
MASS TIMBER PRICE INDEX

ROY ANDERSON,
Vice President, The Beck Group

Published prices are available for a variety of building products, including steel, concrete, lumber, plywood, oriented-strand-board (OSB), and more. In contrast to these well-established price reporting services, no such service is available for mass timber in North America. The following information, therefore, illustrates the estimated average value of 3-ply Cross-Laminated Timber (CLT) panels Free on Board (FOB) the manufacturer's plant between 2016 and 2021. As the data shows, for a period of about four years, the estimated price of CLT ranged from about \$20 per cubic foot to \$25 per cubic foot. Beginning in the second quarter of 2020, however, the price skyrocketed, reaching more than \$45 per cubic foot in early 2021. The prices are reported on a quarterly basis between January 2016 and December 2021. Note that the values on the left axis are the prices expressed in \$ per cubic meter, and the values on the right axis are the prices expressed in \$ per cubic foot.

MASS TIMBER PRICE INDEX DISCUSSION

As Figure 1 illustrates, the estimated price of CLT panels slowly ramped up through mid-2018 and then dropped slightly until Q2 2020. Still, over that period prices were relatively stable, ranging from about \$20 per cubic foot to nearly \$26 per cubic foot. Then in mid-2020, the COVID-19 pandemic increased demand for wood products as many homeowners adapted their living spaces to better accommodate working from home and

took on improvement projects to make spending more time at home more enjoyable. At the same time, wood products manufacturers were unable to increase production enough to meet increased demand—primarily because of staffing shortages. As a result, softwood lumber prices spiked to unprecedented levels by mid-2021. Because softwood lumber is a key raw material in most types of mass timber panels, the prices of mass timber products rose in a similar fashion.

The values in Figure 1 are not panel sales prices reported through surveys or transaction evidence. Rather, they are calculated from a financial model of a mass timber manufacturing plant. The model includes the costs of production (e.g., labor, adhesives, supplies, repairs and maintenance, utilities, etc.), raw material (e.g., lumber), and a profit and risk allowance for the mass timber manufacturer. Because the prices are estimated from a model that uses a cost-plus profit and risk approach, there may be times when other market supply and demand factors cause actual market prices to deviate from those modeled. The information nevertheless provides a reasonable estimate of basic mass timber value.

NORTH AMERICAN MASS TIMBER: LUMBER USAGE, MASS TIMBER CONSUMPTION, AND MASS TIMBER IMPORTS

North American mass timber manufacturing plants' rate of production is another topic of great interest to those who follow the industry. Like mass timber market prices, little solid information is available directly from manufacturers about their production capacity and production

