



+



WEBINAR

## Mass Timber Webinar Series

Timber, Tech, and Talent:

Crafting KRESA's Next-Gen

Educational Hub



CSM GROUP



ELEMENT5  
MASS TIMBER BUILDINGS



WIGHTMAN  
*it's all about people*



## Future events



### Michigan Energy Summit

**Thursday, May 8th**

8:30am - 4:30pm

JW Marriott, Grand Rapids



### Lansing 2030 District Launch

**Tuesday, May 20th**

Lansing, MI



### MI Energy Code Events

**June, TBD**

In person



## Future events



### Mass Timber Webinar Series

*DNR Newberry*

In collaboration with [MassTimber@MSU](mailto:MassTimber@MSU)

**Thursday, June 26th**

10–11:15 am

Via Zoom



### Mass Timber Webinar Series

*Adelaide Pointe Condos*

In collaboration with [MassTimber@MSU](mailto:MassTimber@MSU)

**Thursday, July 24th**

10–11:15 am

Via Zoom

## Become a member!

Support real impact on your local community and join a network of like-minded individuals who are interested in all things building science.



Scan the QR code with your device to join today!



# *Thank You to our Platinum Supporters*



**TRANE®**



**HEDRICK**

**IGNYTE**







# *Thank You to our Visionary Supporters*



# Agenda



**Sandra Lupien**

Director

MassTimber@MSU

**Moderator**

**Tom Zahrt**

Deputy Superintendent / COO

Kalamazoo Regional Educational Service Agency

**Owner/Project History**

**Gregory Monberg, AIA, LEED AP BD+C, ALEP, MBA**

Director of Architecture

Wightman

**Architect**

**Kayla Snyder**

Senior Programs Manager

Michigan Green Building Collaborative

**Host**

**Brian Beaver, HCC, STSC**

Vice President

CSM Group

**Construction Manager**

**Lee Scott, P.Eng., MBA**

Director, Sales – North America

Element5

**Mass Timber Supplier**





# MASS TIMBER @MSU

MassTimber@MSU leverages research, education, outreach, communications, policy, and partnerships to advance sustainable mass timber construction and manufacture in Michigan, the Great Lakes region and beyond.

[canr.msu.edu/masstimber/](https://canr.msu.edu/masstimber/)  
#MIMassTimberMomentum





# TYPES OF MASS TIMBER



**Glue-laminated Timber (Glulam)**



**Cross-Laminated Timber (CLT)**



**Mass Plywood Panels**



**Nail-Laminated Timber**



**Dowel Laminated Timber**



**Laminated Veneer Lumber**

# MASS TIMBER CAN:



Increase  
Sustainability



Improve  
Efficiency



Enhance  
Beauty  
& Quality



Create New  
Jobs



Support  
Resilient  
Forests



# Fostering a Mass Timber Ecosystem



**STEM Facility as Learning Lab**



**Bringing People Together**



**Michigan Mass Timberb  
COMMUNITY CONFERENCE**  
**Technical Assistance  
and Peer Learning**

This quarterly virtual gathering will provide technical assistance and peer learning for those involved in mass timber projects across Michigan in a supportive and confidential environment.



**Research and Teaching**



**MICHIGAN STATE  
UNIVERSITY**



# Mass Timber Projects in Michigan:

## ~65 Complete or in the Pipeline



**K-12 schools, Universities**



**Training Facilities, Community Centers, Government Buildings**



**Apartments & Condos  
Affordable Housing  
Single-Family Home**



**Hotel**



# Contact



**Sandra Lupien**

**Director, MassTimber@MSU**

Lupien@msu.edu

510-681-3171

@MassTimberatMSU



Mobilizing education, science, outreach, and communication to advance mass timber construction and manufacture in Michigan and the surrounding region.



[canr.msu.edu/masstimber/](https://canr.msu.edu/masstimber/)

# Kalamazoo RESA

Transforming Futures



KALAMAZOO RESA

**Career Connect**





# Kalamazoo RESA Career Connect

**Purpose of the Building**

**How and Why it became a mass timber building**

**Community Engagement Process**



# Starting with the WHY



1 






requires a Master's  
degree or more



2  

require a  
Bachelor's degree



7       

require a professional/skilled trades  
1-year certificate or 2-year degree



# Purpose is to House Pathways of Study – less than 4 yr degree

- Well-paying, high demand, and high growth occupations as verified by four-part labor market analysis
- Produce industry recognized credentials – certifications and or Associate's Degree
- Utilize current and emerging technologies
- Curriculum input provided by business and industry partners



# CCC Pathways – Learning Building

## ▶ **Agriculture, Food and Natural Resources**

- Horticulture
- Veterinary Sciences

## ▶ **Architecture and Construction**

- Construction Trades
- Electrical Technology
- HVAC-R
- Plumbing

## ▶ **Automotive + Heavy Equipment**

- Automotive Technology
- Heavy Equipment Maintenance

## ▶ **Culinary Arts**

## ▶ **Design**

## ▶ **Health Science**

- Lab Technician
- Patient Care Technician
- Pharmacy Technician
- Rehabilitation Therapy

## ▶ **Information Technology**

- Computer Programming
- Computer Networking
- Cybersecurity

## ▶ **Manufacturing**

- Machining
- Mechatronics/Robotics
- Welding
- Supply Chain

## ▶ **Teacher Academy**



# 21<sup>st</sup> Century Skills



**COLLABORATION**



**COMMUNICATION**



**CRITICAL THINKING**



**PERSONAL MANAGEMENT**



**PROBLEM SOLVING**





# By the Numbers

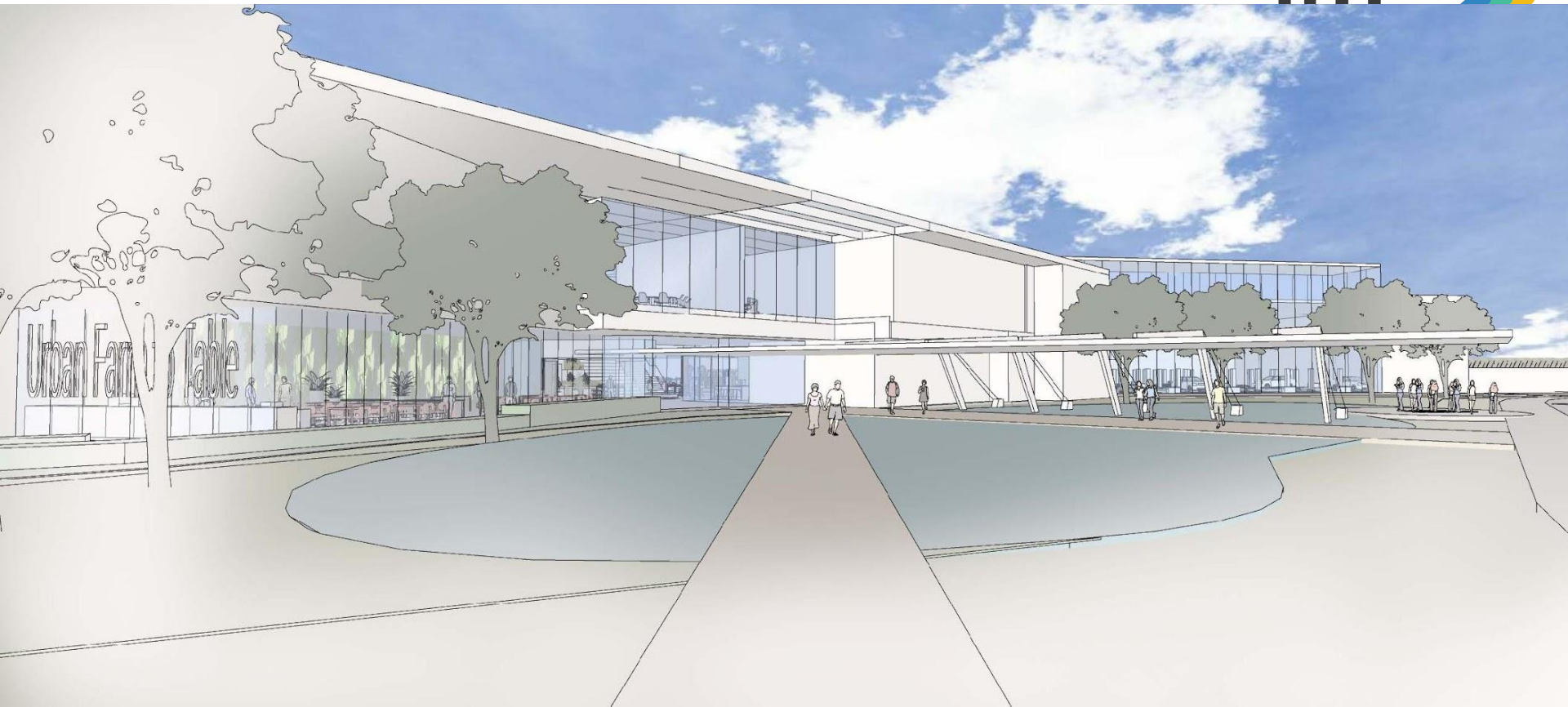
- **1,392** students - near capacity at opening
- **167,000** + sq ft
- **22** instructional labs + **1** greenhouse
- **1,265** pieces of lab equipment, excluding hand tools (as of last count)
- **17** instructional studios
- **21** courses offered **2** times per day
- **25** planned industry recognized credentials (and growing)
- **64** staff
- **19** advisory committees with **238** advisors
- **3** dedicated large conference spaces + **1** industry meeting space

