

Growing Mass Timber Momentum for Forests, Climate, Sustainability, and People

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*Forest Carbon & Climate Program/Society of American
Foresters*

Learning Exchange Series

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HOW MASS TIMBER HAPPENED TO ME

- Pre-academia: 20+ years in non-profit and public sectors
 - Climate, environment, community development, arts, media
 - Communications, Outreach, Stakeholder Engagement, Policy Advocacy
- 2016 – Started mid-career Master of Public Policy in California



HOW MASS TIMBER HAPPENED TO ME

FAST COMPANY

UPDATES COVID-19 CO.DESIGN TECH WORK LIFE NEWS IMPACT PODCASTS VIDEO RECOMMEND

08-29-17 | WORLD CHANGING IDEAS

This Furniture Gives New Life To Drought-Killed, Beetle-Infested California Pines

The cofounders of SapphirePine want to create value for wood that most furniture makers consider too damaged to use.



9/9 [Photo: SapphirePine]



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HOW MASS TIMBER HAPPENED TO ME

SapphirePine's Solution

Become the first California manufacturer of cross-laminated timber (CLT), launching a new California industry that tackles wildfire and climate change;

1. Create revenue to pay trees' way out of the forest

- Reduces wildfire intensity
- Reduces CO2 Emissions

2. Sequester forest carbon in long-lived durable building materials

3. Focus on long-term forest health and sustainability



First Tech Credit Union is building its new headquarters in Oregon from CLT manufactured in Canada

SapphirePine

REMOVING BARRIERS TO CROSS-LAMINATED TIMBER MANUFACTURE & ADOPTION IN CALIFORNIA

A game-changer for wildfire, forests, and climate change

By Sandra Lupien, MPP 2018

Prepared for:

Bob Epstein
E2 (Environmental Entrepreneurs)



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MASS TIMBER IS:

“... a category of framing styles typically characterized by the use of large solid wood panels for wall, floor, and roof construction. It also includes innovative forms of non-building structures, formed from solid wood panel or framing systems of six feet or more in width and depth”

--American Wood Council



TYPES OF MASS TIMBER



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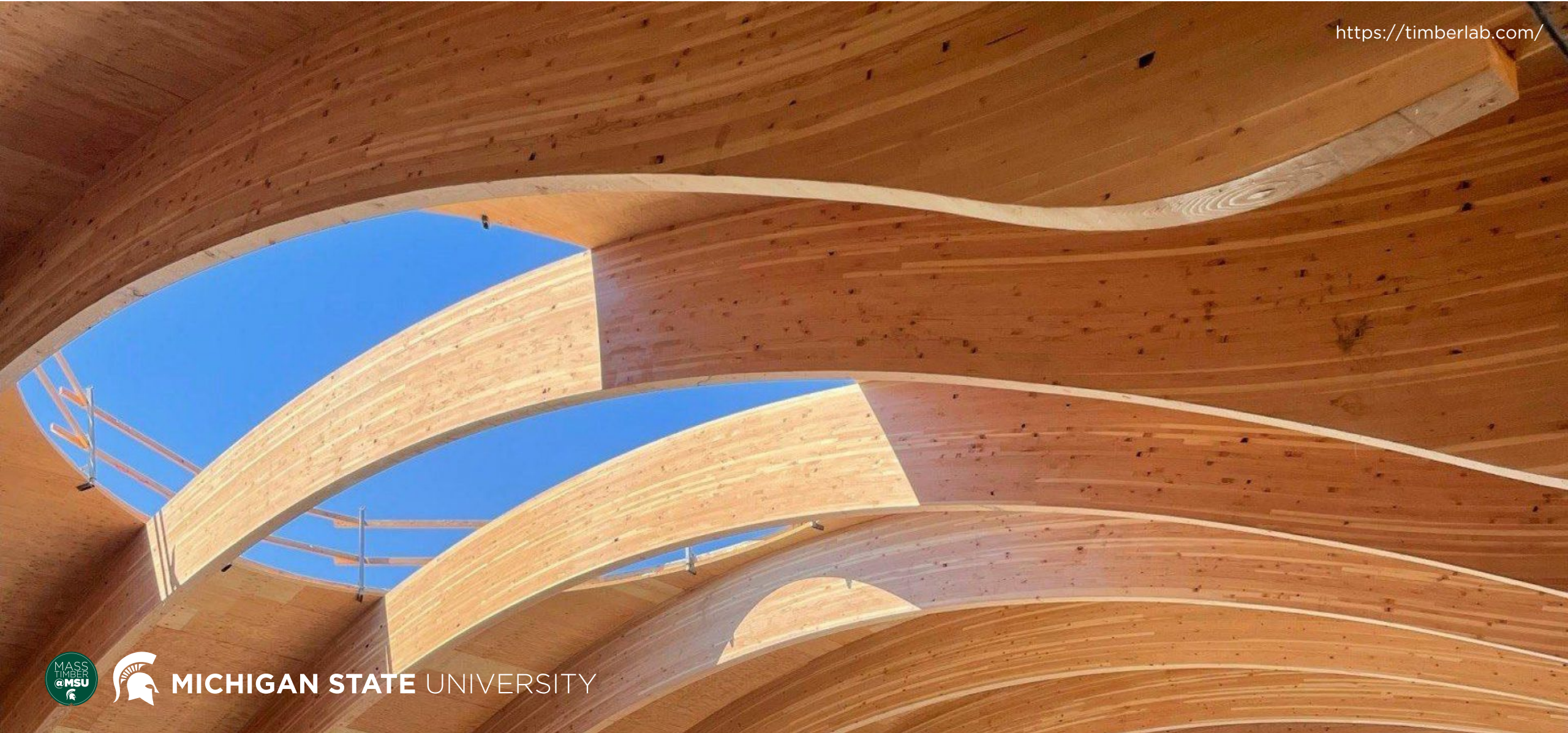
GLULAM BEAMS + COLUMNS



