



# Sustainable Growth Through Collaboration

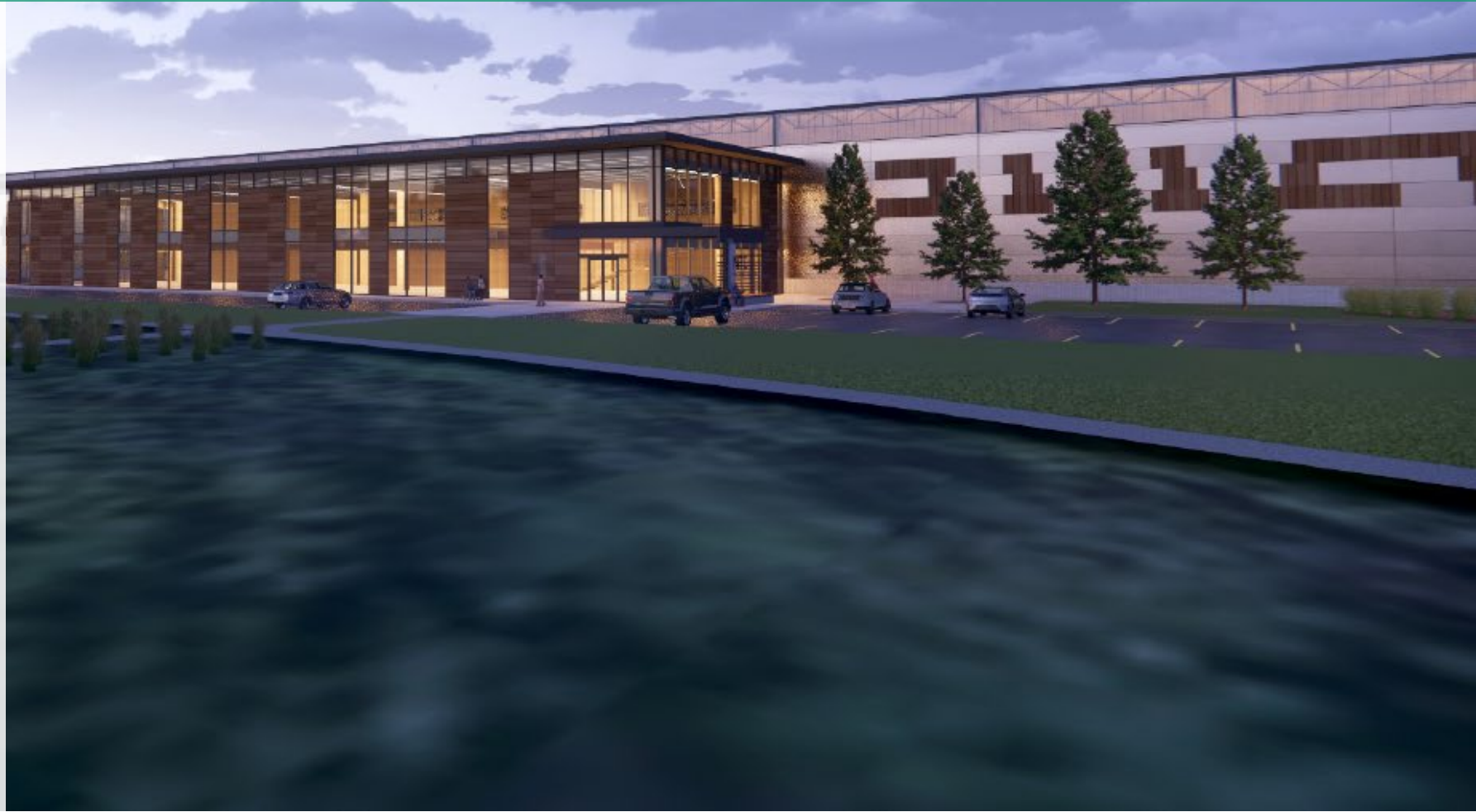
Vital Recommendations for Mass Timber Success



