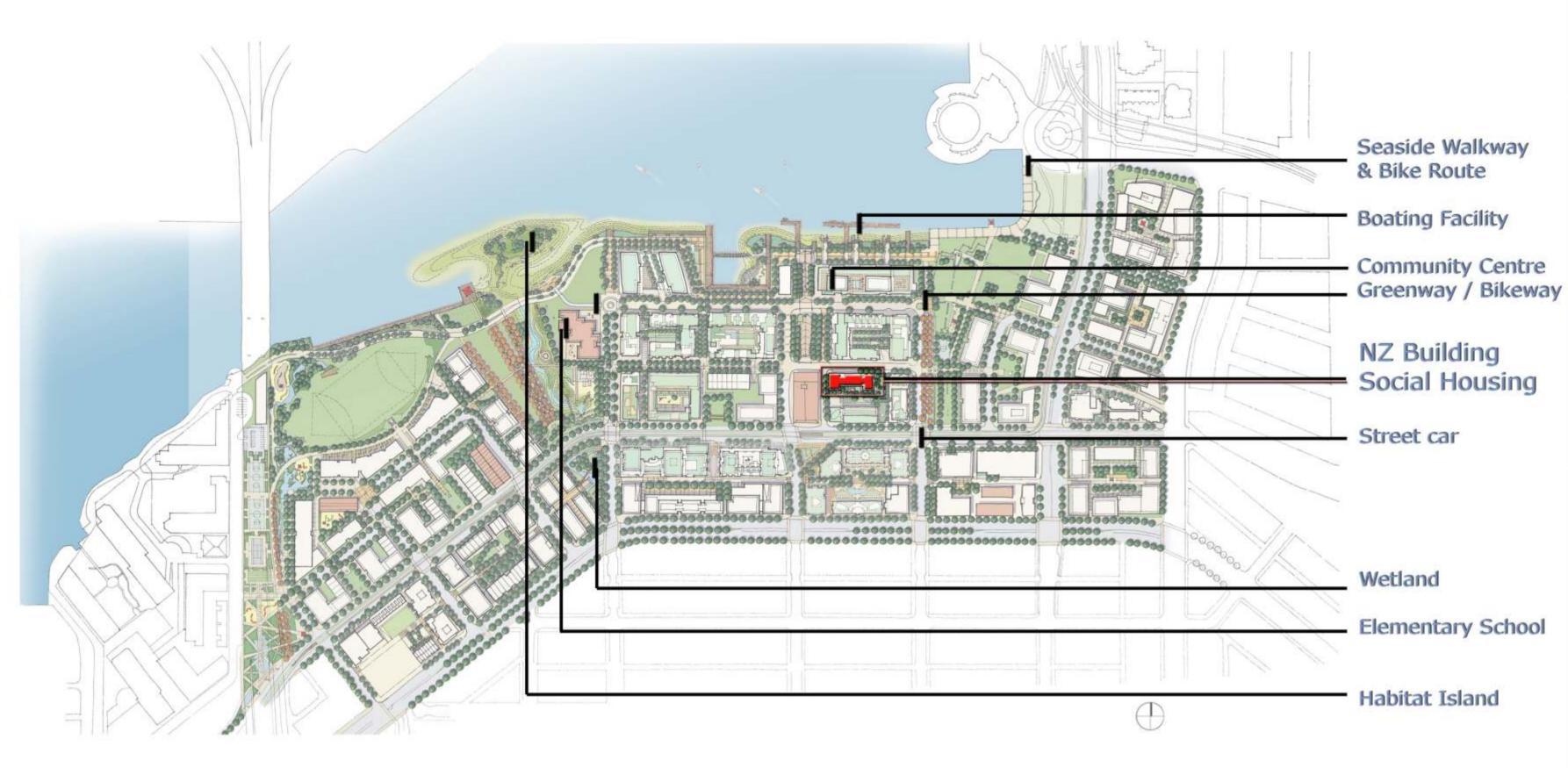


CITY OF VANCOUVER CANADIAN TEAM





The South East False Creek 2010 Olympic Athlete's Village comprises sixteen tightly interconnected buildings within a matrix of roads, public open space and pedestrian networks. The community will embrace 850 units of market housing, 250 units of social housing 80,000 square feet of commercial space, and a full service Community Center all constructed at minimum LEED Gold standard.