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GLULAM ARCHES

<https://timberlab.com/>



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CROSS-LAMINATED TIMBER PANELS



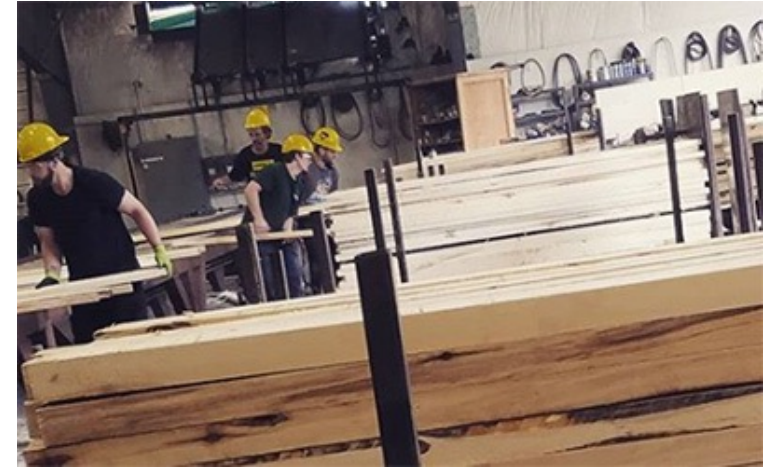
MASS TIMBER BENEFITS



FOR CONSTRUCTION



*FOR FORESTS, CLIMATE, +
SUSTAINABILITY*



FOR JOBS + ECONOMY



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CONSTRUCTION

HIGH-PERFORMANCE MATERIALS

MASS TIMBER IS:

- Lighter weight and strong – Great
- Strength:Weight
- Prefabricated – Save time on construction
- Works well in hybrid systems or alone
- Performs well in seismic testing

Highly fire resistant



JOBS + ECONOMY

- Revenue for forestland owners
 - Commercial, Family, and Public
- Revitalized Employment Sectors
 - Forestry, Timber (Milling, Kilning)
- New Jobs
 - MT Manufacture/Fabrication
 - New Construction Types



