



Enhancing CLT Production Proficiency through Supply Chain Optimization

Lily Yang

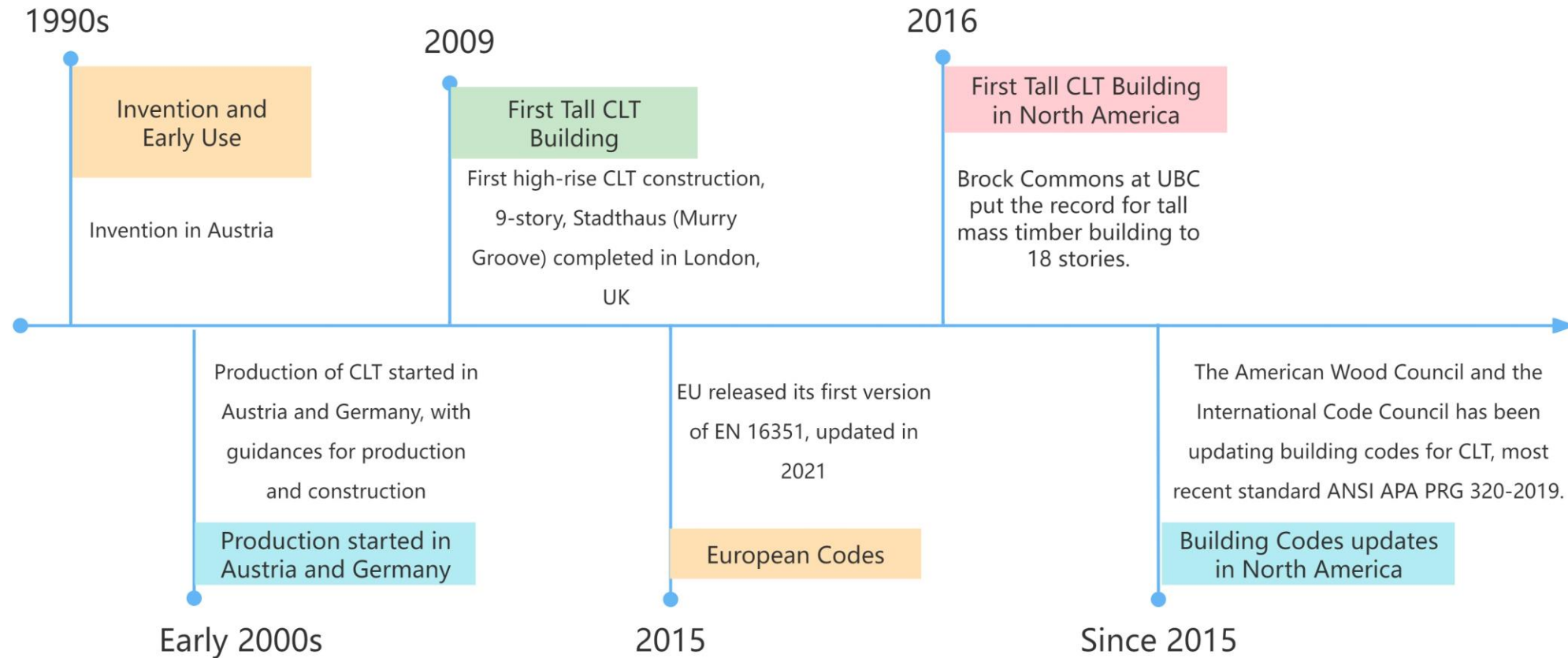
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A bit history of Cross-Laminated Timber