The challenges of the existing urban context and street orientation as precedent to a Net Zero overlay were considered by the team as an opportunity to challenge the performance of a building in a real city situation, with real city density, real overshadowing and a diverse community of occupants.



NZ BUILDING **CANADA GBL Architects**

Gross Area Gross Wall Area Fenestration Wall Ratio Opaque Wall Ratio Window U value

R25 0.24 - Triple Pane

4,037 M2

3,800 M2

33%









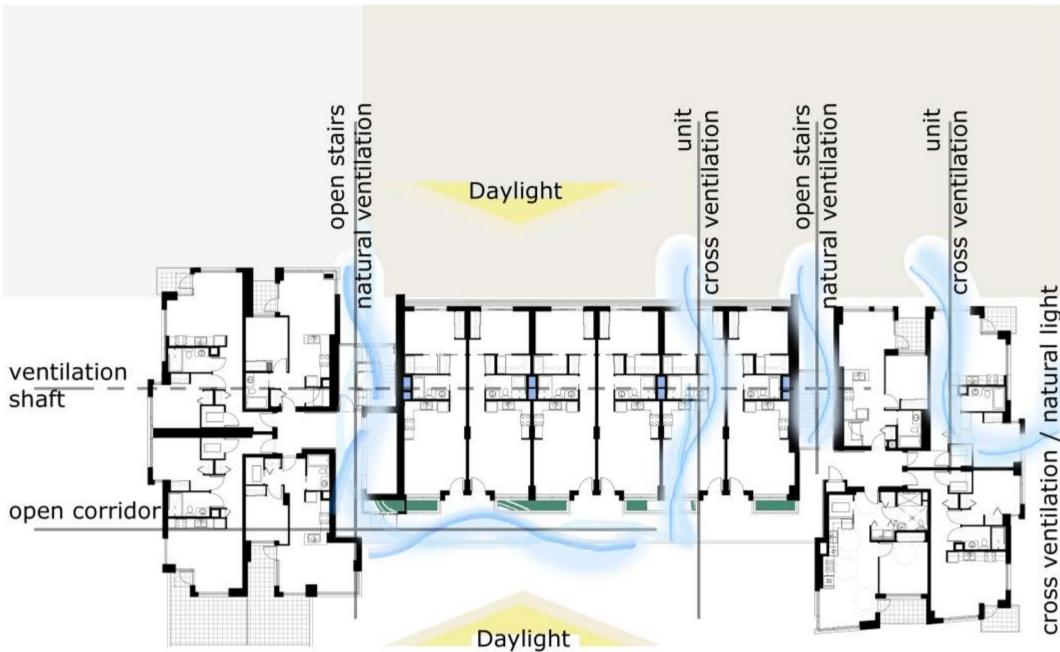


CITY OF VANCOUVER MISBE



Integrated Design

A design team including architect, client, mechanical, electrical and structural engineer worked collaboratively to create spaces where the energy demand for the interior activities was minimized through careful attention to building orientation, envelope design and systems integration.