# Constituent Districts

- Climax-Scotts Community Schools
- Comstock Public Schools
- Galesburg-Augusta Community Schools
- Gull Lake Community Schools
- Kalamazoo Public Schools
- Parchment School District
- Portage Public Schools
- Schoolcraft Community Schools
- Vicksburg Community Schools
  
- Forest Academy
- Kalamazoo Covenant Academy
- Oakland Academy
- Paramount Charter Academy
- Youth Advancement Academy

+ 18 Non-public Schools in Kalamazoo County

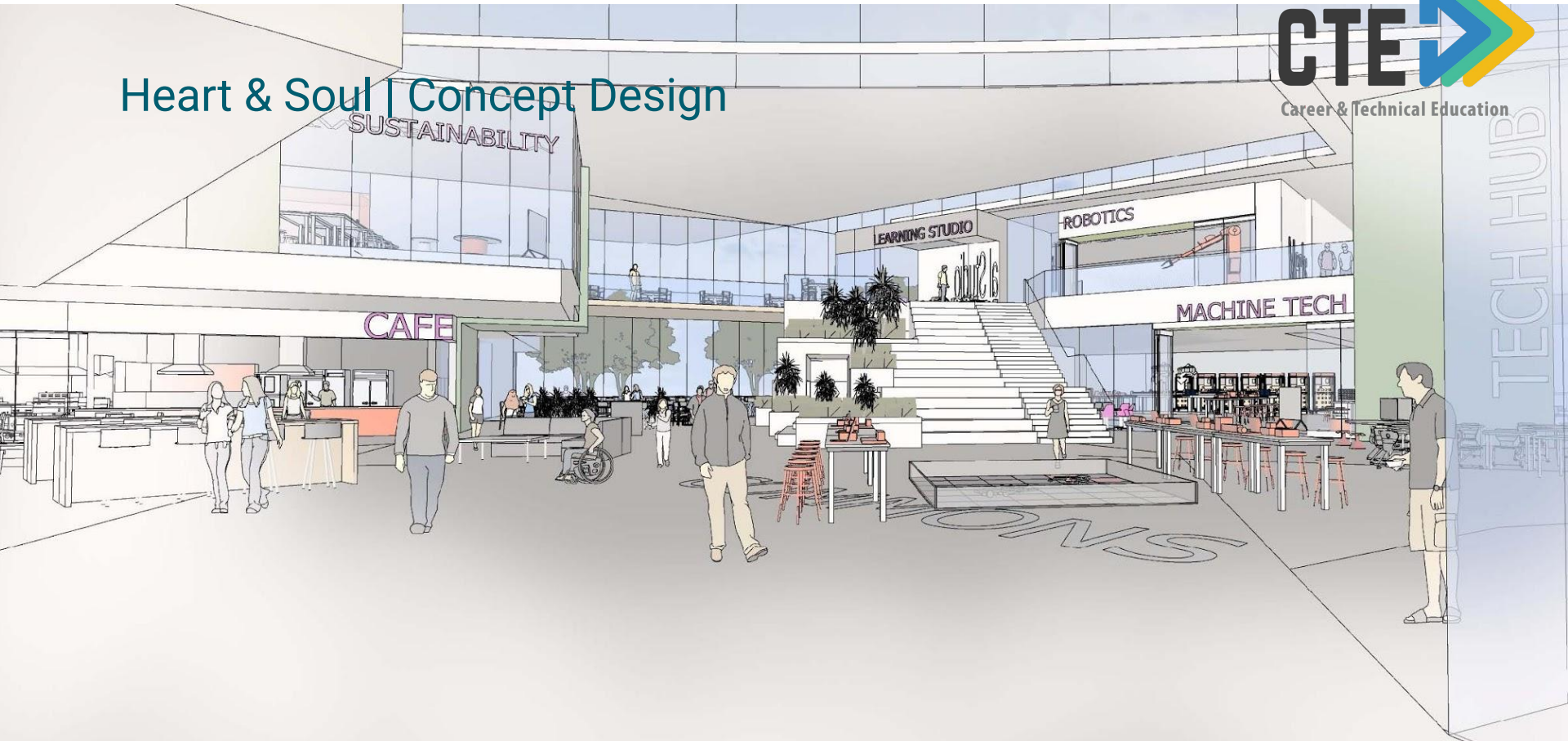








# Heart & Soul | Concept Design































Schematic Design

## Exterior | South Facade







Schematic Design

# Exterior | North Facade



**WIGHTMAN**  
*it's all about people*



**DLR GROUP**











KALAMAZOO RESA

# Career Connect Campus

**August 25, 2025**

First Day for Students



# Career Connect Campus Community Open House

Thursday, May 22, 2025

4:00 PM – 7:00 PM



KALAMAZOO RESA

**Career Connect**





**If you want to go fast,  
go alone.**





**If you want to go far,  
go together.**

# Email questions to:

Tom Zahrt

Deputy Superintendent and Chief Operating Officer

[tom.zahrt@kresa.org](mailto:tom.zahrt@kresa.org)



KALAMAZOO RESA

**Career Connect**





KALAMAZOO RESA

CTE



Career & Technical Education

BOARD OF EDUCATION  
Kalamazoo Regional Educational Service Agency  
Career Connect Campus



WIGHTMAN  
*it's all about people*



DLRGROUP



# DESIGN CHARRETTE- BUILD EMPATHY



DELEGATING LEADERSHIP



# SMALL GROUP FLIP CHARTS – BUILD **EMPATHY**

## Which images **resonate** with you from the toured facilities?

- Intentional and inspirational branding
- Outdoor learning spaces
- Real-world working environment
- Natural lighting
- Flexible spaces
- Wow! Factor
- Open/ Visible spaces
- Modern & Warm (wood) material
- Purposeful placement of overhead equipment
- Teacher consideration
- Conference space for public
- Multi-story layout

## How are you going to **conquer the challenges** identified?

- Give students a voice
- “Never go dark”
- Hands-on problem-based learning
- Engage with industry partners
- Community Space
- Centralized common space
- Diversity training
- Ease of navigation and proximity
- Natural and organic collaboration
- Make the building **VISIBLE** and inviting to all
- Provide support services for learners

