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THE PACE OF CHANGE IS CHANGING:

- Technology





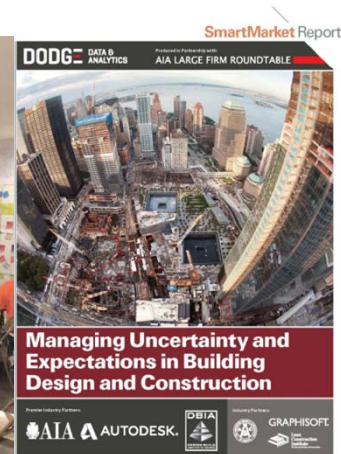
THE PACE OF CHANGE IS CHANGING:

- Built Environment



THE PACE OF CHANGE IS CHANGING:

- Process Awareness And Advancement



SmartMarket Report									
DODG DATA & ANALYTICS AIA LARGE FIRM ROUNDTABLE									
Managing Uncertainty and Expectations in Building Design and Construction									
Sponsors: AIA AUTODESK DBTA GRAPHISOFT									
Scores									
Team Outcomes					Building Outcomes				
Aligned Goals	Effective Communication	Decisions/Quality	Collaboration	Team Capability	Build Impact	Design includes Innovative Technology	Contribution to advancing sustainable technology	Impact of scope refinement	Cumulative AIAA Quality Performance
8.31	8.60	8.68	8.25	8.80	8.30	4.68	2.00	3.38	3.05
7.49	7.69	7.84	7.38	7.31	7.38	5.58	3.44	3.00	2.30
7.70	8.00	8.05	7.92	8.40	2.42	2.00	3.17	2.00	3.10
7.87	7.87	8.11	8.11	8.28	2.40	2.00	3.00	3.00	2.80
7.55	7.67	7.99	7.98	8.00	1.87	8.00	3.41	2.05	2.70
8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58
Overall Project Success									

COMPLEXITY

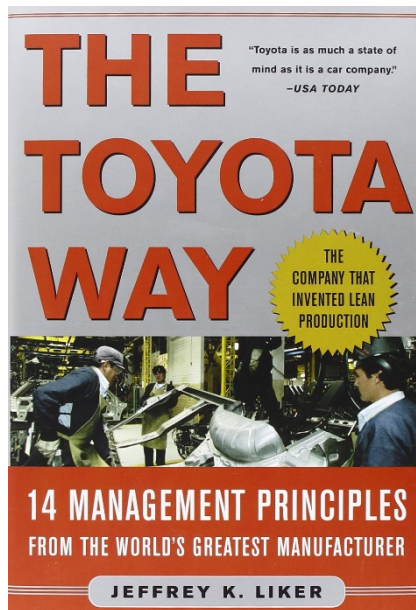


COMPLEXITY

- Harness and Manage Uncertainty
- Powering Our Teams
- Think Differently



Lean – THE TOYOTA WAY
– 4 P's



1. Long term philosophy and purpose even at the expense of short term financial gain
2. The right process will yield the right results
3. Add value to your organization by developing people and partner
4. Continuously measure performance, solve problems at the root to drive organizational learning

Lean – STEVE SPEAR



**THE
HIGH-VELOCITY
EDGE**

- Build a system of “dynamic discovery” designed to produce ultra-high-speed learning
- Attack and solve problems when and where they occur
- Disseminate knowledge throughout the company
- Create managers invested in developing everyone’s capacity to continually innovate and improve

GILBANE LEAN

1. People First! A Culture of Values and Value
2. Effective Processes and Systems
3. Swarming and Solving
4. Sharing Knowledge and Value Effectively
5. Leadership: Coaching & Focus on Continual Improvement

Personal

**Project
Teams**

**One
Company**

We advance
at the speed of learning AND sharing:
FROM ONE TO MANY



FROM ONE TO MANY: **HOW?**

FROM ONE TO MANY: HOW?

Some stuff happens anyway

- “Heard it through the grapevine”
- Leading edge conferences and periodicals

FROM ONE TO MANY: HOW?

Creating an organization and systems for sharing and learning

- Business Consulting Group
- Innovation Portal and Innovation Awards

Idea to Innovation to Transformation

Introducing the Innovation Center of Excellence

Search by Benefits



All Ideas	Ideas that benefit Gilbane	Ideas that benefit Gilbane Clients	Ideas that benefit Gilbane Employees
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Porting Laser Scanner Panoramas to HTML page with Autorotation and Control.	2/29/2016	Gilbane,Client	★★★★★ 1 Comments
Bluebeam to iBuild X2 Integration	2/23/2016	Gilbane,Client,Employee	★★★★★ 2 Comments
iBuild Viewer - Programming & Troubleshooting	2/5/2016	Gilbane,Client,Employee	☆☆☆☆☆ 0 Comments
Federal Facilities US and International adoption of Technology Tools	2/5/2016	Gilbane,Employee	★★★★★ 1 Comments

FROM ONE TO MANY: HOW?

Creating an organization and systems for sharing and learning

- VDC Team Nodes and Peer Group
- Centers of Excellence and Peer Groups

COMPANYWIDE PEER GROUP VDC MANAGERS

PEER GROUPS PURPOSE AND VALUE

- LEAN: COLLABORATE
- SHARE KNOWLEDGE + INNOVATIONS = 1 COMPANY
- DEVELOP POLICIES
- IDENTIFY + EXPLORE
- IDENTIFY + SHARE VALUE-ADDS

CLIENT ADVOCACY / CONTINUOUS IMPROVEMENT

BEST PRACTICES

TRAINING

ANTICIPATE + PLAN

BRAND GILBANE

Core Values

- Integrity
- Toughmindedness
- Teamwork
- Dedication to Excellence
- Loyalty
- Discipline
- Caring

FROM ONE TO MANY: HOW?

Creating an organization and systems for sharing and learning

“There’s an app for that”

- Powerbase
- iBuild platform



FROM ONE TO MANY: HOW?

Creating an organization and systems for sharing and learning

- Playbooks

Welcome to the playbook!

The chapters can be navigated below, to the left, or along the top.
This is an interactive web-based playbook.

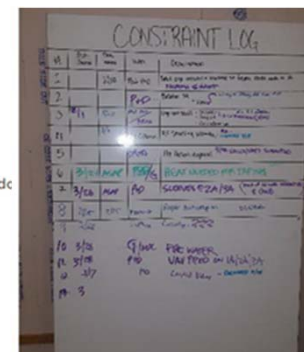
Playbook Chapters



To share your ideas and experiences and keep this playbook a living document, click the share button below.



Click here to
share!



FROM ONE TO MANY: HOW?

Creating an organization and systems for sharing and learning

- Hackathons
 - All volunteer
 - Employees sharing with each other; special guests
 - Practical outcomes: Playbooks, A+ Player guidance

Enter an Entry ID: [View Entry](#) [Edit Entry](#) Entries to Date:15239

News



POWERBASE
is Powering Excellence

Our next **Hackathon** will be on advancing our capabilities for expediting and material tracking.

Do you want to see what some of our **A players** have already contributed?

