



HOW TO USE  
**CONSTRUCTION TECH**  
TO IMPROVE YOUR BUSINESS



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Director of Innovation

- Ph.D. in Design, Construction and Planning from the University of Florida
- Extensive experience as a Virtual Design and Construction Specialist
- Strong background as a Construction Project Manager
- Published several academic papers on using Technology in Construction and Education

## About Haskell

FOUNDED IN  
**1965**



**700+**  
IN-HOUSE DESIGN  
PROFESSIONALS



**100%**  
EMPLOYEE-OWNED



**\$2**  
BILLION  
IN ANNUAL  
REVENUES



**2,100+**  
TEAM MEMBERS



**100+**  
LEED CERTIFIED  
PROJECTS



**80%**  
REPEAT BUSINESS



PROACTIVE  
**Safety**  
CULTURE

# About Dysruptek

- Haskell's corporate venture capital arm
- Founded in 2018
- Investments in emerging AEC Technologies
- Focused on evaluating and piloting emerging technologies
- R&D Approach
- Structured Innovation Program

The logo for Dysruptek features the word "dysruptek" in a white, lowercase, sans-serif font. The letter "u" is stylized with a white triangle pointing upwards, positioned above the top bar of the "u".

dysrUptek



**WHY ConTech?**

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# THREE MAIN ASPECTS

## SAFETY

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Construction is one of the most dangerous industries in the world

## EFFICIENCY

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Construction has lagged in enhancing efficiencies when compared to other industries

## QUALITY

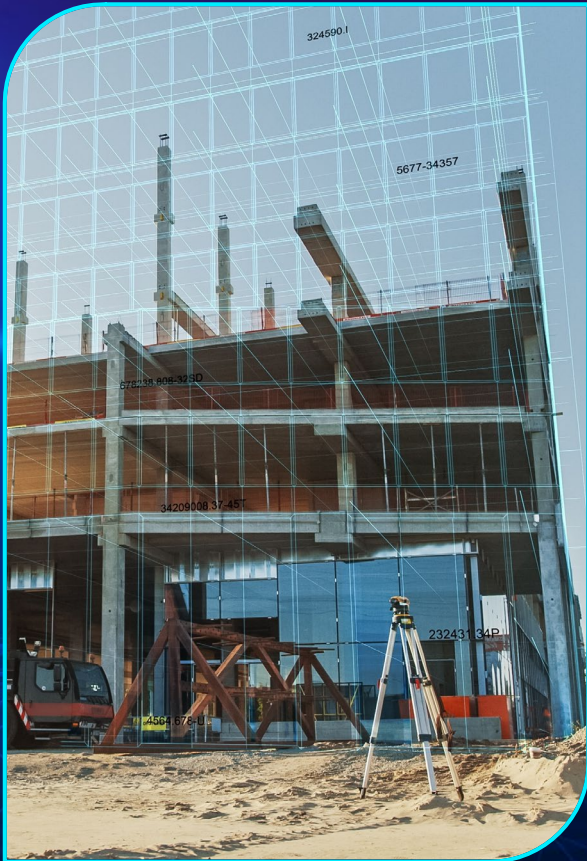
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Working in uncontrolled environments create several quality challenges

# TYPES OF CONTECH

- REALITY CAPTURE
- DESIGN VISUALIZATION
- ARTIFICIAL INTELLIGENCE
- ROBOTICS





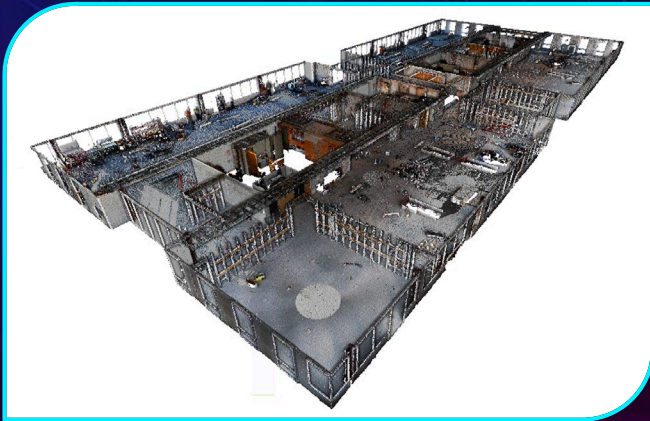
# REALITY CAPTURE

- Existing conditions prior to design
- Existing conditions prior to construction
- Continuous progress
- Capturing for as-built



