



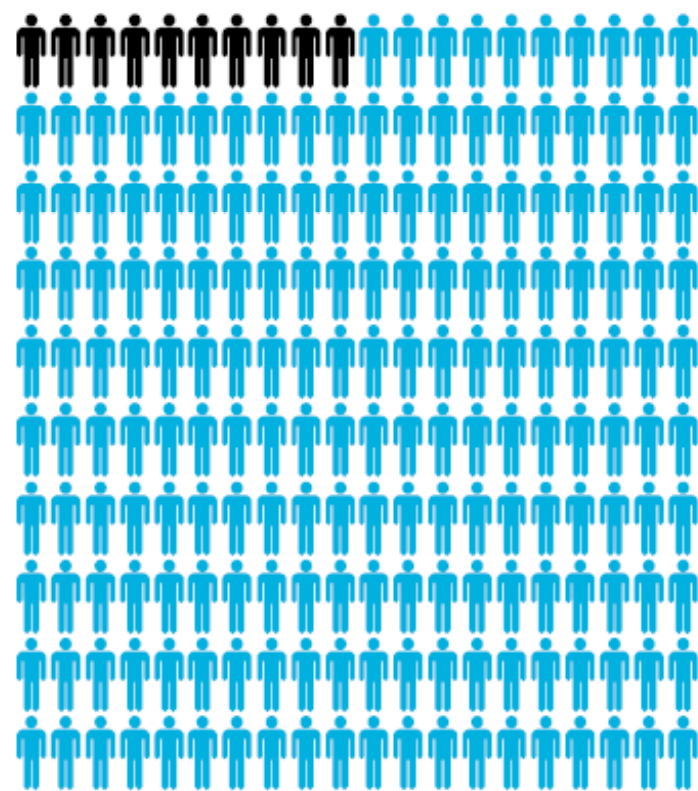
PERKINS+WILL

DEREK NEWBY, ARCHITECT AIBC / 08 DECEMBER 2017 / PUBLIC SECTOR CLIMATE LEADERSHIP SYMPOSIUM

PERKINS+WILL

FIRM FOUNDED 1935

OUR OFFICE
FOUNDED 1984



100 STAFF IN VANCOUVER
2,000 STAFF WORLDWIDE

SMALL STUDIO SERVICE BIG FIRM RESOURCES

DISCIPLINES

Architecture
Interior Design
Branded Environments
Planning + Strategies
Urban Design

IDEAS + BUILDINGS THAT HONOUR THE BROADER GOALS OF SOCIETY

We believe that design
has the power to
positively transform
people and the planet.



20+ OFFICES / A GLOBAL PRACTICE WORKING ON 6 CONTINENTS

VANCOUVER OFFICE: RANKINGS + AWARDS

250+

Design Honours

9 YEARS

Consecutive as one of
Canada's Greenest
Employers + 5 Years
as one of BC's Top
Employers

1%

Donated annually to
in-kind design services

WE'VE BEEN DOING THIS A WHILE



2002
Brentwood SkyTrain Station



2011
VanDusen
Botanical
Garden
Visitor's Centre



2016
University of British Columbia
Orchard Commons



1995
District of North Vancouver
Municipal Hall

Materials Testing Lab
Gilmore Skytrain Station
NVIT

White Rock Operations Building
Centennial Arena

Navel Officer Training Facility
Squamish Li'l'Wat Cultural Centre
SFU – Blusson & Saywell Hall
Kingsway Pedestrian Bridge
Canada Line Stations
CrossRoads
Dockside Green

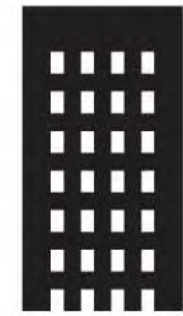
Laurentian University Vale LWL Centre
UBC – CIRS
Samuel Brighthouse Elementary School
UBC – Earth Sciences Building

Pitt River Middle School
Tall Wood Study
Marine Gateway

Nexen Housing Module Prototype

Evergreen Line Stations
Nail Laminated Timber Guide
SFU – Student Union Building
GNW Pavilion
Delta Development

1 GROWTH & DENSITY



2 TIPPING POINT

25%
GLOBAL WATER



33%
GHG EMISSIONS

~~do less harm~~
do more good

3 HOLISTIC APPROACH



4 INNOVATION INCENTIVE



ECONOMIC BENEFITS



**SHORTER
CONSTRUCTION
SCHEDULE**



**COST COMPARABLE +
SHORTER FINANCING
SCHEDULE**



**LESS
WEATHER
EXPOSURE**



**LOWER
MATERIAL
WEIGHT**

ENVIRONMENTAL BENEFITS



**LONG-TERM
CARBON
SEQUESTRATION**



**REDUCED GHG
(GREENHOUSE GAS)
EMISSIONS**



**SMALLER
ENERGY
FOOTPRINT**



**SHIFT TO
RENEWABLE
RESOURCES**

SOCIO-CULTURAL BENEFITS



SUPPORT
REGIONAL ECONOMY



MARKET
DIFFERENTIATOR



SUSTAINABLE
GROWTH + DENSITY



CELEBRATE BEAUTY
+ QUALITY OF LIFE

WHAT IS MASS TIMBER?