ARCHITECTURAL INNOVATION

BIOPHILIA - THE FEEL OF WOOD



OFFICE BUILDING IN MINNESOTA



HIGH-TECH HUB IN THE NETHERLANDS



MACDONALD'S IN CHICAGO



MASSTIMBER@MSU



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



MSU STEM TEACHING & LEARNING FACILITY



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MSU STEM SUSTAINABILITY

3,000 m³
Mass Timber

■ Cross-Laminated Timber

- Floor Decks
- Stair Towers

■ Glue-Laminated Timber

- Columns
- Beams
- Girders



Carbon Storage
1,856 mt CO₂-e



NOT driving nearly
4.7 million miles



NOT burning more than
2 million pounds of coal



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OUTREACH + ENGAGEMENT

- Expand MI Mass Timber Knowledge & Networks
 - Leverage MSU STEM Building as Living Lab
 - Educational Videos During Construction
 - More Than 2300 People – Tours & Presentations
 - AEC Industry
 - Forest Products
 - Elected Officials, Other Leaders
 - Students
 - Technical Assistance – MI Mass Timber Community of Practice
 - Mass Timber Webinars
 - International Mass Timber Conference - 60+ MI in 2023
 - Michigan Mass Timber Update – 150

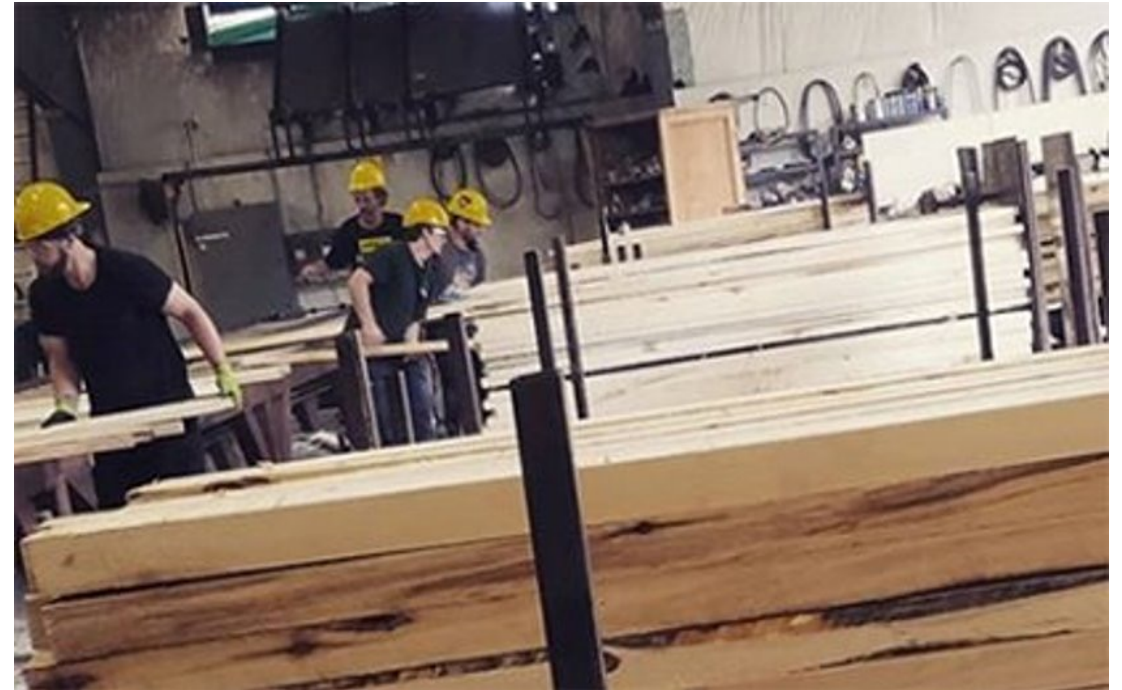


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RESEARCH INITIATIVES

■ SUPPORTING MASS TIMBER MANUFACTURE IN MI

- Michigan Mass Timber Supply Chain Analysis and Demand Survey (MDNR)
- Piloting MI-sourced nail-laminated timber in two U.P. projects (USFS Wood Innovations Grant)



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RESEARCH INITIATIVES

■ ADVANCING MASS TIMBER CONSTRUCTION

- Mass timber design + construction post-secondary curriculum development (NSF)
- Mass timber construction cost-prediction tool (USFS Wood Innovations Grant)