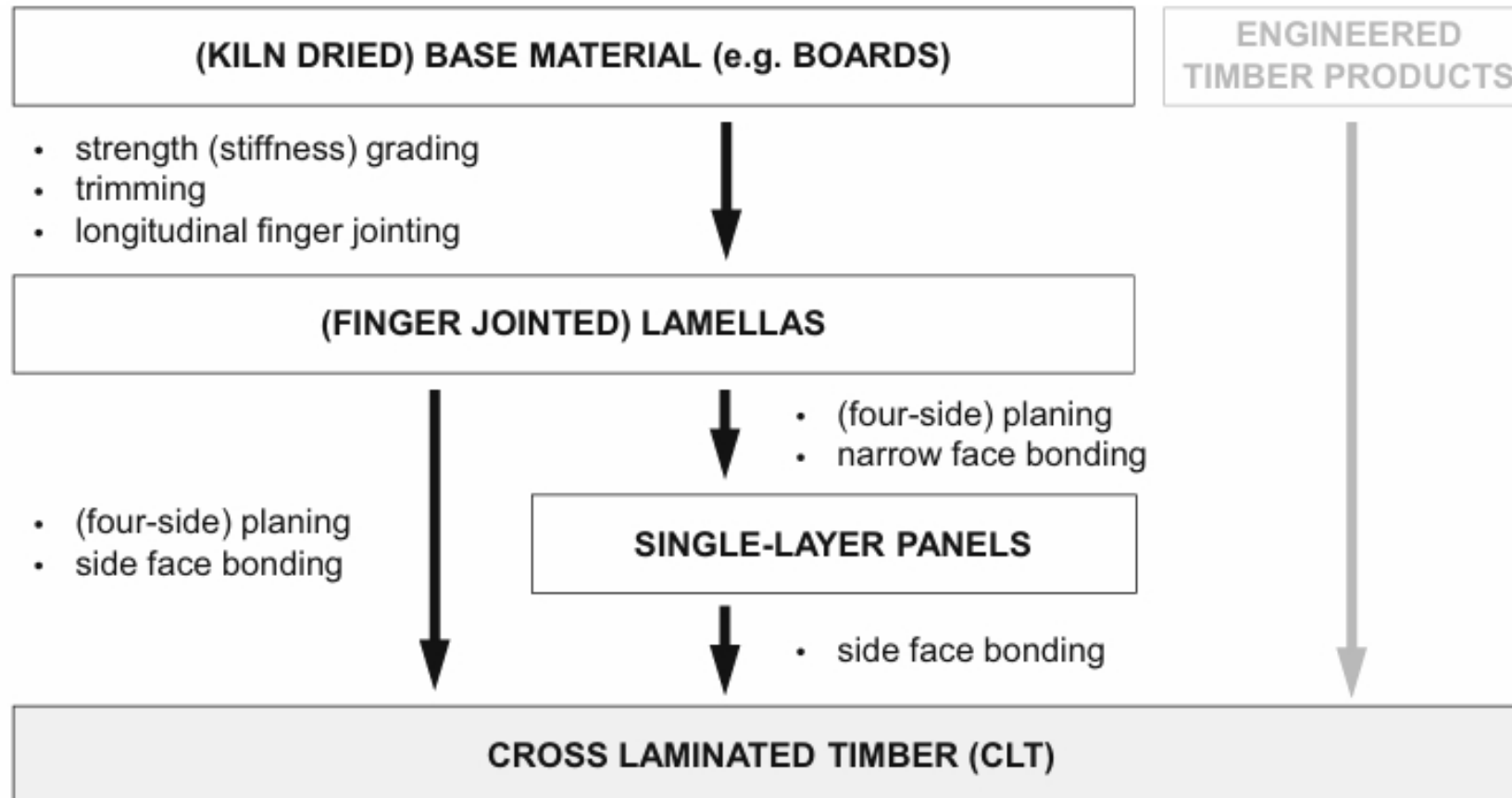


Cross-Laminated Timber

- Cross Laminated
- 3/5/7/9 or more layers
- Light-weight
- Prefabrication in factory
- Accurate dimensions and openings
- Short installation time
- Maximum architectural freedom
- Carbon storage
- Less site space needed for storage
- Less labor costs
- And much more...



CLT Production Process



Source: Brandner, R., Flatscher, G., Ringhofer, A. et al. Cross laminated timber (CLT): overview and development. Eur. J. Wood Prod. 74, 331–351 (2016).

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Lumber reaching CLT facilities – Europe vs. North America