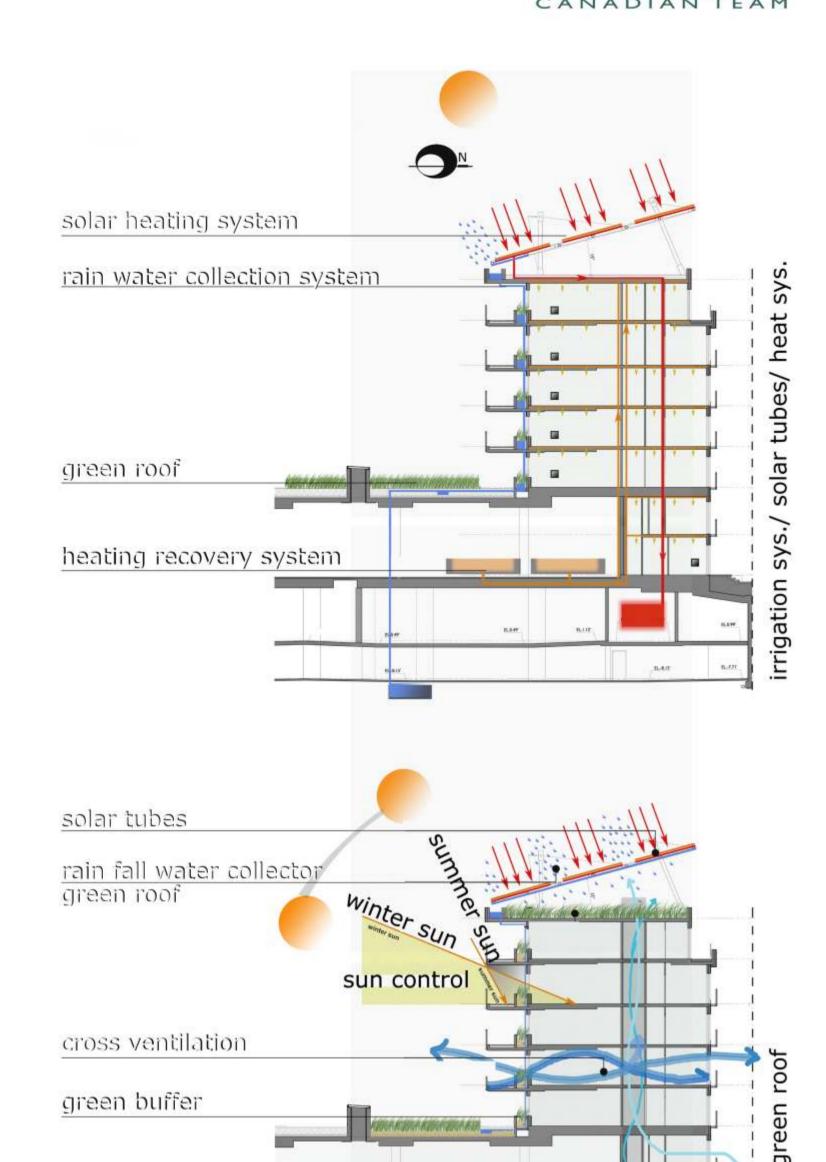


The single loaded open corridor and stairs obviate the requirement for mechanical systems for heating & pressurization while permitting day light and air to pass through corridors and suites, thus achieving passive ventilation & daylighting.

Circulation is designed to be open and to incorporate planters and benches to promote social well being and a sense of identity and liveability for the residents.

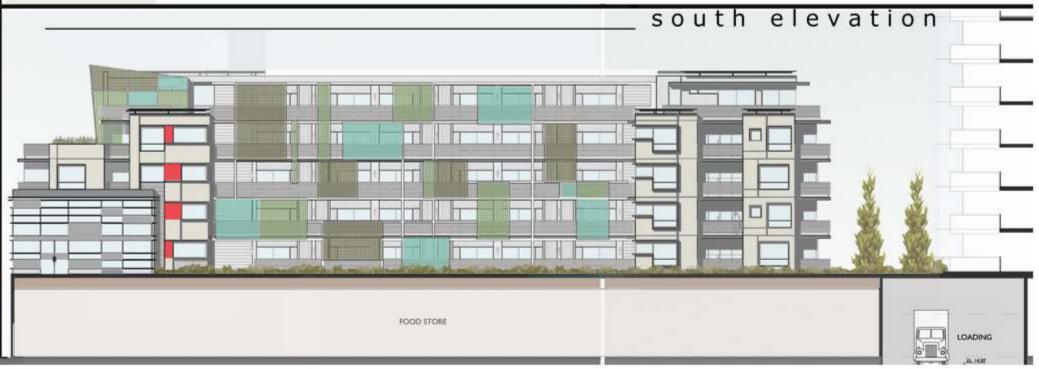
The overhang from the corridor acts as an architectural shade that protects the envelope, increases the building durability, and eliminates summer solar heat gain in units.