# Proposed Concepts

Table 1



Table 2



Table 3



Table 4

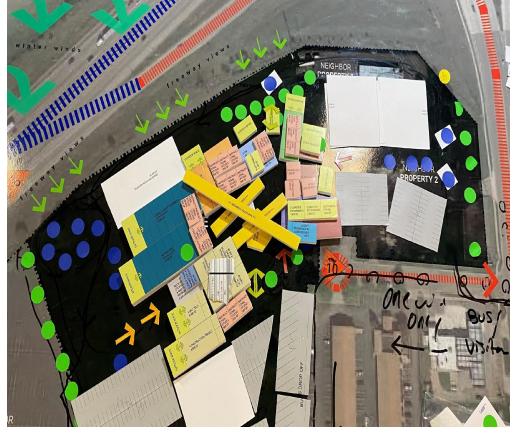
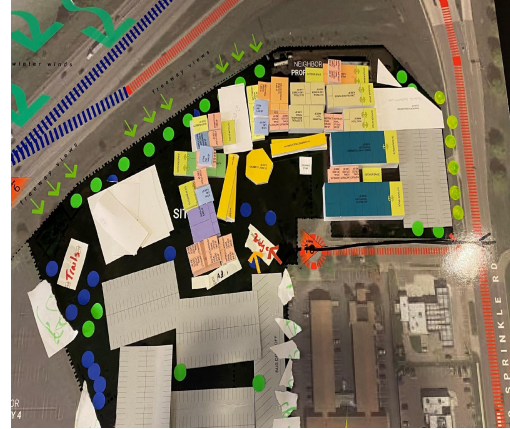


Table 5



Table 6



# Concept Goals

Maximized  
the site and  
building  
footprint with  
compact  
layout

'Slice of  
Nature'  
through  
center of  
building

'Discovery  
Trail' going  
through  
building

The  
'Tributary'  
with large  
central  
K-commons  
space  
(K-Verg)

Integration of  
Nature and  
having  
curving form

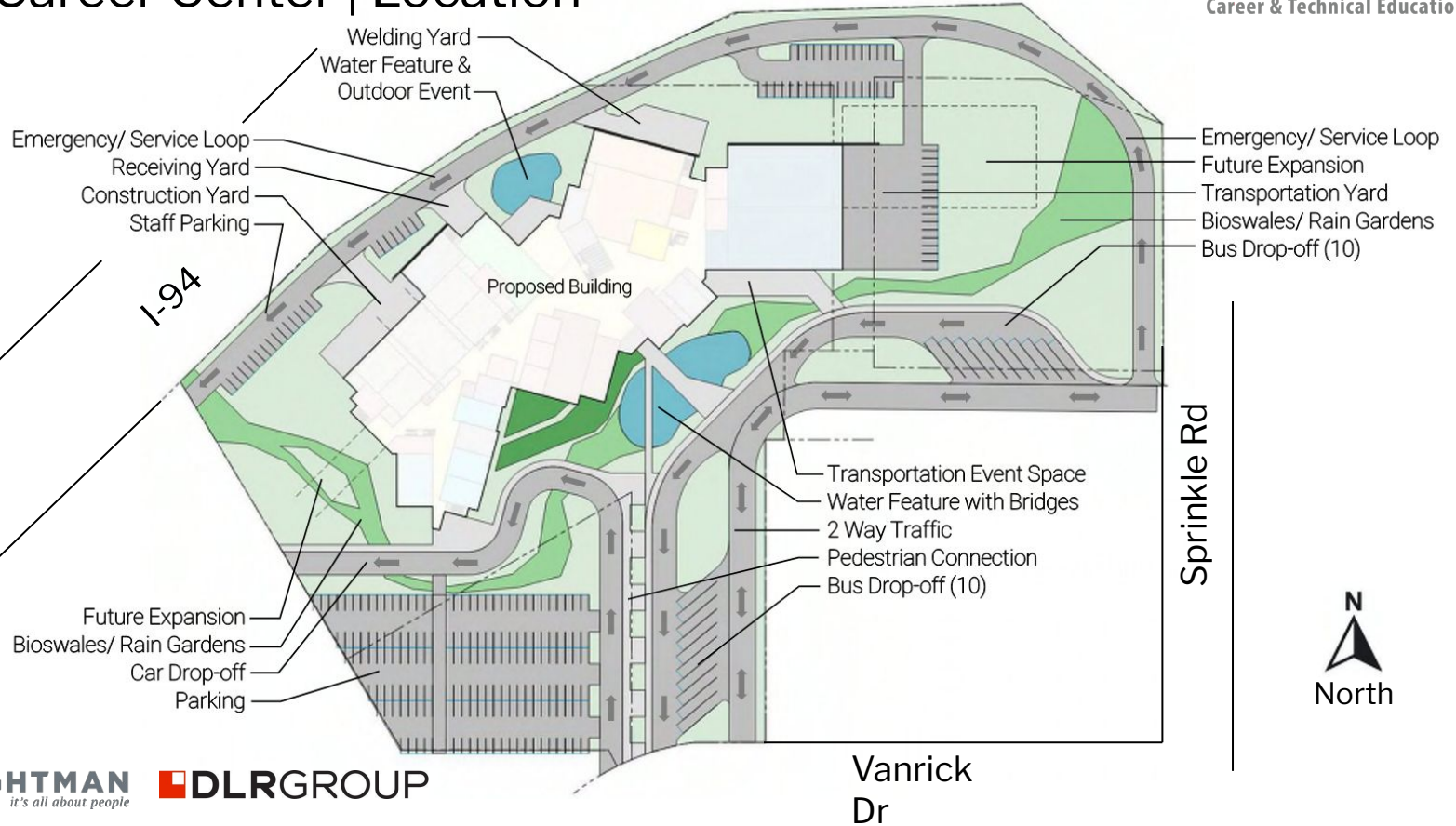
Comfortable  
scale and  
welcoming  
facility and  
way-finding