LIGHT
WOOD
FRAME



SOLID
SAWN
TIMBER



ENGINEERED
MASS TIMBER



MASS TIMBER TYPES



CLT
CROSS
LAMINATED
TIMBER



NLT
NAIL
LAMINATED
TIMBER



GLULAM
GLUE
LAMINATED
TIMBER



LVL
LAMINATED
VENEER
LUMBER



LSL
LAMINATED
STRAND
LUMBER



PSL
PARALLEL
STRAND
LUMBER



FUTURE
INNOVATIONS

GENERAL CHARACTERISTICS

MATERIAL

- Light weight
- Predictable fire-resistance
- Better thermal resistance

DESIGN

- Prefabricated structure
- Integrated process
- Resource footprint

CONSTRUCTION

- Regional variance
- Adhesive / nail-laminated
- Composite materials

FABRICATING

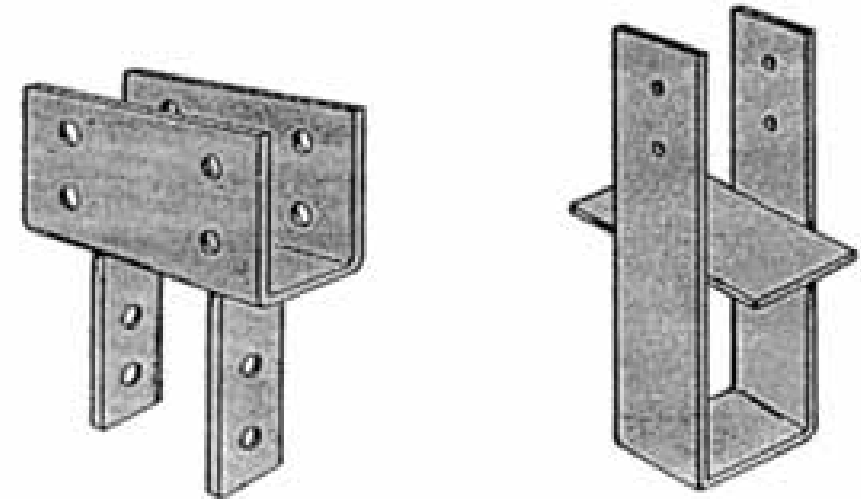
HOW IS THE WOOD PROCESSED?

- **Prefabrication** reduces onsite work
- North American adhesives are **formaldehyde free**
- **Factory checked** for quality, strength
- Service openings – **factory cut**
- **Integrated** design process
- Support **local manufacturing** economy through value-added products



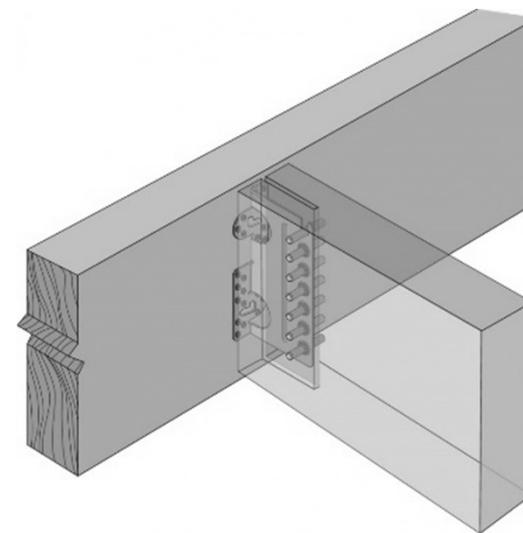
CONNECTING – THE PAST

- **Exposed** connections
- Reduced quality control
- Require **fire proofing** for non-combustible construction
- Poor fit



CONNECTING – PRESENT & FUTURE

- **Concealed** – eliminates need for fire proofing
- **Strong** and **reliable**
- Often **proprietary** – can be more costly than custom steel connectors
- Continued innovation



