Stacked

Modular midrise housing, Vancouver, Canada

Main authors
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Project data
Project group: Architecture, building and civil engineering
Client: James Ko, Kozy Development Inc.
Project background: Private investment
Planned start: April 2018

Summary and appraisal of the project by the jury

To provide affordable housing, the proposal introduces a midrise, mixed use building type. The project is part of a larger study by the authors to improve the economic and spatial models for affordable housing. The adaptable timber panelized construction allows for versatility in unit layouts and the building mass, creating a varied expression. The project achieves net zero energy through a high insulation value together with geothermal heating and cooling. Through flexibility, the proposed system empowers residents to invent their own future.

The jury was impressed by the comprehensive, construction-based approach. By focusing on streamlining the building process, the proposal is able to merge sustainability with affordability. The question it addresses is a crucial one in many cities across the region: how to provide sustainable, affordable housing in high-value urban areas. It does so through a careful examination of housing’s basics: aggregation, flexibility, the proposed system empowers residents to embrace a direct design-to-fabrication and systematic prefabrication process. The cluster presents a simple, clear, systematic model: an innovative design concept that fully integrates materials and methods, structure, enclosure and mechanical systems. As an open evolving platform it adapts to the opportunities of societal technological change, while offering adaptability, scalability, transferability and certainty.

Platforms For Life's uniqueness is based on the combination of a parameter based design systems platform, providing certainty while enabling mass customization. We continue to develop the software engine that allows the exploration a multiplicity of scenarios, providing feedback for livability, environmental performance and critical project data. The technology allows us to embrace a direct design-to-fabrication and systematic prefabrication process. The cluster presents a clear, simple, systematic model: an innovative design concept that fully integrates materials and methods, structure, enclosure and mechanical systems. As an open evolving platform it adapts to the opportunities of societal technological change, while offering adaptability, scalability, transferability and certainty.

Further authors
Martina Caniglia, architect, and Ryan Gillespie, technologist, LWPAC + Intelligent City; Thomas Boccalot, architect, Jenny Lee, designer, and Mengyou Zhang, architect, LWPAC, all Vancouver, Canada

Statements on the sustainability of the project by the authors

People - A Platform for the empowerment of people and communities

Rampant urban development has led to a highly formulaic, repetitive and inadequate one-fits all housing stock with segregated communities. Most developments are environmentally, socially and culturally unsustainable and unaffordable. How do we create housing that provides desirable homes, not units, with high quality livability, integrated living communities, sustainable regenerative ecologies, both in terms of material and energy resources, while improving affordability?

Platform for Life is a regenerative housing system that can accommodate the evolving needs of individuals, families and communities, and is sufficiently flexible to empower people and communities to invent their future. Parametrically driven, the approach is based on choice, adaptability and participatory design.

Planet - Ecosystem - A performance driven platform focusing on renewable resources

The “Ecosystem” is based on the predominant use of renewable materials. Cross-Laminated-Timber (CLT) panel is the primary material for the platforms cluster and structural system. It has been engineered to allow for structures up to 12 floors, built from panelized open spatial modules. The material and panelization is ideal to combine renewable resources with state of the art CNC/Robotic precision fabrication. Equally the focus is on minimizing heat loss and cooling requirements through Passive House design (and certification) with a highly airtight prefabricated building envelope, allowing for close to net zero performance and LEED 4 Platinum compliance. The building will be designed under the City of Vancouver’s Rental 100 affordable housing program.

Innovation and Prosperity – adaptability, scalability and transferability

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Silver Award 2017

Image 1: Platforms for Life - Transferability and making of a socially viable environment. The proposed buildings bring significant density, and mixed communities to urban infill sites, as small as a single family house lot, providing an alternative scale to medium density developments while overcoming the typical dichotomy between high rise and low rise low density living. This building is designed to create transitional settings to modular units with designing community.

Image 2: Proposed PROD3X2 condominium – In total 25 – City of Vancouver’s Rental 100 affordable housing program.

Image 3: People/Innovation – Adaptable cluster for broad range of components using machined mass timber panels.

Image 4: People/Innovation – Adaptable cluster for broad range of components using machined mass timber panels.

Image 5: Community – Redefined contextual typology with vertical gardens – Community Roofs + Urban.

Image 6: People/Innovation – Adaptable cluster for broad range of components using machined mass timber panels.


Image 8: People/Innovation – EcoSys – Adaptable prefabricated cluster components using machined mass timber panels.

Image 9: Innovation – Creation of software program for interactive parameter direct design to fabrication.


Image 11: Platforms for Life – Transferability and making of a socially viable environment. The proposed buildings bring significant density, and mixed communities to urban infill sites, as small as a single family house lot, providing an alternative scale to medium density developments while overcoming the typical dichotomy between high rise and low rise low density living. This building is designed to create transitional settings to modular units with designing community.

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