**MTC**  
MASS TIMBER COMPANY

Maritime Lumber Bureau AGM

June 5<sup>th</sup> 2024





## **MTC Mass Timber Company Inc.**

- World's most advanced Glulam and CLT manufacturing facility
- Sawmill integrated
- Proprietary grades from SPF to compete with Douglas Fir
- Highly automated + flexible production capabilities
- Located in East Hants, NS
- \$215 Million Capitalization (250,000ft<sup>2</sup> + Boiler + Kilns)
- 43,000,000mbf / year
- 50,000 m<sup>3</sup> / year = 2,500,000 ft<sup>2</sup> construction
- 125 employees
- RBC firsts start-up that capital markets has supported





# Committed Partners





# Sustainable Growth Through Collaboration

## Vital recommendations for:

### Sawmill Sector



### Design and Construction



### The Federal Government

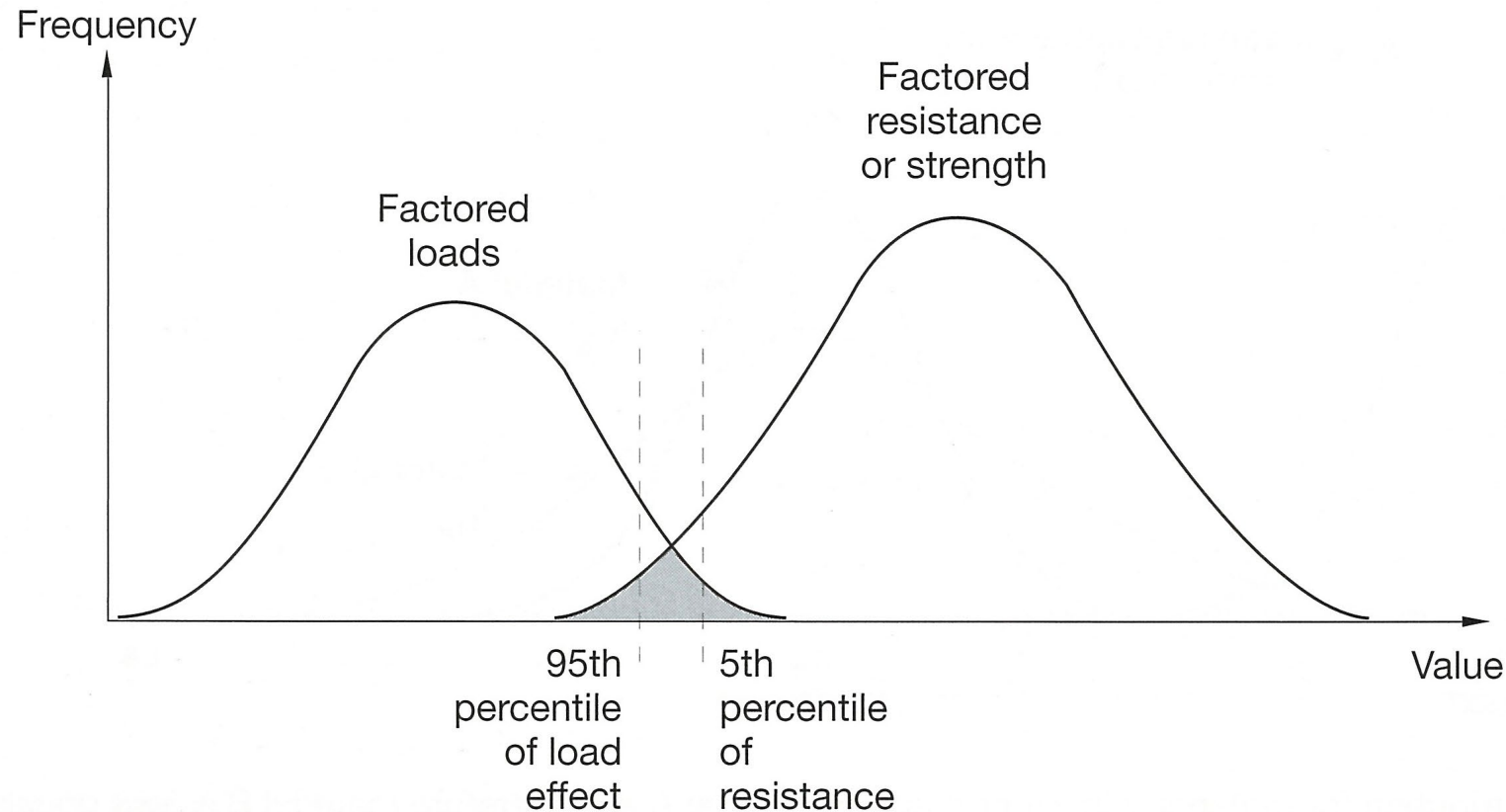
Canada

# Sawmill Sector

## Test the Strength of your Wood Basket

### Key Points:

- Over 95% of Canadian SPF is sold as a commodity product
- SPF #2 and Better (Largest commodity product in Eastern Canada is a species grouping
- Design requirements represent the lower 5% of performance
- Value can be extracted for mass timber feedstock production
