

24TH ANNUAL



24TH LCI CONGRESS
OCTOBER 18-21

~~Four~~ Five projects in – Cone Health's transformation from “the norm” to True IPD

The Owner: Karin Henderson, RN, MSN, CCRN-K, CENP Cone Health

The Architect: Leslie Hanson, AIA, HKS

The General Contractor: David Wyatt, Brasfield & Gorrie

The Engineer: Jeremy Jones, PE, EDAC, Affiliated Engineers, Inc.

October 20, 2022



Here Today



Problem Statement

- Traditional contracting methods can create a negative and defensive work environment where the owner pays the price for disfunction.
- We have found that a properly executed IPD contract can improve behaviors, outcomes, and quality-of-life for all involved.

Why IPD – How the Owner Launched IPD at their organization



*If you always do what you always
did, you will always get what you
always got.*

—Albert Einstein—

What will it take?



Find your “why”



What is your burning platform?





Aligning our resources and work with our mission: Health Equity in our Community



Comparison of the ~~Four~~ Five projects



5 Projects – Building on the learnings

30,000sf: \$32M



150,000 sf: \$98M



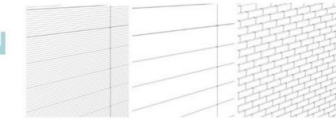
150,000SF: 160M



50,000SF: \$50M

- 60,000 sf Cancer Center in Validation











































JS DESIGN
D TERRACOTTA 5' X 1'
TTA 5' X 1'
BRICK 2X8 RUNNING



200,000sf: \$96M



Five projects - Comparison

Project	Size	Budget	Architect	MEP Engineer	Structural	Civil	GC	Mechanical	Electrical	Plumbing	Drywall	Site
Women's Expansion	200,000 sf	\$96M				Transactional						
Drawbridge	150,000 sf	\$98M										Transactional
Alamance Regional	30,000 sf	\$32M								Transactional		Transactional
Heart and Vascular	150,000 sf	\$160M								Transactional		Transactional
Asheboro Cancer Center	50,000 sf	\$50M										Transactional

- Wide variety of project sizes / clinical intensity
- 9 to 11 signatories, depending on the needs of the project

“Signing Day”



IPD Behavior Change



IPD Contract Highlights

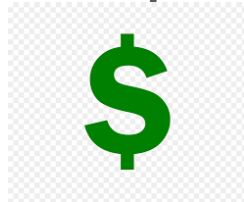
- 9 to 11 Signatories



- “Stretch” Goal



- All costs paid, without profit



- Detailed monthly invoice review



- Team shares profit pool



- Projections, not fees



- Win together or Lose together



IPD Behavior Change

- In a traditional project, everyone is guarding their own interests – Not in an IPD project
 - Win together / Lose together
 - Incentivizes win/win scenarios
 - “OUR” issue
 - Requires increased communication and trust
 - Minimize waste
 - Incentivizes respect for others’ time
 - Get comfortable with others in your business
 - Requires DEEP owner involvement

Most traditional project members would claim they operate as a “team”.

This is actually true in an IPD contract.

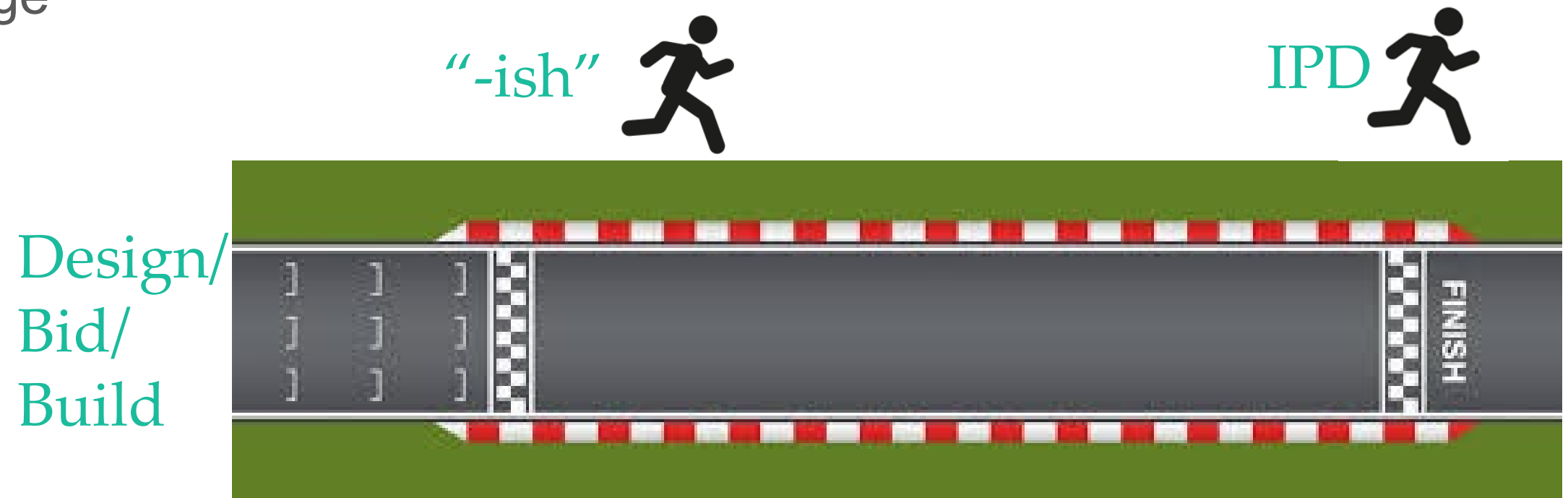


Respect for
people | Team

Pseudo IPD

- Many clients are trying “IPD-ish” , “IPD-lite”, or “IPD without the contract”
 - Steps in the right direction, but....
 - The contract is what creates true behavior change