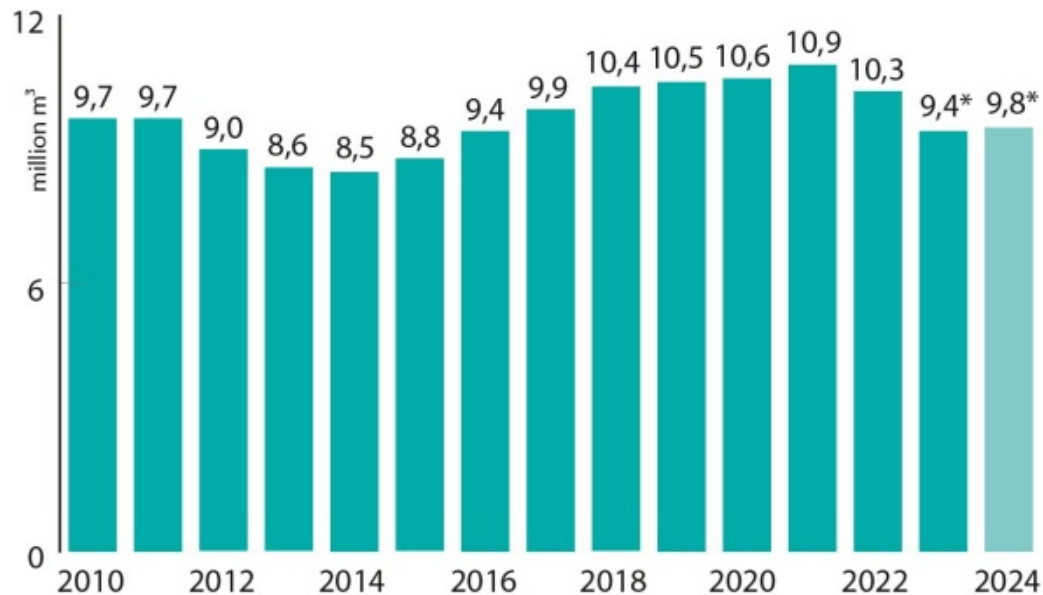
- **Industry structure**
More vertical integrated in Europe
- **Moisture content**
12+/-2% delivered to CLT mills in Europe, some NA mills get requested MC delivered
- **Dimension**
Requested dimensions in Europe, standard dimensions in NA
- **Surfacing**
Rough sawn vs. surfaced (sometimes rounded corners)



Softwood lumber production: Austria vs. the US (roughly 1:10)

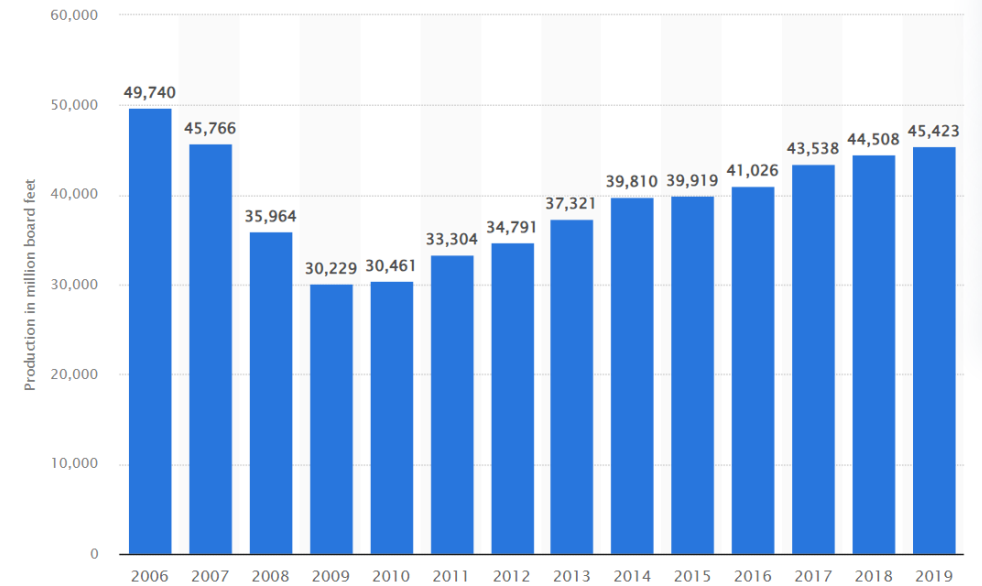
LUMBER PRODUCTION AUSTRIA | 2010–2024

Values in million m³



Source: Timber Online

Lumber production in the United States from 2006 to 2019 (in million board feet)