- Increasing value roughly 10-15x commodity SPF and creating more predictable pricing mechanisms



# Sawmill Sector

## Extract the highest value material

Summary of Average Specific Gravity and Moisture Content by Mill and Nominal Cross Section					
Nominal Size	Average Specific Gravity	Specific Gravity COV (%)	Average Moisture Content (%)	Moisture Content COV (%)	
2x4	0.46	14%	14%	52%	
2x6	0.43	10%	9%	50%	
2x8	0.40	8%	10%	45%	
2x4	0.42	15%	18%	40%	
2x6	0.43	23%	13%	48%	
2x8	0.45	15%	10%	52%	
2x4	0.43	12%	12%	41%	
2x6	0.45	10%	9%	37%	
2x8	0.42	8%	12%	36%	
All Sizes	0.43	14%	12%	52%	

Known Specific Gravity of Selected Spruce Species		
Common Name	Scientific Name	Specific Gravity
Black Spruce	Picea mariana	0.38
Red Spruce	Picea Rubens	0.38
White Spruce	Picea Glauca	0.37

**DOUGLAS FIR-LARCH**  
MIXED SOUTHERN PINE  
**SOUTHERN PINE**

**0.50** | **WCLIB, WWPA**  
0.51 | SPIB  
**0.55** | **SPIB**

- Key Points:**
- Encourage sawmills to test the quality of their wood basket
  - Machine Stress Rated (MSR) lumber removes any performance variability from a piece of wood
  - Do not treat published design values as gospel



