

2150

KEITH DRIVE MEDIA KIT

VANCOUVER, BC

DIALOG



AN ICONIC AND INNOVATIVE 10-STOREY MASS TIMBER OFFICE BUILDING

A new mass timber office building at 2150 Keith Drive is set to become the latest addition to the Vancouver skyline – and one of the most unique.

The building's location in the revitalized False Creek Flats area will make it one of the first things people see when heading into downtown from the east.

Keith Drive's honeycomb-shaped exterior balconies, with their one-of-a-kind urban gardens, create a visually striking façade that will be different from other contemporary architecture in the city.

The building's innovative design and technology will raise the bar for tall wood design and construction. This will be the tallest building of its kind in North America when it's complete.

Nature's Path, a Vancouver-based organic food producer, will be the lead tenant for Keith Drive. This new all-wood, LEED® Gold-targeting office building will be an extension of the company's sustainability mandate and commitment to a greener future.



PROJECT OVERVIEW

2150 Keith Drive is a 164,000 sq ft, 10-storey mass timber office building. DIALOG, an integrated design firm, is responsible for the architecture, interior design, and landscape architecture of this project.

Unique seismic bracing technology will make the building effectively earthquake-proof; data modelling will be shared publicly so other architects and engineers can employ these potentially life-saving advances in their designs.

This will be a highly sustainable building. In addition to wood construction and a LEED® Gold target, it will also comply with the AIA 2030 Challenge to design and build carbon neutral buildings, the CaGBC Zero Carbon initiative, and have Salmon Safe certification.

Keith Drive's unconventional design was influenced by three main factors:

- a highly sloping site with several right-of-ways that drastically reduce the buildable footprint
- a deliberate move to put the seismic bracing system on the periphery, which leads to the honeycomb-shaped exoskeleton
- a conscious effort to respect the *Monument for East Vancouver* public art piece – known locally as the East Van Cross

Sustainability has been designed into Keith Drive. In addition to using energy-efficient materials that will help meet green building targets, the building will run entirely on electricity. It will also be photovoltaic-ready, meaning that all electrical systems can be connected to a roof-top solar panel array in the future. Natural light will be used as much as possible, and rainwater will be collected for irrigation and building services.

The design team was also able to incorporate a nearby ecological corridor into the landscape plan. That plan includes outdoor amenity and recreation space, and urban gardens for employees.



THIS BUILDING WILL BE UNLIKE ANYTHING ELSE

There are several things that make Keith Drive unique:

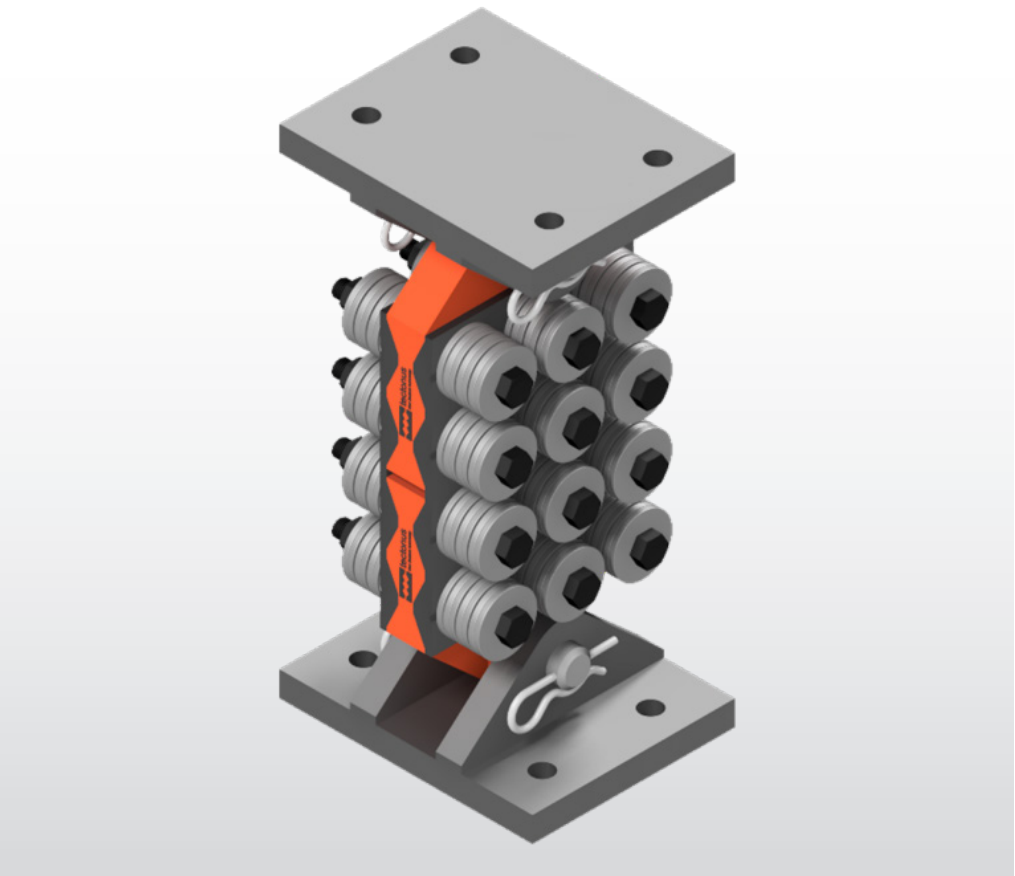
- 1. This will be the tallest timber seismic force-resisting building in North America, at 45 m / 147 ft. The building will use Tectonus steel and rubber structural connections, which will allow the building to self-centre after an earthquake.
- 2. The mass timbers in the building meet two-hour fire code requirements, so they won't have to be wrapped in drywall to be fire resistant. As a result, the wood structure can be left exposed, adding to the aesthetic appeal and biophilic properties of the office space.
- 3. Using mass timber instead of concrete will keep 1,703 metric tons of greenhouse gases out of the atmosphere. That's equal to taking 1,291 cars off the road for a year. The timber will also sequester carbon, keeping it out of the atmosphere for the building's lifespan.
- 4. The amount of wood used in this building grows in 42 minutes. Wood is a highly sustainable building material, and was a conscious choice on the part of the project team to help mitigate global climate change.
- 5. The design will set a new precedent for commercial mass timber office buildings. Occupants of Keith Drive will benefit from larger floor plates, taller floor-to-floor heights, and greater column spacing than typically found in wood office buildings. Future wood buildings can be expected to follow the design precedents set on this project.



