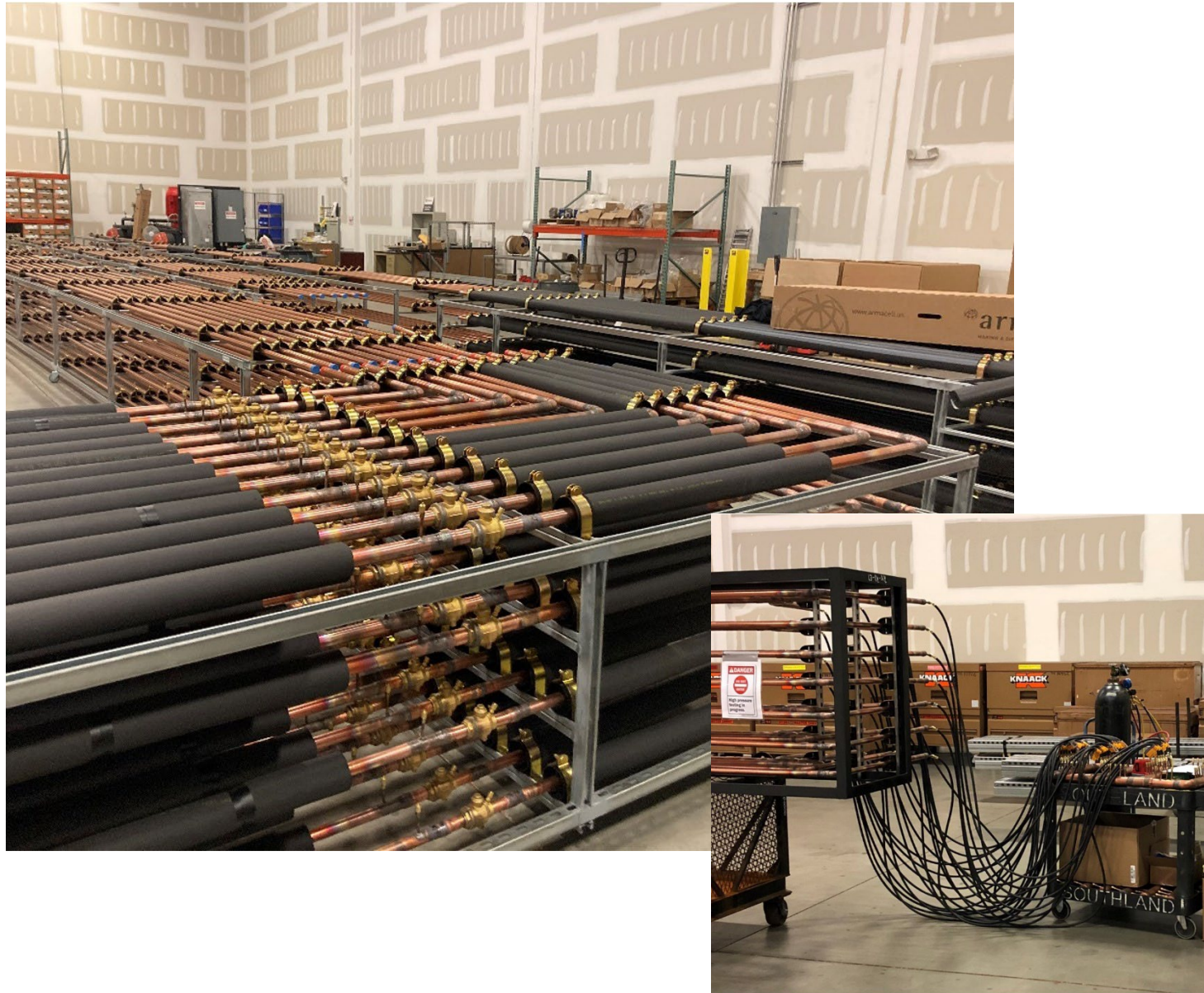
Follow those steps = Success



- 70% of project labor moved off site
- 7,500 LF of 18"-30" CHW Piping
- Pipe installed BEFORE steel support structure
- Over \$1M and 3 months saved



Follow those steps = Success



- Over 52,000 LF of refrigerant piping
- Purge/Test manifold used in Fab Shop
- All racks (including risers) dry-fit in the shop
- Doubled the expected field productivity
- 7,800 hours shifted to the fab shop