Do you want to submit your own tips and techniques? [Click here.](#)

FROM ONE TO MANY: HOW?

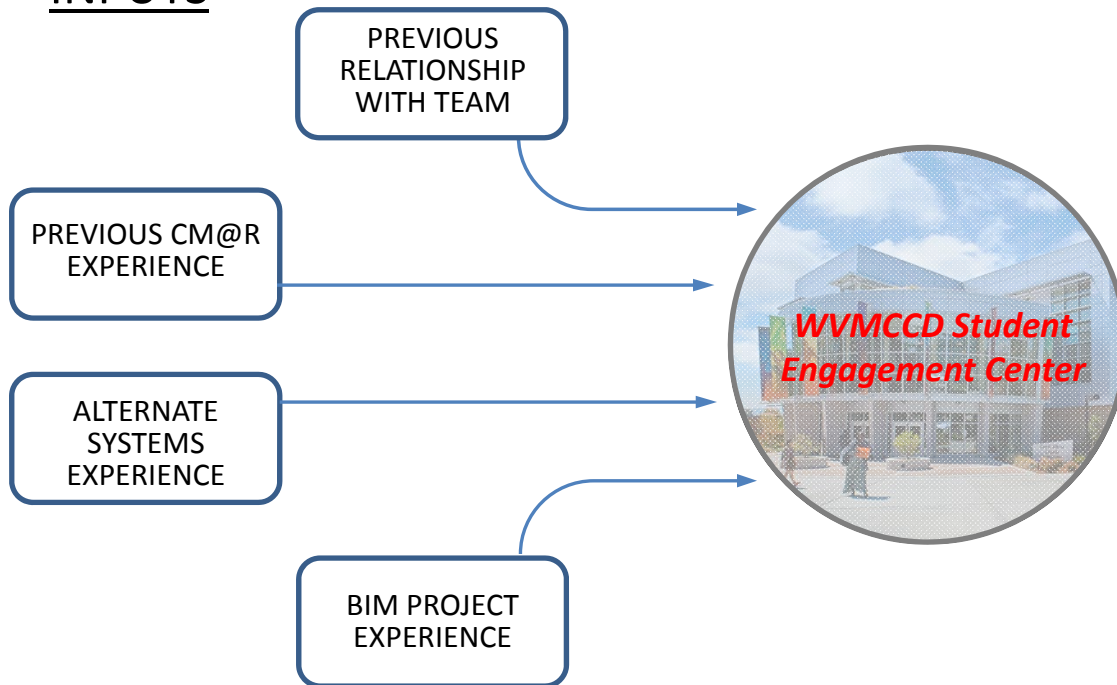
Creating an organization and systems for sharing and learning

- Virtual Design and Construction
- Standardize AND Customize
- “Rinse and Repeat”



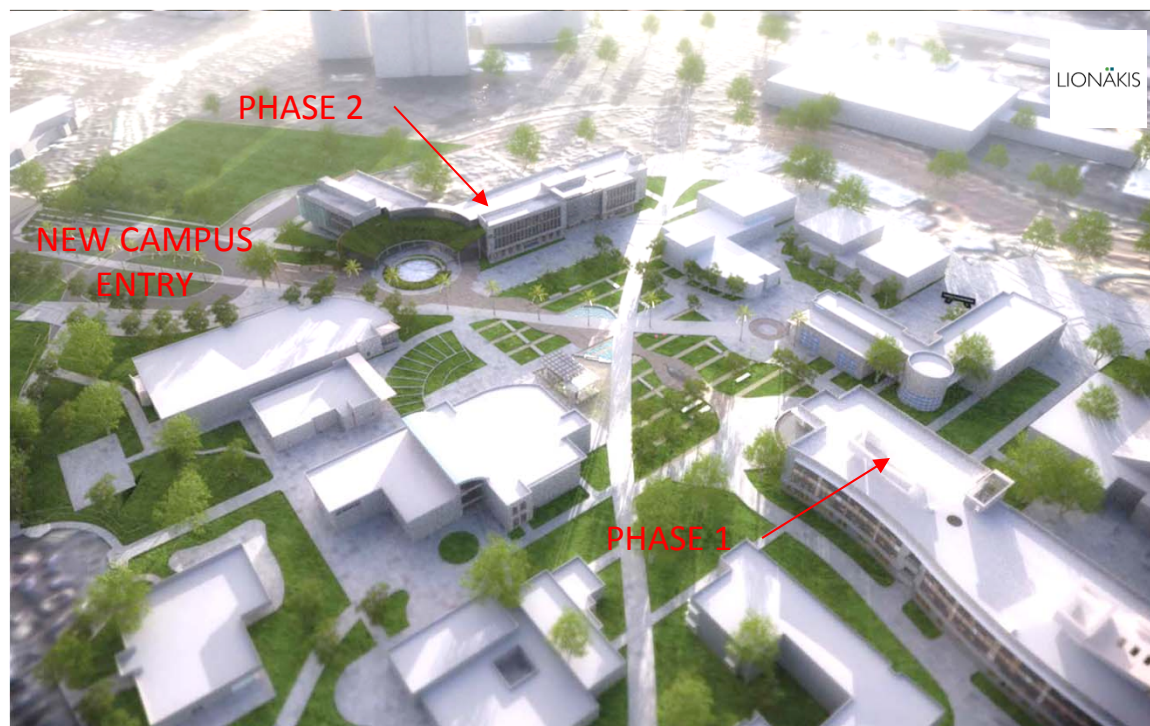
*WVMCCD Student
Engagement Center*

INPUTS



Project Description

- Campus Improvement in 2 Phases
- Phase 1 Gilmor Center
 - \$46M
 - 120,000 SQ FT
- Phase 2 Student Engagement Center
 - \$55M
 - 101,000 SQ FT



PHASE 1 CHALLENGES

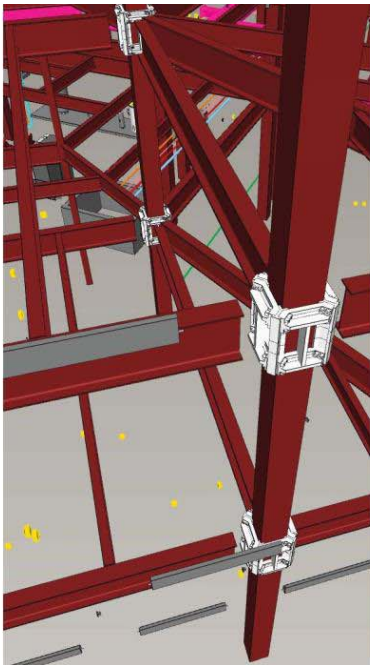
- CM Agency
- Schedule Extensions
 - Steel: 2 months
 - Overall: 6 months
- Teledata certification
- A/E, Contractor, Subcontractor coordination