shaft ventilation







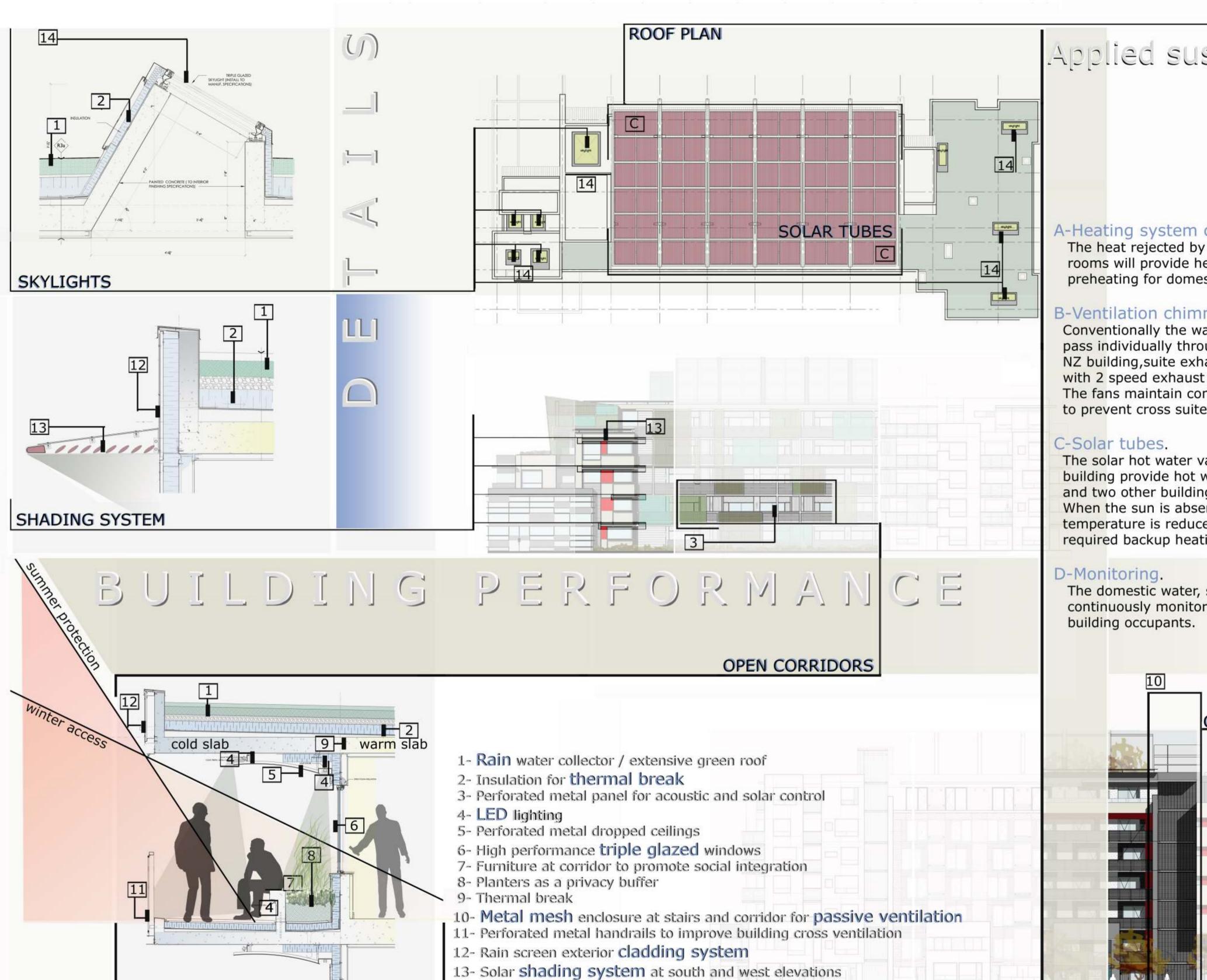




CITY OF VANCOUVER CANADIAN TEAM



C SOLAR TUBES



14- North Skylights for day lighting





The heat rejected by the Grocery Store and the electrical rooms will provide heating for the building and preheating for domestic hot water.

B-Ventilation chimneys at the units.

Conventionally the washroom and kitchen hood exhaust vents pass individually through horizontal in-slab ductwork. Here, in the NZ building, suite exhausts feed into collector chimneys with 2 speed exhaust fans at the roof.

The fans maintain constant negative pressure in the chimneys to prevent cross suite contamination.

The solar hot water vacuum tubes located on the rooftop of the building provide hot water to heat the domestic water for the NZ and two other buildings on site.

When the sun is absent and during winter months when air temperature is reduced, a neighbourhood energy utility provides required backup heating.