Project Execution: Building Better Outcomes

- Be flexible in your fab shop approach
- Manage trade interactions
- Do the little things well

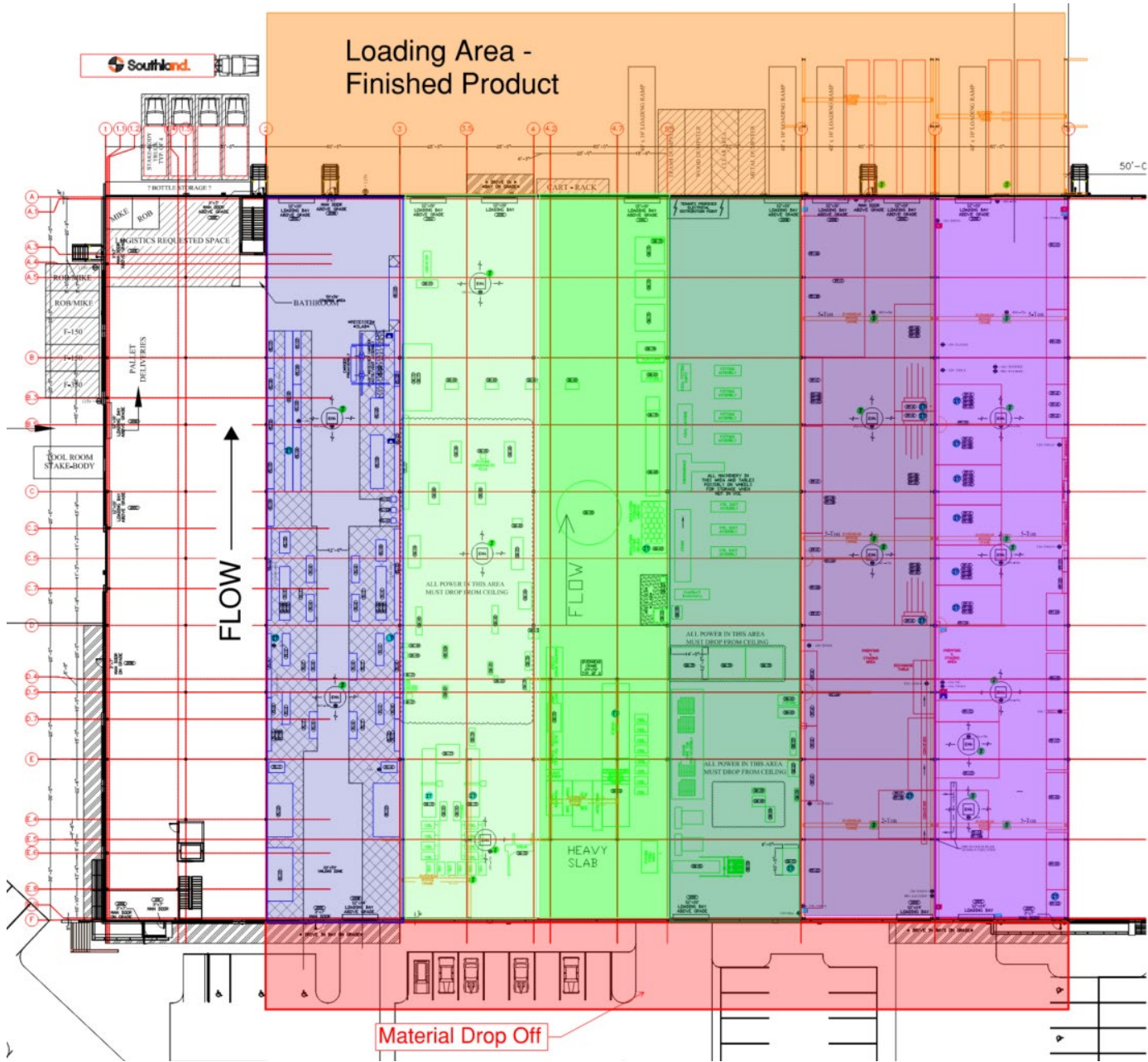


A Typical Southland Fabrication Facility