CONNECTORS

- **Beam-column**
- **Column-floor**
- **Deck**



wood is a
viable option

PROJECTS



NICOLA VALLEY INSTITUTE OF TECHNOLOGY

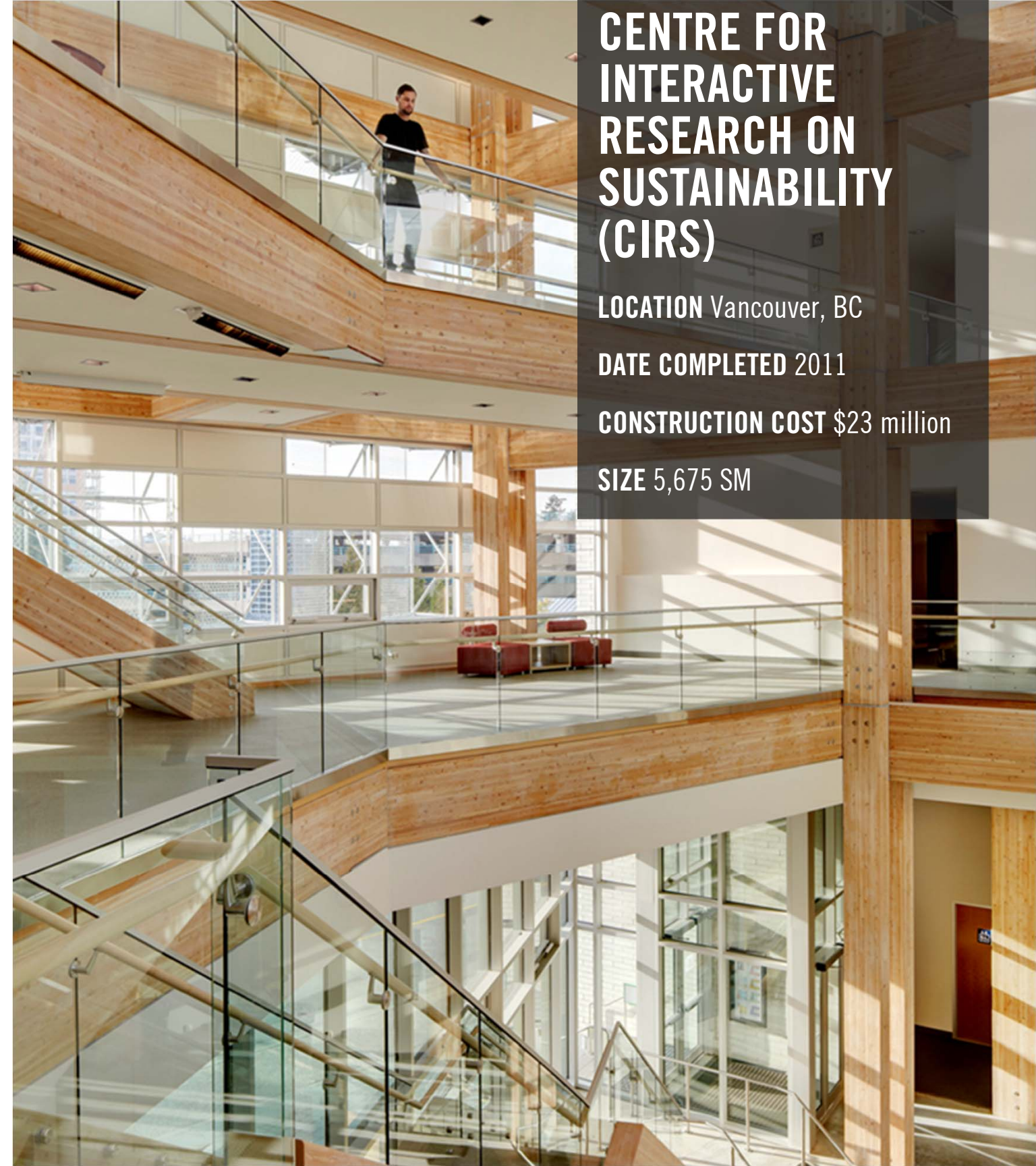
LOCATION Merritt, BC

DATE COMPLETED 2001

CONSTRUCTION COST \$7.7 million

SIZE 4,520 SM





CENTRE FOR INTERACTIVE RESEARCH ON SUSTAINABILITY (CIRS)

LOCATION Vancouver, BC

DATE COMPLETED 2011

CONSTRUCTION COST \$23 million

SIZE 5,675 SM

UBC CENTRE FOR INTERACTIVE
RESEARCH ON SUSTAINABILITY
(CIRS)