The domestic water, space heating and electrical loads are all continuously monitored and recorded for immediate access by





METAL MESH







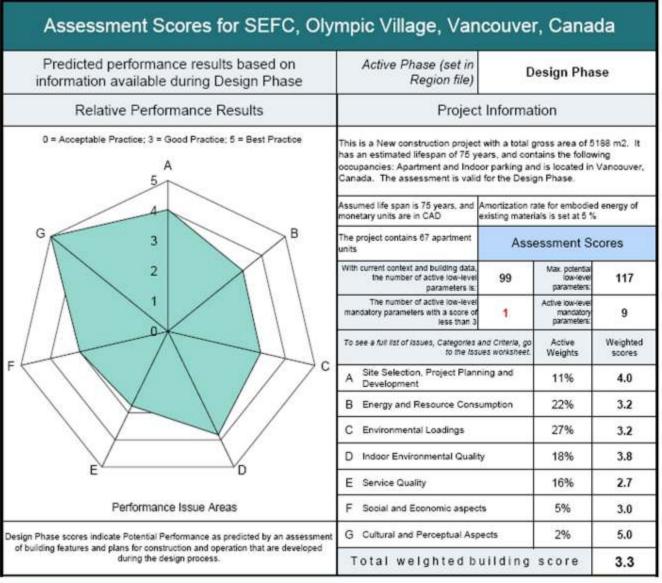






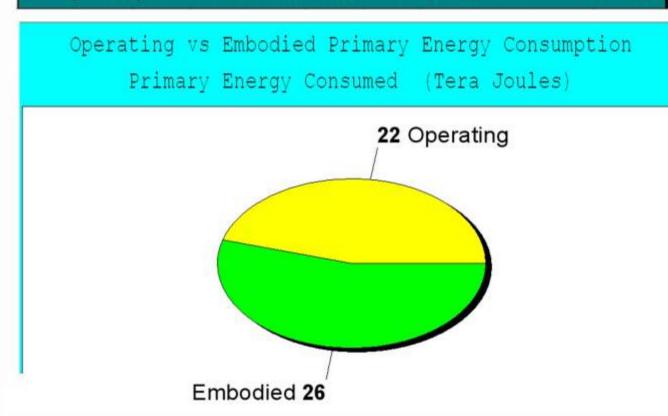
CITY OF VANCOUVER CANADIAN TEAM



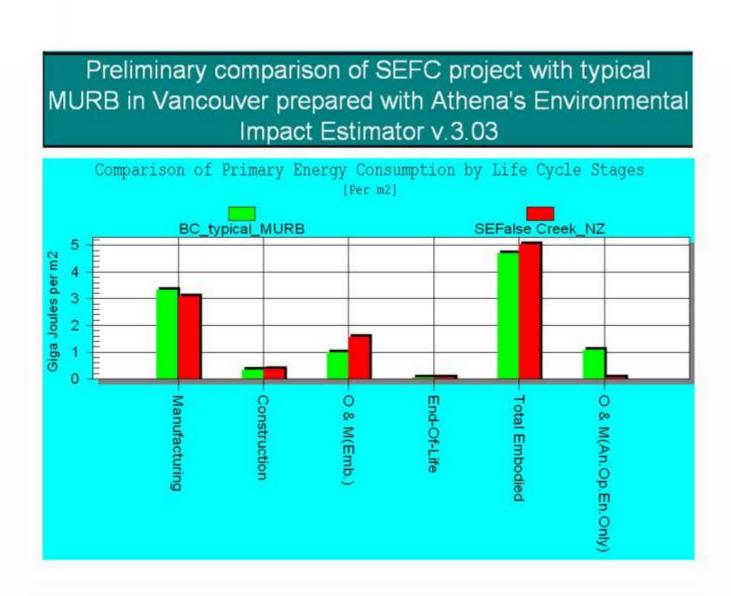


	Absolute Performance Results Relative performance	e level is Goo	od Practi	ice or better
	These data are based on the Self-Assessment values	By area	By area	& occupancy
1	Total net consumption of primary embodied energy for structure and envelope, GJ/m2	8	7	GJ/m²*maph
2	Net annualized consumption of embodied energy for envelope and structure, MJ/m2*yr.	109	94	MJ/m ^{2s} maph
3	Net annual consumption of delivered energy for building operations, MJ/m2*year	264	227	MJ/m ² maph
4	Net annual consumption of primary non-renewable energy for building operations, MJ/m2*yr.	264	227	MJ/m ^{2k} maph
5	Net annual consumption of primary non-renewable energy per dwelling unit in project, MJ/m2'yr.	4	3	MJ/m ²⁴ maph
6	Net annual consumption of primary non-renewable energy per dwelling unit in residential element, MJ/m2*yr.	4	3	MJ/m ² *maph
7	Net annualized primary embodied energy and annual operating primary energy, MJ/m2*yr.	373	321	MJ/m ² maph
8	Total on-site renewable energy used for operations, MJ/m2*yr.	74	84	MJ/m ² maph
9	Net annual consumption of potable water for building operations, L / m2 * year:	245	210	m³/m²*maph