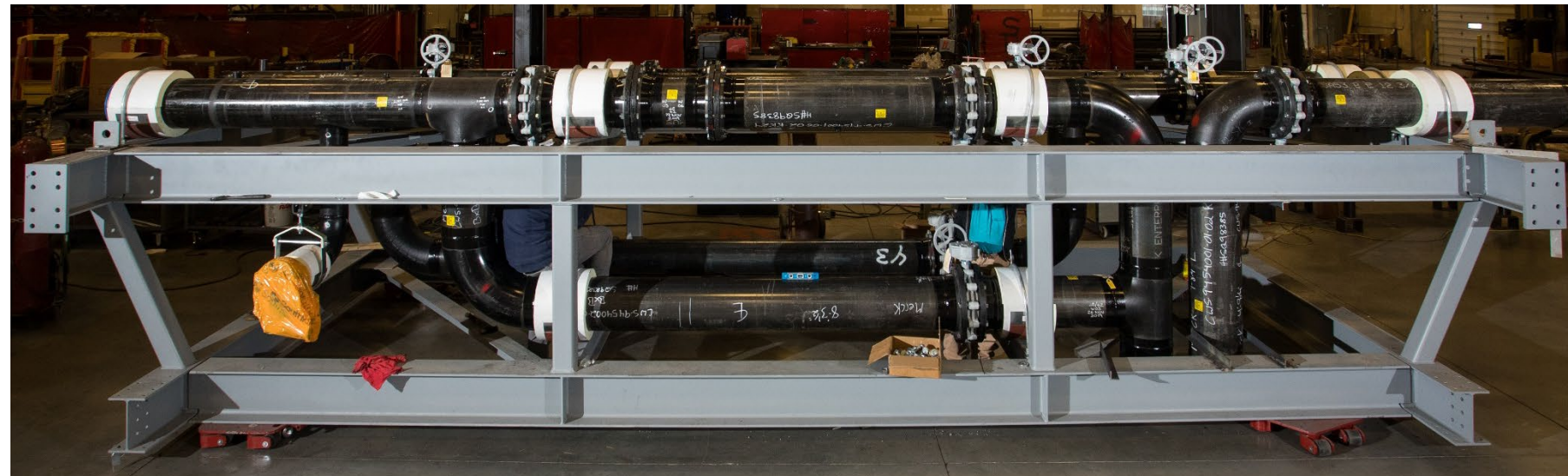


- 150,000 Total SF
- Currently 270 employees
- Sheet Metal: 4,000,000 lbs/Year
- 170,000 Welded diameter in/Year
- Copper Racks: 2,000 assemblies
- Process Piping: 20,000 SF (segregated)