Keith Drive will be the tallest timber seismic force-resisting building in North America.



West (narrow) and north elevations, adjacent to the VCC-Clark SkyTrain station.



Example of a Tectonus connection (Photo © Tectonus)



Office space inside Keith Drive will be bright, open, and boast tall ceiling heights.

TALL WOOD BUILDING INNOVATION

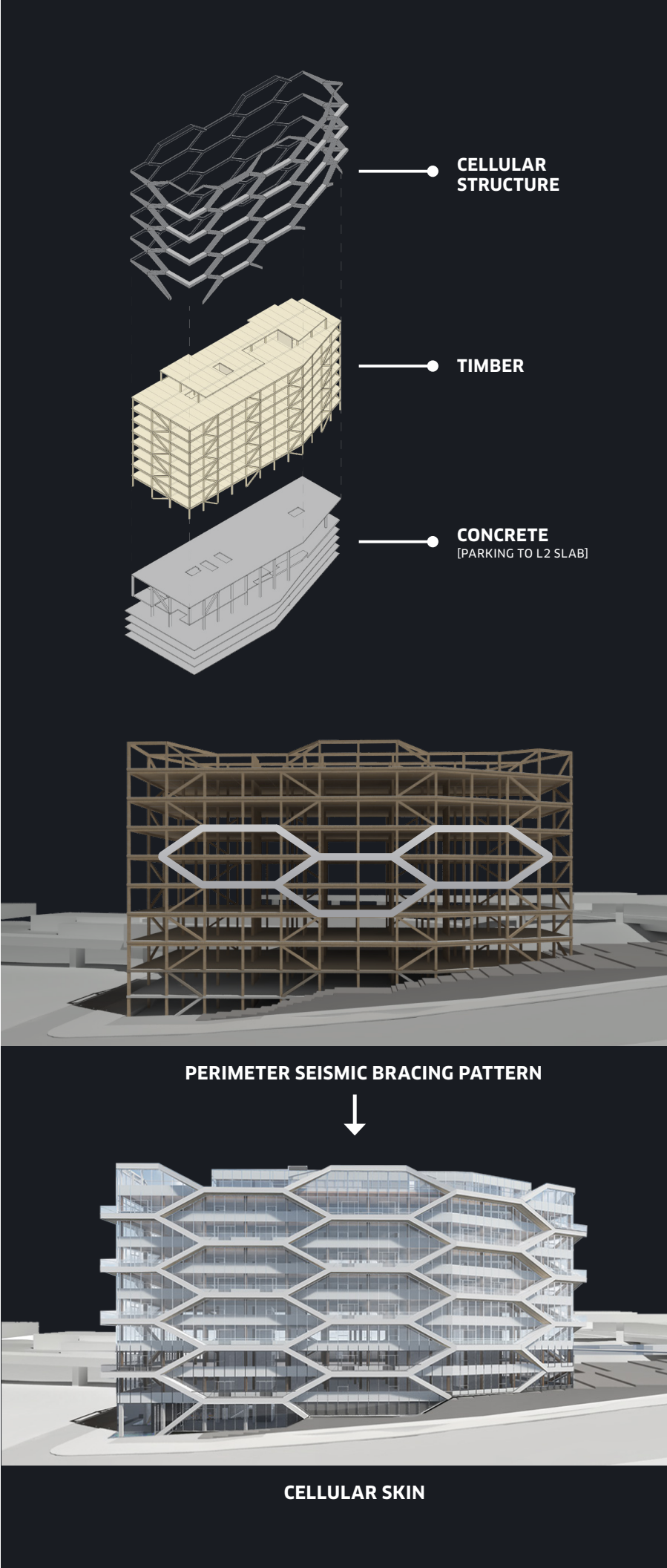
2150 Keith Drive will be a true mass timber building, not a mass timber hybrid, meaning that it will use only engineered wood rather than a mixture of wood, steel, concrete, and drywall. That differentiates it from a lot of other tall wood buildings across North America that have been completed in recent years.