Source: Statista.com

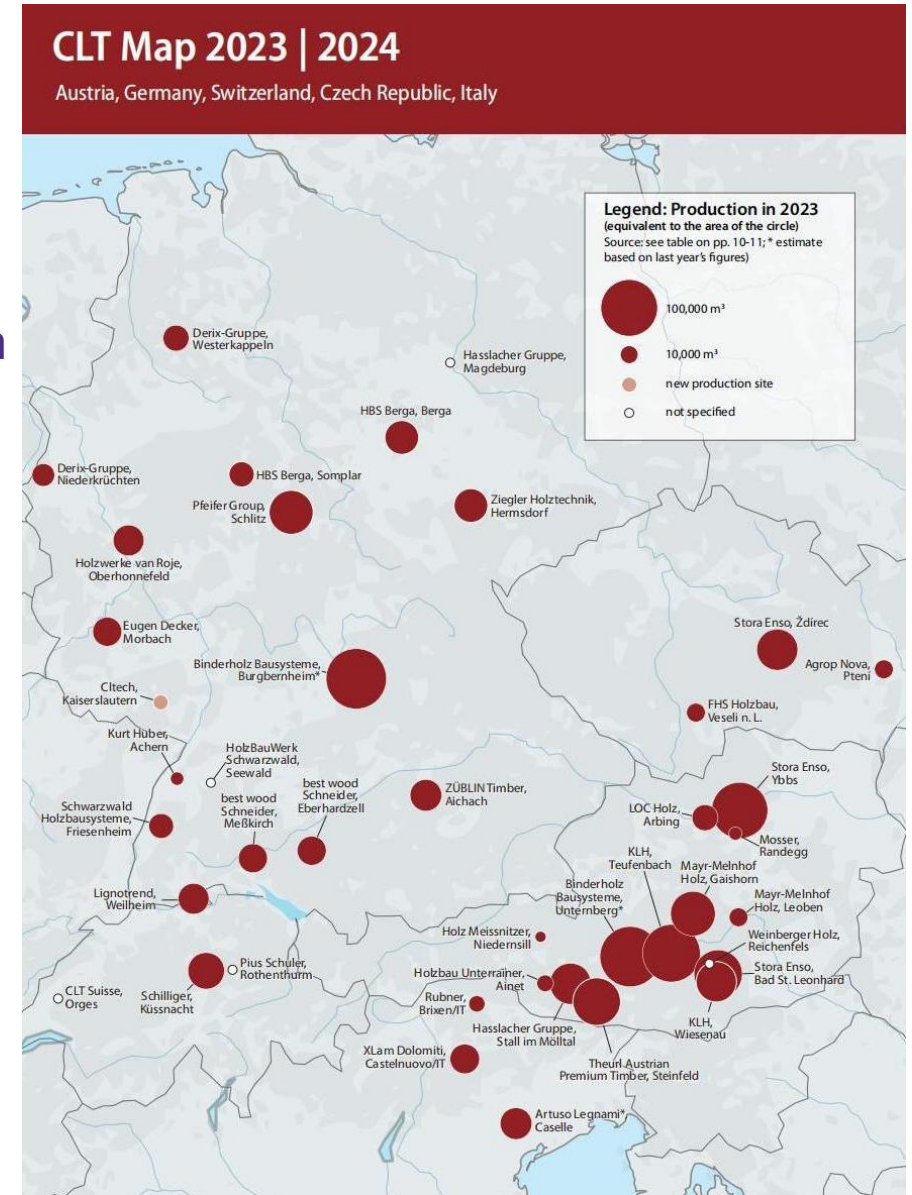
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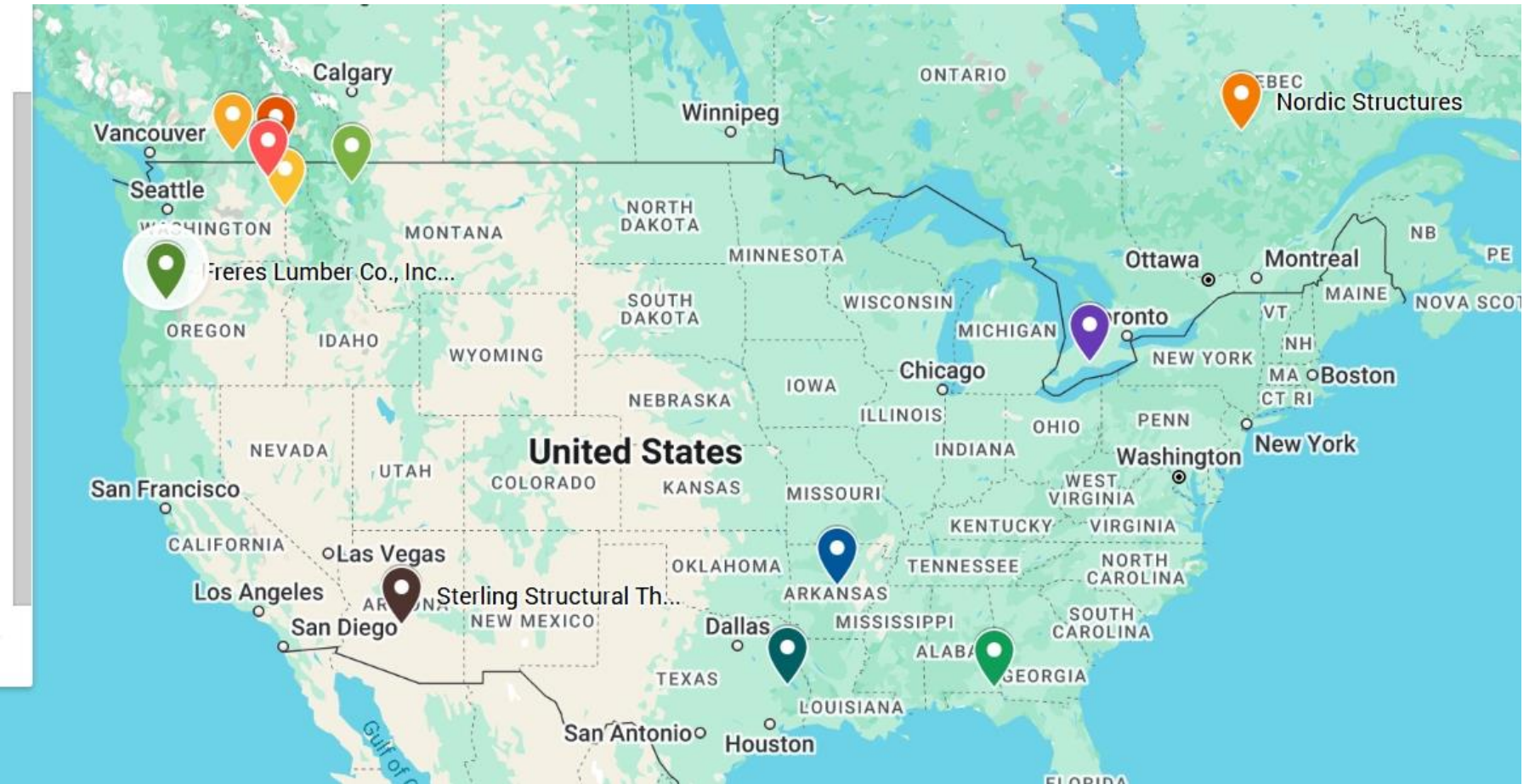
CLT facilities in Central Europe