A Typical Southland Fabrication Facility



A Typical Southland Fabrication Facility

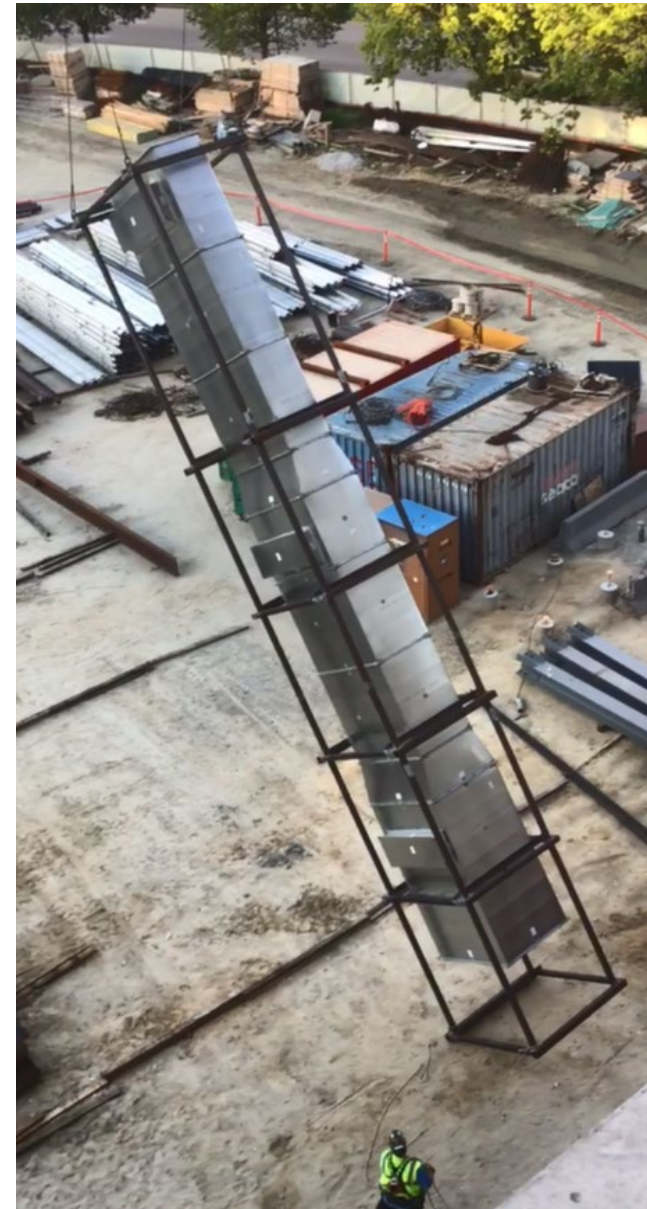
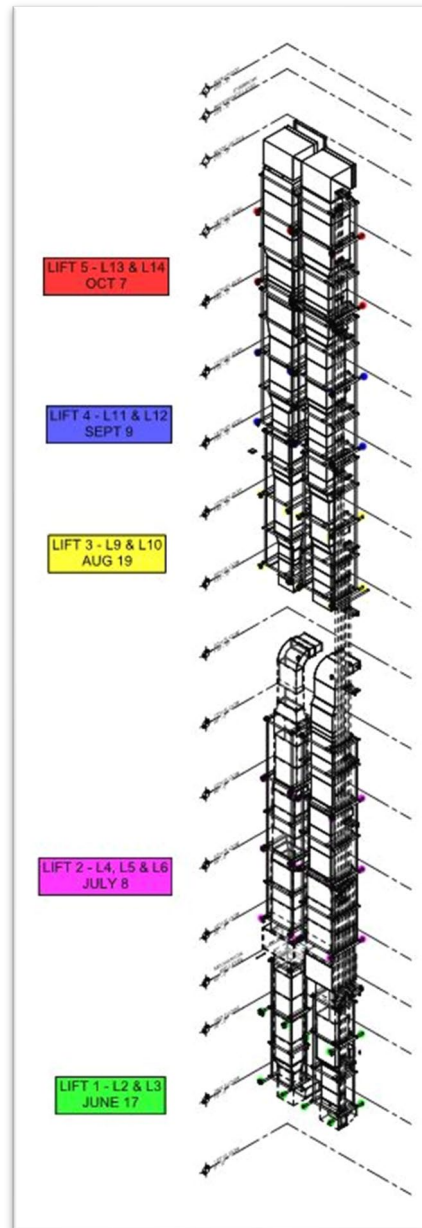


Innovative Fab Solutions – Temporary Facility



- 20,000 SF process piping shop
- 10 mins from project site
- 6-20 orbital welding machines
- Tube bending
- Tig welding capabilities
- Rack fab and assembly