EARTH SCIENCES BUILDING

LOCATION Vancouver, BC

DATE COMPLETED 2012

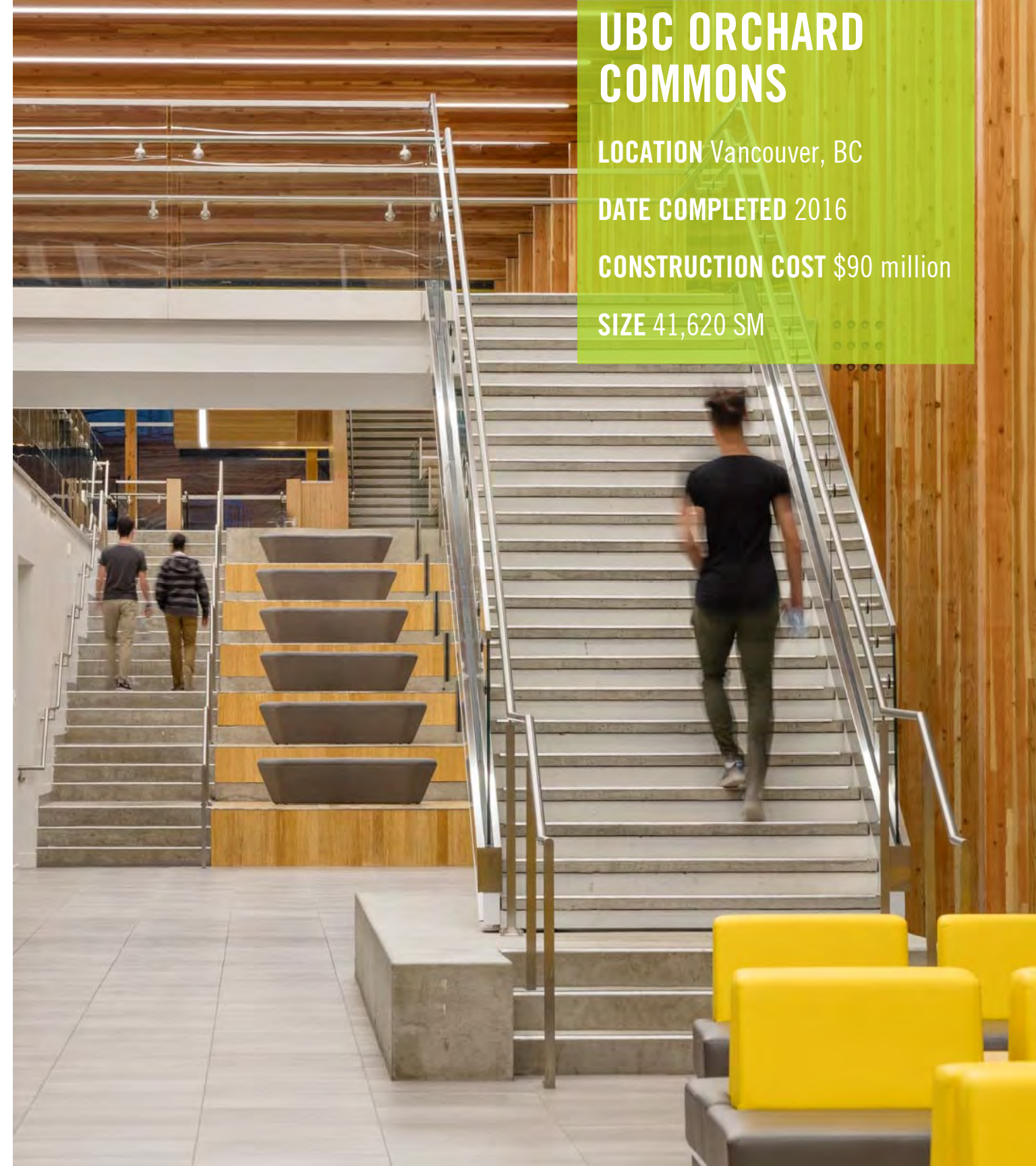
CONSTRUCTION COST \$58.6 million

SIZE 15,794 SM



UBC EARTH SCIENCES BUILDING





UBC ORCHARD COMMONS

LOCATION Vancouver, BC

DATE COMPLETED 2016

CONSTRUCTION COST \$90 million

SIZE 41,620 SM

UBC ORCHARD COMMONS



A wide-angle photograph of a modern school atrium. The ceiling is a curved, ribbed wooden structure. Large windows with wooden frames and multiple panes line the back wall, offering a view of a green landscape with trees. A balcony with a black metal railing runs across the middle of the frame. The floor is made of light-colored wooden planks. In the bottom right corner, a colorful children's drawing is partially visible.

BRIGHOUSE ELEMENTARY SCHOOL

LOCATION Richmond, BC

DATE COMPLETED 2011

CONSTRUCTION COST \$12.6 million

SIZE 4,700 SM



A photograph of the exterior of Pitt River Middle School at dusk. The building features a modern design with a prominent overhanging upper floor supported by wooden columns. The ground floor has large glass windows with white frames. The interior lights are on, and the sky is a deep blue.

PITT RIVER MIDDLE SCHOOL

LOCATION Coquitlam, BC

DATE COMPLETED 2014

CONSTRUCTION COST \$15.8 million

SIZE 5,580 SM

PITT RIVER MIDDLE SCHOOL





VanDusen Botanical Garden Visitor Centre

LOCATION Vancouver, BC

CLIENT Vancouver Board of Parks and Recreation

DATE COMPLETED 2011

CONSTRUCTION COST \$14.4 million

PROJECT BUDGET \$21.9 million

SIZE 1,765 SM

CERTIFICATIONS

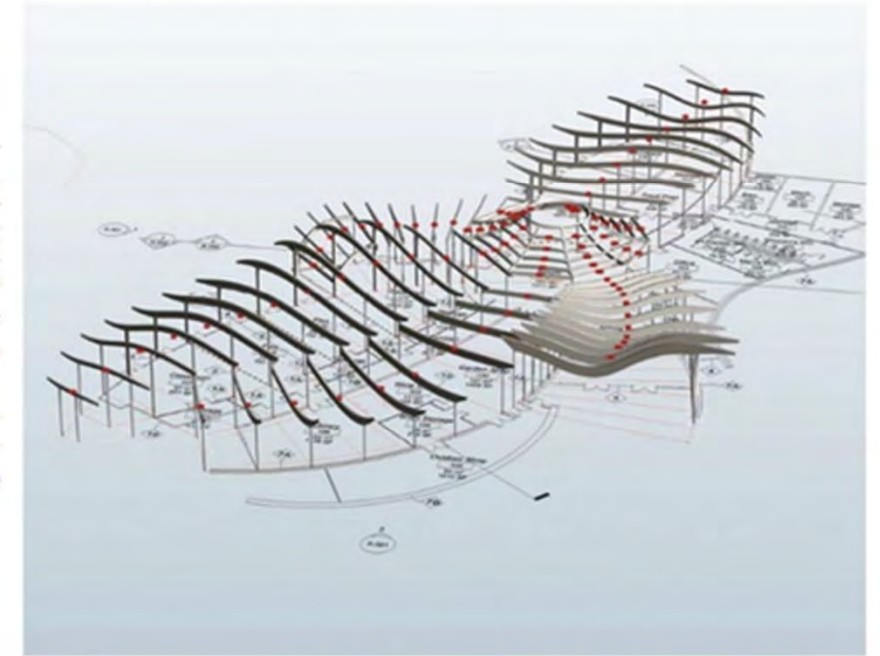
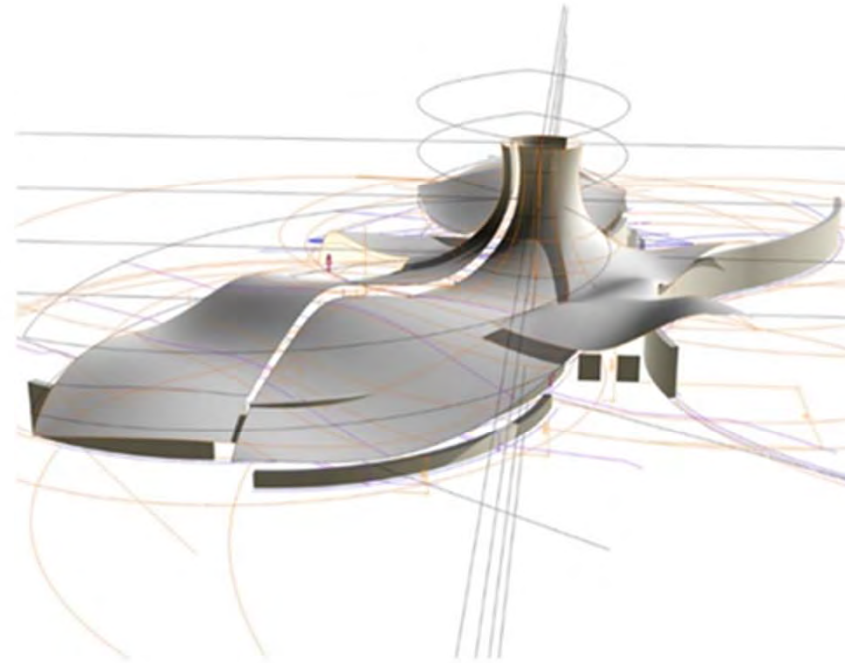
LEED Canada Platinum