This project is an opportunity to demonstrate what’s possible under new Canadian building code regulations, which now allow for wood buildings up to 12 storeys; the previous height limit had been six storeys.

The design team is pushing boundaries with this project. Engineered wood – either glulam wooden beams and columns or cross-laminated timber (CLT) panels – is strong enough and flexible enough to be used instead of steel and concrete in every part of the building.

As a result, the concrete floors, elevator cores, and wall assemblies that are standard in virtually every other building are replaced by wood assemblies; even the elevator cores are made of CLT.

Once the masss timber components are combined with the Techtonus structural connectors, occupants will benefit from the natural qualities of a wood office space, in a seismically safe, environmentally friendly, and comfortable modern work environment.



FIRE SAFETY AT KEITH DRIVE

Keith Drive will be constructed of cross-laminated mass timber panels (Figure 1), as well as glue-laminated wood columns and beams. These panels will be six to nine inches (15 cm to 22 cm) thick (Figure 2), while the columns will be more than nine inches (22 cm) square.

These large timber elements have been specially designed and engineered through extensive testing to withstand the flames and intense heat that would result from a fire. They will do that by burning and charring around the outside, to a carefully calculated depth that is only a fraction of the total thickness. That outer layer of charring forms a barrier that protects the bulk of the column or panel (Figure 3), as well as structural steel connections inside the columns.

One way to think of this is like a log in a campfire. Small branches burn off and the bark will char, but the centre of the log will remain intact and undamaged (Figure 4) – often for a very long time. Take that concept and extrapolate it out to a structural panel or beam that is nine inches thick.

Charred panels and columns will meet the two-hour fire-resistance rating building code requirement, which allows ample time to fully evacuate the building and for the fire department to safely fight the fire. The primary concern in the event of a fire is life safety, which is delivered through this ingenious design.

DESIGNING IN FIRE RESILIENCY

Fire resiliency is at the heart of Keith Drive’s mass timber design and structure.

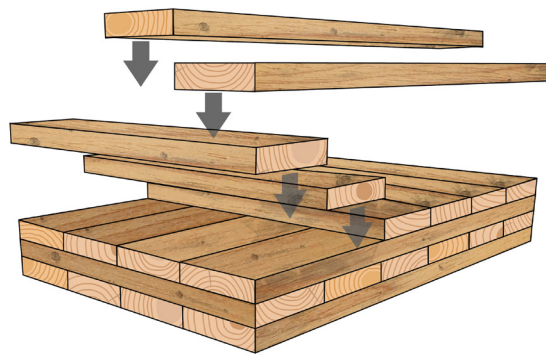


Figure 1 – Construction of a cross-laminated timber (CLT) panel

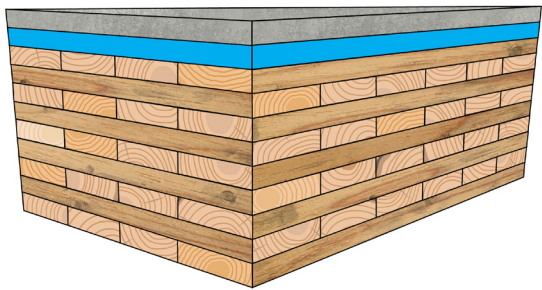


Figure 2 – The nine-layer-thick CLT panel, with a 50 mm concrete topping (grey) and 50 mm of acoustical underlayment (blue)

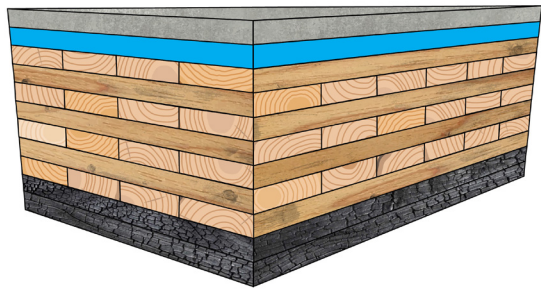


Figure 3 – A burned CLT panel, with 85mm char layer (dark grey) [78mm of char, 7mm no-strength zone]