Innovative Fab Solutions – Leveraging Partners

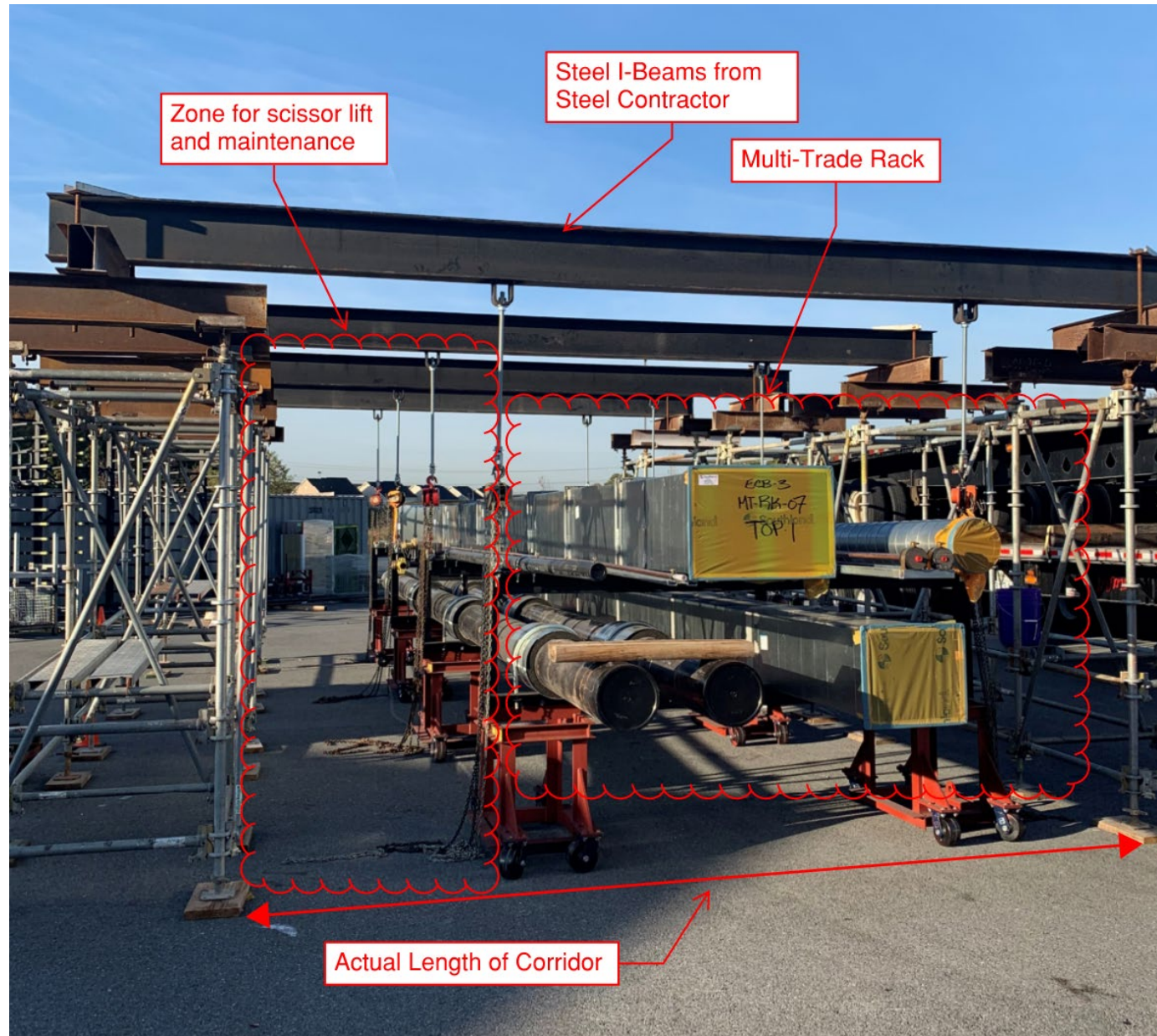


Setting Southland Apart – Manage Trade Interactions



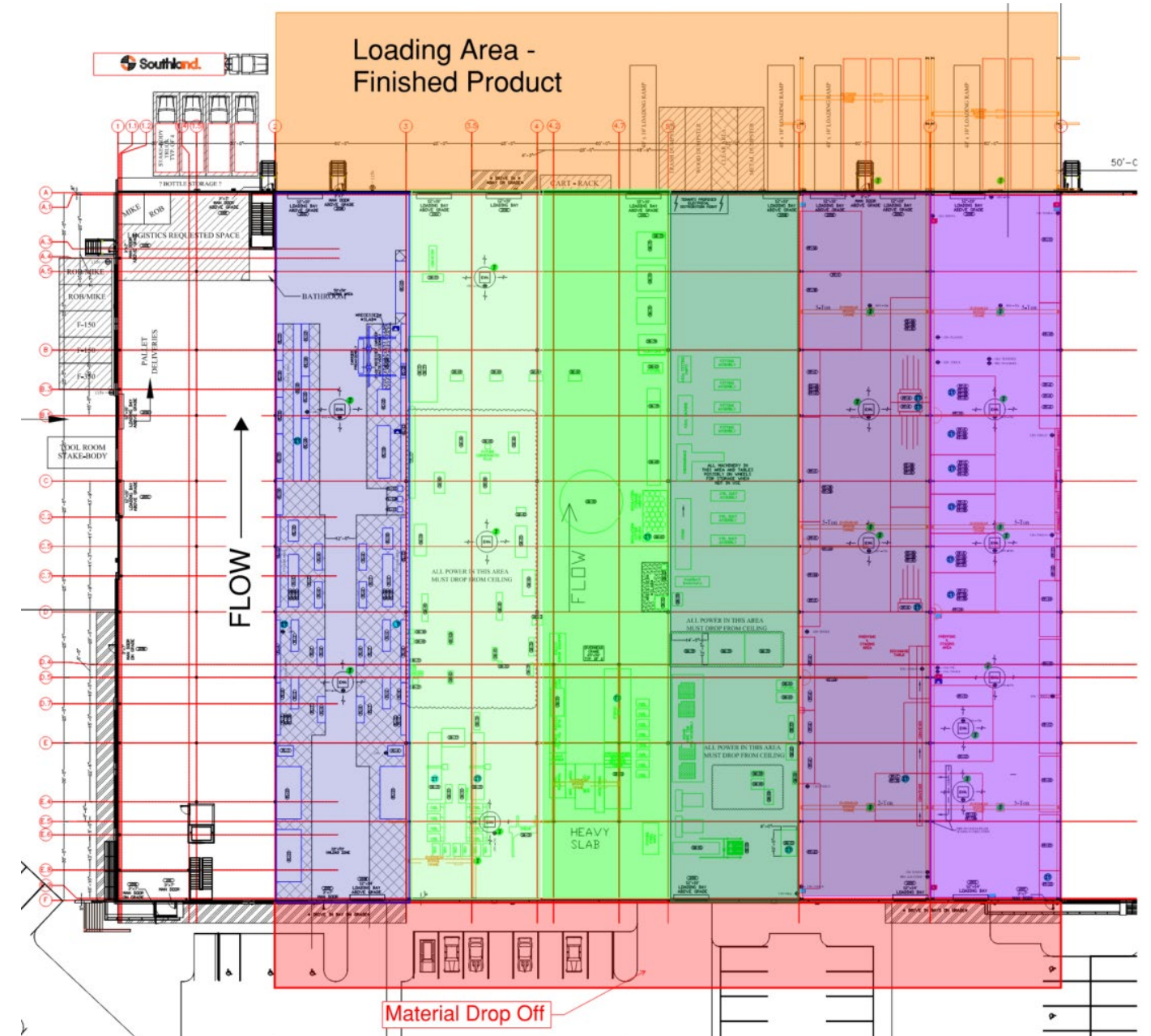
- Know what other trades need
 - What is important to them?
- Work with trades to benefit the collective
- Other Examples:
 - Equipment Skid Electrical Tie-Ins
 - Precast Walls

Setting Southland Apart – Mock-ups to Inform Design



- Use mock-ups to inform design before the design is completed
- Design with maintenance in mind!

Setting Southland Apart – Optimized Flow and Trucking



Setting Southland Apart – Optimized Flow and Trucking



 Southland <small>PHONE (443)451-7700 • FAX (410)242-8180 1000 W. CHERRY ST. SUITE 100, P.O. BOX 100, P.O. BOX 100, P.O. BOX 100</small>	JOB TITLE:	DATE: 8/04/2020	SK-LVL.TR1
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		SCALE: NTS	