Living Building Challenge Petal Certified

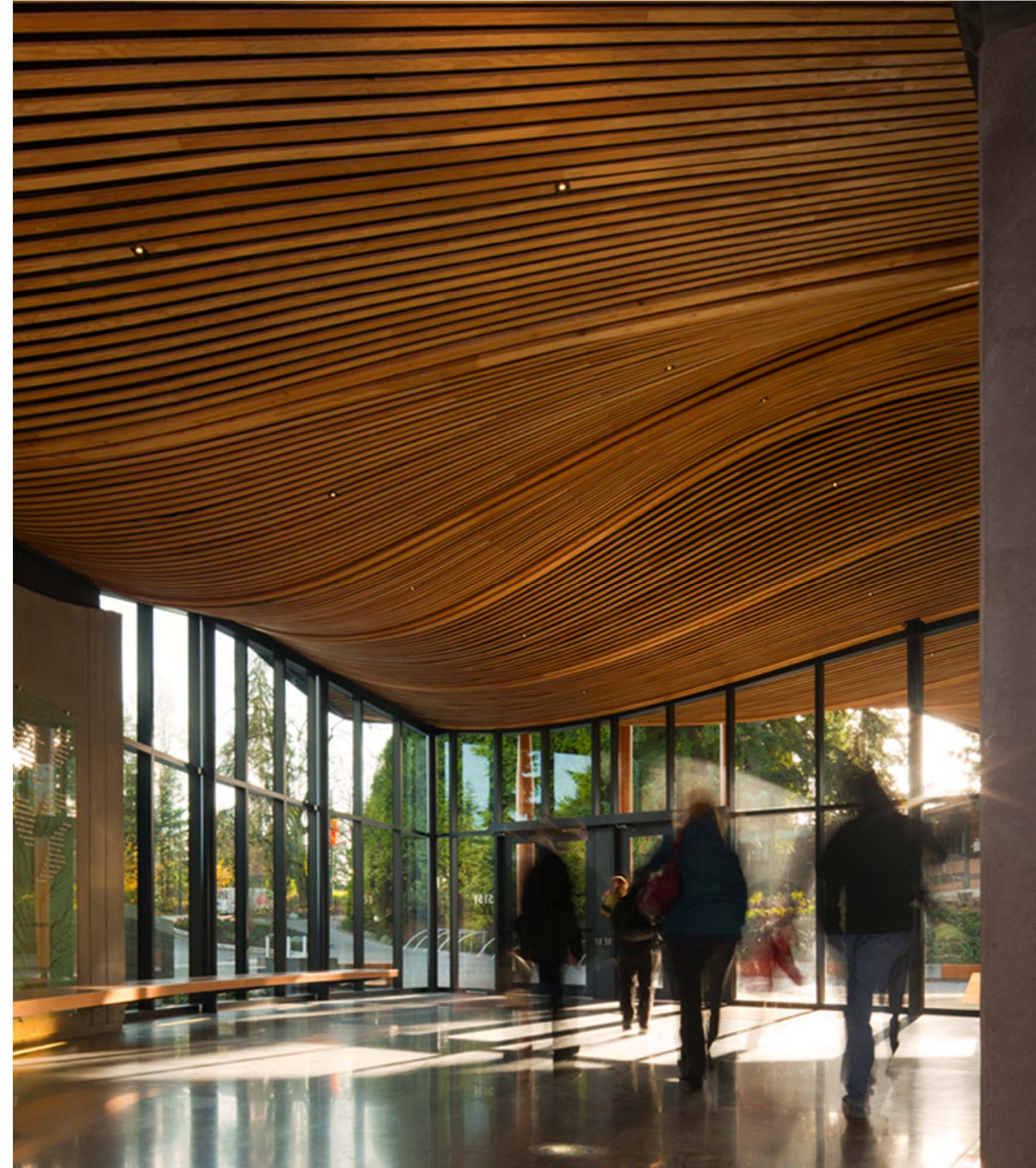
VANDUSEN BOTANICAL GARDEN VISITOR CENTRE

Construction Innovation

Developed with Rhino and Revit software, the roof includes more than 50 different pre-fabricated roof panels composed of unique curved glulam beams.