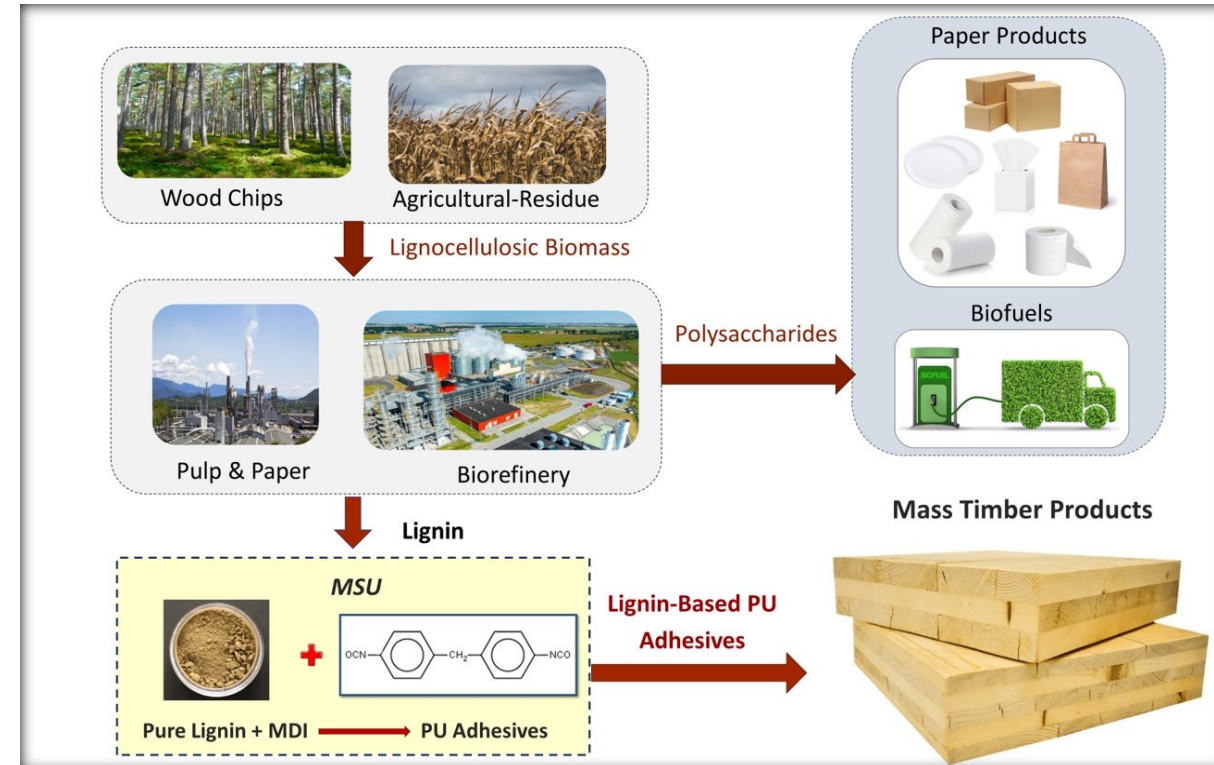


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RESEARCH INITIATIVES

MASS TIMBER R&D

- Mass timber made from wood salvaged from building deconstruction
- Lignin-based mass timber adhesives