Setting Southland Apart – Utilize Kitting

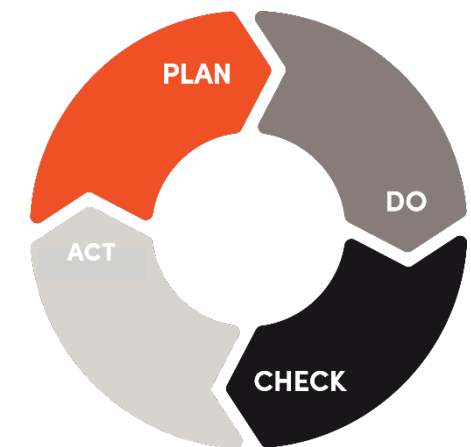


- Less trash on site
- Reduced movement on site
- Less walk/push/pull injuries
- Examples:
 - Plumbing fixture carts
 - Cast iron piping
 - Bolt kits / mechanical couplings

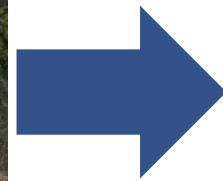
Focus on Continuous Improvement



- Suggestion boxes allow all voices to be heard
- Small changes add up
- Work with our partners, too



Focus on Continuous Improvement



- All changes, no matter how small, will add up over time!
- Do not be afraid to bring in other trade partners

A Rising Tide Raises All Ships



- Wired actuators in shop
- Allowed for early testing
- Saved BAS contractor time
- Didn't touch actuators twice
- Saved over 1,400 labor hours
- Cx - Gained 3 days per area
 - Total of 120 days!