# Sawmill Sector

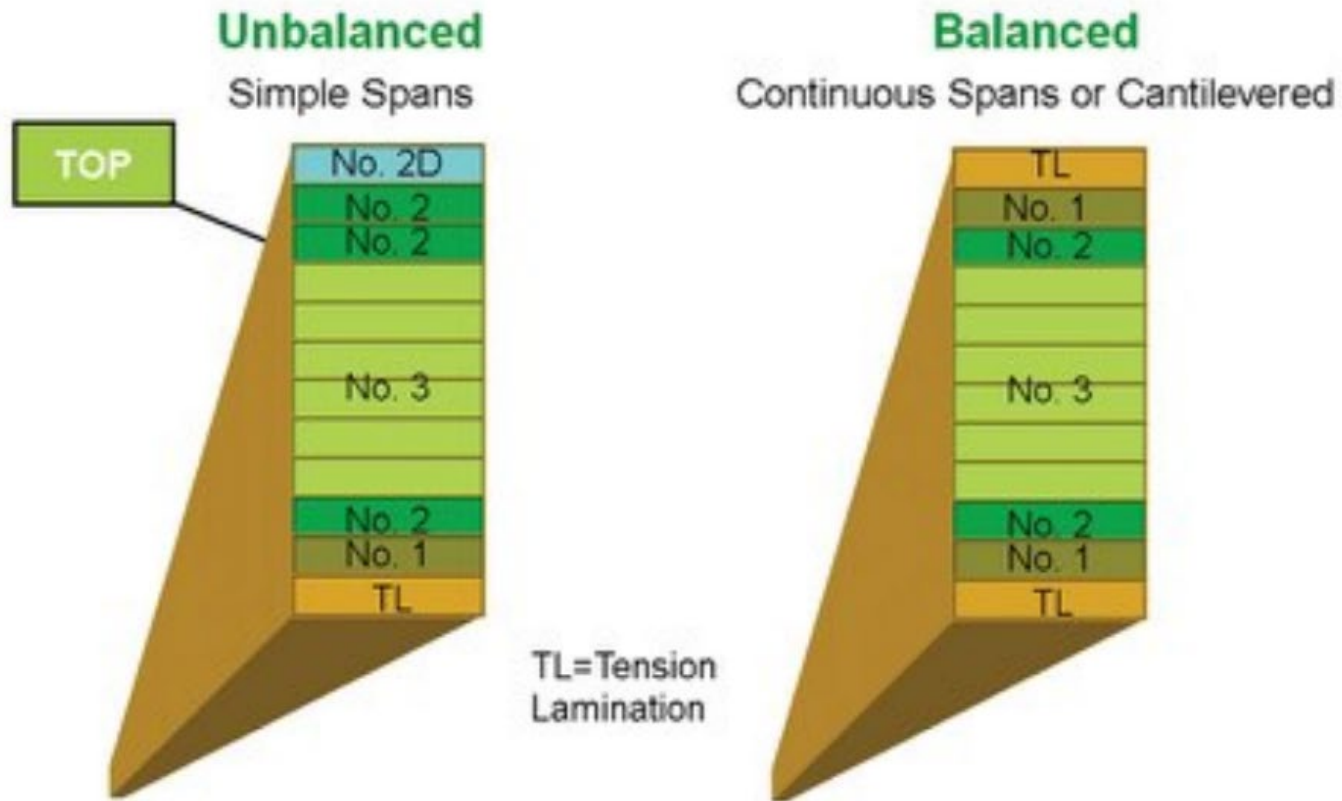
## Example....

MOE (Mpa)	Sum Count	Pc Count	E Value (psi)	24f-E SPF 1	24f-E SPF 1
3	0	0	0.4	10%	0%
4	9	9	0.6		
5	68	63	0.7		
6	301	241	0.9		
7	798	525	1		
8	1758	1025	1.2		
9	3285	1644	1.3	63%	70%
9.7	4666	1567	1.4		
10	5254	779	1.5		
11	7339	2282	1.6		
12	9254	2134	1.7	27%	30%
12.4	9886	792	1.8		
13	10683	934	1.9		
13.8	11476	925	2		
14	11608	209	2		
14.5	11855	309	2.1		
15	12065	258	2.2		
16	12273	241	2.3		
17	12344	92	2.5		
18	12375	32	2.6		
19	12389	16	2.8		
20	12393	4	2.9		
21	12393	0	3	100%	100%



# Sawmill Sector

Become closer to the end user to control your market



## Key Points:

- Create products that compete with Douglas Fir and Southern Yellow Pine
- Create more value with the same product (10-15x value add)