MANUFACTURE IN NORTH AMERICA

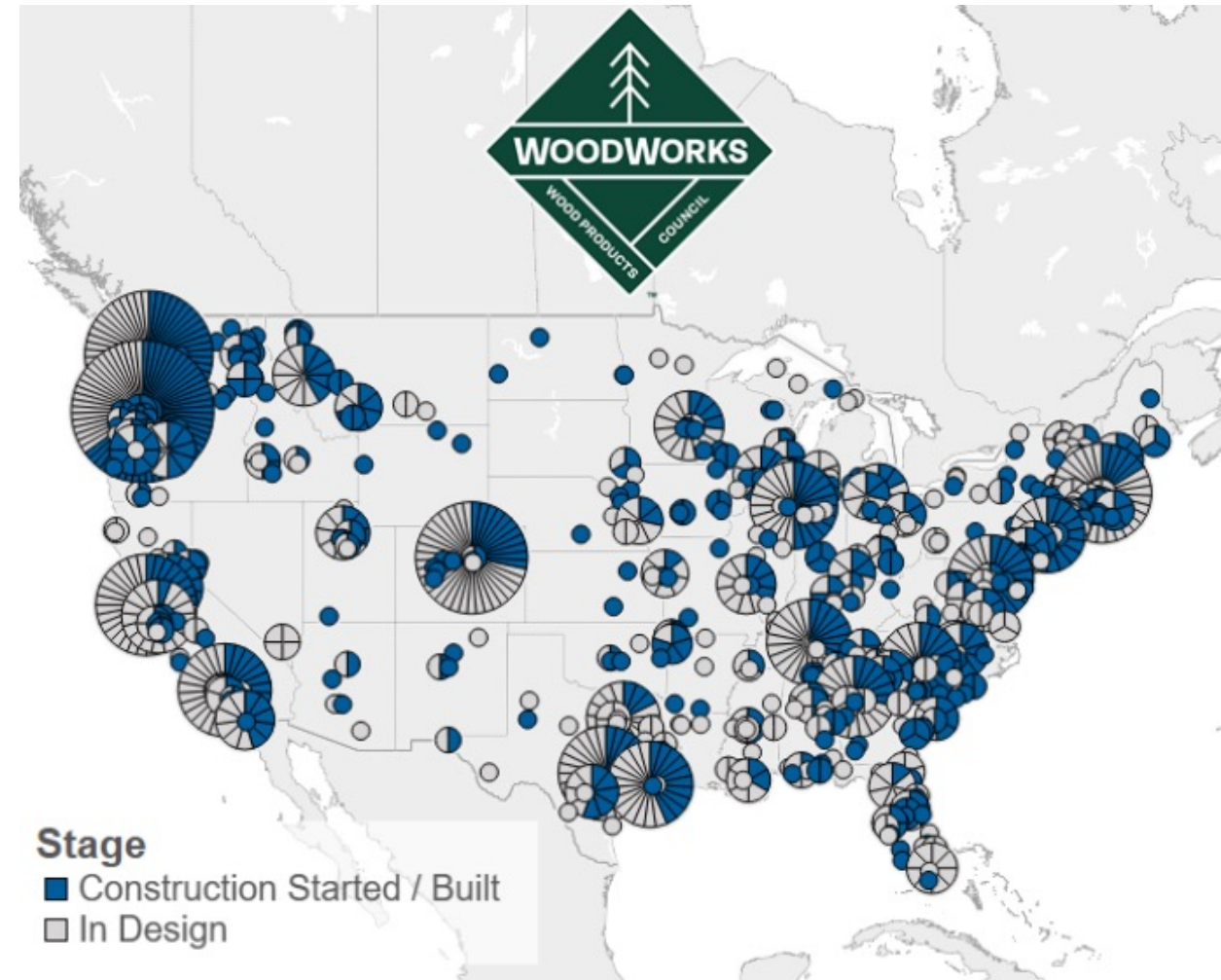
- DR Johnson Lumber (Riddle, OR)
- Freres Lumber (Lyons, OR)
- SmartLam (Dothan, AL)
- SmartLam (Whitefish, MT)
- Mercer (Penticton, BC, Canada)
- Nordic (Chibougamau, QC, Canada)
- StructureCraft (Abbotsford, BC, Canada)
- Element 5 (St. Thomas, ON, Canada)
- Vaagen Timbers (Colville, WA)
- Mercer (Conway, AR)
- Sterling (Phoenix, IL/Lufkin, TX)
- Mercer (Spokane Valley, WA)



U.S. MASS TIMBER DEMAND

SEPTEMBER 2023

- Total projects: **1934**
 - **901** Complete/ Under Construction
 - **1033** In Design
- Compare with 2018 Projects: **439**
 - Increase > ~ **4.5x**