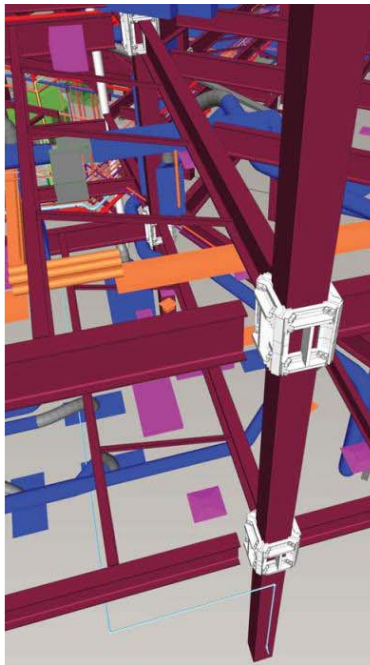
PHASE 2 GOALS

- Adopted CM @ Risk Approach
- Improve the Schedule Reliability
- Involve the IT user group early
- Give people ownership to collaborate

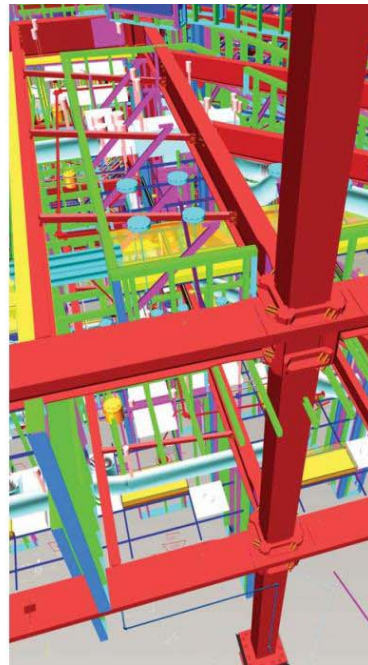




Steel Design @ 100% SD



Steel Design @ 100% DD



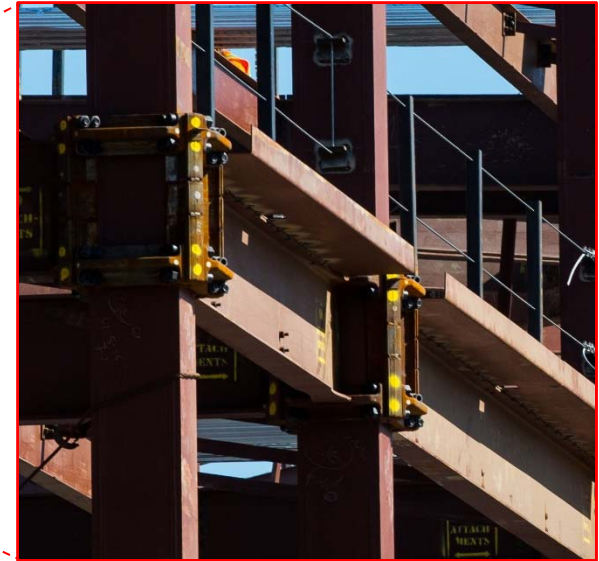
Steel Design @ Fabrication

FROM THE BEGINNING

- Selected during early design
- Manufactured connections
- Enabled actual steel pricing
- Design direct to Fab

WVMCCD STUDENT ENGAGEMENT CENTER

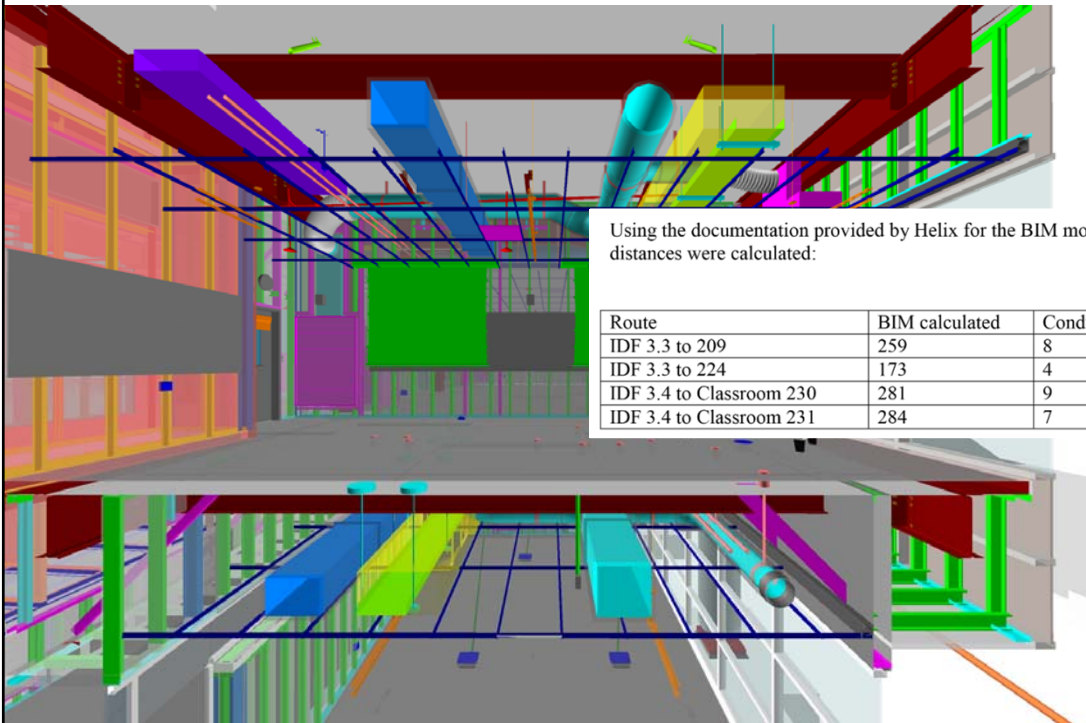
Powering Our Teams





RESULTS

- Phase 1 Steel Erection = 3 Months
- Phase 2 Steel Erection = 1 Month
- All steel erected, bolted & plumbed in 30 days
- RFI's reduced by 47%
- Safety – Limited welding & Reduced man hours onsite