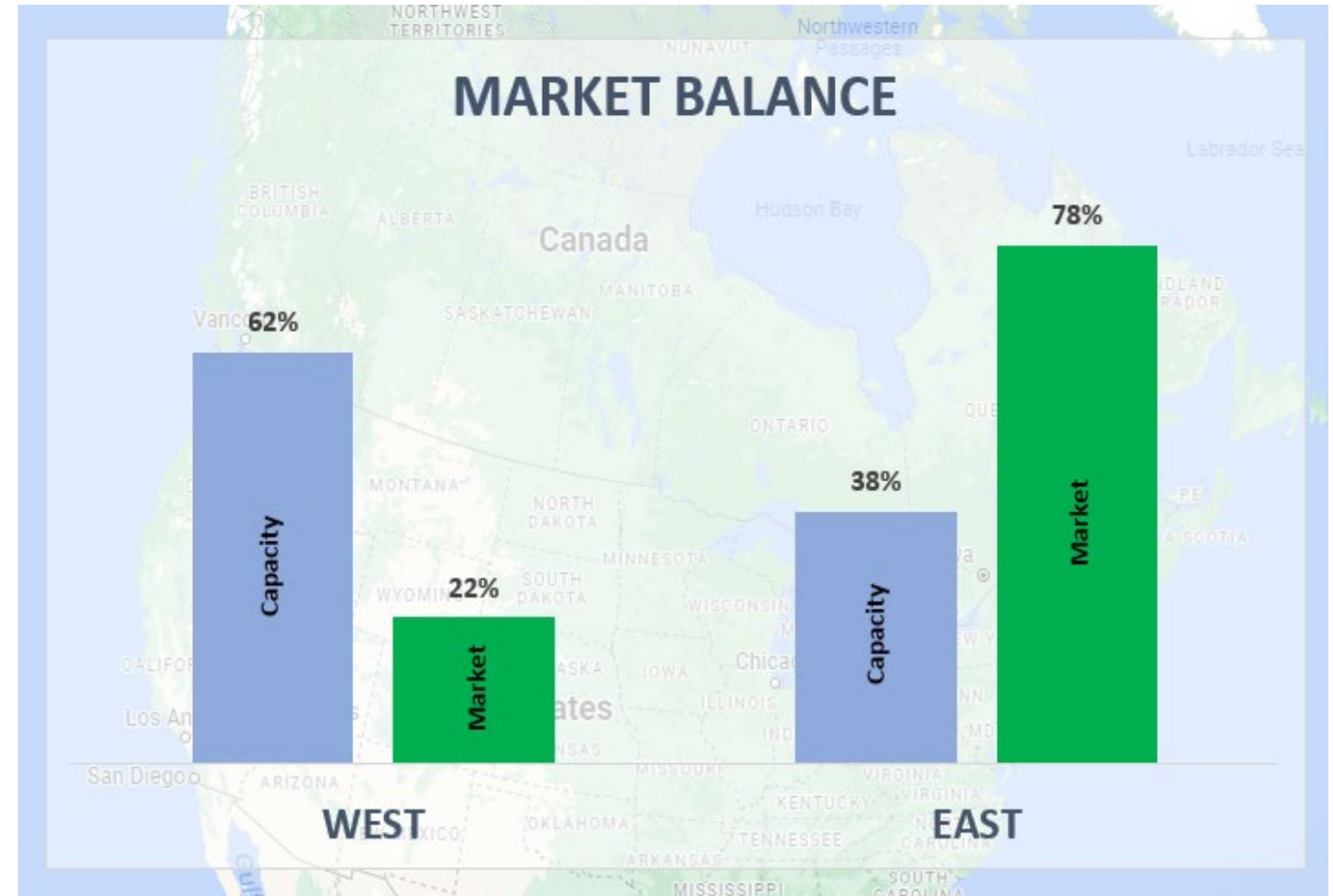




# Sawmill Sector

## Become part of the solution

- Demand is shifting to Eastern markets
- Demand growth in Eastern markets are expected to rapidly outpace mass timber material supply capacity.





# Design and Construction Industry

**Objective:** How to deliver mass timber projects in a cost effective, sustainable manor that produce resilient high performing buildings.