VANDUSEN BOTANICAL GARDEN
VISITOR CENTRE





BRENTWOOD SKYTRAIN STATION

LOCATION Burnaby, BC

CLIENT Rapid Transit Project Office

DATE COMPLETED 2002

CONSTRUCTION COST \$8.1 million

SIZE 2,100 SM

BRENTWOOD
SKYTRAIN STATION



CANADA LINE STATIONS



CANADA LINE STATIONS



EVERGREEN LINE STATIONS



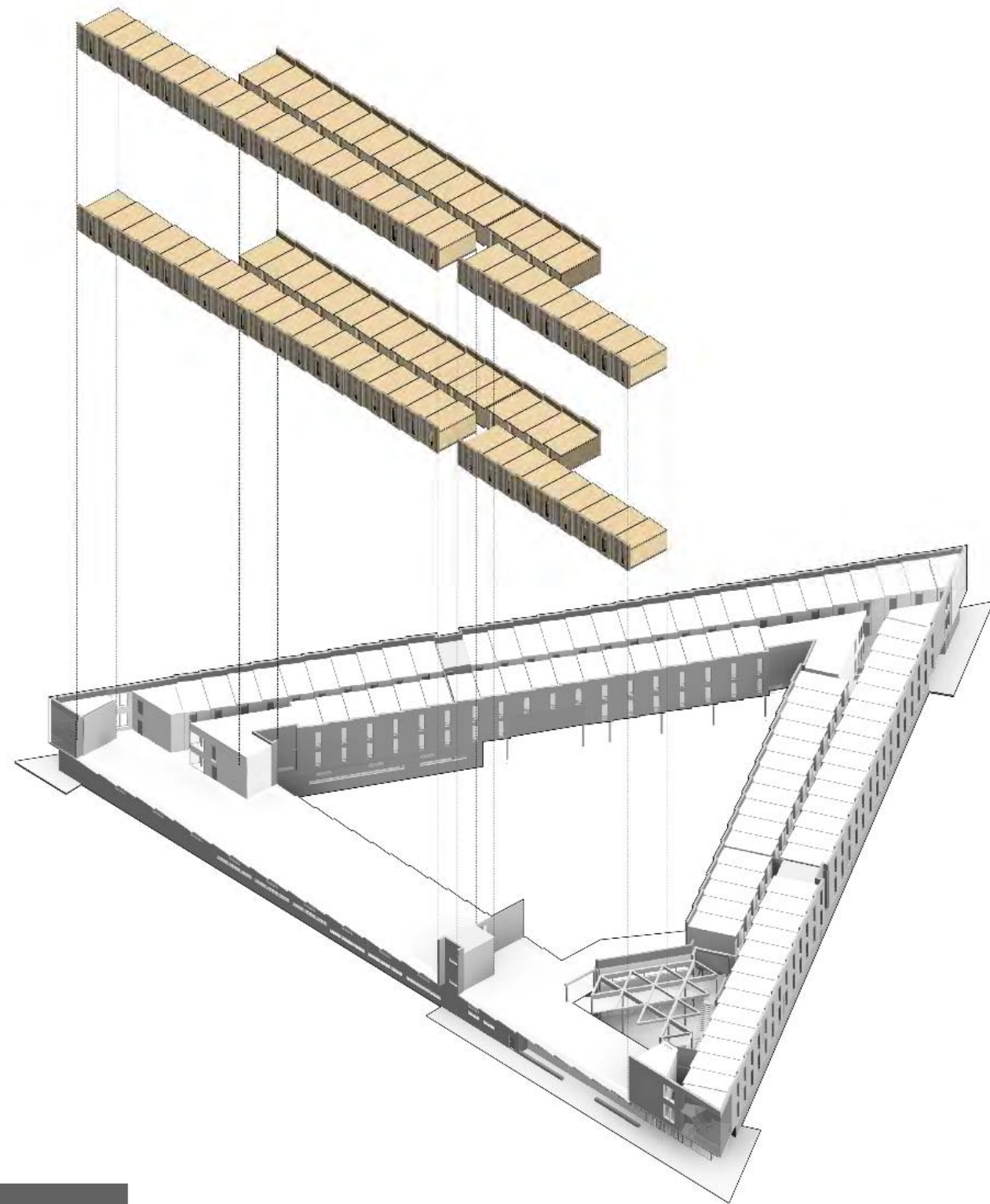
DILLY CREEK WORKFORCE ACCOMMODATION PROJECT