# LASER SCANNING

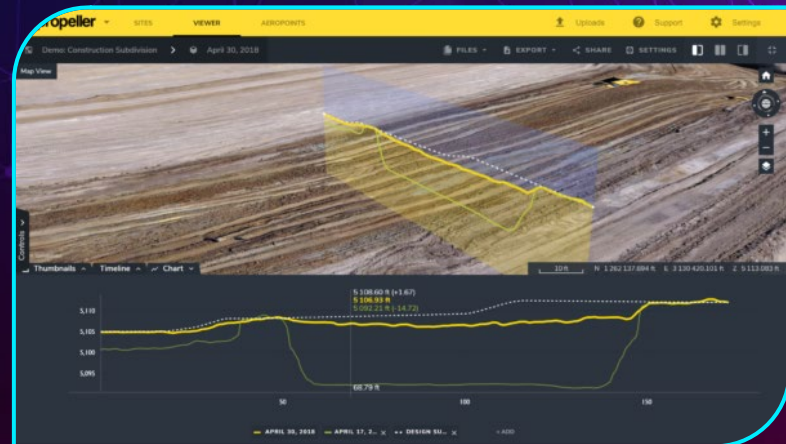
- Uses laser beams to create highly accurate, 3D representations of physical objects and environment





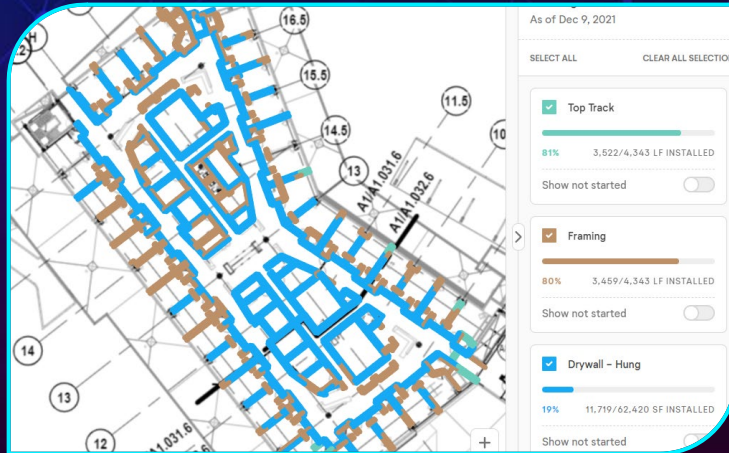
# DRONES

- Unmanned Aerial Systems that acquire aerial photography and topography data in 3D



# 360 IMAGERY

- Small 360-degree cameras that can be attached to a hard-hat or selfie-stick to acquire progress





# DESIGN VISUALIZATION

- Virtual Reality
- Augmented Reality
- 4D Simulation

# VIRTUAL REALITY

- Often, owners cannot visualize the 2D plans which could lead to change orders
- Immersing the owners and all stakeholders in the VR model can be a powerful tool to communicate design intent





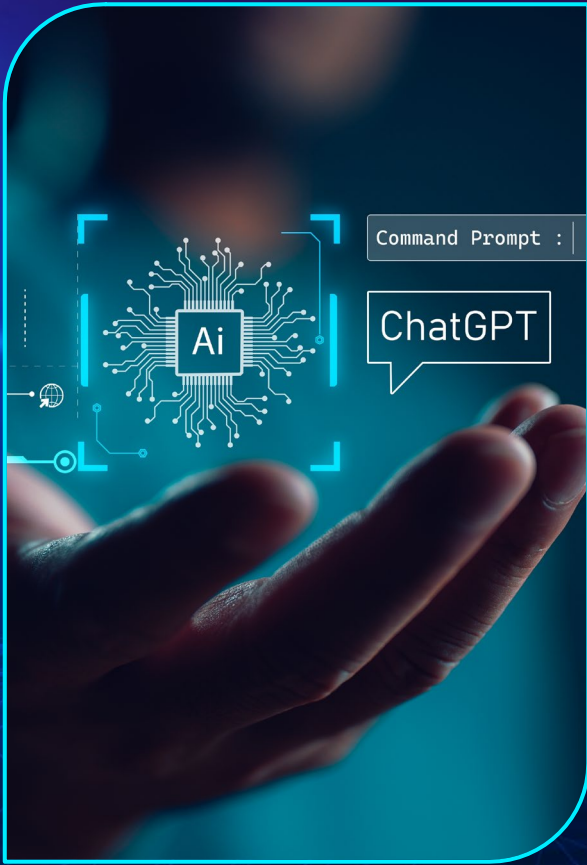
# AUGMENTED REALITY

- Visualizing the design within an existing environment can be an additional challenge
- Augmenting the model on a real-life view of the space helps further communicate the design intent