# Design and Construction Industry

## Repeatable Designs | DFMA

North American Mass Timber Manufacturing Capabilites									Maximum CLT			Maximum Glulam		
Company	MT Panel		GLT	Panel Capacity (m3)	Glulam Capacity (m3)	PRG 320 Certification	Species Used	CoC Certification	Width (ft)	Length (ft)	Thickness (inches)	Width (inches)	Depth (inches)	Length (ft)2
	Start Date	CLT												
Mercer***	2020	Y	N	185,000		0 PFS TECO	SPF, DF	SFI, FSC, PEFC	12	60	12	N/A	N/A	N/A
SmartLam NA, MT	2012	Y	N	75000		0 APA	SPF-S, HF	SFI, FSC	10	53	12	N/A	N/A	N/A
Structurlam, AR	2021	Y	Y	75000	31,000	APA	SYP	FSC	12	60	12	20	43.3	65
MTC, NS	2025	Y	Y	70,000	30,000	WRD, APA	SPF	FSC SFI CSA	11.5	60	12	23	80	60
Sterling****	2022	Y	X	59,500		0 PFS TECO	SYP	Unknown	8	18	9.6	N/A	N/A	N/A
Sterling****	2022	Y	X	59,500		0 PFS TECO	SYP	Unknown	8	18	9.6	N/A	N/A	N/A
Nordic	2011	Y	Y	50,000	31,000	APA	SPF	FSC, CEAF	8.8	64	12	23.75	96	80
SmartLam NA, AL	2018	Y	Y	50,000	19,000	APA	SYP	SFI, FSC	8	52	12.4	12	36	60
Element5, ON	2020	Y	Y	45,000	5,000	APA	SPF	FSC	11.5	52.5	15	TBD	TBD	TBD
Structurlam, BC	2011	Y	Y	45000	19,000	APA	SPF, DF	FSC	10	40	12	20	96	110
StructureCraft	2018	X	N	30,000		0 APA	SPF, DF, HF, SS	FSC, PEFC	12	60	12	N/A	N/A	N/A
Freres	2017	X	X	30,000		0 APA	DF	Unknown	11.8	48	12	N/A	N/A	N/A
Kalesnikoff	2020	Y	Y	30,000	13,000	APA	DF, HF, SPF	FSC, PEFC	11.5	60	15.2	36	96	60
DR Johnson	2015	Y	Y	30000	20,000	APA	DF	FSC	10	41.5	9.6	20	108	145
Vaagen	2020	Y	Y	30,000	6,000	APA	DF, SPF	SFI, PEFC	4	60	9.7	12	48	60
Element5 QC**	2015	Y	Y	10000		0 APA	SPF	FSC	9.5	35.5	16	N/A	N/A	N/A
Western Archrib	N/A	X	Y	0	10,000	APA	DF, HF, SPF	FSC	N/A	N/A	N/A	25	0.25	7
Western Archrib		X	Y	0	10,000	APA	DF, HF, SPF	FSC	N/A	N/A	N/A	25	0.25	7

Procurement, Design and Construction efficiencies are found in understanding the mass timber supply chain, and designing to it's capabilities





# Design and Construction Industry

## Collaborative Delivery



IMPROVED  
CONSTRUCTABILITY



REDUCED  
REWORK



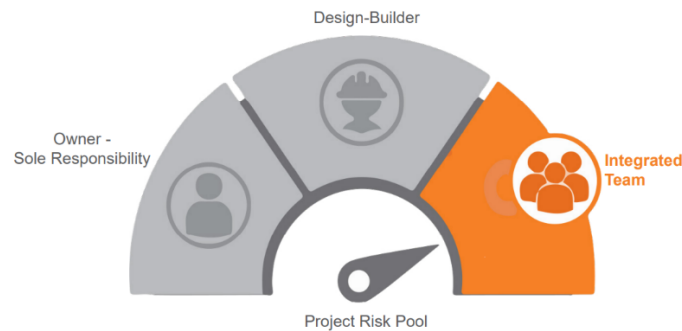
INCREASED  
TRANSPARENCY



TRUE  
INNOVATION



FASTER  
PROJECT DELIVERY



### Key Points:

- Today's market landscape makes hard-bid models very challenging.
- Off-site construction delivery requires DFMA understanding or early onboarding of key trade partners
- Cost-based design solutions supported by true market costing
- Maximizing the creativity of the team



# Design and Construction Industry

## Repeatable Designs



### Key Points:

- Key bottle necks in mass timber industry.
- Europe vs. North America
- Potential to address slow adopting DFMA principles



# Design and Construction Industry

## Supply Chain Incentives for Low Carbon Solutions



### Key Points:

- Carbon is the universal currency not building accreditation programs!
- Embodied Carbon is blind spot in current design practice and regulations
- Mass timber is roughly 40% less embodied energy than concrete
- As an industry we need to lead by example and push regulators





# Federal Government

## Implement Large funding programs to enhance national mass timber production capacity

- Recalibrate spending to focus more on increasing capacity oppose to market development and market access across the world.