10	Annual use of grey water for building operations, L / m2 * year	220	189	m³/m²+maph
11	Net annual GHG emissions from building operations, kg. CO2 equivalent per year	11	9	kg/m ² *maph
12	Total present value of 25-year life-cycle cost fot total project, CAD per m2.		9,477	Q. "
13	Proportion of gross area of existing structure(s) re-used in the new project, percent		0%	
14	Proportion of gross area of project provided by re-use of existing structure(s), percent		0%	

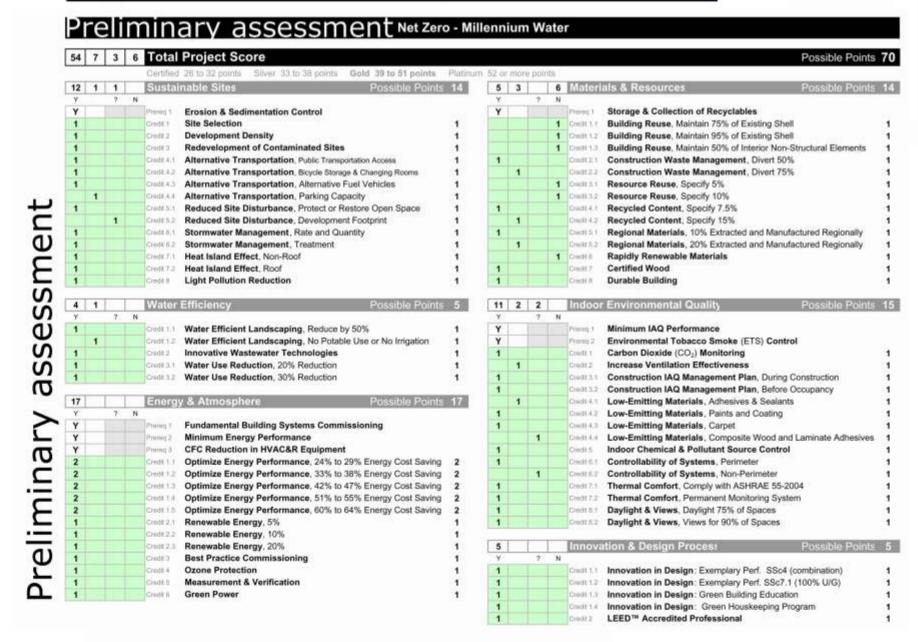
Analysis by Athena Environmental Impact Estimator v.3.03



Typical MURB in Vancouver						
	bodied Primary Ene. ergy Consumed (Te.					
Operating 329		19 Embodied				



LEED[™] checklist



1. Project Identification

	1	2
1. 1	Project name	NZ Building- Olympic village
1. 2	Country	Canada
1. 3	Contact person (Author)	Stuart Lyon - Oswal Fuentes
1.4	Institution	GBL Architects Vancouver
1. 5	Reference area [m² GFA]	4,037
1. 6	Reference area [m² NFA]	6,244
1. 7	Reference period	1 calendar year
1. 8	Climate region (moderate, subtropical, tropical, arid, etc.)	moderate
1. 9	Typical heating degree days for location (Kd/a)	350
1. 10	Typical cooling degree days for location (Kd/a)	192
1. 11	Typical local indoor comfort level during heating period (°C and % R. H.)	20oC 50%
1. 12	Typical local indoor comfort level during cooling period (°C and % R. H.)	24oC 50%
1. 13	Occupancy (persons/m²) / regular, actual occupancy	39
1. 14	Price level for cost data	2007
1. 15	Uniform currency	EURO