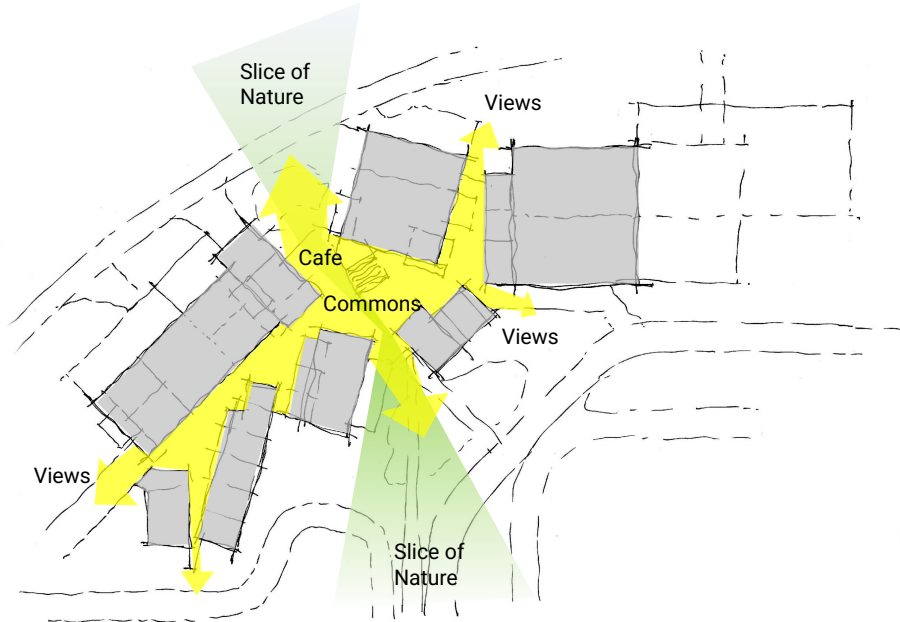
NEIGHBOR  
PROPERTY 4

SPRI

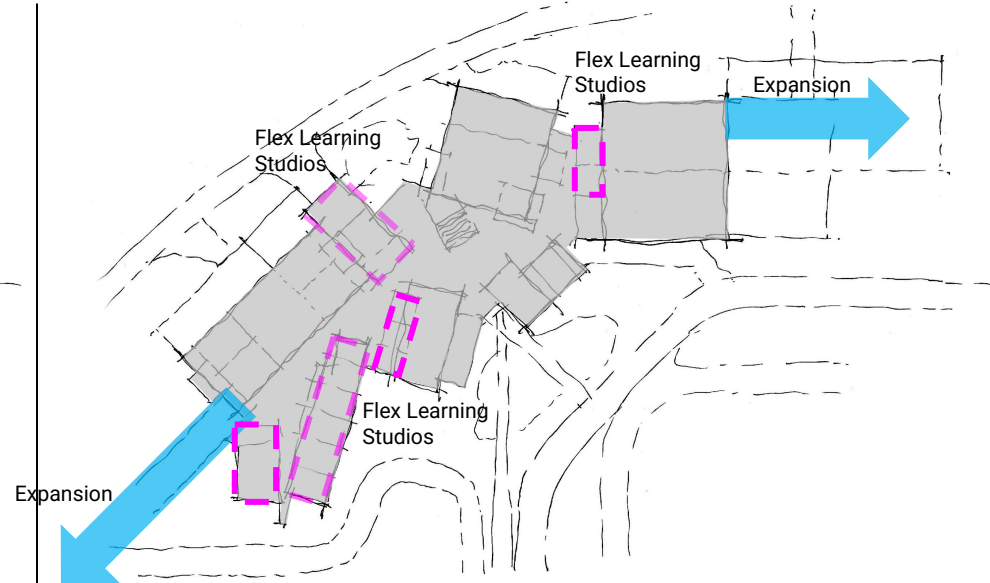
# New Career Center | Location



# New Career Center | Concept Design



Commons

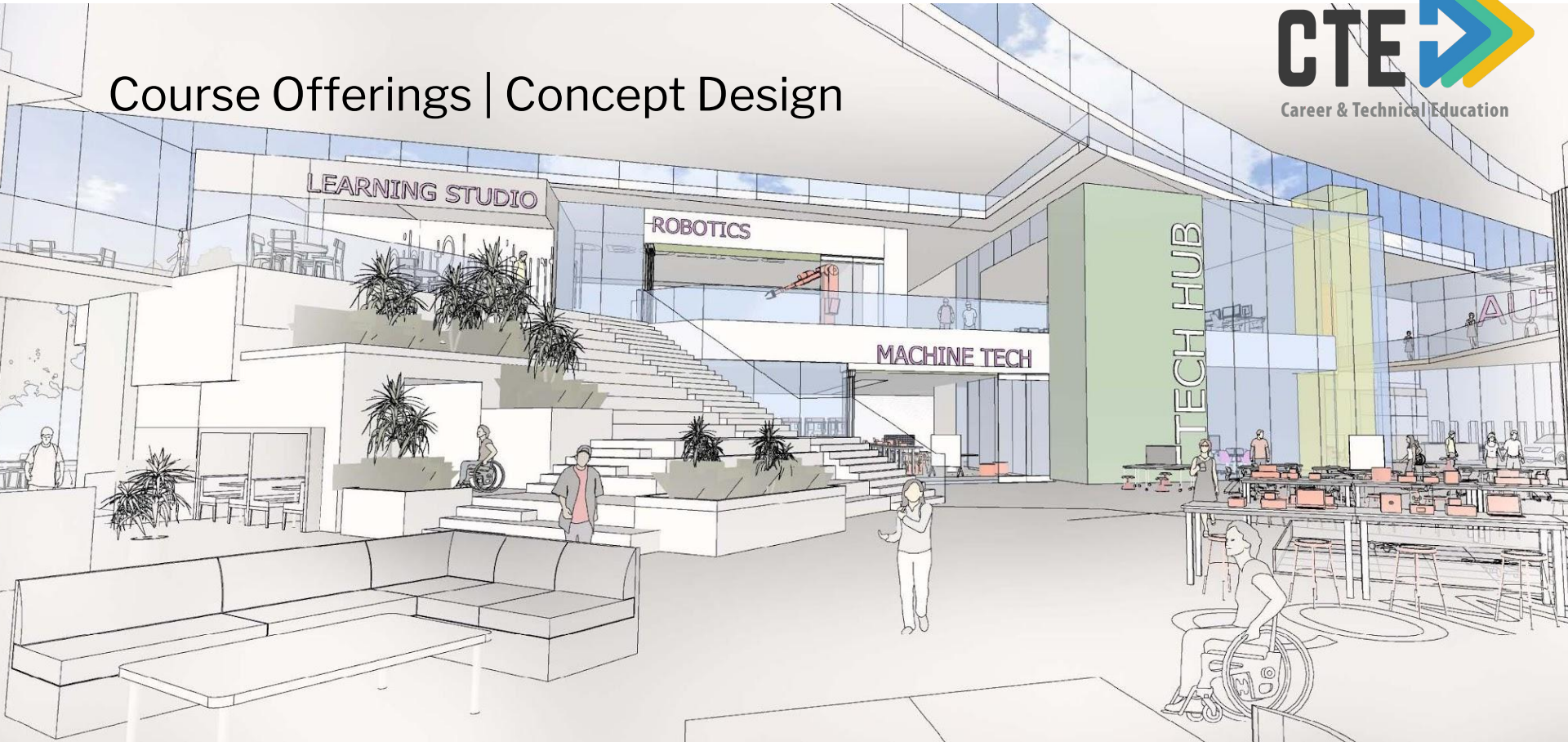


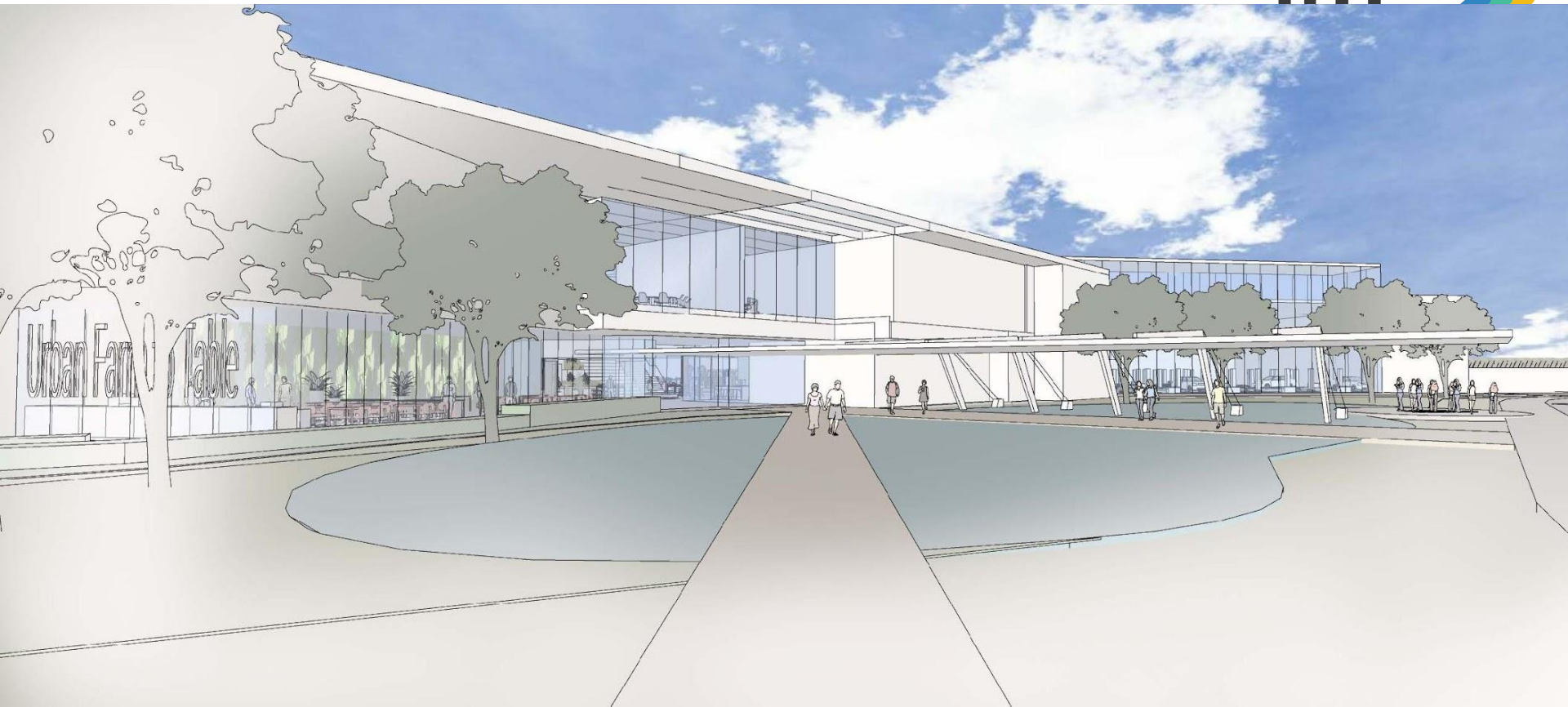
Future Proofing





# Course Offerings | Concept Design



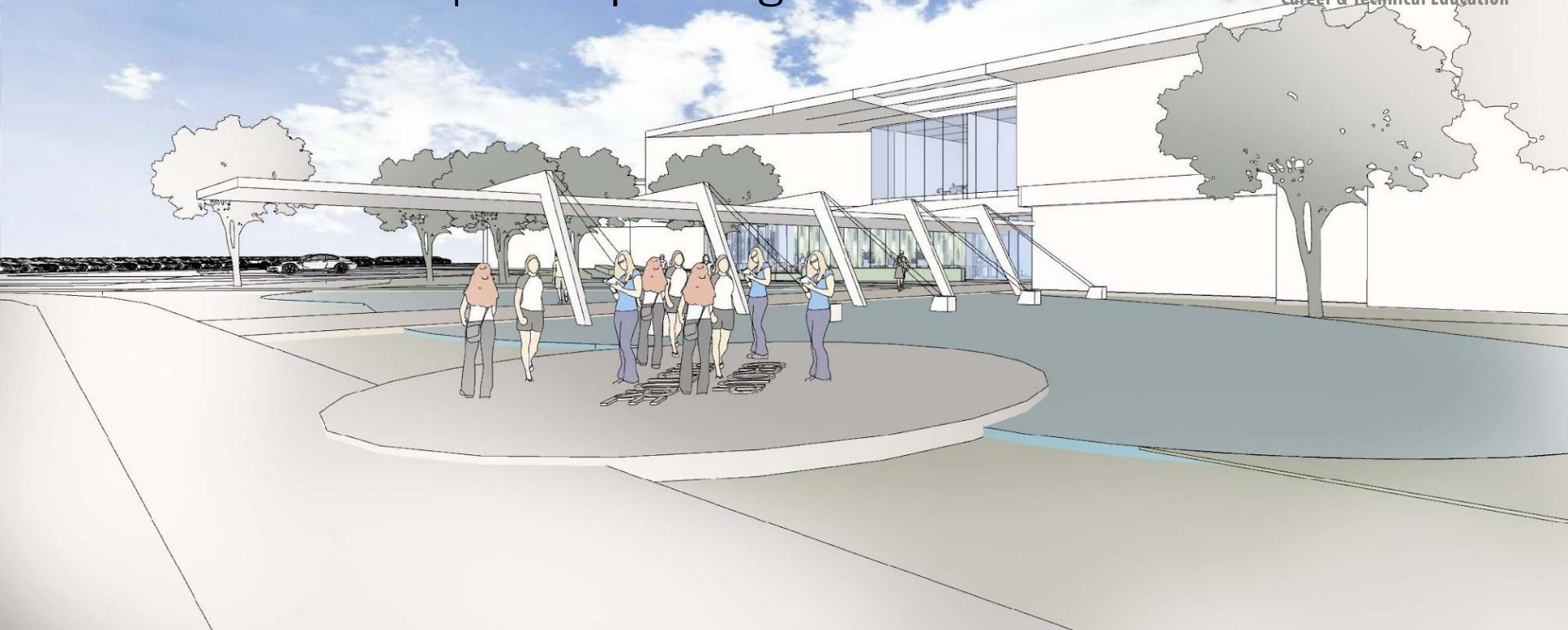




# Learning Experience | Concept Design



# Water & Nature | Concept Design





Overview

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# PROJECT GOALS





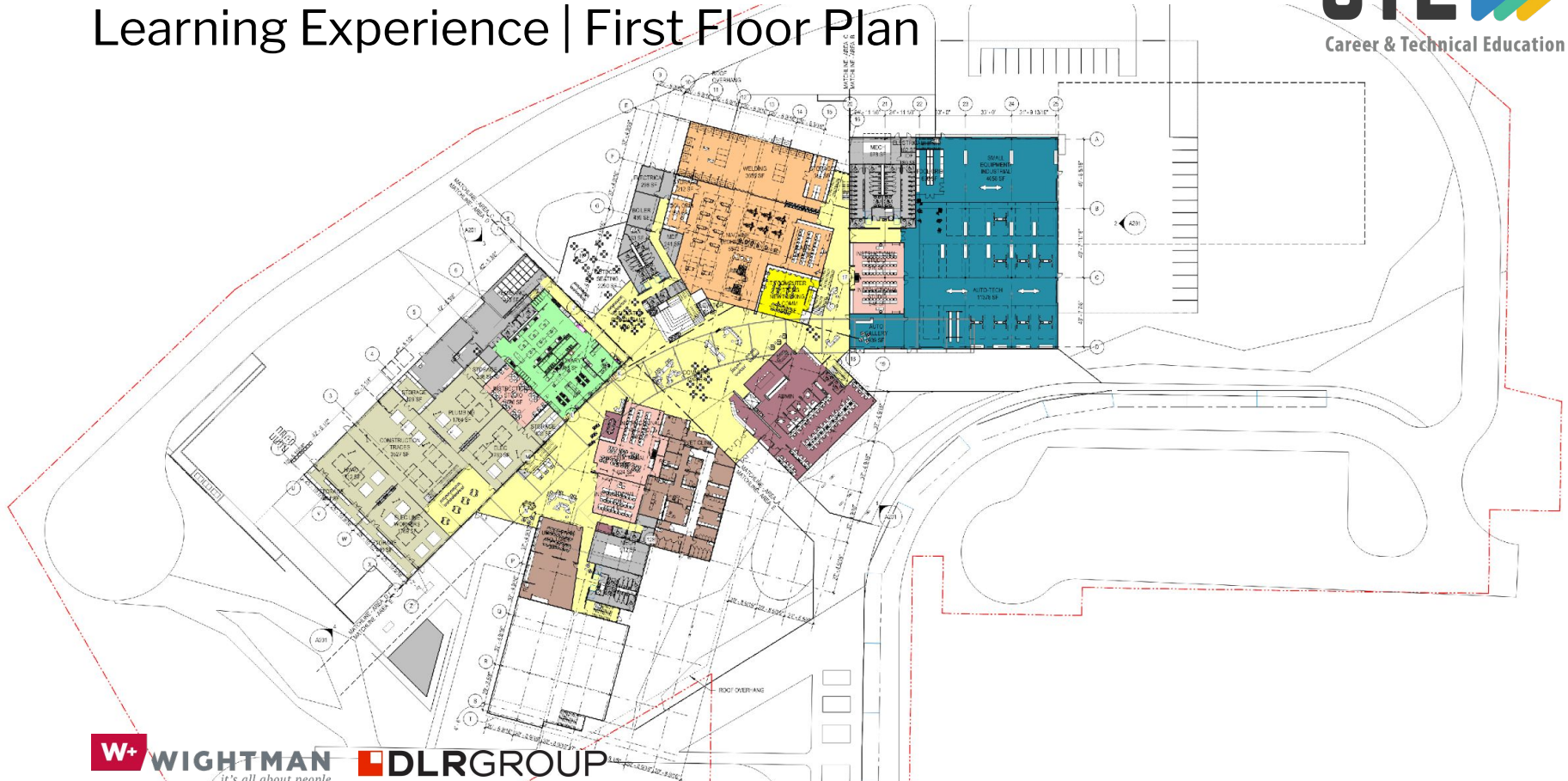
# Kalamazoo CTE Center | Top Ten Design Goals

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- **Flexibility**
- **Collaboration**
- **Culture / Pride**
- **Project-based, Real-world Learning**
- **Branding**
- **Inclusion**
- **Intersections / Partnering**
- **Planning for Growth / Future-proofing**
- **Ease of Navigation**
- **Never Go Dark/Anywhere/Anytime + Outdoor Learning**



# Learning Experience | First Floor Plan







Schematic Design

# Exterior | Main Entrance



Schematic Design

# Exterior | South Facade





Schematic Design

# Exterior | North Facade





## Intersections / Partnering | Interior





Overview

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# CODE CHALLENGES







# Bridgman Middle School

Bridgman, Michigan; Completed 1958, Group E Occupancy

Gymnasium; glue-laminated timber (GLT), Wood tongue and groove roof deck



The image shows the interior of a large, modern gymnasium at Spring Lake High School. The ceiling is a prominent feature, constructed from a grid of light-colored wood purlins and beams, with several long, cylindrical, yellow-painted ventilation ducts running horizontally across it. Long, rectangular fluorescent light fixtures are suspended from the ceiling. The walls are covered in large, light blue acoustic panels. In the foreground, there is a green and white play structure with a small roof. To the right, a large green slide is visible. The floor is a light-colored, polished surface. Large windows on the right side of the image allow natural light to enter the space. The overall atmosphere is bright and airy.