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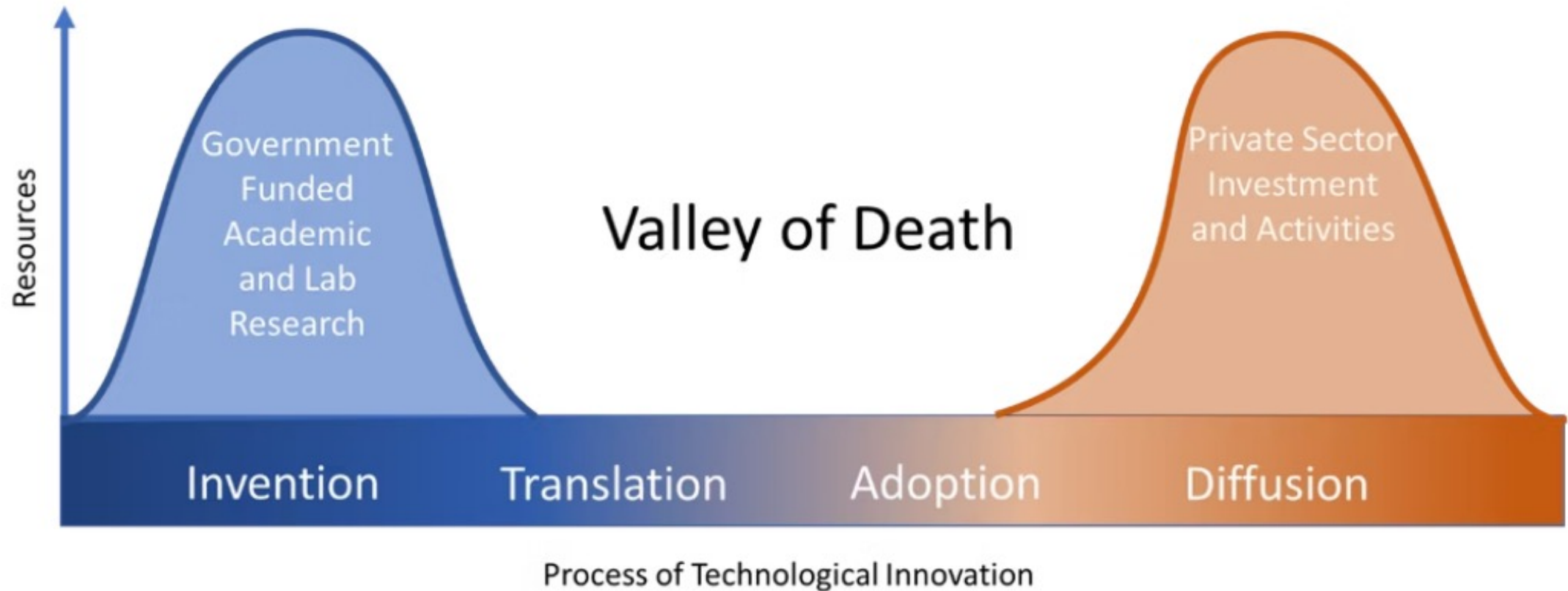
MASS TIMBER PROJECTS IN MICHIGAN: 45+ IN THE PIPELINE

Status	# Projects
Complete	8
Broke Ground	4
Under Construction	12
Planning & Design	21

Level of Certainty	# Projects
Certain	27
Probable	6
Exploratory	12



WHY WE NEED POLICIES



The 'Valley of Death' is a metaphor for how long it can take to scale up innovations and inventions.

Source: Jetta Wong/Information Technology & Innovation Foundation, CC BY-SA



WHAT KINDS OF POLICIES?

- Mass Timber in Planning Documents – Climate & Sustainability Plans, e.g.
- Building codes– Get them updated to at least 2021 IBC
- Procurement
 - e.g. State projects must use mass timber (or prove they can't)
- Building Standards, Zoning Codes
 - Build taller, build larger, build “by-right”
- Tax Policy - Tax Increment Financing/Brownfields; Rebates, Abatements
- Grants



EMERGING MASS TIMBER POLICY IN MICHIGAN

- **Adopted**
 - MI Healthy Climate Plan
 - Lansing Sustainability Action Plan
 - Ann Arbor Public Schools RFPS
- **In Process**
 - 2021 Michigan Building Code
- **Proposed**
 - City of East Lansing – Zoning Ordinance
- **Seeds planted/Early conversations at State Level**
 - Various incentives, credits, grants

MI HEALTHY CLIMATE PLAN



CONCLUSIONS

- “Wood is the building material that causes us to plant trees and grow forests.” – Katie Fernholz
- Wood building materials – uniquely – store carbon. Mass Timber stores a lot of it while also substituting for other carbon-intensive materials.
- Mass Timber demand and manufacture are growing across the U.S.
- We need supportive policies to help them grow faster.
- And (of course) we should regularly revisit forestry practices to optimize for health, resilience, sustainability.



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canr.msu.edu/masstimber/



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