The ultimate benefits of IPD are driven by the contract

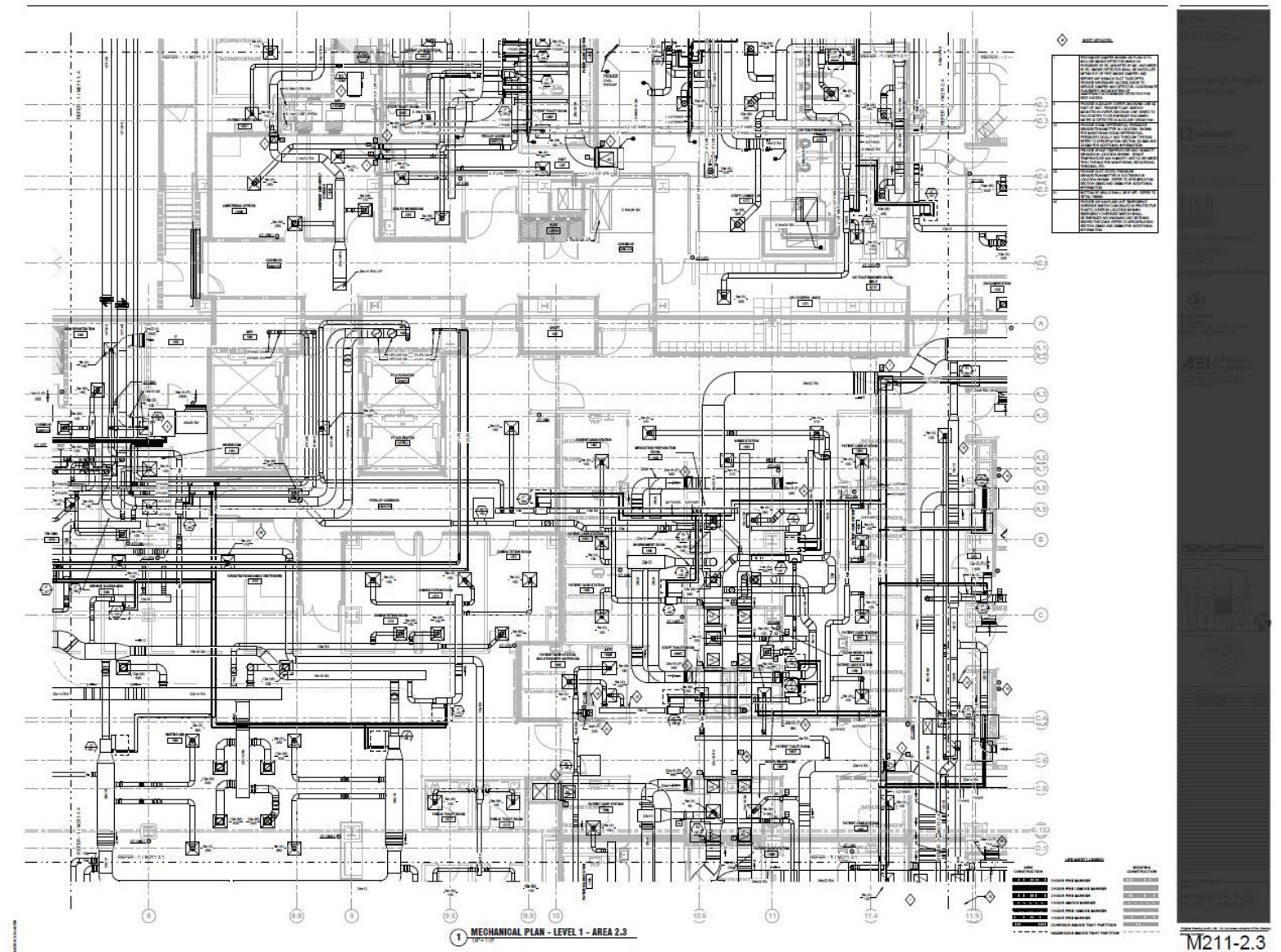


IPD Design Innovation



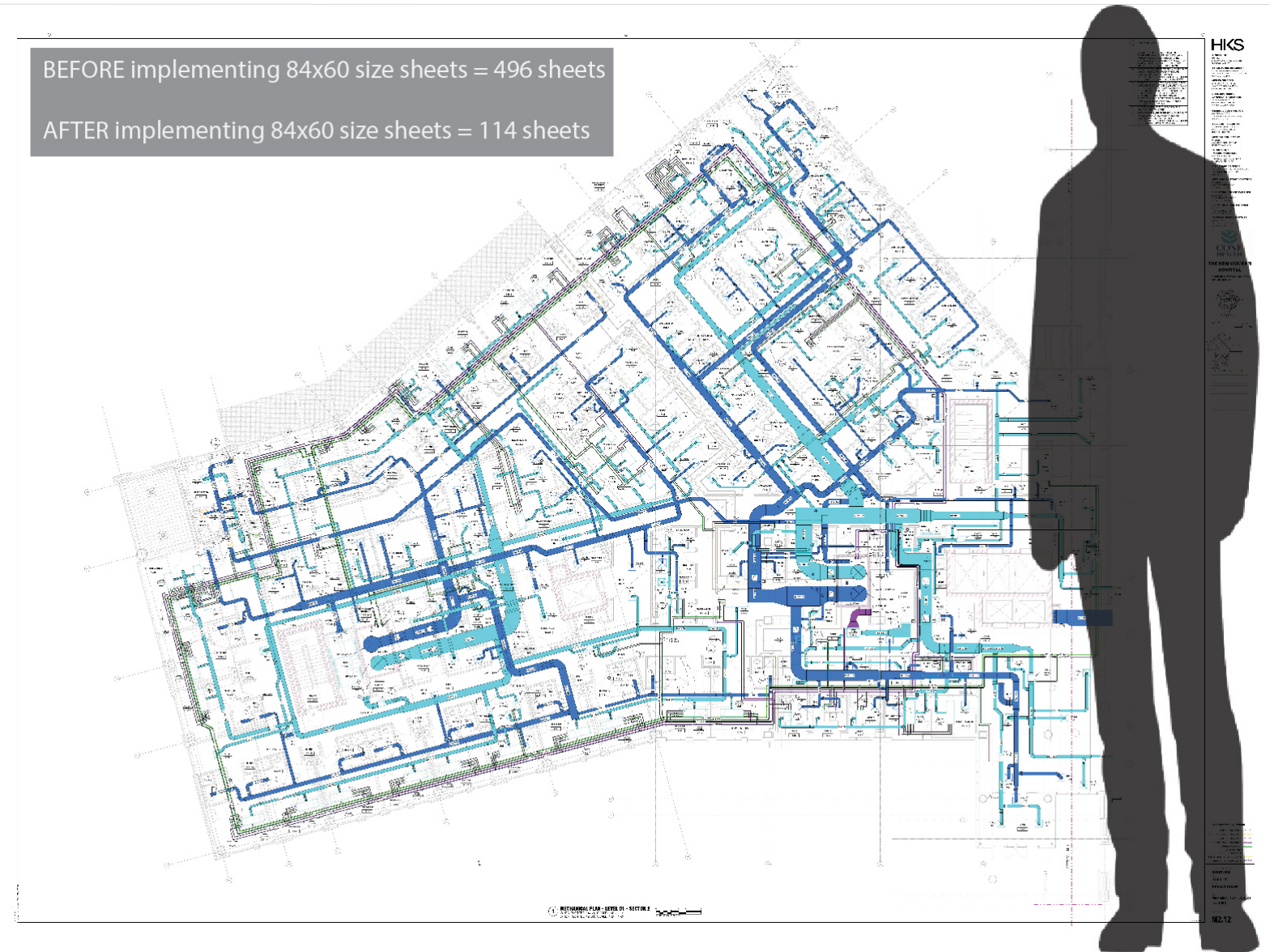
Design Innovation – Drawing Sizes

- Traditional Drawing Sizes – Disadvantages
 - 48 x 32 largest
 - ¼ scale required to show detail
 - Maze of matchlines



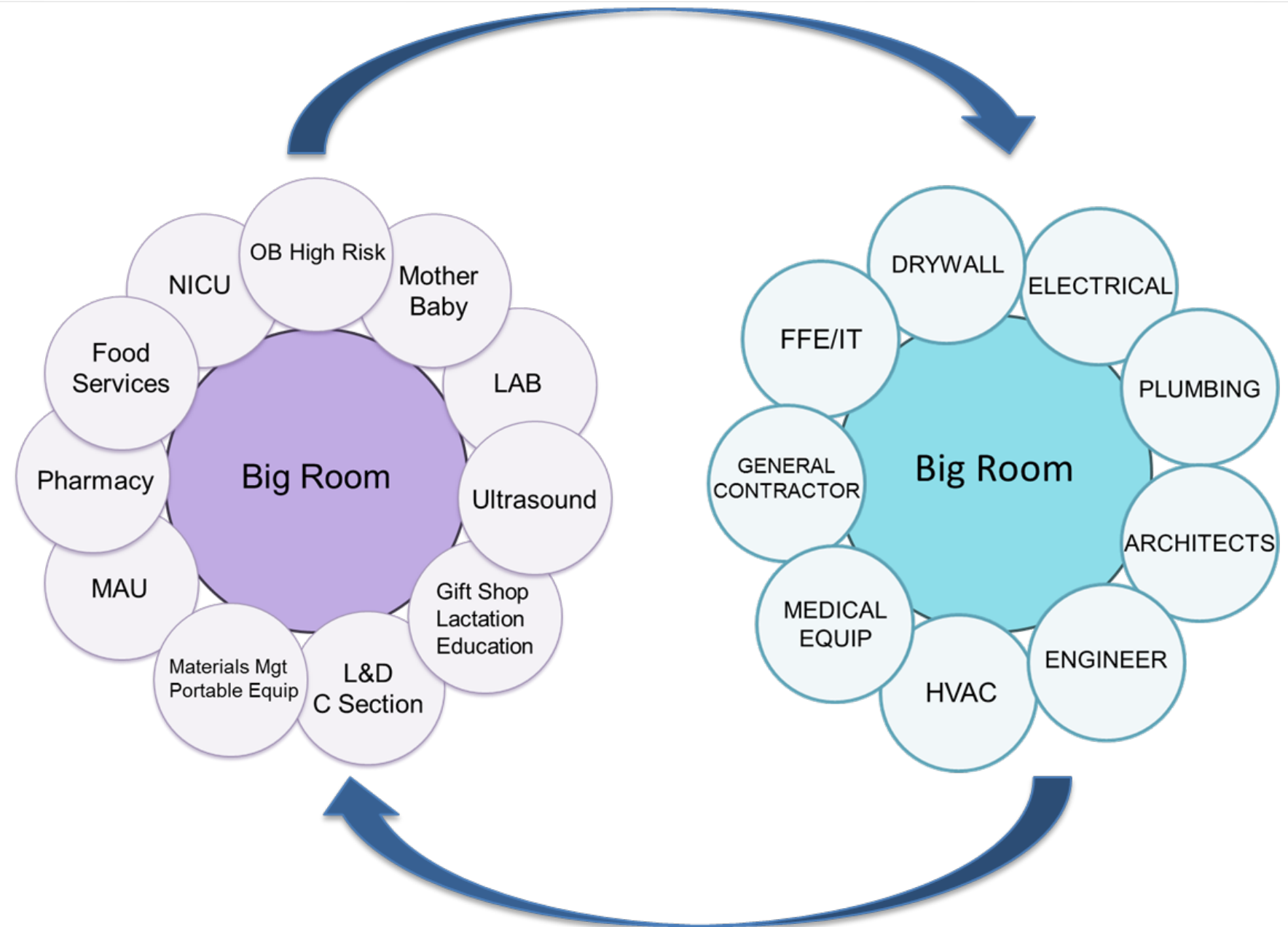
Design Innovation – Drawing Sizes

- Large Format Drawings– Advantages
 - 48 x 32 -> 84 x 60
 - Entire floors on one sheet
 - 496 MEP sheets -> 114
 - MEP system clarity
 - Better as-builts
 - Digital world