LOCATION Dilly Creek, BC

CONSTRUCTION COST \$55.5 million

SIZE 26,625 SM





TYPICAL PREFABRICATED CLT ROOM MODULE

CLT 3 PLY MODULE WALL

BUILT IN CUPBOARDS AND SHELF

VENT RISER AND BUILT IN CUPBOARD
AND SHAVE MIRROR

CLT 3 PLY MODULE WALL

GLAZED WALL

WASHROOM

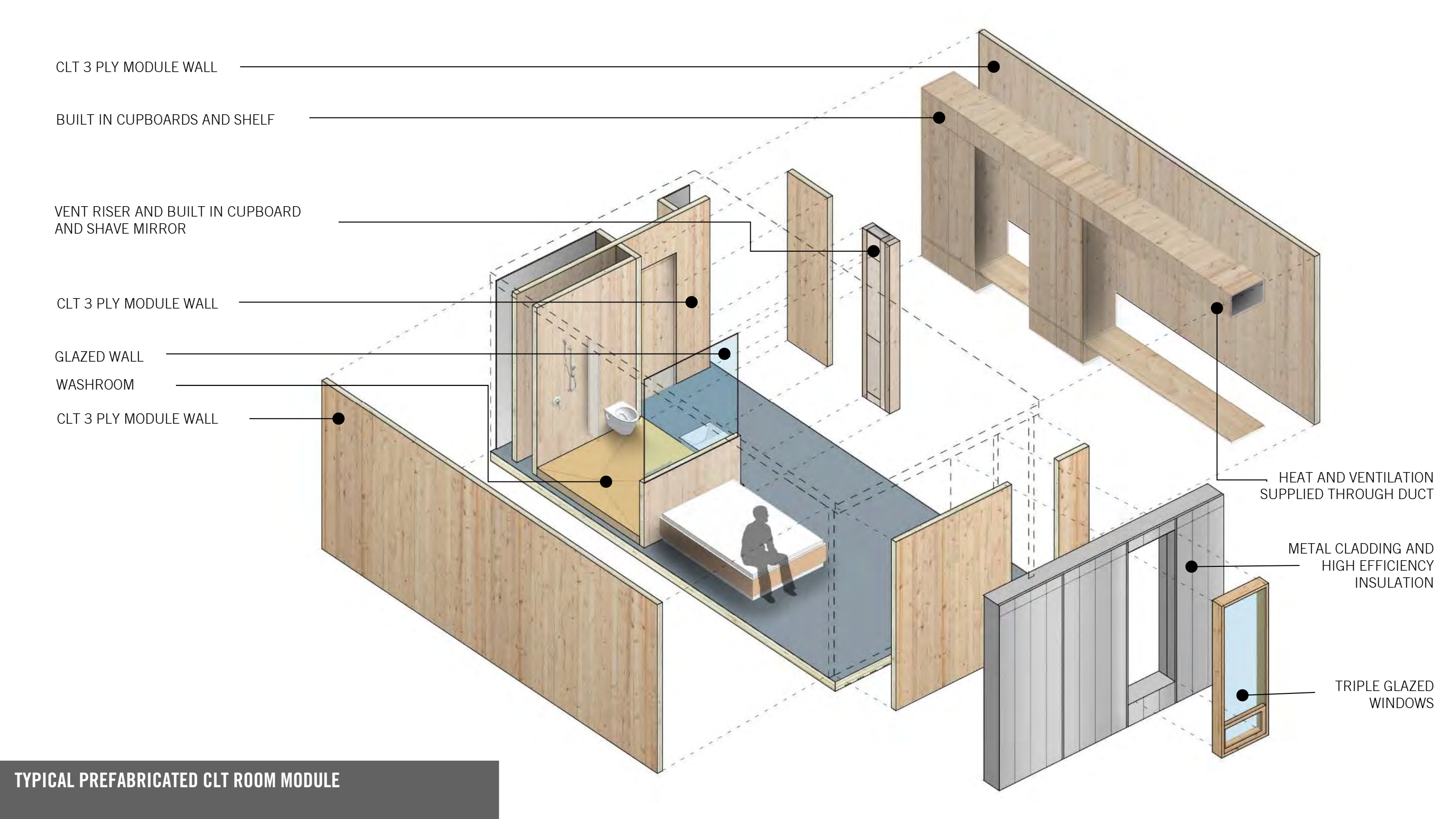
CLT 3 PLY MODULE WALL

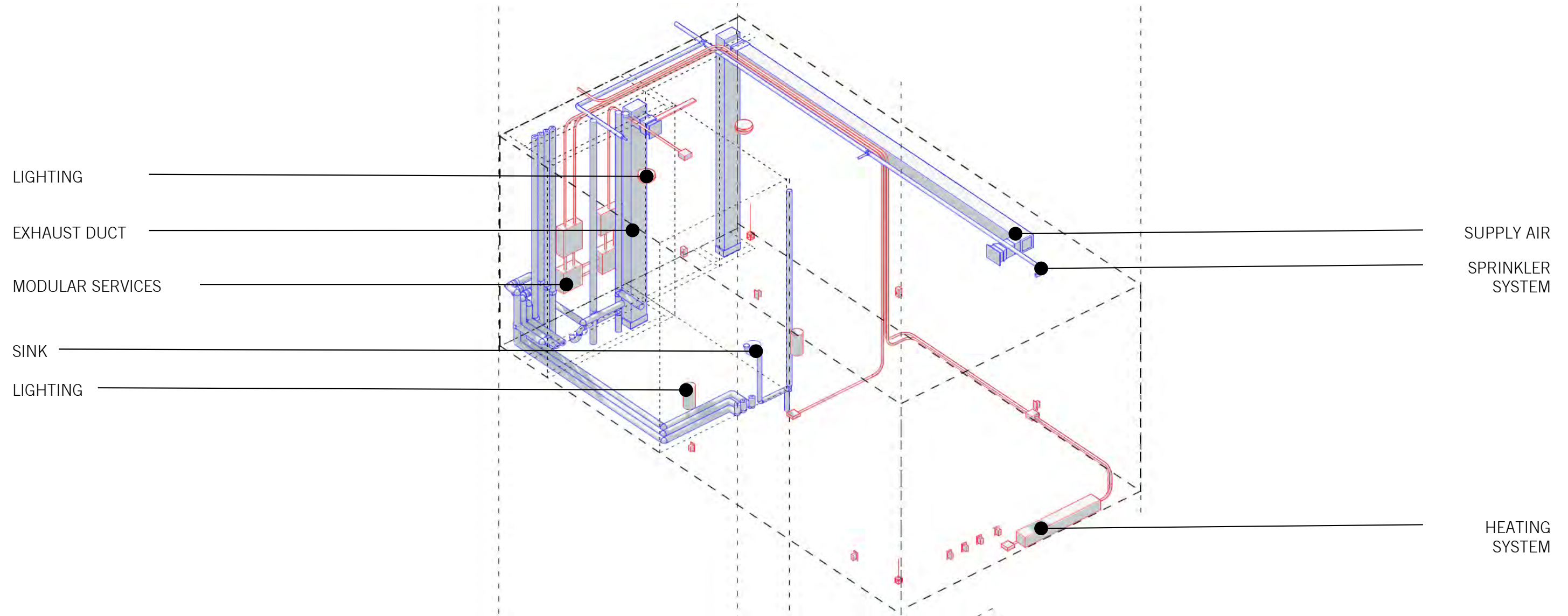
HEAT AND VENTILATION
SUPPLIED THROUGH DUCT