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## Government Funded Support Agencies (Canada & USA)



# Federal Government

## Implement Large funding programs to enhance national mass timber production capacity



### Capital investment projects

Open for applications

The IFIT capital investment projects stream provides non-repayable contributions of up to \$10 million of a project’s eligible costs to enable forest sector firms to adopt transformational technologies and diversify product streams, ensuring industry competitiveness and greater environmental outcomes.

Since its creation, the program has successfully funded over 60 capital investment projects that have resulted in the deployment of first-in-kind technologies and advanced bioproducts derived from wood, such as bioenergy, bioplastics, biochemicals, and next generation building materials. These projects support forest-reliant communities and are estimated to have secured approximately 8,000 direct and 6,000 indirect jobs.

### Studies

Open for applications

The IFIT studies stream provides non-repayable contributions of up to \$1 million of a project’s eligible costs for studies linked to the advancement of innovation in the forest sector in support of a future capital investment or a strategic shift by forest sector firms.

Since 2019, the program has funded over 26 studies to assess the market and technology feasibility of innovative projects. These studies help identify strong potential for advancement toward full commercialization to support a future capital investment or a strategic shift by forest sector firms. Several of these studies have already led to an IFIT-funded capital investment project.

\$500M to support a renewed 5 year program



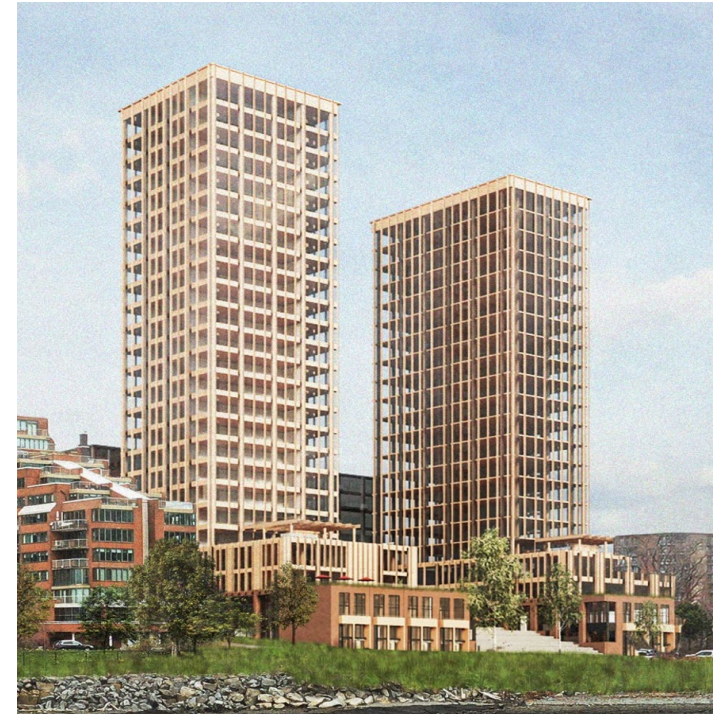


# Federal Government

## Implement Large funding programs to enhance national mass timber production capacity

### Criteria for government funding to increase capacity:

- Support early capital costs for mass timber manufacturing start-ups and/or Geographic expansions of existing manufacturers.
- Prioritize Sawmill Integration
- Set a target production capacity of at least 25,000m<sup>3</sup> by year 3.
- Emphasize glulam production capacity.



Proposed 25 storey TALLWOOD towers  
Dartmouth, NS

# Federal Government

## Facilitate Growth in Mass Timber Feedstock Supply

- Increase mass timber feedstock supply for glulam and CLT as part of a sawmill value-add strategy.
- Government funding (mentioned above) would incentivize alignment between mass timber manufacturers and sawmills.
- Sawmills would benefit financially, as they would receive higher payment for the same material, intended for commodity markets.



# Federal Government

## Establish an education curriculum and designation for mass timber detailers

- Develop a mass timber detailing/engineering program in collaboration with European institutions and the mass timber industry.
- Encourage existing mass timber manufacturers to serve as training/cooperative centers.
- Subsidize the wage cost for students/early graduates spending a minimum of two years in detailing at a company, and establish a nationally recognized designation with support from NRCan.