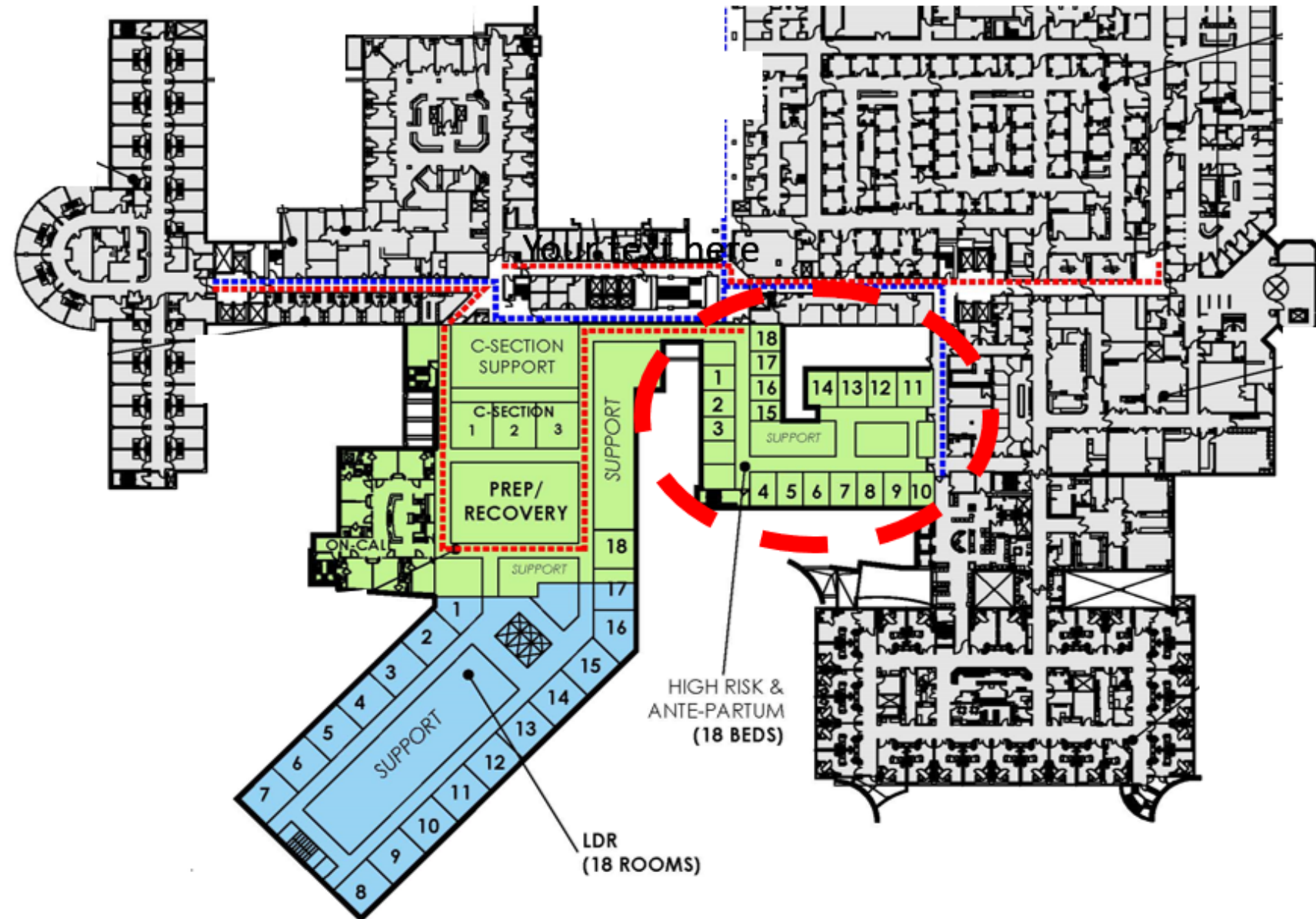


Design Innovation – Communication

- Aligning user engagement with integrated communication



Design Innovation – OB High Risk location



Design Innovation – OB High Risk Original Proposed Location



Design Innovation – OB High Risk location – Future State



Comparative Analysis

Design Innovation – OB High Risk location – Future State

	TUES, DEC 13		WED, DEC 14
	Option B1	Option B2	Option B3 (chosen)
Emergent Patient Flow	-	+	+
• MAU	O	O	
• High Risk	O	O	
Entry to MAU	+	O	+
• Discreet (or not)? Visitor access to units?			
• Common entrance: visitors, everyone flowing into that same space			
Entry into High Risk	O	+	+
Access + Proximity to Ultrasound	-	+	+
Best use of shared space	-	O	+
• MAU	O	+	+
• High Risk	-	+	+
• MAU	O	+	+
• High Risk	O	O	+
Staff Workflow	?	?	+
Outdoor Access for OBHR patients	O	O	+

Design Innovation – OB High Risk location – Value Enhancement

Maximized efficiencies by sharing services, equipment, staff, and resources



IPD Construction Innovation



IPD Construction Innovation

- Analyze every facet of the building and ask “How Can We Improve?”
- Focus on optimizing the whole – not just your trade!
- Open the door to prefab opportunities
- There are no foregone conclusions
- Build trust, push each other and get uncomfortable
- Behavior change - focus on optimizing the whole – not just your trade!

IPD Construction Innovation

- How Can We Improve?
 - **New, alternate product types**
 - Need based design – not CYA
 - Prefabrication opportunities
 - Lean jobsite improvements



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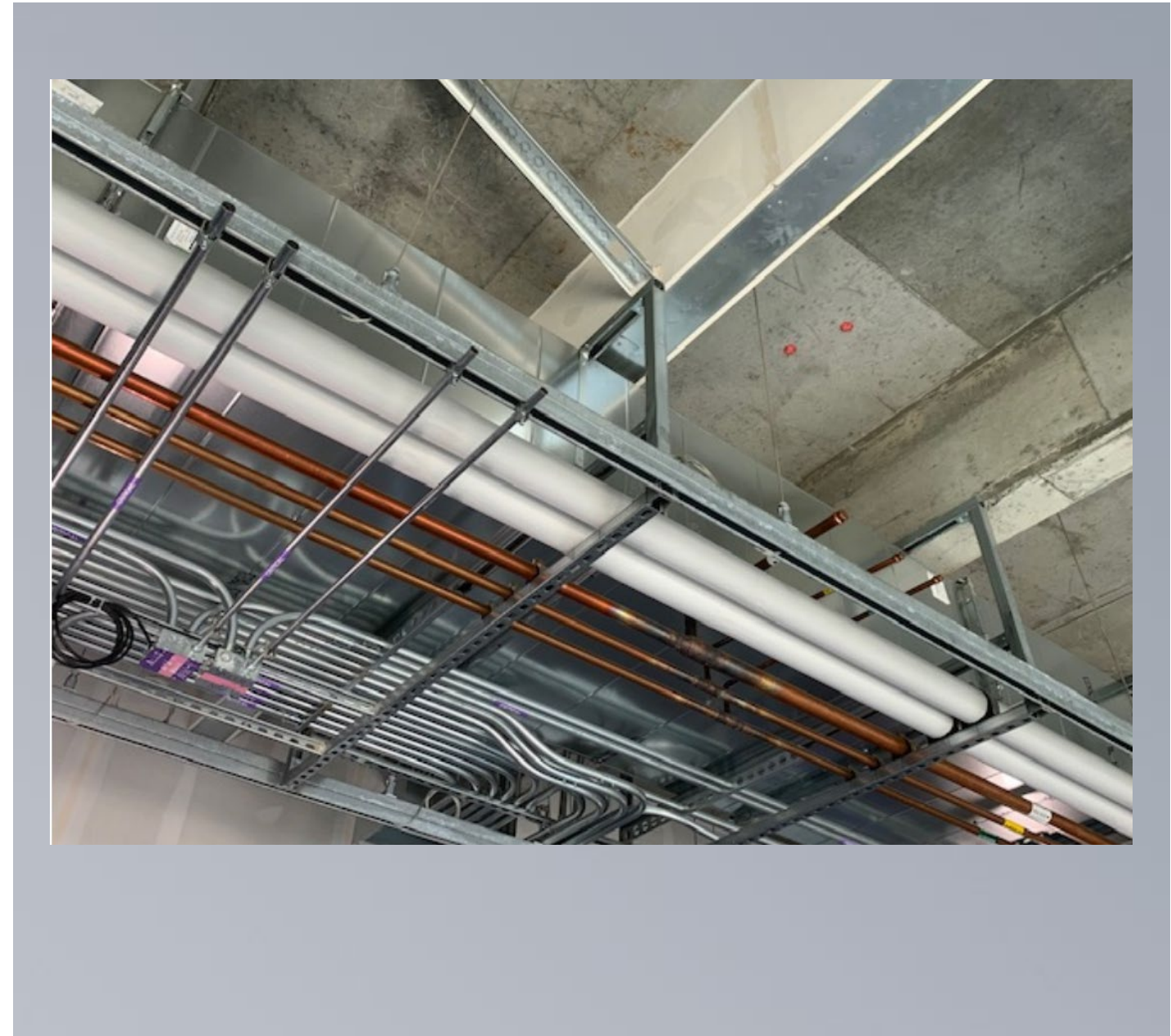
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IPD Construction Innovation