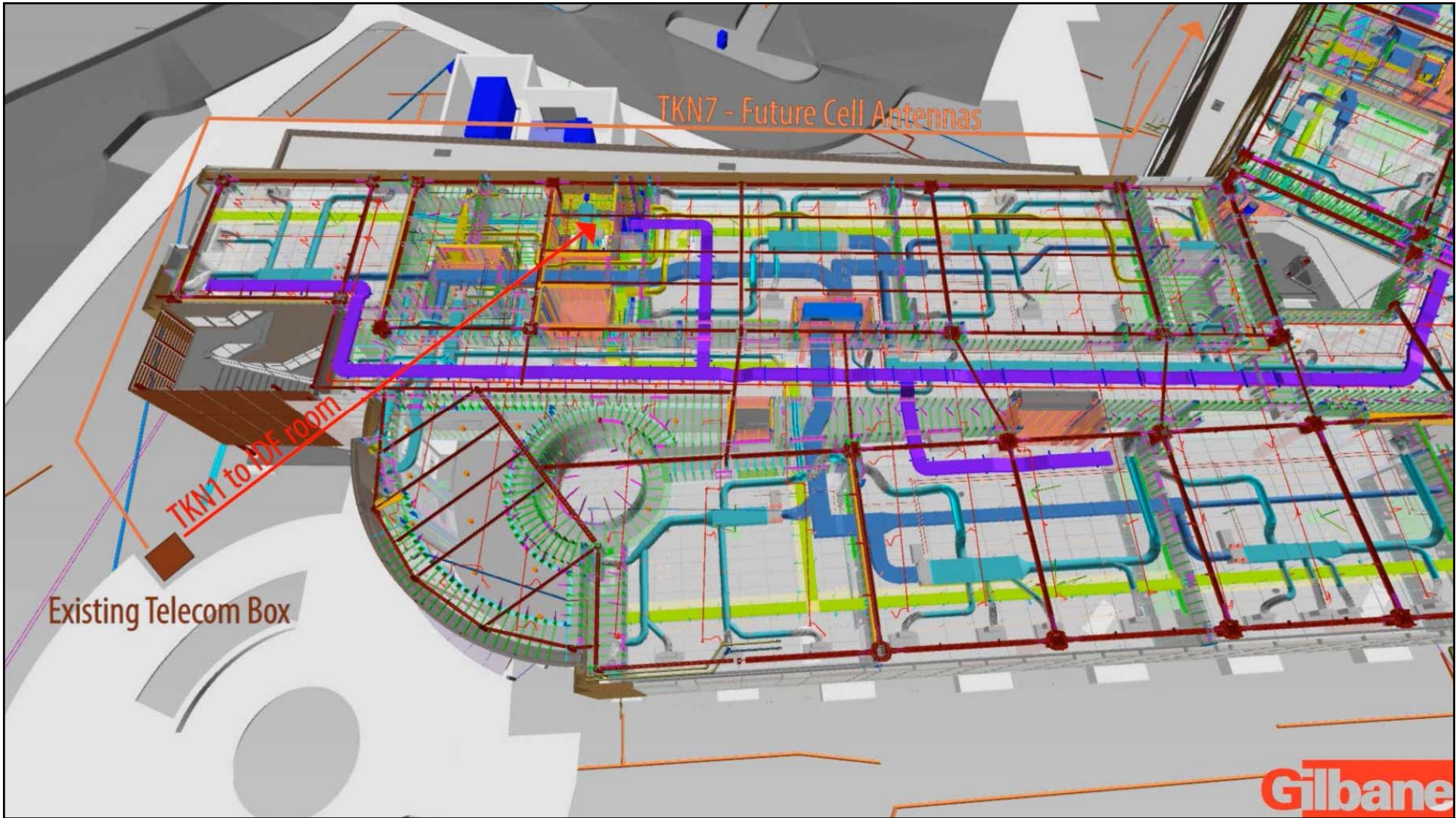
Using the documentation provided by Helix for the BIM modeling, the following cable length distances were calculated:

Route	BIM calculated	Conduit Splay	Wall thickness
IDF 3.3 to 209	259	8	3
IDF 3.3 to 224	173	4	3
IDF 3.4 to Classroom 230	281	9	3
IDF 3.4 to Classroom 231	284	7	3

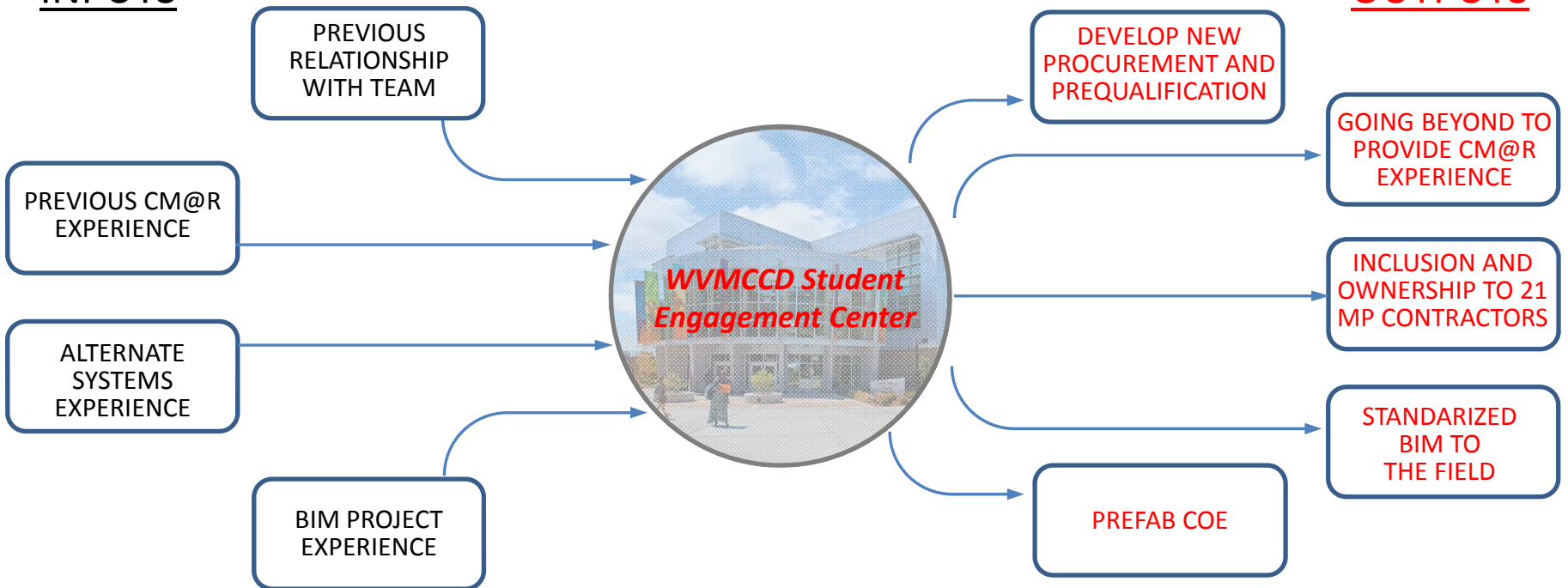
TELEDATA REQUIREMENTS

- Telecomm cabling cannot exceed 295 ft max.

“Is there a way of walking through the BIM, from the IDF room through the longest path way to measure the cable length?”