- 36 mills in 5 countries, 14 in Germany, 12 in Austria
- 4 more mills starting production in 2025
- Production in 2024: appr. 1.4 Million cbm
- Total production 2024 in Europe: more than 2 M



CLT Manufacturers in North America

- Element5 (1)
- Freres Lumber Co., Inc.- Mas... (1)
- Kalesnikoff Mass Timber. Ca... (1)
- Mercer Conway (1)
- Mercer Mass Timber (1)
- Mercer Okanagan (1)
- Nordic Structures (1)
- SmartLam NA (1)
- SmartLam North America (1)
- Sterling Site Access Solution... (1)
- Sterling Structural Therapy (1)
- Vaagen Timbers (1)



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Mass Timber Manual of producers and projects

Europe

KLH Massivholz GmbH

www.klh.at
office@klh.at 0043
 (0)3588 8835

KLH Massivholz GmbH

Gewerbestrasse 4, A-8842 Teufenbach-Katsch, Austria

Founded	1997 (First industrial-scale CLT production in 1999)
Products	Cross-Laminated Timber (CLT)
Branch Companies	<ul style="list-style-type: none"> KLH UK Ltd. (since 2005) KLH US Holding Corp. (since 2014) KLH Massivholz Wiesenau GmbH (Austria) Distributors in 20+ countries
Lumber Sourcing	Sustainably harvested spruce from sister sawmill
Production Capacity	<ul style="list-style-type: none"> Teufenbach-Katsch, Austria: ~125,000 m³/year Wolfsberg, Austria: Up to 150,000 m³/year
Brief Introduction	KLH pioneered industrial-scale CLT production and is a global leader in mass timber. They offer full design support, BIM integration, and prefabricated solutions for walls, floors, and roofs.

Data resource: a) Timber online

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Education

CA & USA

Founders Hall

Founders Hall (FNDR)
 4215 E Stevens Way NE, Seattle, WA 98195



Completed in 2022, Founders Hall at the University of Washington's Foster School of Business is the first fully mass timber building on campus. The 7,875-square-meter, five-story structure uses cross-laminated timber (CLT) and glulam beams, reducing its embodied carbon by about 60%. Exposed timber elements enhance its aesthetic appeal, creating a warm and inviting atmosphere for students and faculty. The building showcases a commitment to sustainability and innovation, demonstrating the potential of mass timber in modern construction while supporting environmental responsibility.

MASS TIMBER
 Mercer (CLT) →
<https://mercemasstimer.com/>

ARCHITECTURE
 LMN Architects
<https://lmnarchitects.com/>

CONTRACTOR
 Hoffman Construction
<https://www.hoffmancorp.com/>

Western Archrib (Glulam) →
<https://www.westernarchrib.com/>

ENGINEER
 Magnusson Klemencic Associates
<https://www.mka.com/>

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High-Rise Housing

CA & USA

Brock Commons Tallwood House

Brock Commons Tallwood House
 6088 Walter Gage Rd, Vancouver, BC V6T 0B4, Canada



Brock Commons Tall House, completed in 2017, is a pioneering example of mass timber construction located at the University of British Columbia, Canada. Standing at 53 meters with 18 stories, it was once the tallest wood building in the world. Its innovative use of timber, combined with modern construction techniques, earned it several accolades, including the 2018 Wood Design Award. The project showcases the potential of sustainable architecture while reducing carbon emissions in the built environment.