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 - Need based design – not CYA
 - **Prefabrication opportunities – Maximize Value**
 - Lean jobsite improvements



IPD Construction Innovation

- How Can We Improve?
 - New, alternate product types
 - Need based design – not CYA
 - Prefabrication opportunities – Maximize Value
 - **Lean jobsite improvements** - Incentivize the whole project staff, they usually have great ideas



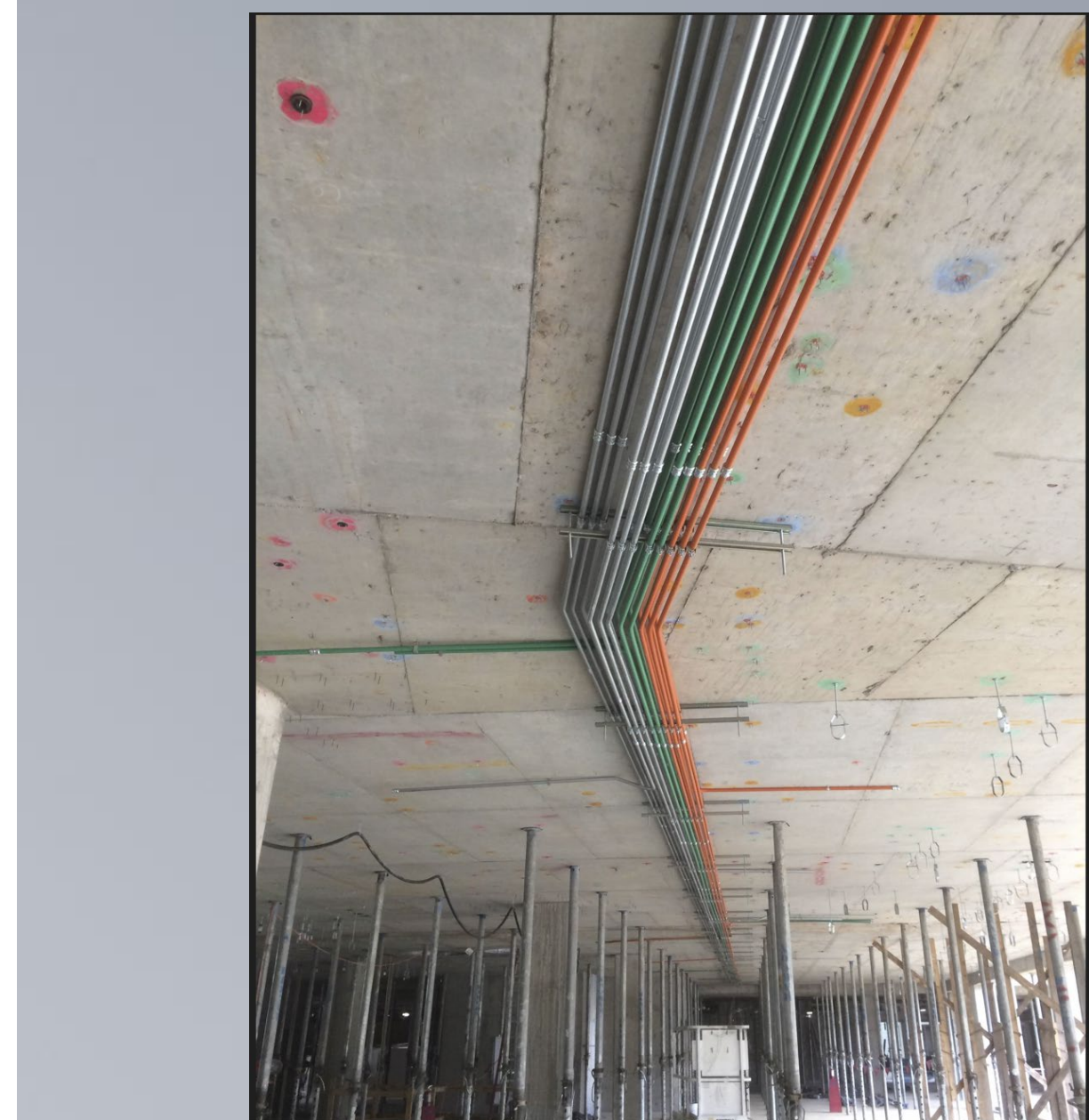
IPD Construction Innovation

- Case Study – Structural Frame
 - 12'-6" floor-floor height for expansion
 - Full engaged partner team
 - Architect
 - Structural Engineer
 - MEP Engineer
 - General Contractor
 - MEP Trade Partners
 - Completed analysis early - during schematic design phase