Be open-minded: You can apply this tomorrow!



- **Trade Partners:**
 - Find waste, remove it
- **Designers:**
 - Listen to Trade Partner feedback
- **GCs:**
 - Pick the right partners
- **Owners:**
 - Push for Lean IPD

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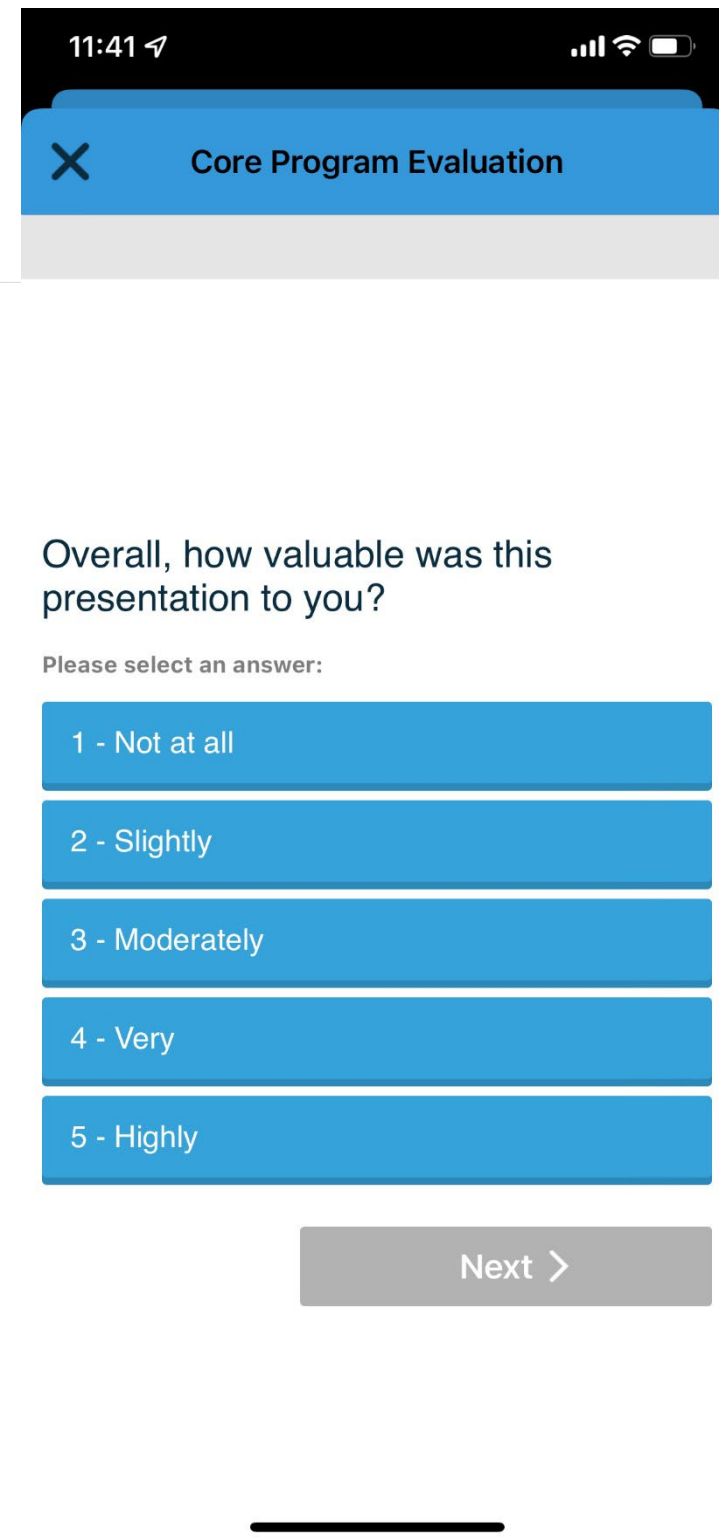
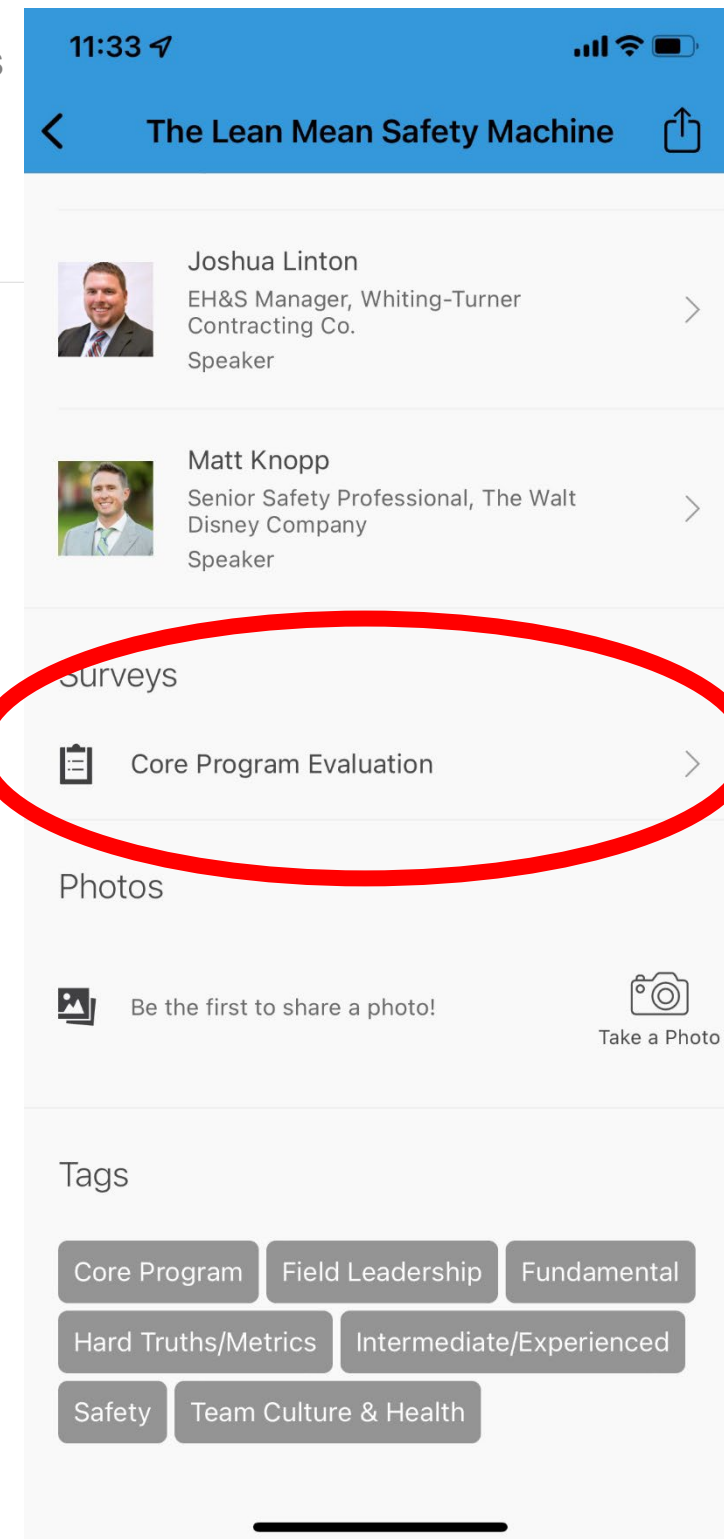


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1. Find the session under “schedule”
2. Click on it then scroll down
3. Click “core program evaluation”
4. Complete the 5-question evaluation

This information will determine the top 5 presentation teams and the top Live Lab





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In the spirit of continuous improvement, we would like to remind you to complete this session's survey! We look forward to receiving your feedback.



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Thank you for attending this presentation. Enjoy the rest of the 24th Annual LCI Congress!