# Spring Lake High School

Spring Lake, Michigan; Completed 2008, Group E Occupancy

Wood roof deck, wood purlins, glue-laminated timber (GLT)

A wide-angle photograph of a large, modern indoor swimming pool. The pool is filled with blue water and has several lanes marked by red and blue lane lines. A curved wooden handrail runs along the edge of the pool deck in the foreground. The ceiling is made of exposed wooden beams and purlins, with a series of long, rectangular light fixtures hanging from it. The walls are white, and there are large windows on the right side. A diving board is visible in the background.

# Belleville High School

Belleville, Michigan; Completed 2012, Group E Occupancy  
Wood roof deck, wood purlins, glue-laminated timber (GLT)





# Woods Edge Learning Center

Portage, Michigan; Completed 2012, Group E Occupancy

Hybrid wood and steel trusses





Overview

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NEARING COMPLETION



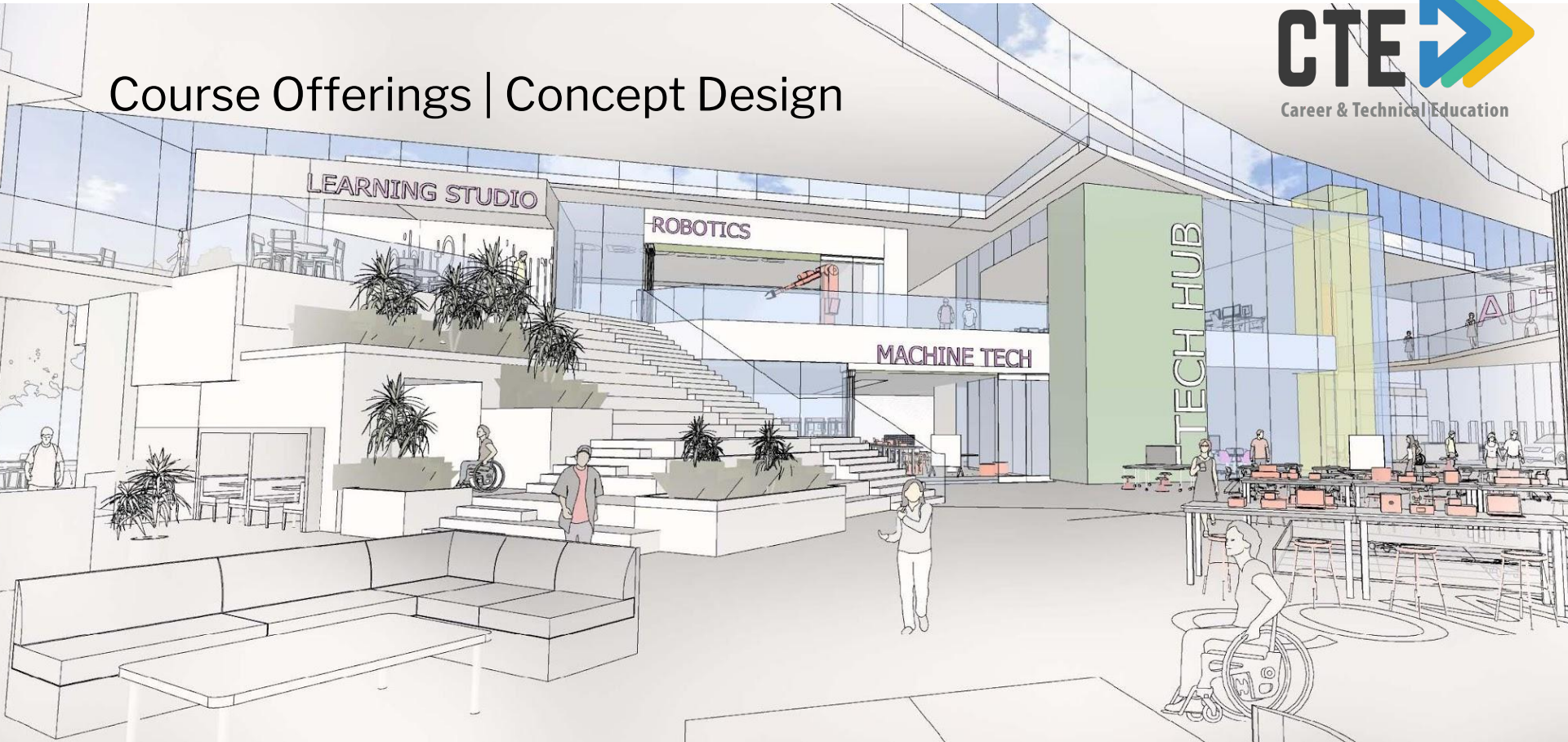








# Course Offerings | Concept Design













# PARTNERSHIP economic opportunity



Alone, we can do so little.  
Together, we can do so much.

COMPASSION  
TRUSTWORTHY RESP

EDUCATION

+ COLLABORATION



































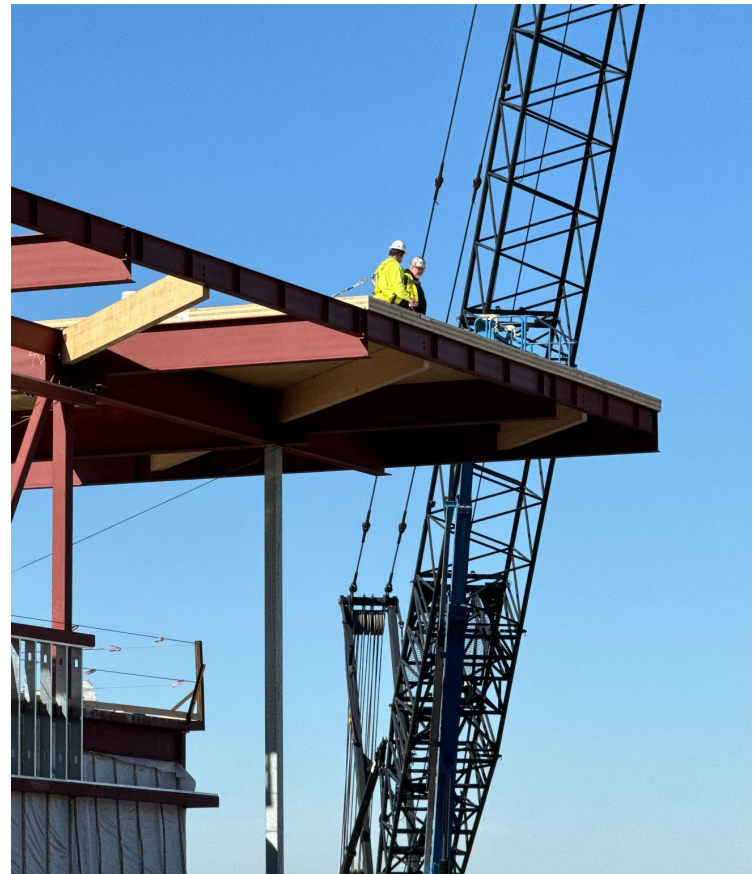
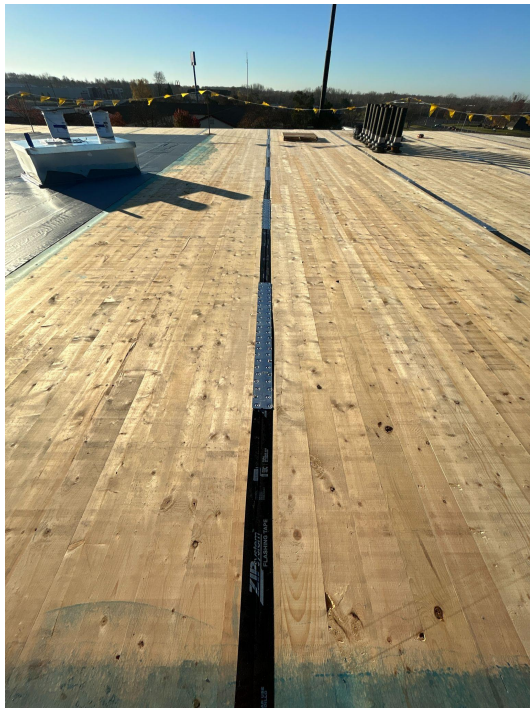