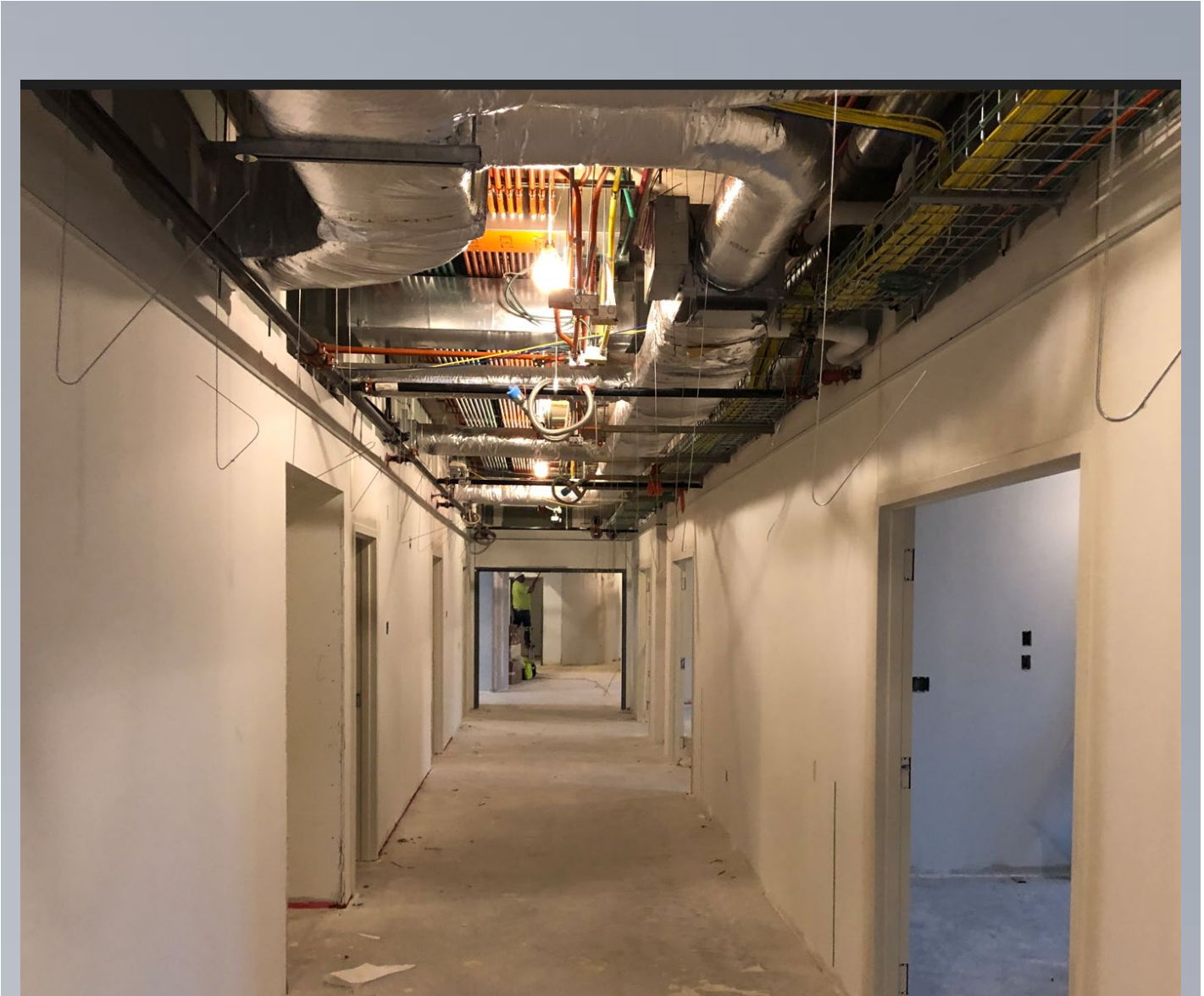
IPD Construction Innovation

- Case Study – Structural Frame
 - Initial cost comparison of steel moment frame vs flat plate concrete
 - Concrete frame too expensive by \$400,000 (roughly \$3.25/SF)
 - MEP partners offered up enough expected labor savings to offset the structure premium
 - This only happens on an IPD delivery – no incentive for traditional subcontractors to offer up savings
 - Optimize the whole, not just the parts



IPD Construction Innovation

- Case Study – Structural Frame
 - End result
 - Additional labor savings beyond expected created cost savings on the project
 - Enhanced ability for prefab elements above ceilings
 - Cleaner above ceiling installation - more easily QC'ed, more accessible for long term maintenance and renovation



IPD Construction Financials



Construction Financials – IPD Projects

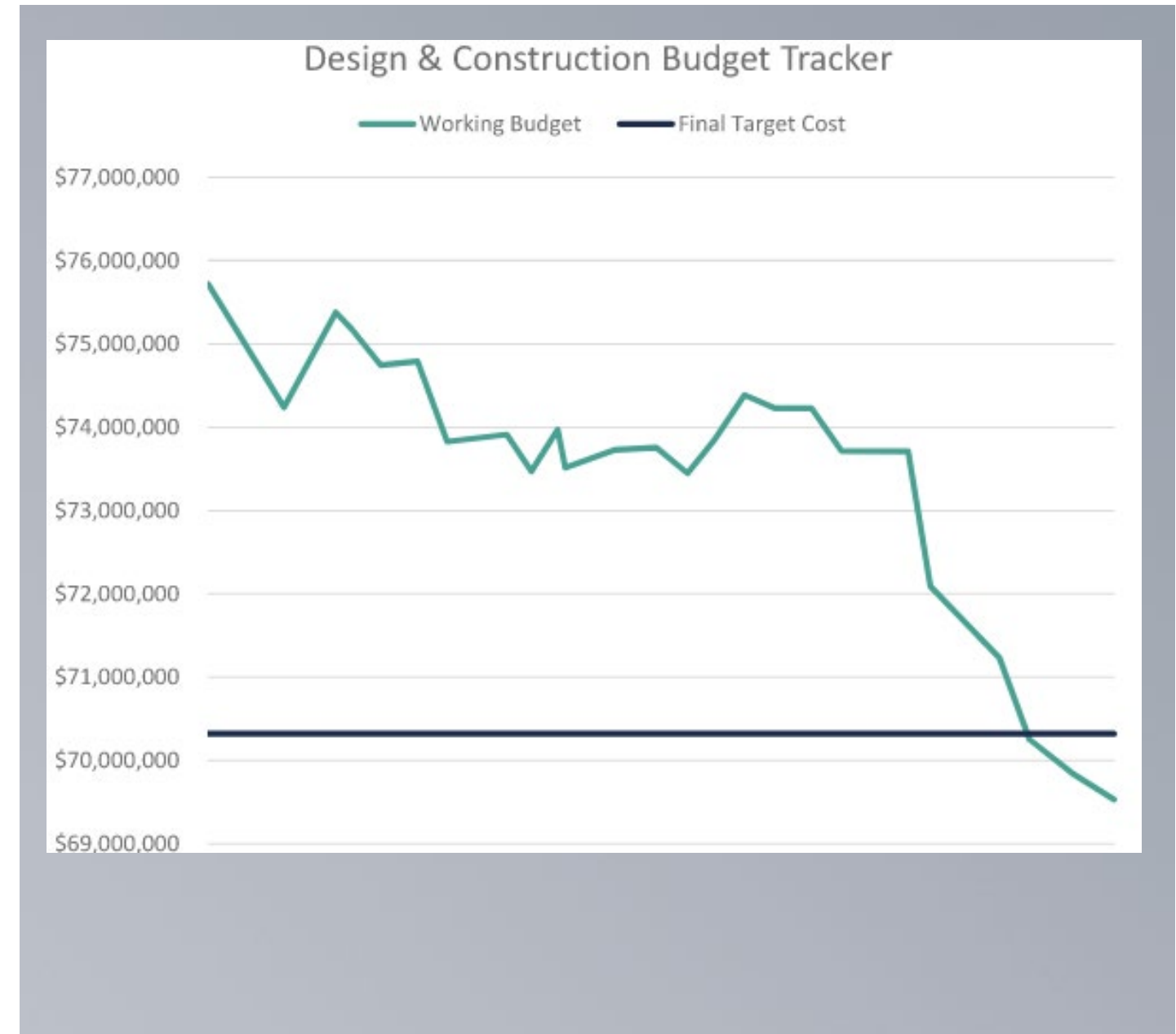
- Open and accessible – from conceptual phase through project completion
- Rapid feedback for option evaluation
- One shared bank account for the whole team
- Don't reinvent the wheel
 - ...but you may need to find different tires that fit!

Construction Financials – IPD Projects

- **Open & Accessible**

- Smartsheet, Egnyte, Google Sheet, etc.
- Regular reviews
- Monthly, bi-monthly or quarterly deep dives
- Risk tracking is critical – keep your head out of the sand and get it on the table
- Get comfortable with the forecast changing
- Make sure everyone understands!

Cluster Name	Interior	MEP	Sitework	Structure & Exterior
Original Target Reduction	\$1,455,745	\$3,386,947	\$1,085,853	\$3,026,388
Remaining Target	\$1,068,091	\$3,647,997	\$920,606	\$3,053,628
Target Achieved	\$387,654	-\$261,050	\$165,247	-\$27,240
% Target Achieved	26.63%	-7.71%	15.22%	-0.90%



Construction Financials – IPD Projects

- **Rapid Cost Feedback**
 - Need continuous feedback for design team
 - Evaluate options as a team – A3s and CBAs, drive best outcomes
 - Utilize best available information – can’t wait for CD’s!
 - Doesn’t stop when construction starts – continues through life of project

A3 No.	Title	Revision	Champion	Date Started	Collaborators	Reviewer	Approved By:	Approved Date:	Status
1	MC H&V Site Selection		Tim Ott	11/15/21	MC H&V Validation Team, Karin Henderson and Heather Brazell	MC Sr. Mgmt.			<input checked="" type="checkbox"/> Development <input checked="" type="checkbox"/> Collaborative Review <input type="checkbox"/> Implementation

Section 1 – Background

The Moses Cone Heart & Vascular Validation Team was tasked to study viable alternatives to site the new building in an effort to identify best value and support the Conditions of Satisfaction. The most efficient building footprint size identified based on desired services and programming is larger and no longer fits in the configuration that was originally presented in the master plan. A Choosing By Advantages approach was used to identify advantages each alternative offers compared to the Future State objectives and present to Senior Leadership for review and support the team recommendation.