METAL CLADDING AND
HIGH EFFICIENCY
INSULATION

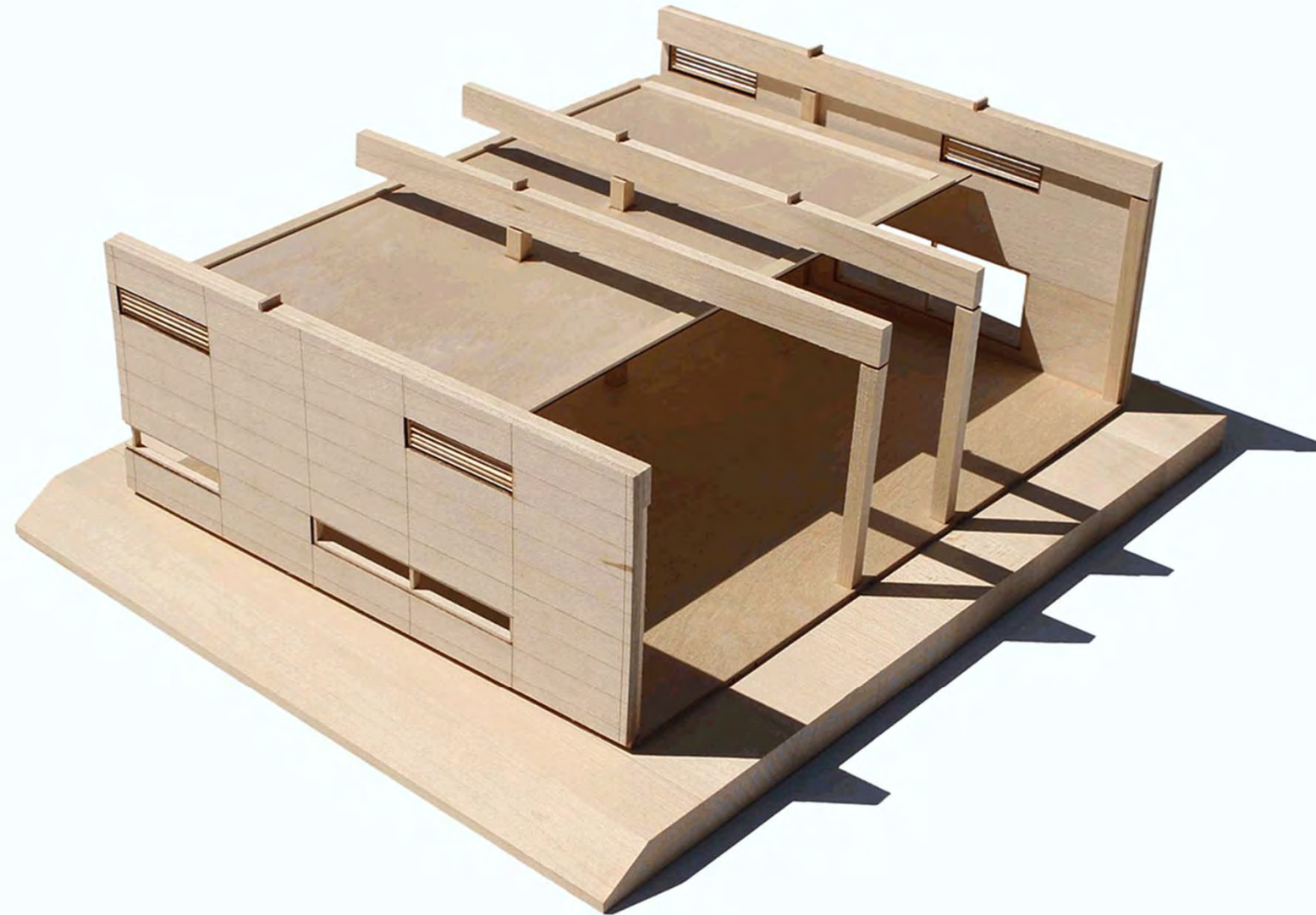
TRIPLE GLAZED
WINDOWS

TYPICAL PREFABRICATED CLT ROOM MODULE





**TYPICAL PREFABRICATED CLT ROOM MODULE
MECHANICAL AND ELECTRICAL SYSTEMS**



ON-SITE ASSEMBLY
NEXEN



NEXEN HOUSING MODULE

NEXEN HOUSING MODULE

LOCATION Mobile

DATE COMPLETED 2015

CONSTRUCTION COST \$117,000

SIZE 29 SM



NEXEN HOUSING MODULE



NEXEN HOUSING MODULE



derek.newby@perkinswill.com