INPUTS



OUTPUTS

Healthcare

*Nationwide
Children's Hospital -
Ambulatory Care*

INPUTS

BACKGROUND IN
ARCHITECTURE &
CONSTRUCTION

BIM EXPERIENCE
RENOVATION OF
PHYSICS LAB

HEALTHCARE
THINK TANK



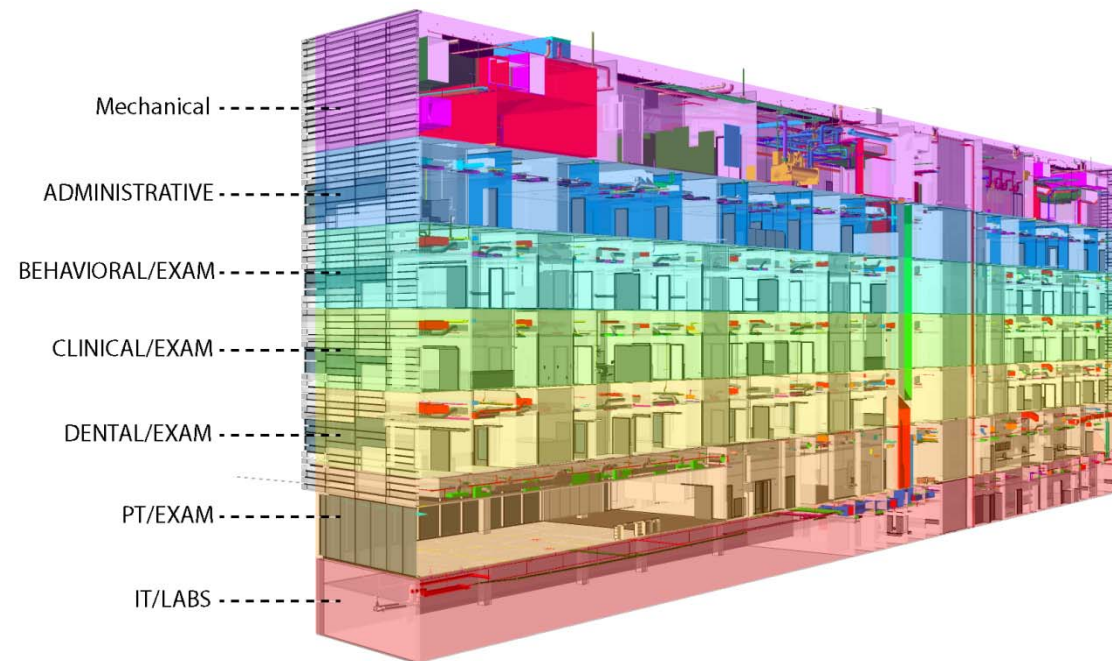
PROJECT DESCRIPTION

- Top 3 Children's Hospital
- \$100 million new construction
- Downtown Columbus, OH
- 6 floors
- 200,000 square feet
- Active hospital campus



TYPICAL HEALTHCARE CHALLENGES

- Multiple user group needs
- Heavy MEP
- Accelerated schedule

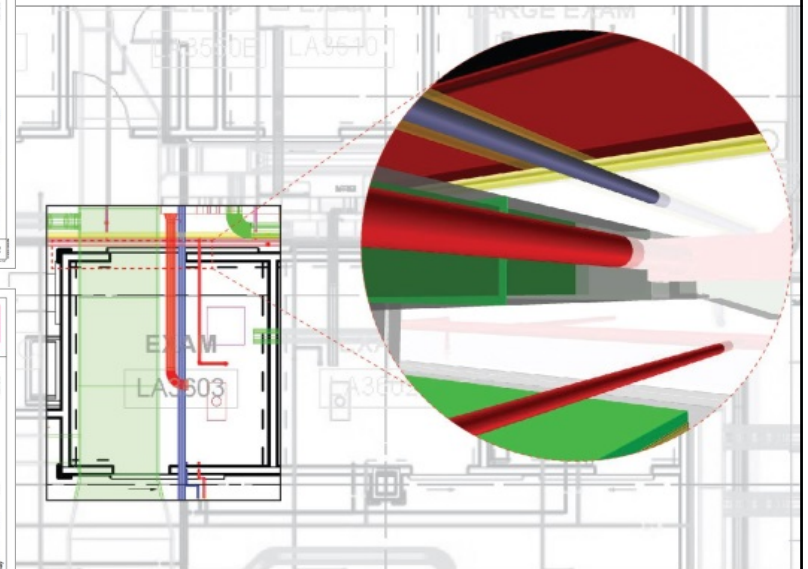


VISUAL WORK INSTRUCTIONS

- Enabled with MEP coordination

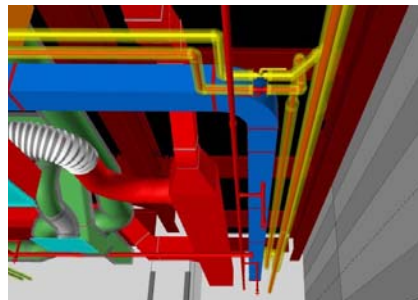
Results:

- Owner walkthrough inspections
- Trade wall layout
- Moves construction forward faster



FLEXIBLE SEQUENCING

- Enabling continuous design
- Lean scheduling principles (JIT)



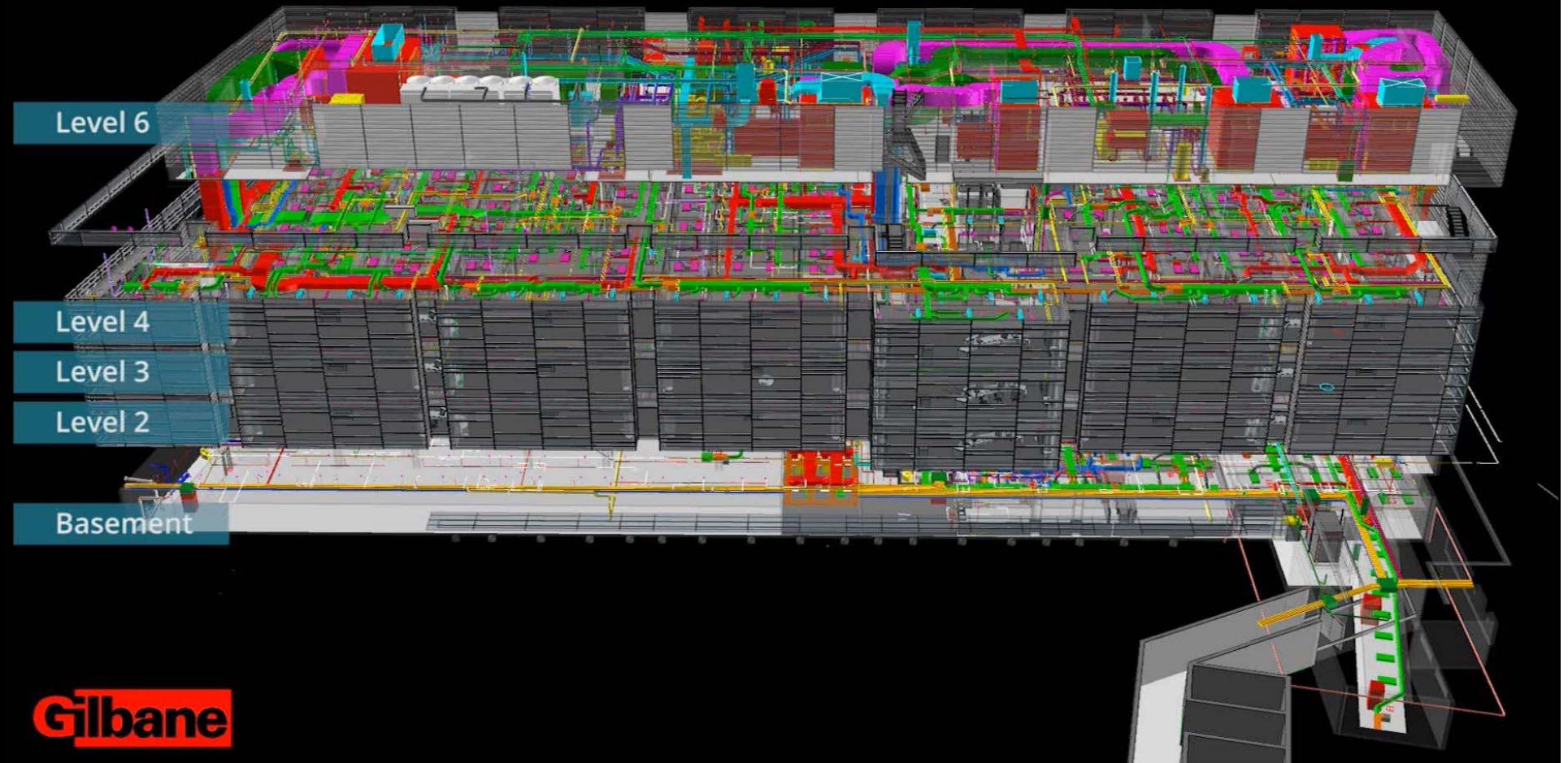
Construction start dates are based on <applicable schedule pdf + date here>