# 4D SIMULATION

- Allows construction teams to visualize and understand how a project will progress over time, providing a dynamic representation of the construction process





# ARTIFICIAL INTELLIGENCE

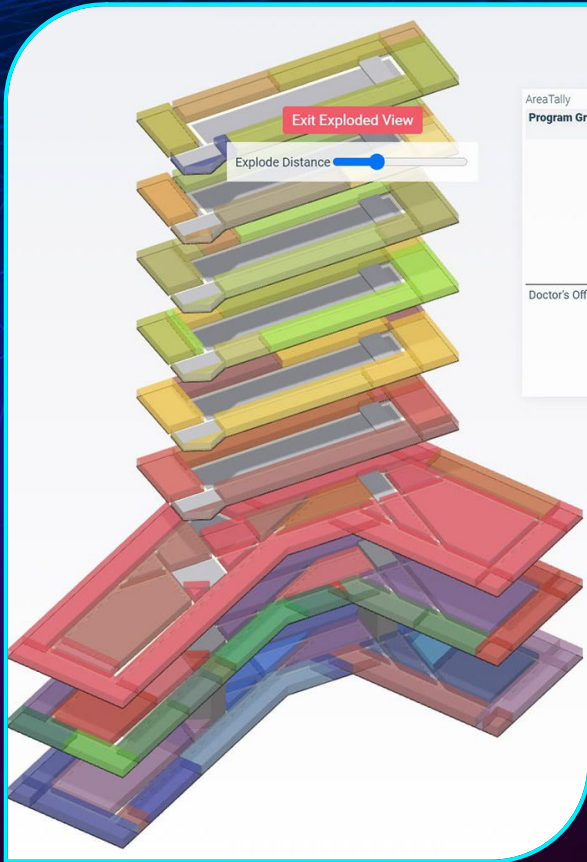
- Inspection
- Generative Design
- Quantity Takeoff



# INSPECTION

- AI-based inspection not only improves the accuracy and efficiency of inspection processes but also enhances safety and reduces operational costs



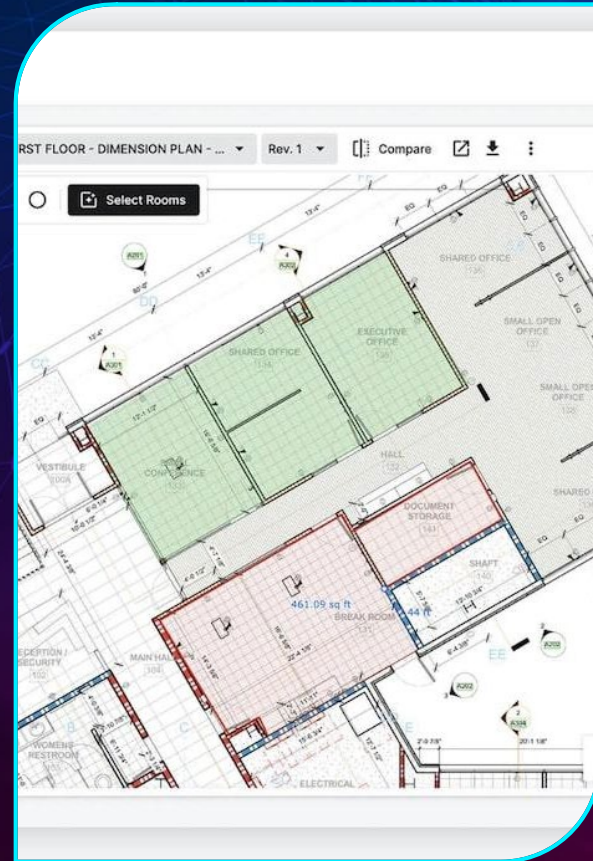


# GENERATIVE DESIGN

- Generative design is an innovative approach to design and problem-solving that utilizes algorithms and computational power to explore and generate numerous design options automatically

# QUANTITY TAKEOFF

- Automatic takeoff based on 2D drawings or 3D models
- Create more accurate estimate in a fraction of the time





# ROBOTICS

- Layout Robots
- Reality Capture Robots
- Work-in-place Robots

# LAYOUT

- Precisely position and mark the locations of building elements such as walls, columns, and structural components
- More accurate in less time