Section 2 – Problem Statement/Current State

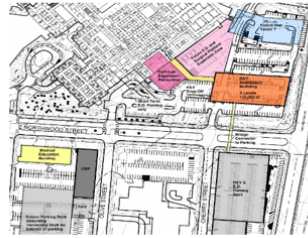
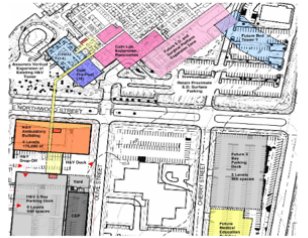
- The team is starting Validation and needs a decision on siting to complete the validation phase
- There are two (2) alternatives under consideration for the site:
 - 1. east of the existing building outside ED
 - 2. across the street replacing the Black Box building
- There was a 3rd alternative that was considered but deemed not viable due to extensive site constraints limiting the allowable footprint sizes for the H&V Building and parking deck rendering them inefficient. There was also the inability to make direct connections back to the hospital (Cath Labs).
- The team conducted a CBA (Choosing by Advantages) to help determine the best alternative based on facts and advantages
- What else do we want to say to give some background & context????

Section 3 – Future State/Goal

The CBA exercise used the Conditions of Satisfaction as a reference in establishing the Factors and Criteria needed for making the decision:
CONDITIONS OF SATISFACTION

- 1. Flexibility for future growth: ED, Surgery, Heart, potential future bed. Acknowledge future shift of inpatient to ambulatory.
- 2. Logical phasing/speed to market
- 3. Operational synergies and connectivity
- 4. Ability to accommodate the Cath Lab short term growth needs
- 5. Ability to accommodate CEP short and long term growth
- 6. Distinct identity for Heart & Vascular program
- 7. Minimize disruption to existing campus during construction: parking, utilities
- 8. Patient Experience/Engagement: ease of access and intuitive wayfinding, Ease of accessibility, pedestrian circulation and parking.
- 9. Optimal value
- 10. Physician and staff experience: ability to positively influence operational efficiencies.
- 11. Access to green space
- 12. Options for future bed tower and campus growth (weighted heavier)
- 13. Positions to service lines to deliver state-of-the-art care and plans for future technologies

Section 4 – Analysis

The two (2) alternatives under consideration are:
Alternative 1 - on campus

Alternative 2 - Black Box


The CBA analysis using the Conditions of Satisfaction is as follows:

	Site 1 Masterplan (attributed)	Site 2 Black Box (attributed)		Site 1 Masterplan (attributed)	Site 2 Black Box (attributed)
1	Factor: Flexibility for future growth Criteria: Most available acute care area adjacent to diagnostic & treatment (ED and future bed tower) advantage	85,000 SF 195,000 SF 110,000 SF	6c	Factor: Distinct Identity for H&V Criteria: Visibility from number of public streets advantage	2 streets 3 streets 1 additional street
2	Factor: Phasing / Speed to Market Criteria: Less time/phasing is better advantage	8.20.2025 05.15.2025 3 Months sooner	7a	Factor: Minimize campus disruption during construction Criteria: Construction disruption to existing building entrances is minimal. advantage	3 entrances 1 entrance 2 fewer entrances
3	Factor: Operational Synergies and Connectivity Criteria: Maximizes sharing existing infrastructure (more sharing is better) advantage	Shared Dock No Shared services Shared Service	7b	Factor: Minimize campus disruption during construction Criteria: Construction disruption to existing parking displaces the least. advantage	774 parking spaces (ED & Church & 1/2 Black box) 397 parking spaces (blackflow only) 177 fewer spaces
4	Factor: Accommodate Cath Lab short & long term growth Criteria: Provides most flexibility for Cath Lab long term campus growth advantage	unknown unknown	7c	Factor: Minimize campus disruption during construction Criteria: Quantity of utility shuts downs is minimized. advantage	4 of shutdowns (power, air handler, fire pump, and water main) 1 of shutdowns (fire pump) 3 less
5a	Factor: Accommodate CEP short term growth Criteria: Shortest current utility pathway advantage	650 lin ft. 325 lin ft. 325 shorter	8	Factor: Patient Experience Criteria: Shortest distance from drop-off to parking advantage	Approx. 225 ft (across public road) Approx. 80 ft 125 less
5b	Factor: Accommodate CEP long term growth Criteria: Shortest future utility pathway advantage	unknown unknown	9	Factor: Physician and Staff experience/operational efficiencies Criteria: Shortest distance between Cath Lab and Clinics advantage	340 ft (min, w/ added length for vertical circulation) 220 less
6a	Factor: Distinct Identity for H&V Criteria: Separate and distinct H&V entrance from other entrances (Feet from existing entrances) advantage	315' 725' 410' further	10a	Factor: Access to green space Criteria: Shortest distance to green space access advantage	0 ft 115 ft (across public road) 115 less
6b	Factor: Distinct Identity for H&V Criteria: Does the building site have a unique address? advantage	No Yes	10b	Factor: Access to green space Criteria: Amount of green space is greater. advantage	1.15 acres 35 additional 0.60 acres
				Total Advantages	4 10
				Cost	\$ 2.5 Million less

The results of the CBA indicate Alternative 1 has four advantages and Alternative 2 has ten advantages.

Section 5 – Proposal

The Collaborators on this exercise recommend Alternative #2 (Black Box location) given it has 10 advantages vs. 4 advantages and it's also estimated to be \$2MM to \$5MM less cost.

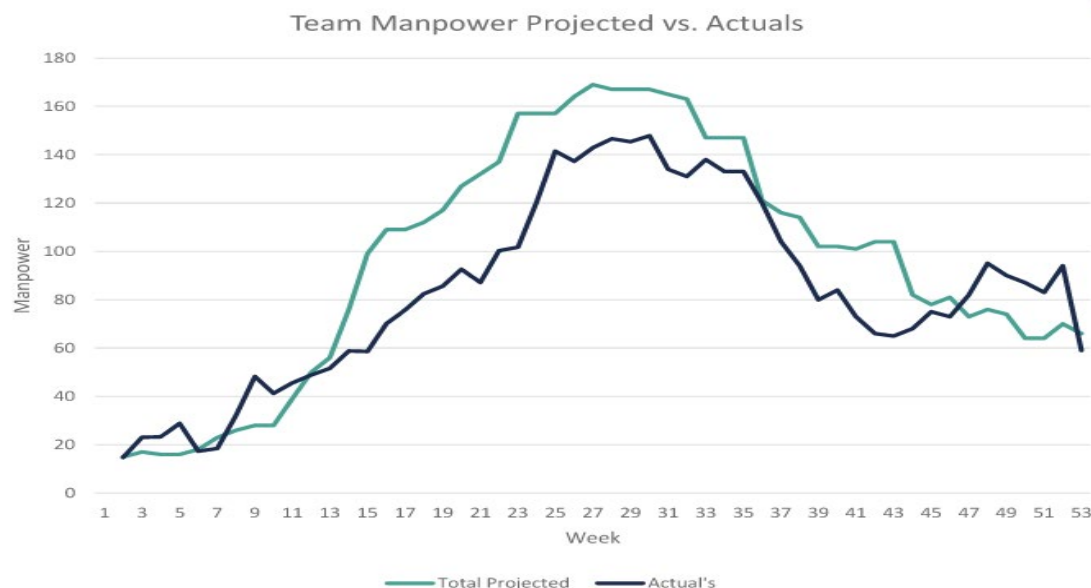
Section 6 – Follow up

The team is requesting support from Senior Mgmt. to move forward with Alternative 2 for the Validation Phase.