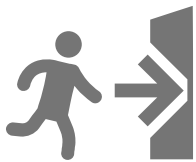
Figure 4 – Cross-section of a log from a campfire, showing the outer char layer and intact inner core

IF A FIRE BREAKS OUT

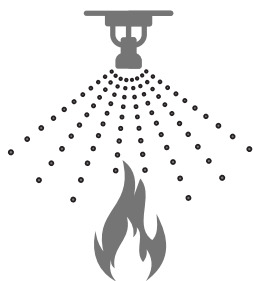
There are a number of things that would happen if a fire ever broke out in a building with this design. All of these happen long before there is serious danger to the building’s occupants or structural integrity.



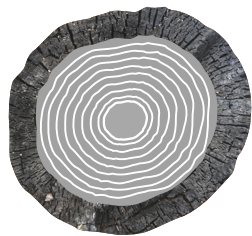
Fire is detected in the building, and the alarm sounds



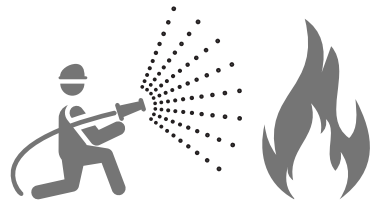
Occupants leave the building via fire-safe stairwells



Sprinklers activate and control or extinguish the fire



The outer layer of the CLT panels and glulam beams char as expected, but remain structurally sound



The fire department arrives, evacuates any remaining building occupants, and fights the fire safely thanks to the two-hour fire rating



CREATING A BETTER OFFICE SPACE

Employee wellbeing and productivity at Keith Drive have been important considerations from the outset.


The office environment design has been shaped by the principles of biophilia, the concept of increasing people's connectivity to the natural world.

That will translate into lots of exposed mass timber, large floor plates, and open spaces filled with daylight.

Keith Drive will also feature a ground-level café and extensive end-of-trip facilities for bicycle commuters, with 48 bike parking spaces and storage lockers.

Building occupants will also appreciate south-facing balconies, a green roof, and a rooftop garden / amenity deck, all of which support urban farming.

Keith Drive will set a new standard for contemporary office spaces, and will serve as a model for other companies looking to maximize workplace satisfaction and employee retention.



Open floor plates, glulam columns and beams, and CLT ceilings will characterize each floor. There will be stunning views of downtown Vancouver and the North Shore from the north and west sides of the building.

PROJECT TEAM

Architect	DIALOG
Interior Design	DIALOG
Landscape Architecture	DIALOG
Structural Engineer	Fast + Epp
Mechanical Engineer	AME Consulting Group
Electrical Engineer	AES Engineering
Envelope Consultant	EXP
Code Consultant	GHL Consultants
Pre-construction Consultant	Ventana Construction Corp.
Development Manager.....	BentallGreenOak
General Contractor	TBD

PROJECT FACTS

LOCATION
2150 Keith Drive, Vancouver, BC

BUILDING SPECIFICATIONS
10 storeys, 45 metres / 147 ft
15,096 sq m / 167,492 sq ft
172 underground parking spaces
750 full-time staff (at full capacity)

PROJECT SCHEDULE

Construction start 2020 (est.)
Completion 2022 (est.)



ABOUT DIALOG

We are passionate about design. We believe it can, and should, meaningfully improve the wellbeing of our communities and the environment we all share.

We've come together because we see the important challenges facing communities becoming increasingly complex and therefore best engaged through the collaboration of diverse perspectives and expertise. DIALOG has been consciously created as a multidisciplinary collaborative to tackle these challenges.

Our multi-disciplinary team includes architects, urban planners, interior designers, structural, mechanical and electrical engineers, and landscape architects. We practice across Canada and the US from studios in San Francisco, Vancouver, Calgary, Edmonton, and Toronto. Our work includes designing for urban vibrancy, health and wellness, transportation, education, arts and culture, residential, retail, and commercial, as well as mixed-use solutions that incorporate an increasing number of these.

DIALOG has been designing positive change in communities since 1960. Although our work has attracted many awards over this span, we consider a project truly successful when it is embraced by its end users and its community.

Keith Drive is DIALOG's second major mass timber project currently in development. The other is the 132,000 sq ft Centennial College A-Block Expansion Building in Scarborough, ON.

MEDIA CONTACT

For additional information, images, or an interview with the design principal for Keith Drive, please contact:

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1/75 scale model showing the south elevation of Keith Drive.