BIM vs MEP INSTALL

BIM Activity	Model Population End Date	BIM End Date (Signoff)	Construction Activity
Basement/Shaft	9/16/2015	10/7/2015	HVAC Overhead Rough-in
Level 1	10/7/2015	11/13/2015	HVAC Overhead Rough-in
Level 2 / 3	11/13/2015	12/13/2015	HVAC Overhead Rough-in
Level 4 / 5	12/13/2015	1/19/2016	HVAC Overhead Rough-in
Level 1	1/19/2016	2/25/2016	HVAC Overhead Rough-in
Level 6	1/19/2016	2/3/2016	HVAC Overhead Rough-in

BIM Activity	Model Population End Date	BIM End Date (Signoff)	Construction Activity
Basement/Shaft	9/16/2015	10/7/2015	HVAC Overhead Rough-in
Level 1	10/7/2015	11/13/2015	HVAC Overhead Rough-in
Level 2	11/13/2015	12/13/2015	HVAC Overhead Rough-in
Level 3	12/21/2015	12/30/2015	HVAC Overhead Rough-in
Level 4	1/4/2016	1/11/2016	HVAC Overhead Rough-in
Level 5	1/13/2016	1/25/2016	HVAC Overhead Rough-in
Level 6	1/27/2016	2/3/2016	HVAC Overhead Rough-in

MEP Visual Schedule



INPUTS

BACKGROUND IN
ARCHITECTURE AND
CONSTRUCTION

BIM EXPERIENCE
RENOVATION OF
PHYSICS LAB

HEALTHCARE
THINK TANK

**Nationwide
Children's
Hospital -
Ambulatory Care**

OUTPUTS

BRIDGE BETWEEN
DESIGNER AND
BUILDER

IPD PRINCIPLES DON'T
REQUIRE A CONTRACT

ENHANCED PATIENT
EXPERIENCE

VISUAL WORK
INSTRUCTIONS



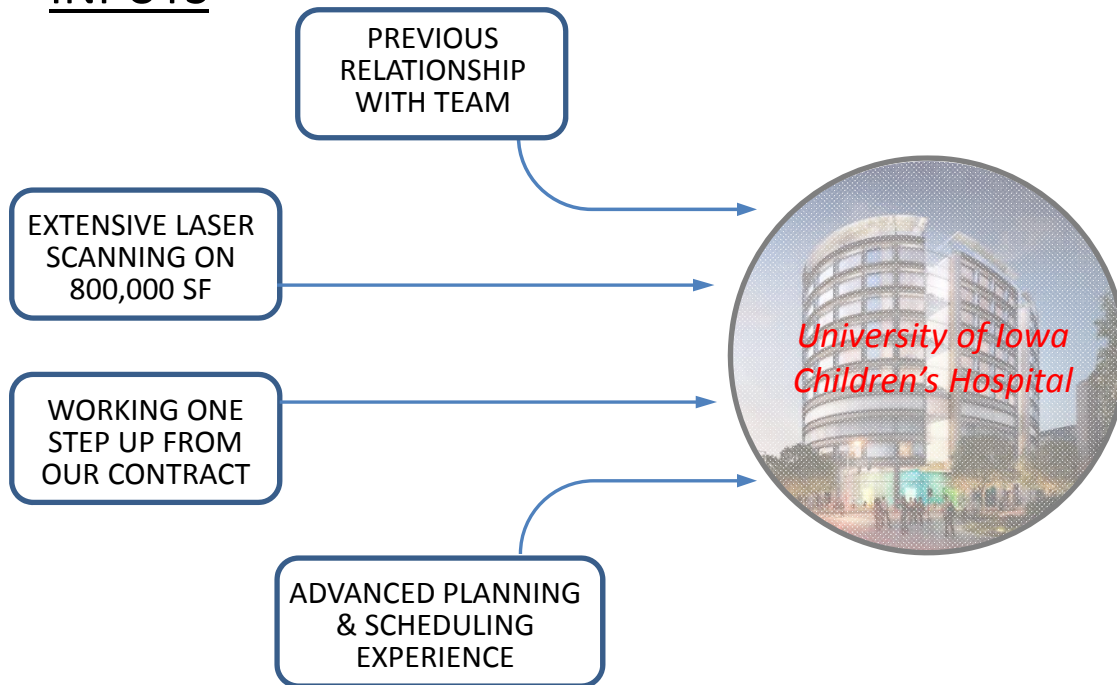
FutureTech
Bringing construction technology innovators together

University of Iowa Children's Hospital



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INPUTS



DESCRIPTION

- \$360 million
- New tower addition
- 14 floors
- 507,000 square feet
- World Renowned designer
- Elliptical design
- Public institution
- Tradition procurement model



Image from www.uichildrens.org

LOBBY

- Iconic space in the building
- 40,000 square feet
- Two story atrium lobby
- Major artwork installations
- Kid friendly
- Family-centric