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ELEMENT5

# Leaders in Mass Timber

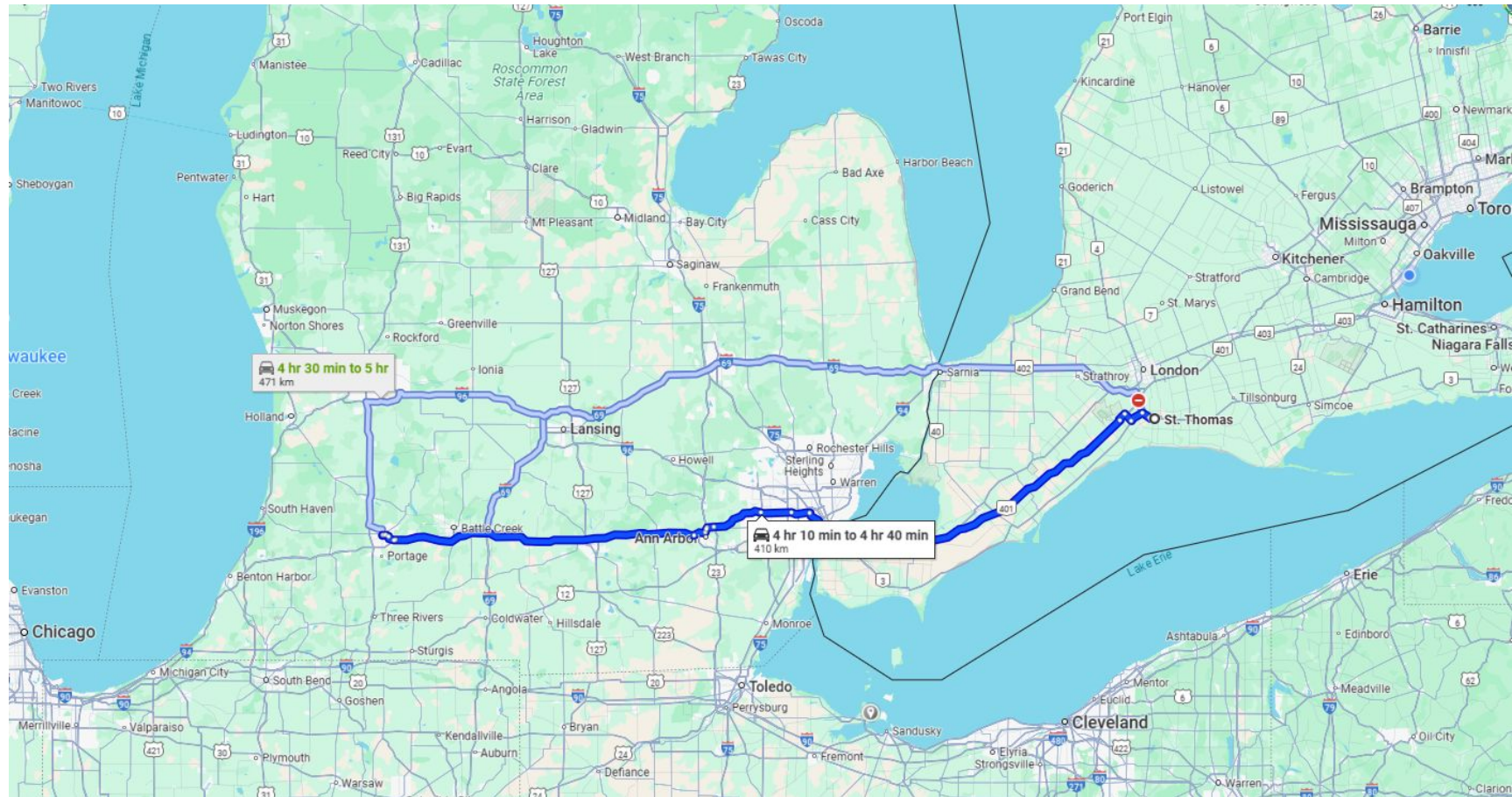
[elementfive.co](https://elementfive.co)





# Manufacturing Capacity and Location

## St. Thomas, Ontario



# Element5's State-of-the-Art Facility

Current: 140,000 sq.ft. with an annual capacity of 50,000 m<sup>3</sup> of CLT & 5,000 m<sup>3</sup> of Glulam





# E5 Factory Expansion – St. Thomas, Ontario Production

Over 400,000 sq.ft. with an annual capacity of 50,000 m<sup>3</sup> of CLT & 50,000 m<sup>3</sup> of Glulam



# Design Considerations





# Element5 - Cross-Laminated Timber (CLT)



<b>Grades Available</b>	V2, E1
<b>Optimal Panel Width*</b> other widths available on request	3.4m / 2.5m / 1.6m (11 ft / 8.2 ft / 5 ft) 3.2m visual, 3.5m non-visual
<b>Panel Width Tolerance</b>	+/- 3mm (1/8") of panel width
<b>Maximum Panel Length</b>	16.0m (52 ft)
<b>Panel Length Tolerance</b>	+/- 3mm (1/8") of panel length
<b>Maximum Panel Thickness</b>	380 mm (15")
<b>Panel Thickness Tolerance</b>	+/- 1/16" or 2% of panel thickness, whichever is greater

## L Panels (surface layers parallel to panel length)

LAYERS	DEPTH (mm/inches)	T	L	L	T	L	T	L	T	L
3 PLY	87 / 3 7/16"	35	17	35						
3 PLY	105 / 4 1/8"	35	35	35						
5 PLY	139 / 5 1/2"	35	17	35	17	35				
5 PLY	175 / 6 7/8"	35	35	35	35	35				
7 PLY	191 / 7 1/2"	35	17	35	17	35	17	35		
7 PLY	245 / 9 5/8"	35	35	35	35	35	35	35		
9 PLY	315 / 12 3/8"	35	35	35	35	35	35	35	35	35

3-ply 3-layer  
(3.43" - 4.14")



5-ply 5-layer  
(5.47" - 6.90")



7-ply 7-layer  
(7.52" - 9.66")



9-ply 9-layer  
(9.57" - 12.42")



## Optimal Panel Widths

Width (mm)	Visual/Non Visual
2450	Visual/Non Visual
2585	Visual/Non Visual
2720	Visual/Non Visual
2850	Visual/Non Visual
2985	Visual/Non Visual
3120	Visual/Non Visual
3250	Non Visual
3385	Non Visual

# Cross-Laminated Timber (CLT)

**Edge Glued Visual Grade by E5**



**vs.**

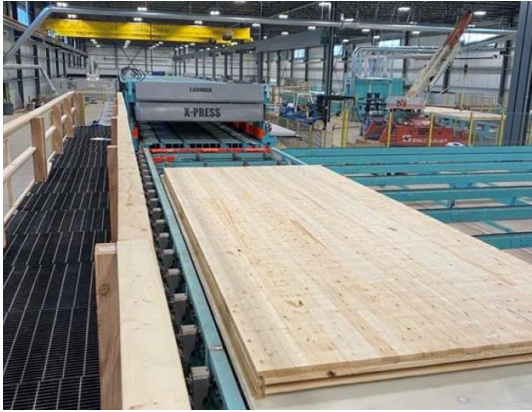
**Non-edge Glued Visual Grade (by others)**