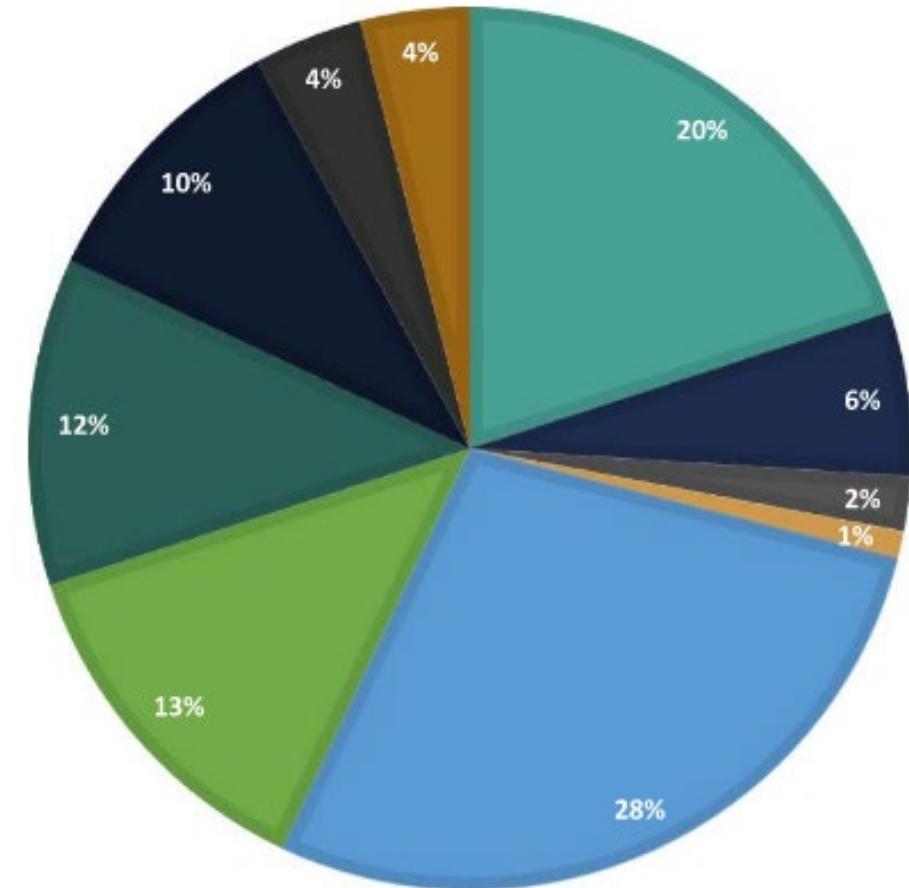
Construction Financials – IPD Projects

- **One Shared Bank Account**

- When the contract is signed, we're all in it together! If you don't have team trust by now, you better get with it.
- Overruns, savings, or scope gaps all belong to the entire team
- Forecasting cost at completion is critical - for both construction & design partners



STRETCH GOAL & INCENTIVE COMPENSATION



Construction Financials – IPD Projects

- **Don't Reinvent the Wheel**
 - Everyone has different accounting and cost management systems
 - Can't retool everyone for each project
 - Have to find consistent format for reporting that works for each partner – keep it simple but make it effective
 - Need to know where you stand at all times!

		FTC Budget 05/02/22	Budget Update 06/08/22	Budget Update 06/22/22	Budget Update 07/06/22	Budget Update 07/20/23
Cone Health - ARMC H&V and Norville						
020	Design	\$ 1,902,667	\$ 1,902,667	\$ 1,902,667	\$ 1,902,667	\$ 1,902,667
020.2010	CPL	\$ 1,002,912	\$ 1,002,912	\$ 1,002,912	\$ 1,002,912	\$ 1,002,912
020.2020	Dewberry Prior Spend	\$ 67,755	\$ 67,755	\$ 67,755	\$ 67,755	\$ 67,755
020.2040	MEP Eng. (AEI)	\$ 832,000	\$ 832,000	\$ 832,000	\$ 832,000	\$ 832,000
040	Construction	\$ 24,157,880	\$ 24,420,050	\$ 24,322,135	\$ 24,584,885	\$ 24,362,412
040.4000	Cardboard City	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
040.4062	Building Construction (B&G)	\$ 12,879,806	\$ 12,975,078	\$ 12,975,078	\$ 12,975,078	\$ 13,027,078
040.4072	Mechanical Partner - McKenneys	\$ 4,663,445	\$ 4,691,168	\$ 4,707,791	\$ 4,707,791	\$ 4,693,780
040.4073	Electrical Partner - Adams	\$ 3,722,085	\$ 3,722,085	\$ 3,722,085	\$ 3,722,085	\$ 3,722,085
040.4075	Drywall Partner - Precision Walls	\$ 1,738,879	\$ 1,738,879	\$ 1,738,879	\$ 1,738,879	\$ 1,738,879
	Escallation	\$ 616,798	\$ 616,798	\$ 616,798	\$ 616,798	\$ 616,798
	Contingency	\$ 201,742	\$ 201,742	\$ 201,742	\$ 201,742	\$ 201,742
	Risk / Opportunity Log	\$ 435,125	\$ 424,300	\$ 309,762	\$ 572,512	\$ 312,050
	Stretch Goal	(\$150,000)				
Totals	New Building	\$ 26,060,547	\$ 26,322,717	\$ 26,224,802	\$ 26,487,552	\$ 26,265,079
	(over)/under	\$0	(\$262,170)	(\$164,255)	(\$427,005)	(\$204,532)

IPD Design Team Financials

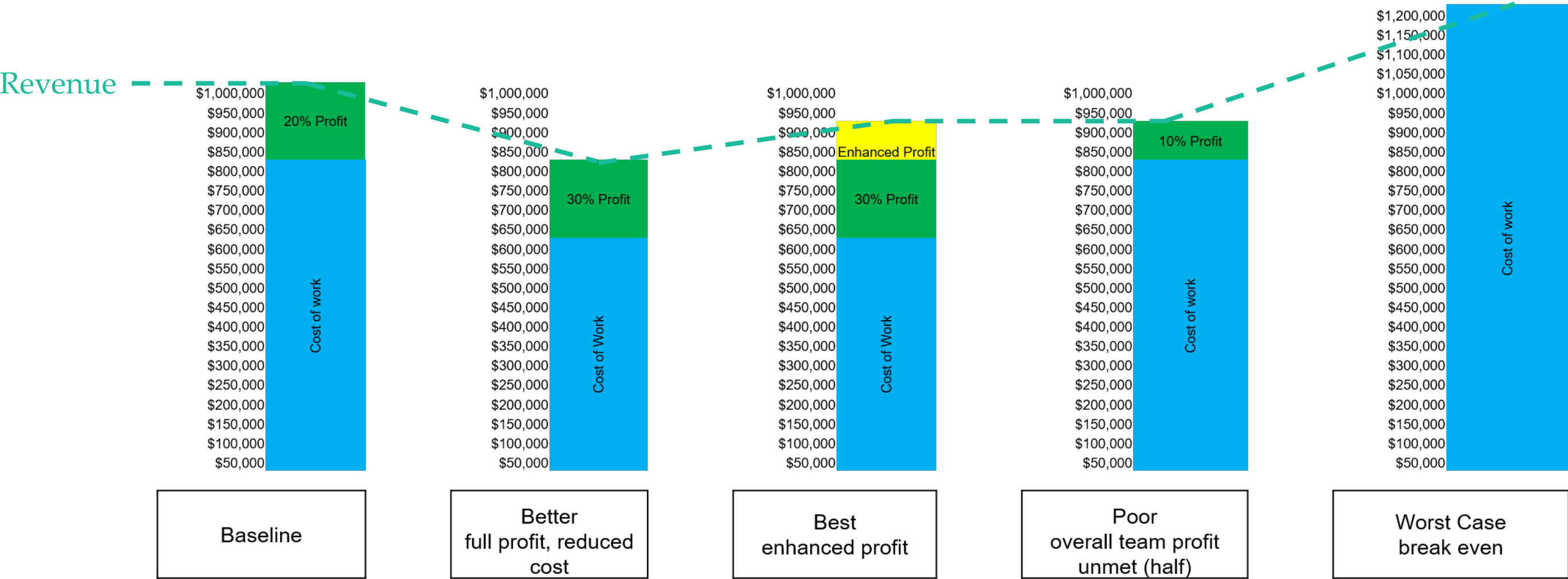


Design team financials (Traditional)

Revenue



Design team financials (IPD)



Design team financials

Which drives your business?

- Predictability of revenue – Traditional makes more sense
- Project profitability – IPD makes more sense
 - The design team WANTS to give fee back!