MASS TIMBER
 Mercer →
<https://mercemasstimer.com/>

ARCHITECTURE
 Acton Ostry
<https://www.actonostroy.ca/>

CONTRACTOR
 Urban One Builders
<https://urbanonebuilders.com/>

ENGINEER
 Fast + Epp
<http://www.fastepp.com/>

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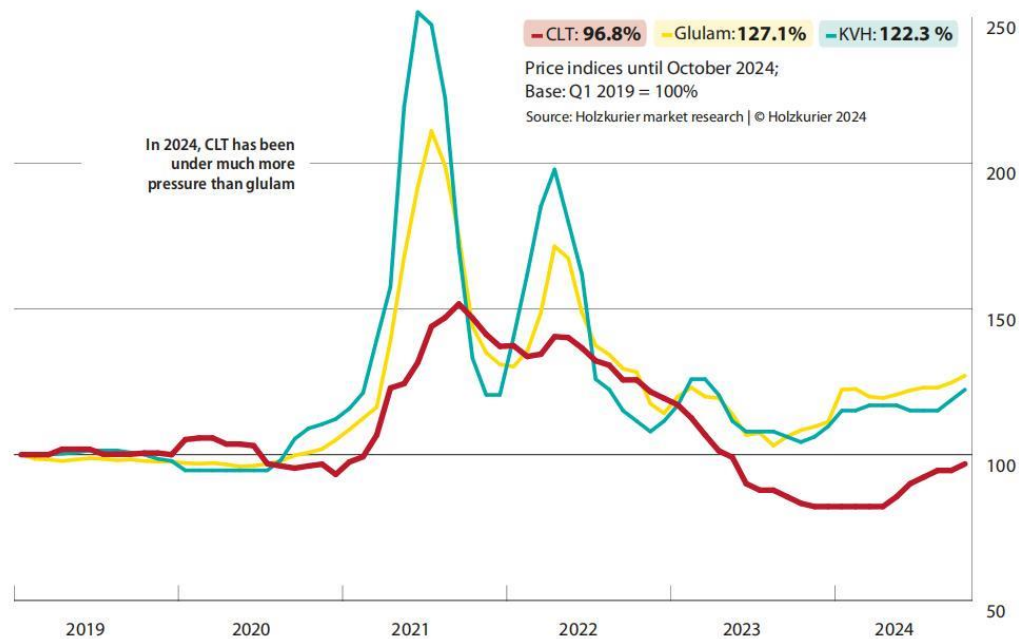
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Other challenges – lumber price & CLT price