# Laying out the Panels

## Optimizing for Mass Timber



Manufacturing



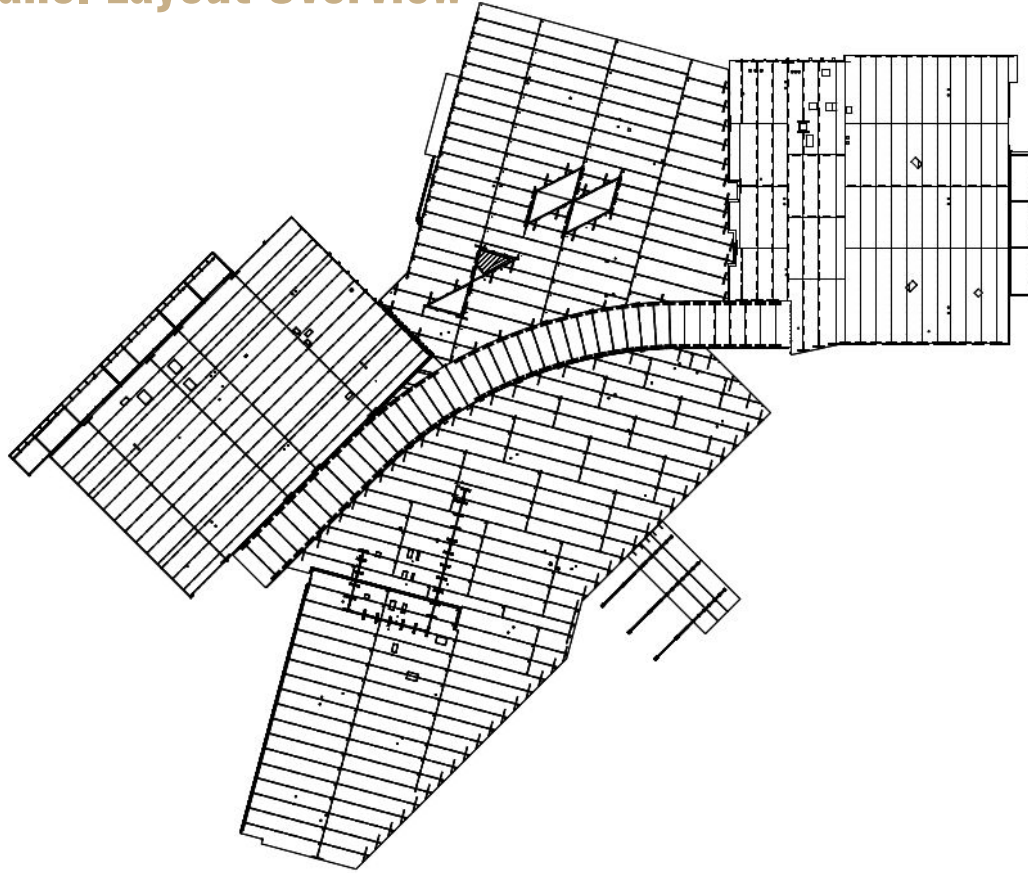
Logistics / Site Planning



Installation

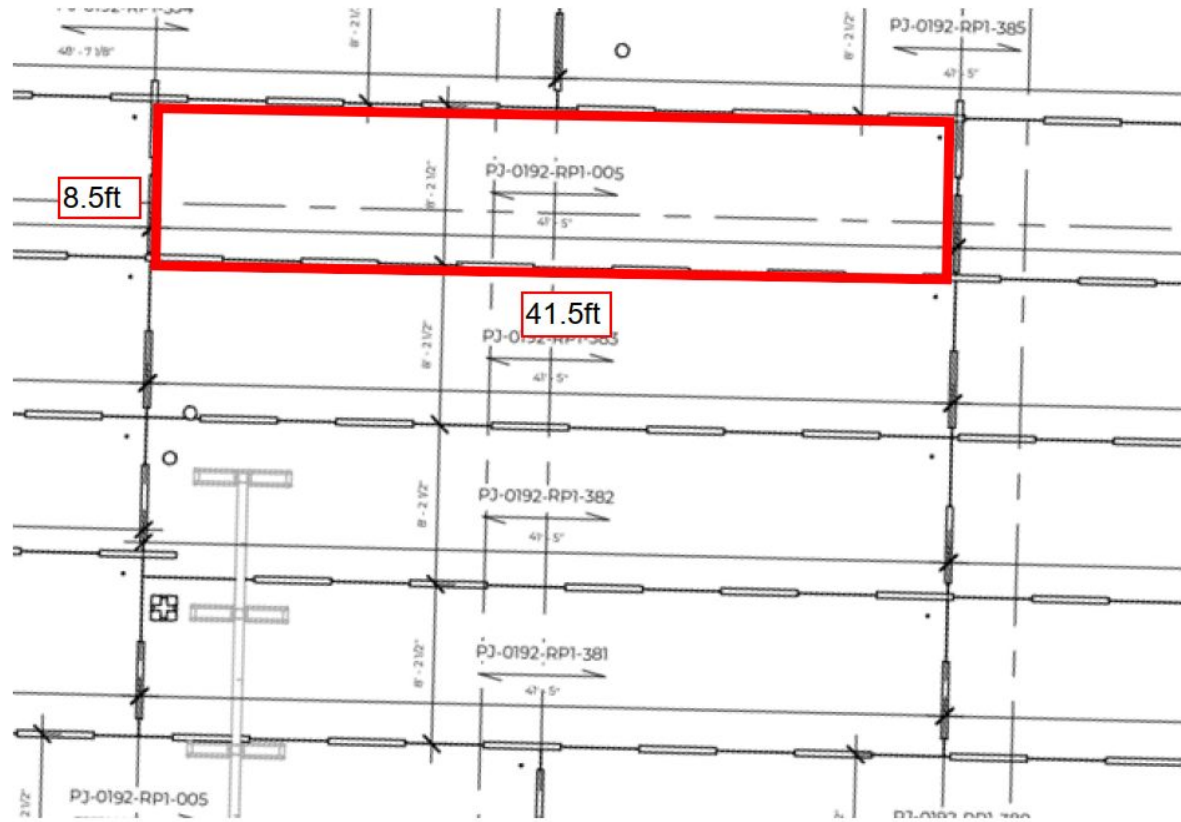


# KRESA - CLT Panel Layout Overview

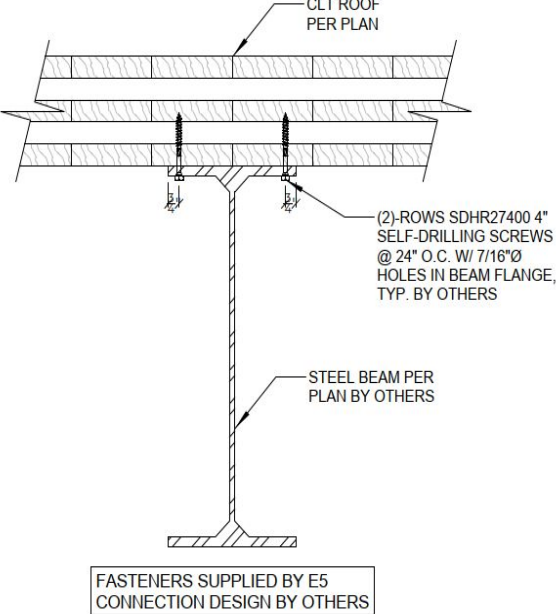




# KRESA - Hybrid Steel



# KRESA - Hybrid Steel



YP. STEEL BEAM TO CLT CONNECTION





# MEP Coordination







# Thank You!

## Contact Information

**Lee Scott, P.Eng., MBA**

Director, Sales – North America

T: 647 668 8457

E: [lee@elementfive.co](mailto:lee@elementfive.co)

[www.elementfive.co](http://www.elementfive.co)



# Thank you!



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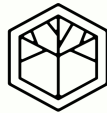
**Mass Timber Supplier**







# Thank You!



**ELEMENT5**  
MASS TIMBER BUILDINGS

**W+** **WIGHTMAN**  
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**KRESA**  
Transforming Futures

**DTE**

**Consumers Energy**  
*Count on Us®*

**EGL**E  
MICHIGAN DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY

