

Sustainable, Innovative, and Cost-Effective Construction By Using Cross Laminated Timber

First project to break ground under Gavin Newsom's Executive Order N-06-19 for Affordable Housing Development.

Owner: Capital Area Development Authority (CADA)

Architect: 19-6 Architects

What is CLT?
CLT is formed by stacking & gluing together multi-layers of dimensional lumber at an alternating 90-degree orientation. Features include faster construction time, a variety of uses, reduced carbon emissions, enhanced fire resistance and aesthetically pleasing, if left exposed.



Project Description

Located centrally one block south of the State Capitol, Sonrisa is built on an underutilized infill site with exceptional access to public transport, walkability, and proximity to jobs and services. This is the first Affordable Housing Project to break ground under Governor Newsom's Executive order of N-06-19 prioritizing development on excess State-owned property and pursuit of sustainable, innovative, and cost-effective construction methods. The five-story building has been built on a concrete mat slab foundation using Cross-laminated Timber for the horizontal & vertical components of the building resulting in a Type III B building, 26,353 square feet and 58 micro-units. Special Features Include: 5th Floor Deck/Individually-Controlled HVAC/Community Kitchen/Built in Queen Size Sofa-Wall Bed/High Ceilings With Floor-to-Ceiling Windows/Ceiling Fans/Window Blinds/ Storage Rooms/Lounge & Co-Working Space/Free SacRT Transit Pass/ADA Units

Customer's Challenge

CADA (Capitol Area Development Authority) is a unique public agency that is a collaboration between the State of California and the City of Sacramento. Their role is to create new urban infill housing, manage residential and commercial properties owned by State and enhance the State Capitol environment. They are committed to creating sustainable, affordable, community-minded, vibrant, service based and beautiful communities and structures (*CADA, 2023). Tricorp Group collaborated with the design and development team to offer options for cost-effective construction, innovation, and sustainability to meet the requirements of the funding sources of the project.

Tricorp Group Joins the Team

To address the challenges of incorporating cost effective, innovative, and sustainable construction methods Tricorp Group went through a thorough research process to use CLT (Cross Laminated Timber) for the first time in the Sacramento region. Sonrisa being the first CLT project of its kind there was no footprint to follow. However, Tricorp evaluated the pros and cons and underwent some rigorous product testing. Tricorp Group is proud of our strong partnerships working with partners who are paving the way with the latest technology to help save both money and time. Tricorp's CLT manufacturer was Kalesnikoff out of West Kootenay Wet-Belt, Canada. Kalesnikoff's 110,000 sf state-of-the-art plant produces efficient, responsible, and safe Cross-Laminated Timber panels (CLT), Glue-Laminated Timber panels (GLT), and Glulam.

Testing & Trial

CLT assemblies/composites (walls, floor, ceilings, roof) have not been tested at Tricorp or in any project in the Sacramento region. When building the 1322 O Street project, Tricorp had to go to a testing lab in Philadelphia to have the designated floor and roof assemblies tested for STC (sound transmission) and approved. This process took several months and several thousands of dollars.

The Solution

Successfully overcoming the multitude of challenges such as a tight site, never before used technology, design, schedule and testing delays Tricorp Group produced an on-time and beautiful home for many happy tenants. When taken together in harmony the steps below helped Tricorp Group generate a product solution exceeding the customer's expectations.

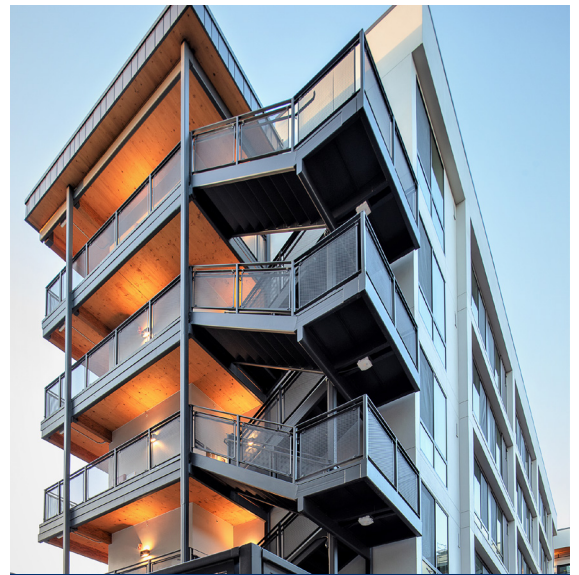
To circumvent the restrictions due to the tight site, the wood framing was preassembled and Tricorp's Self-Perform team set in place the entire 1.1 miles of framing in record time. Tricorp Installed the CLT floor and wall panels as well using its own carpenters. The use of panels saved a significant amount of time on the schedule. Lighter than concrete and steel the panels also reduced the foundation costs while remaining extremely durable and sequestering carbon.

The project was finished in a rapid 18 months and is currently 100 % occupied. While the product was cost-effective during construction the product vendors are fielding overwhelming interest in the market.



Conclusion

Like other mass timber products, CLT can be utilized in hybrid applications with materials such as concrete and steel. It can also serve as a prefabricated building component, accelerating construction timelines. The strength affords designers a host of new uses for wood, including wide prefabricated floor slabs, single-level walls, and taller floor plate heights. Serves as load bearing in wall applications, outer layer is vertically oriented, so its fibers run parallel to gravity loads panels. Projects over 8 stories where CLT replace concrete, and steel is gaining popularity in United States. There are not a lot of high-rises (over 8 stories tall) buildings in the Sacramento area, in general. This product can compete in the high-rise application where type I construction (concrete and steel) have been the norm. As with other mass timber products, CLT can be left exposed in building interiors – up to eight stories in the 2021 IBC, offering additional aesthetic attributes. The efficiencies noted above represent just one of the several examples where Tricorp Group has helped Affordable Housing teams to exceed performance, standards, quality, reduce costs and compress development time.



The Results:

- **100% electric ahead of the City of Sacramento 2026 requirement**
- **Cross Laminated Timber (CLT) construction**
- **Electric central water heating system**
- **Low-water demand landscape materials**
- **Participation in SMUD SolarShares and SmartHomes programs**
- **Low VOC* building materials**

***Low VOC stands for low volatile organic compounds, what are materials that are not harmful to the environment and humans.**

“ Our challenge to use cross laminated timber panels was met by Tricorp Group's team, through their extraordinary effort to resolve the constructability challenges of this first-time tried product by utilizing their own framing crews. This saved our project considerable amount of time and costs

- Renee Funston
Development Manager
Capitol Area Development Authority

”

2540 Warren Drive, Ste A
Rocklin, CA 95677
916-779-8010
www.tricorp-group.com