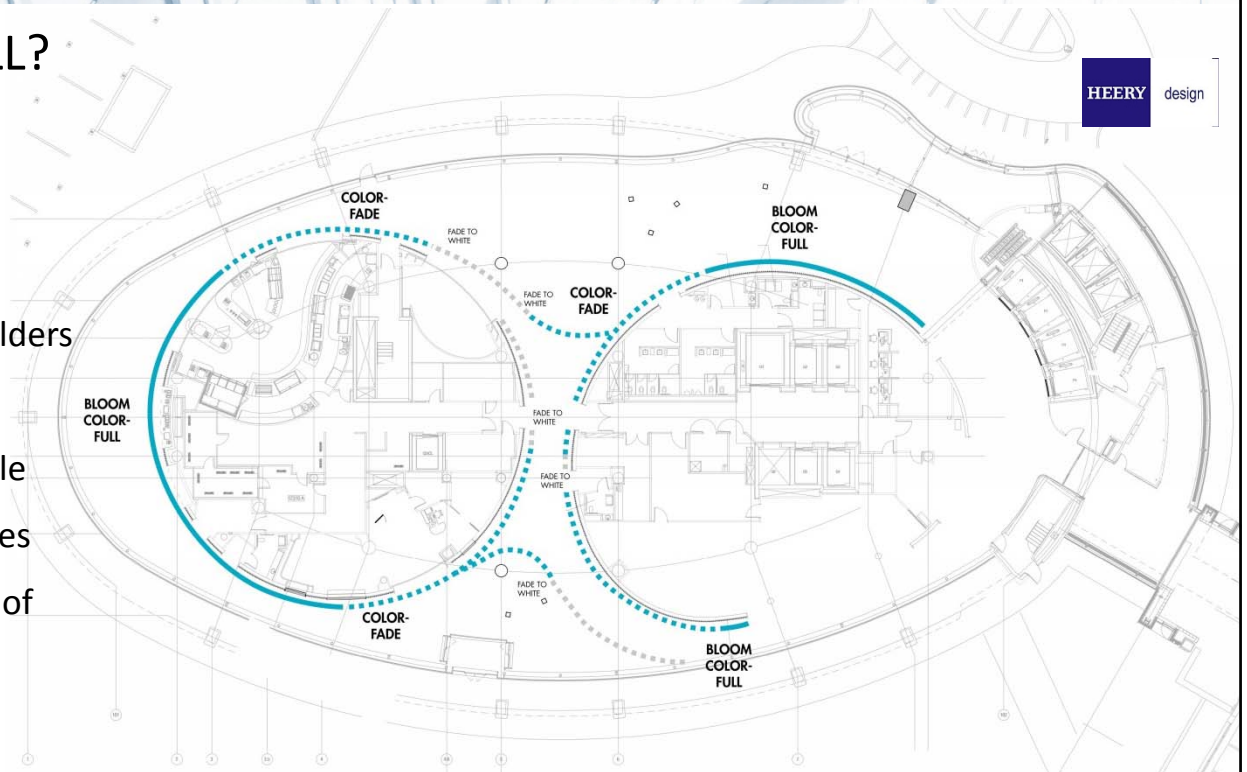
"The Blooming Wall"

"Totems"



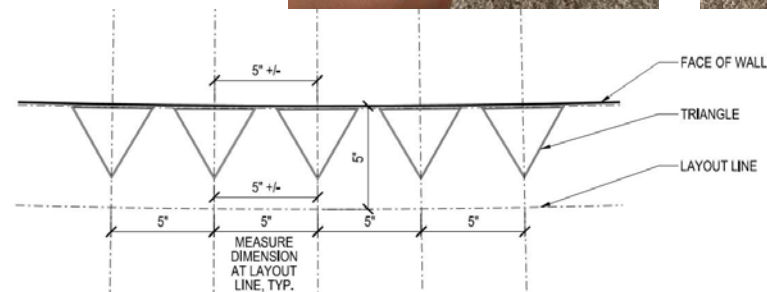
SO WHY THE BLOOMING WALL?

- Drive collaboration in a traditional environment
- Execute artist's vision with precision
- Demonstrate power of VDC to stakeholders for other applications on this project
- Need for certainty to make the schedule
- Educate stakeholders on the possibilities
"If you build it, they will come" ~ Field of Dreams