2. Public Transport

2
3
260

3. Reduction of Individual Traffic

		2
3. 1	Restriction of car parking supply and availability	V
3. 2	Pricing of parking spaces	
3. 3	Railway pass discount / annual season tickets subvention	
3. 4	Support of cyclists (parking facilities, changing room, shower room)	V
3. 5	ww.	
3. 6	ini	

4. Values for Final Energy (FE) and Primary Energy (PE)

			design values		or	O Measured	/ monitored		Alberta III	1):
	1	2	3	4	5	6	7	8	9	10
Energy S	Usage Source	Heating	Hot Water	Lighting	Cooling/ Climate control	Ventilation	Auxiliary Energy	Σ Final Energy (FE)	PE-conversion factor	Σ Primary Energy (PE)
4.1	Natural gas							0		-
4. 2	Fuel oil							0		
4.3	District heating	2				6		8		
4.4	Near / local heat							0		
4. 5	Electricity (grid)		- 3	4			40	44		
4.6								0		9
4. 7 4. 8	Solar heat Solar cooling	ergy Source	0.5					1 0		
4. 9	Photovoltaics							0		3
4. 10	Wood	0.2						0		
4. 11	Other biomass							0		
4. 12	Wind power							0		
4. 13	Water power							0		
4. 14								0		
Total FI	E / PE Renewable En	ergy Source	es							1
Total E	nergy									

5. CO₂ - Emissions

	1	2	3	4	5	6	7	8	9	10
Energy	Usage Source	Heating	Hot Water	Lighting	Cooling / AC / Climate control	Ventilation	Auxiliary Energy	Final Energy	CO ₂ - Coefficient (g CO ₂ /KWh)	e CO, / m²GFAa (equivalent)
5, 1	Natural gas	0	0	0	0	0	0	0		0
5. 2	Fuel oil	0	0	0	0	0	0	0		0
5. 3	District heating	2	0	0	0	6	0	8		0
5. 4	Near / local heat	0	.0	0	0	0	0	0	20 00 0 00 00 00 00 00 00 00 00 00 00 00	0
5. 5	Electricity (grid)	0	0	4	0	0	40	44	296.00	13065
5. 6	*****	0	0	0	0	0	0	0		0
Total C	O ₂									13065

Remark: eCO2 = CO2 equivalent

6. Material Input and Embodied Energy (only for new buildings)

O a complete declarati	on a partial declaration	of building materials

Material 1		2	3	4	5	6	7
		Use of Recycling Material	Mass for Construction	Mass for HVAC	kg/m² _{cra}	GJ PE nr/kg	GJ PE nr /m² _{GFA}
6, 1	Concrete*						0
6. 2	- Sand						0
6. 3	- Gravel						0
6. 4	- Cement						0
6, 5	Steel	V					(
6, 6	Glass						(
6. 7	Wood	V					(
6. 8	*****						
6, 9							C
6. 10					ijű i		0
6. 11	****						0
Totals	\$7.0	770	(r) No.		0	0	(

7. Potable Water Demand / Potable Water Consumption (net values)

1		2	3	4	5
Usage		1/m² of A	1/pers	D/C	Remark
7. 1	Washing, showering, bathing		36390.5	D	Assuming 40 gal/person/day
7. 2	Toilets (urinals)			D	
7, 3	Toilets (WC)		2190	D	rainwater harvested water average 1 per day
7.4	Laundry			D	part of 7.1
7. 5	Cooking			D	part of 7.1
7. 6	Irrigation (green roof, garden)	660	3	D	rainwater harvested water
7. 7	Cleaning inside (mostly floors)		0	D	
7. 8	Cleaning of window / facade		0	D	
7. 9	Mechanical cooling		0	D	
Totals		660	38580.5		
	x. value for potable water mption (national benchmark)			D/C	

8. Indoor Air Quality

	41	2
8. 1	Are there any measures to control the indoor air quality? (e.g., CO ₂ monitoring by sensors and/or ppm control by display)	
8. 2	Air change controlled according to CO₂ concentration?	V

9. Construction Cost

(EUR/m² gross floor area, price level 2007, excluding property acquisition and excluding planning expenses).

		1	2
9, 1	Overall construction	cost (EUR/m² gross floor area, price level 2007)	270
Nation	al benchmarks	name / description of benchmark	/