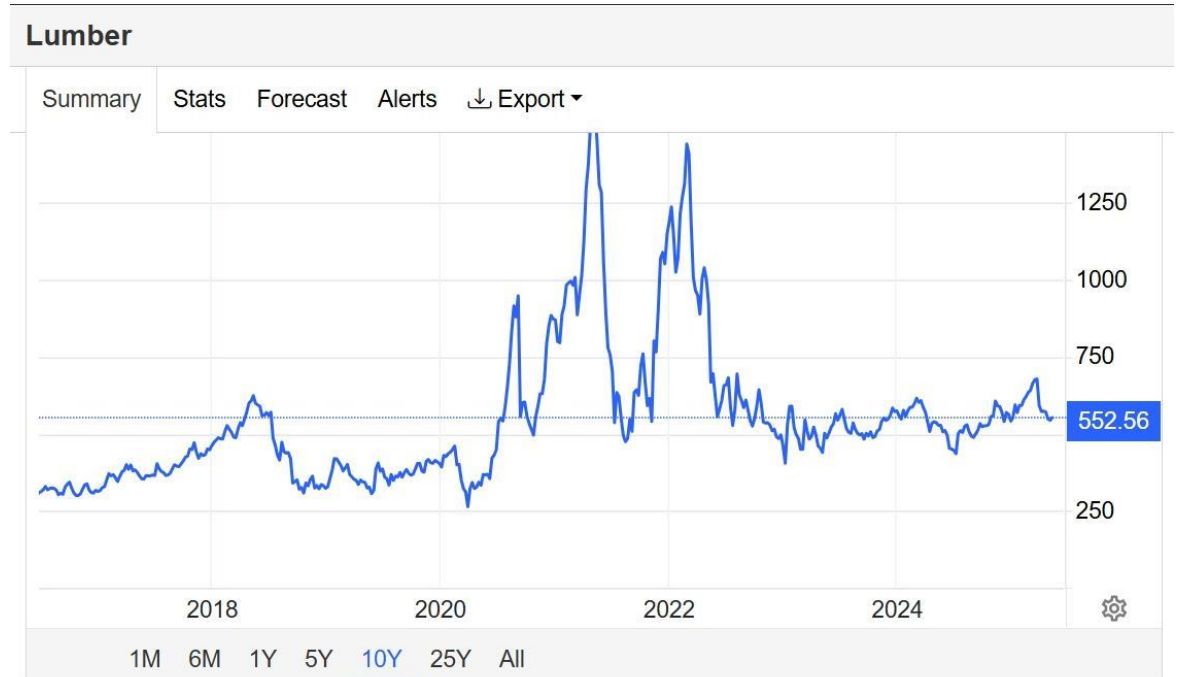
CLT/glulam price index Central Europe

Source: timber-online



US Lumber Price 10 years

Source: trading economics

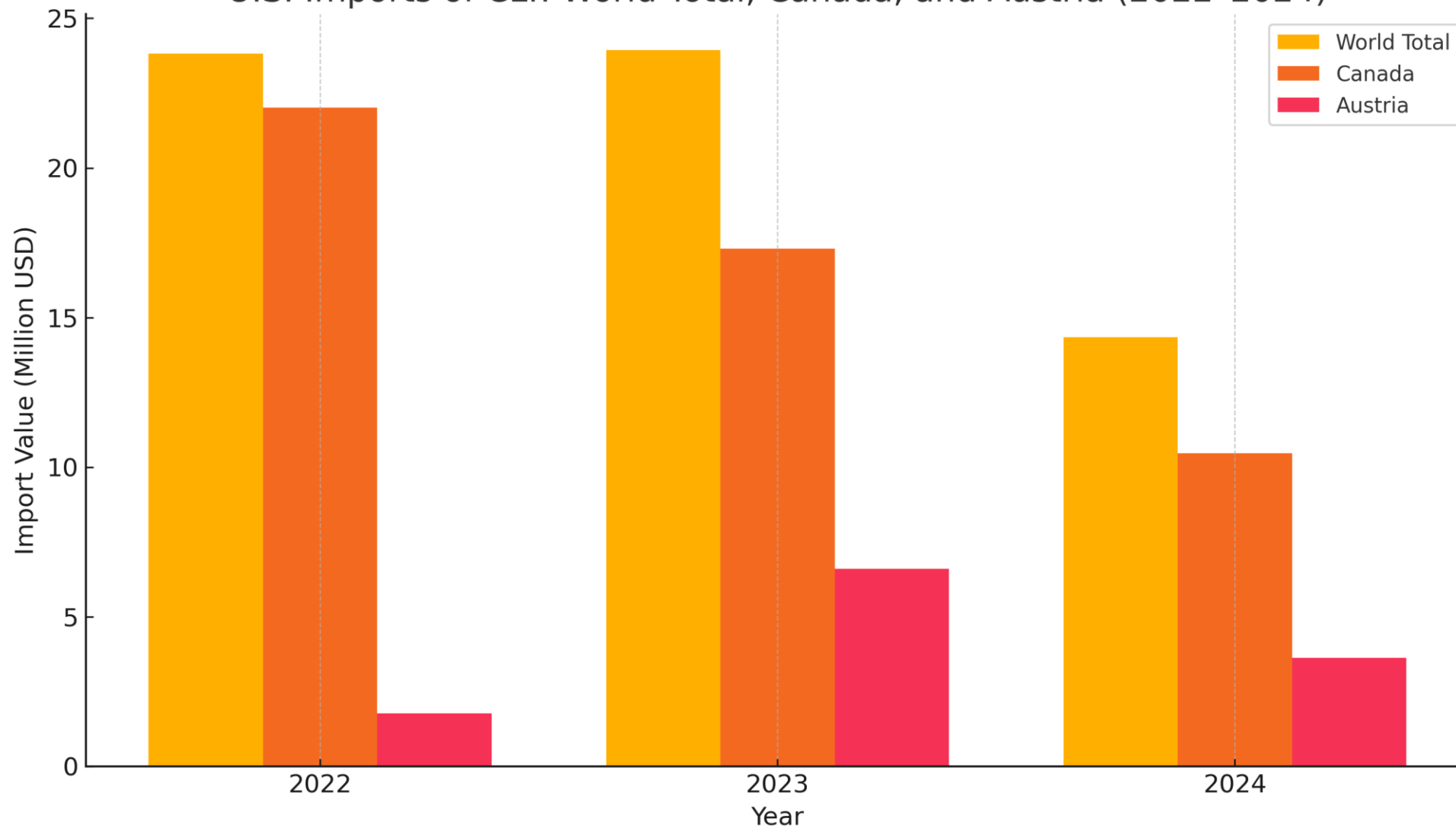


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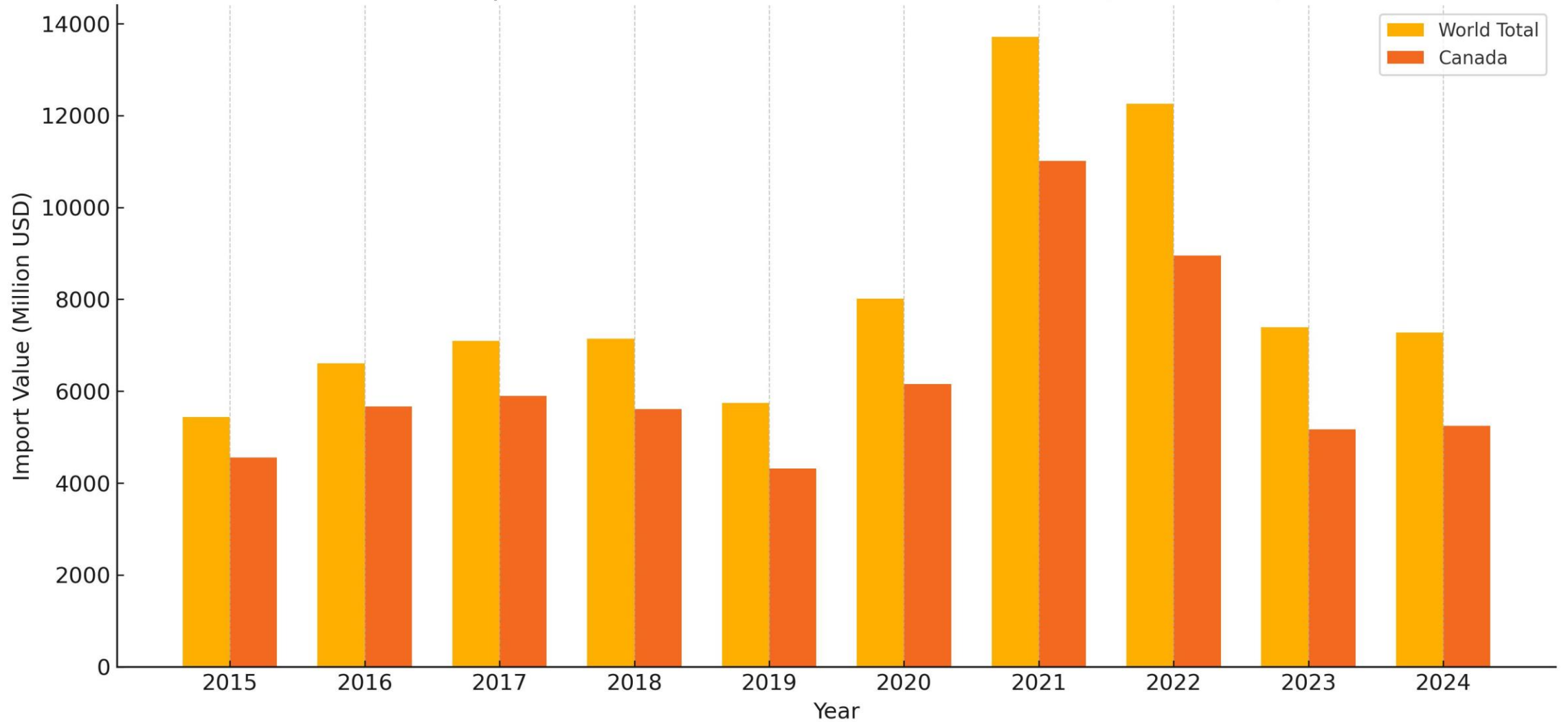
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U.S. Imports of CLT: World Total, Canada, and Austria (2022-2024)



U.S. Imports of Lumber: World Total and Canada (2015-2024)



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Possible approaches to increase production efficiency:

- Increasing forest harvest
- Lumber supply tailored to CLT production
- Smaller CLT panels?
- Modular housing to distribute part of cutting capacity to construction companies
- Close regional cooperations in the industry



Questions?

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