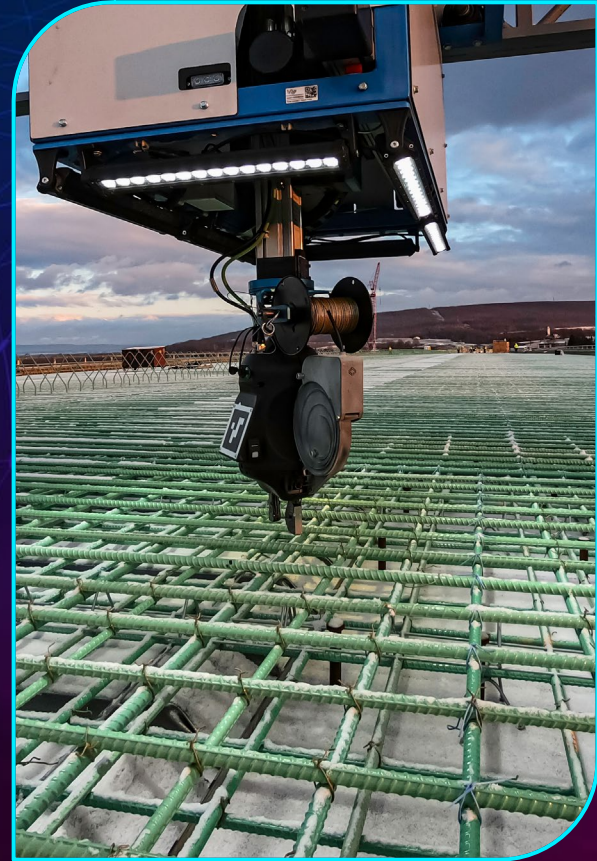


# REALITY CAPTURE

- Robots that would enable faster captures of jobsites
- Higher frequency of captures

# WORK-IN-PLACE

- Perform repetitive tasks in a higher-efficiency and more accurately
- Enable safer jobsites





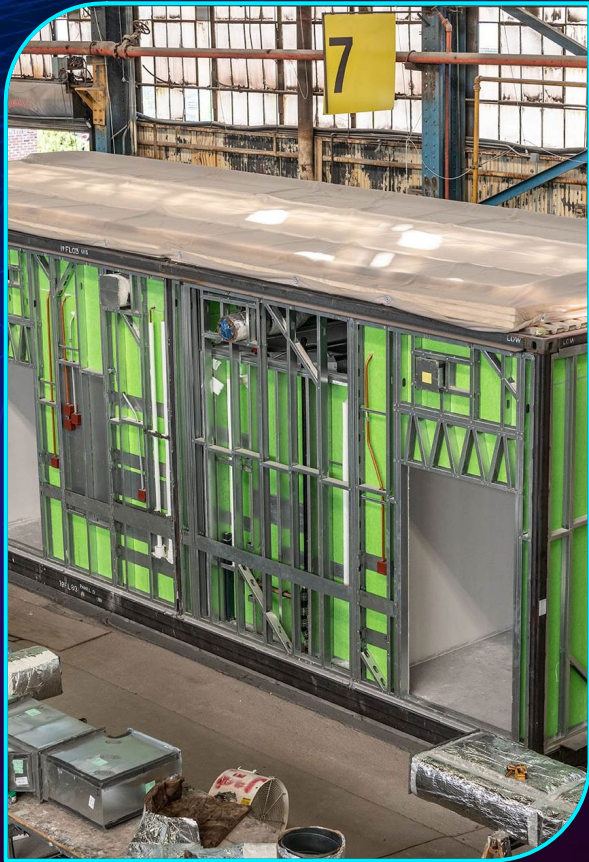
**FUTURE**



# MORE ROBOTS

- Robots will enable skilled workers to complete tasks safer, more efficiently, and with higher accuracy
- Open the gate to new jobs and skills needed on jobsites





## MORE OFF SITE

- Working in controlled environments usually lead to higher-quality products
- Repetitions allow for higher autonomy
- Shipping and installation logistics

# NO RFIs

- With more accurate designs that contain all the information needed to execute the work
- AI-driven quality checks of design models and drawing sets





# **EMBRACE TECHNOLOGY**

SPEED IS THE NAME OF THE GAME

# DIGITAL TRANSFORMATION

## EVALUATE

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See how each technology would fit in the current workflows and processes

## TEST

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Pilot a technology on a small scale to see where it may fail

## ITERATE

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Adjust the process or workflow, enable users to give feedback and tweak the system, look for other solutions if it's not working

# CHANGE MANAGEMENT



**AWARENESS**



**DESIRE**



**KNOWLEDGE**



**ABILITY**



**REINFORCEMENT**

# THANK YOU

Q&A



LET'S CONNECT