What worked and what didn't



Legitimate concerns with IPD

- Not all IPD contracts are created equal
 - “Cost Caps” would impact behavior
- At the mercy of others’ performance
- Unethical partners would reduce quality
- **Absolutely** requires like-minded partners
- Requires **very high** owner involvement
- Profit is back-loaded
- High PIC/PM involvement

Common theme:
**Pick the right
partners**

What didn't work

1) Onboarding results mixed

- *Example* – Transactional vs Partners

2) Opportunities exist for shared resources

- *Example* – Should have used single firestopping contractor

3) Quality is everyone's job – See something, say something

- *Example* – Expansion Joint

4) Project problems are Team problems

- *Example* – Expansion Joint



What didn't work

5) Users may not understand floor plans

- *Example* – Wardrobes

6) Need to utilize SMT / PMT Structure

- *Example* – Did not take advantage of SMT

7) Definition of scope / what is out of team's control

- *Example* – LDR Isolation Panels

8) Timing of target cost

- *Example* – Too soon or too late both cause challenges



What DID work – the highs

- There was no finger-pointing on the project – the entire team worked together to solve problems
- Stayed with early decisions and documented those decisions well
- The innovative structural design contributed to field efficiencies
- Early risk assessment went well especially related to DOH issues
- Scope and program were defined early
- Solutions were focused on the best interest of the project and not trade or discipline
- CA collaboration with site superintendent and submittals went very well
- The team was comfortable sharing cost information
- The team provided accurate forecasting and not a lot of sandbagging

How can you apply this tomorrow?

- *Owners – Find a project opportunity and try out an IPD arrangement*
- *Designers – Prepare by aligning with partners you can trust*

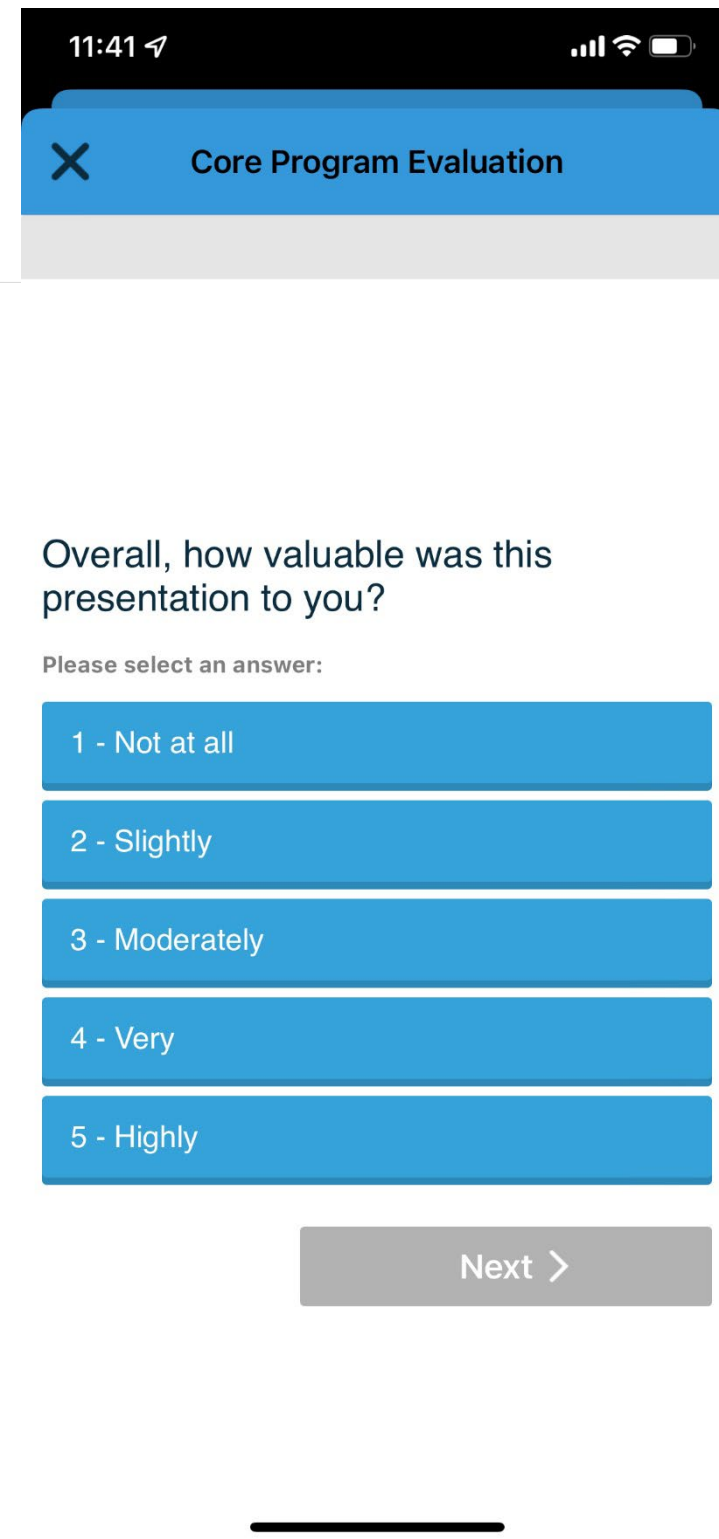
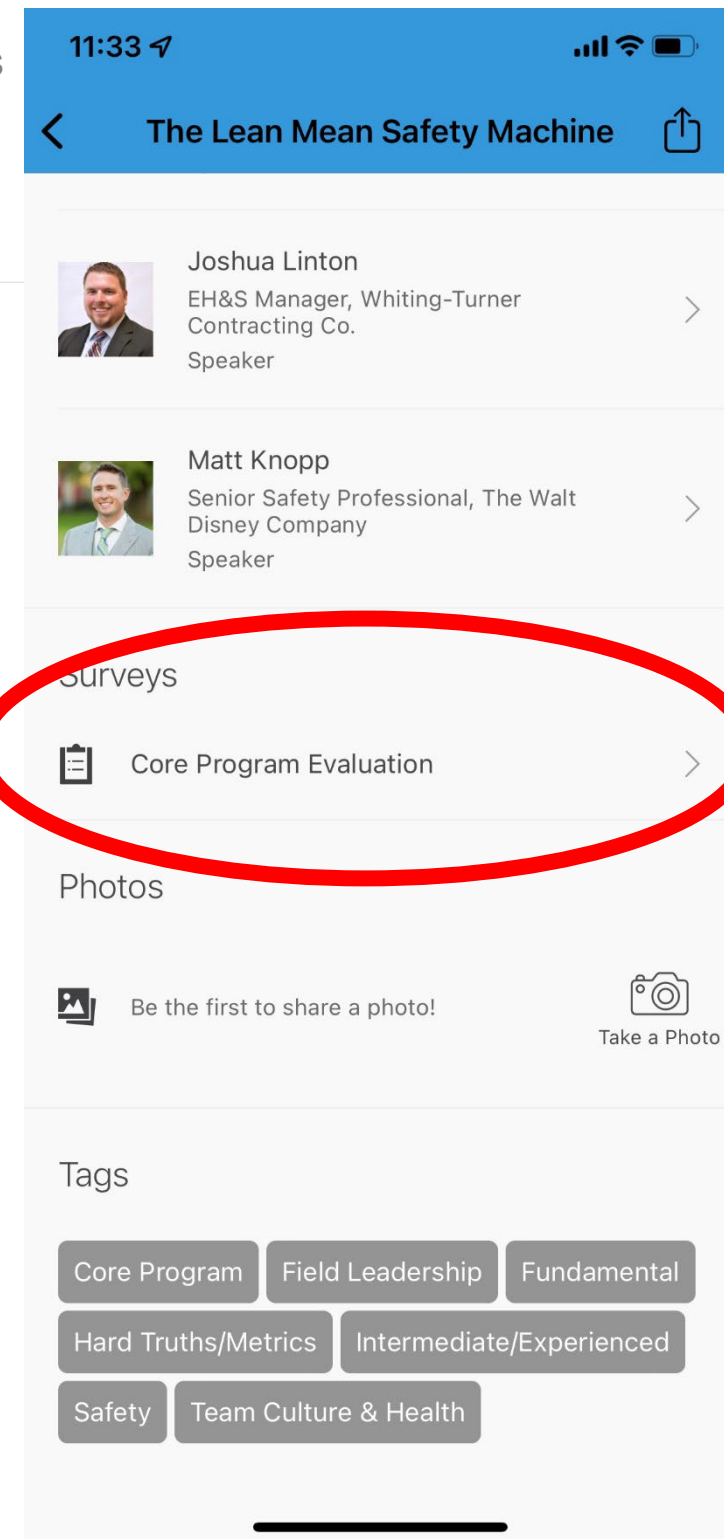
TRUST!

Rate Presentations in the App

Continuous improvement: give presenters your feedback by taking the session evaluation!

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.



Contact Us

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