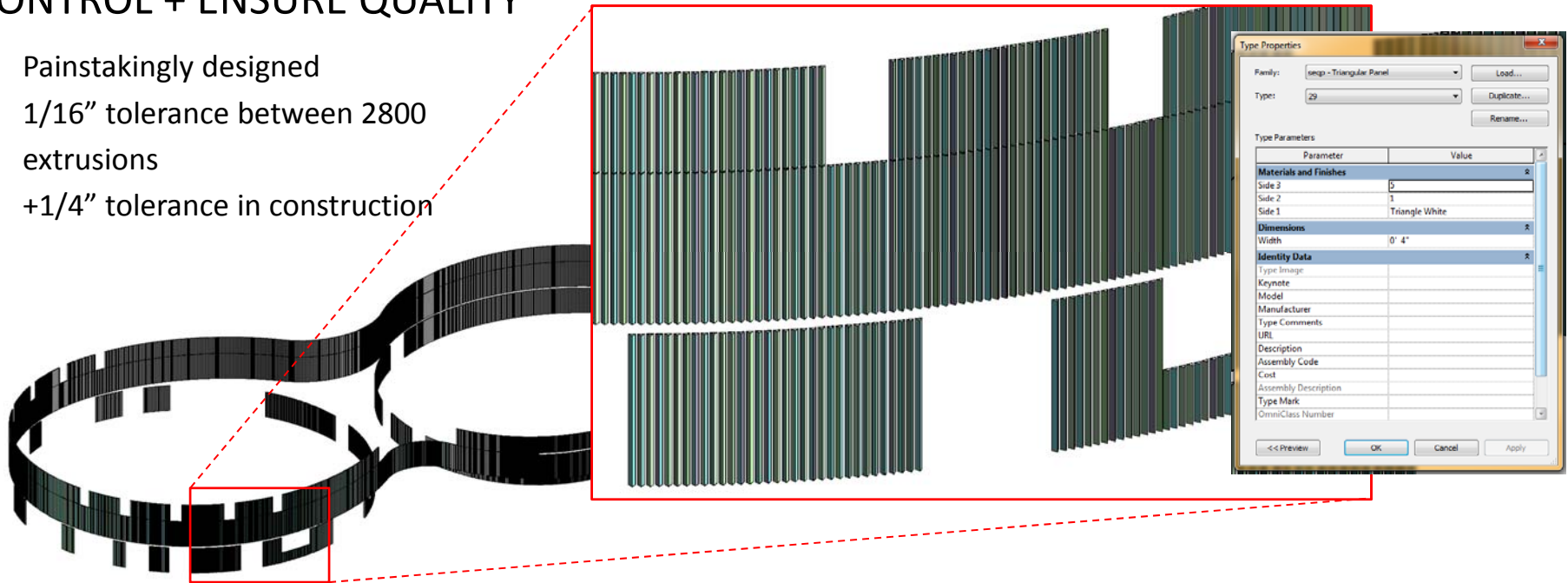
PROVIDING CERTAINTY

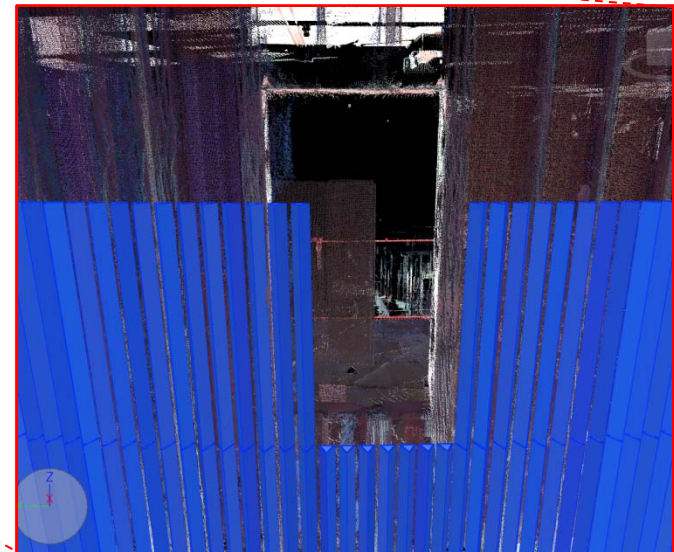
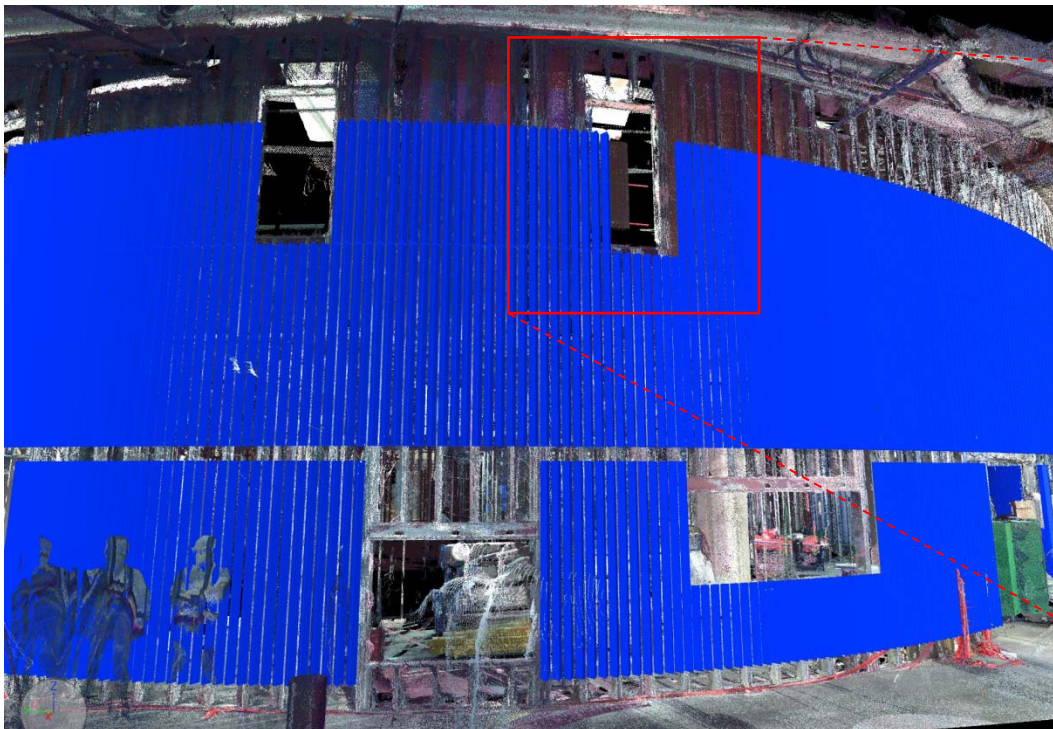
- “The Blooming Wall” or “The Triangles”
- 2800 prefabricated extrusions
- 1000+ Linear feet of radius wall
- 5” on center
- 192 color combinations
- 23’ tall
- Level 5 finish
- Non-uniform wall openings



CONTROL + ENSURE QUALITY

- Painstakingly designed
- 1/16" tolerance between 2800 extrusions
- +1/4" tolerance in construction

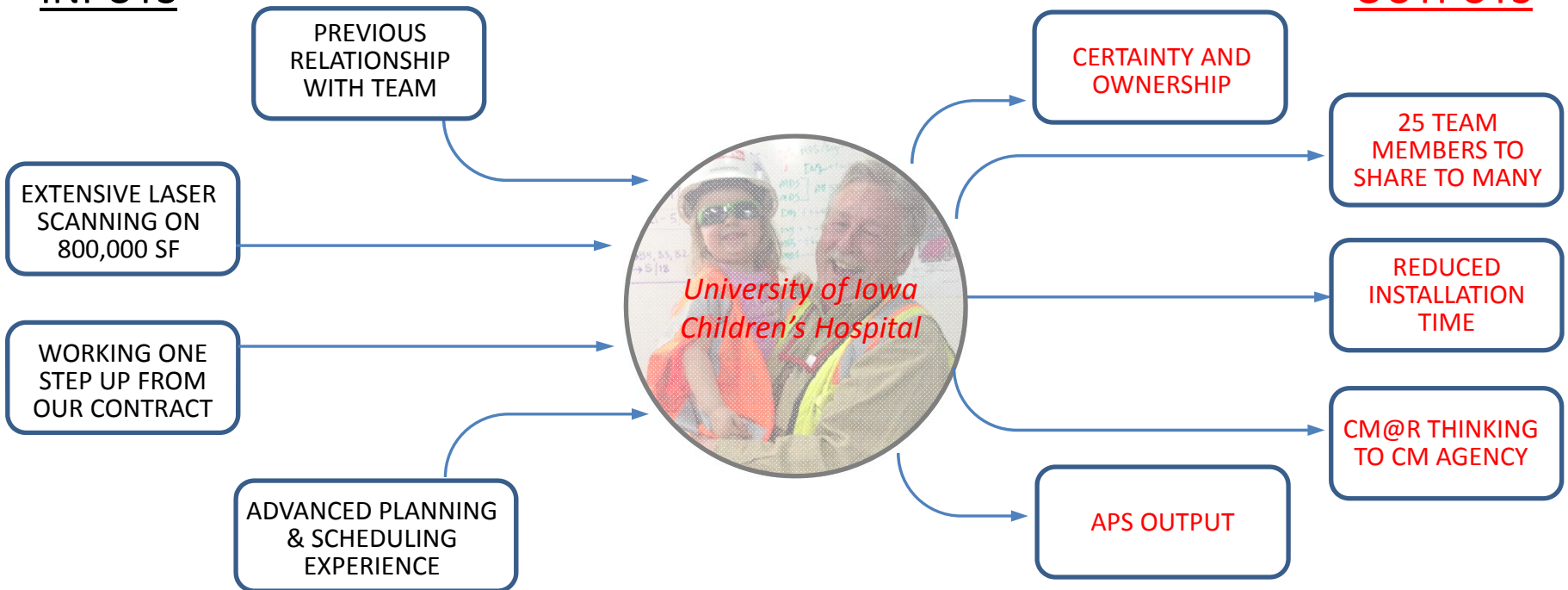






INPUTS

OUTPUTS



A FUNNY THING HAPPENED ON THE WAY TO FUTURETECH

- Working upstream into user needs
- Working one step up from our contract
- Driven to deliver what the customer needs, not just what they ask for



GILBANE LEAN

1. People First! A Culture of Values and Value
2. Effective Processes and Systems
3. Swarming and Solving
4. Sharing Knowledge and Value Effectively
5. Leadership: Coaching & Focus on Continual Improvement



THE TECHNOLOGY IS

PEOPLE, TEAM, PROCESS

SUPPORTED BY EFFECTIVE APPLICATION OF THE RIGHT TOOLS AND
TECHNOLOGY

STANDARDIZED AND CUSTOMIZED

ONWARD AND UPWARD!