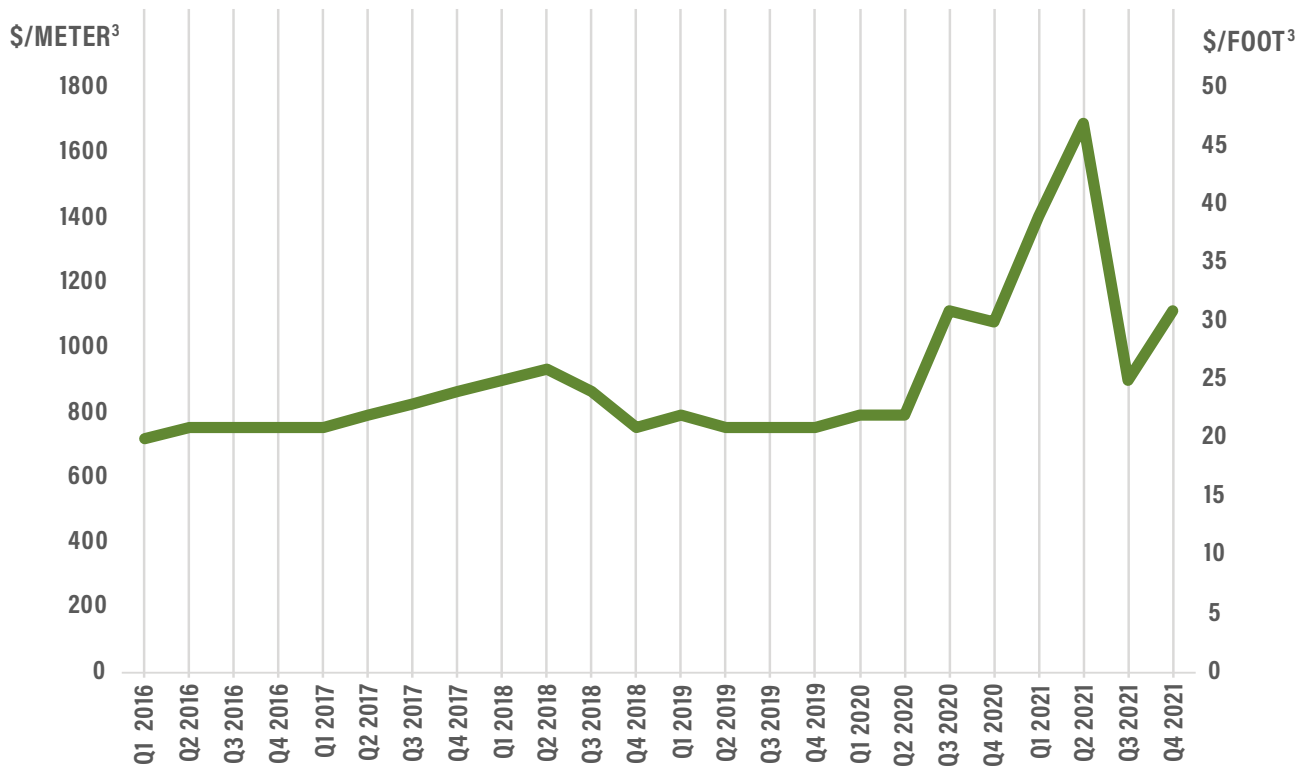


FIGURE 1: MASS TIMBER PRODUCT PRICE INDEX (\$/METER³ LEFT AXIS AND \$/FT³ RIGHT AXIS)

rates. This section nevertheless estimates North American mass timber production and lumber use from 2019 to 2021.

As shown in Table 1, an average of roughly 300,000 cubic meters of mass timber products were used in building construction each year. The table also shows that during that time, mass timber building construction consumed roughly a quarter billion board feet of softwood lumber per year. During that same period, an average of about 20,000 cubic meters of mass timber products were imported into North America each year. Thus, after accounting for the volume of mass timber imported, North America’s mass timber plants that are focused on making panels for use in building construction have been operating at

rates estimated to be between 50 percent and 67 percent of their practical capacity.

NORTH AMERICAN MASS TIMBER LUMBER USAGE AND CAPACITY DISCUSSION

As the data in the Table 1 shows, the number of publicly reported mass timber buildings in the US and Canada has grown year over year between 2019 and 2021. The number of new buildings, however, has not grown at the rates once projected for the mass timber marketplace—likely due largely to COVID-related market uncertainties and constraints. See Chapter 8 for additional market analysis. One key point made there is that the number of mass timber projects in the planning

YEAR	Publicly Reported Number of Mass Timber Buildings Constructed in US & Canada	Estimated North American Use of Mass Timber Products (Cubic Meters per Year)	Estimated Board Feet of Lumber Used in mass timber in North America (MBF Lumber per Year)	Estimated Imports of Mass Timber Products into the US (Cubic Meters per Year)	Apparent North American Mass Timber Production (Cubic Meters per Year)	Apparent North American Mass Timber Production (Cubic Meters per Year)	Estimated Percent of Practical Building Panel Mass Timber Manufacturing Capacity Utilized
2019	143	282,900	224,500	15,000	267,900	400,000	67%
2020	168	303,500	241,300	24,700	278,800	541,000	52%
2021	170	323,800	257,300	19,300	304,500	520,000	59%


TABLE 1: ESTIMATED NORTH AMERICAN MASS TIMBER LUMBER USAGE AND PRODUCTION (2019 TO 2020)

stages continues to grow. In late 2020, a total of about 600 projects were in the design phase; as of late 2021, that number had grown to 700.

Also, in reference to the analysis presented here, the Softwood Lumber Board commissioned a *Mass Timber Outlook*¹ study that was published in October 2020. A key finding was that by 2025, softwood lumber usage in the mass timber market (glulam and mass timber panels) would grow by 800 million board feet annually. The board study did not provide an estimate of mass timber’s total softwood lumber demand in 2025. If one interpolates the 2025 incremental estimates back to 2021/2022, however, the estimate of annual lumber usage for 2021 here is reasonable.

The methodology used in the analysis derives estimated lumber consumption from the total square footage of mass timber buildings constructed per year (as publicly reported by WoodWorks); a

mass timber usage factor per square foot of building; a lumber usage factor per cubic foot of mass timber; and an adjustment factor to account for mass timber buildings that are not included in the WoodWorks database. The estimate of capacity makes two key assumptions: each North American plant operates at about 65 percent of the maximum press capacity, and about 50 percent of the total capacity in North America is dedicated to making panels for nonbuilding applications.

Finally, the analysis included an adjustment for mass timber panels imported from Central Europe. Anecdotally, mass timber imports from Europe increased substantially over the last several years. However, the mass timber import data as reported by the US International Trade Commission does not show significant import volumes. Thus, the commission data may be underreporting mass timber imports. Future editions of this report will delve into this issue. 

1 Softwood Lumber Board, *Mass Timber Outlook* (October 2020), <https://softwoodlumberboard.org/wp-content/uploads/2021/03/SLB-Mass-Timber-Outlook-2021-Final-Condensed.pdf>.