

Renfrew House

Winnipeg, Manitoba, Canada

Construction Manager

GWH Construction Management Services Ltd.

Architect

Sputnik Architecture



Photos Courtesy of GWH Construction Management Services Ltd. & Sputnik Architecture

The clients for this modern home had a few very specific requirements. The first wish was to have plenty of natural light. The second wish was to have clean, simple lines. The third, "Make it beautiful."

To respond to these wishes the designers conceived of the house from inside to outside. A plan evolved that is very simple, with a centrally located vertical circulation core around which the living spaces huddle. The gesture of moving the "front" door to the side of the house accomplished two objectives. By placing the door at this location the door is on the sunny south facade allowing for natural light to enter directly into the middle of the house. Secondly, this gesture stretches the entrance sequence while using up space at the side of the house that is often wasted space.

Window placement is essential to the feeling of the house. Each window size and shape is carefully equated to maximize light gain, allowing the house to breath with light. The operable windows are also carefully considered to allow the house to breath with fresh air. The large central street facing window essentially opens up a gap through which the entire house can be viewed. From the inside this allows the owners to enjoy their entire yard, front to back, ground to sky.

With the windows selected, and placed, the treatment of the facade was the third design consideration. The chosen solutions resolved two issues. The first issue involved using the skin of the building to create a microclimate for the home. The polycarbonate panels are offset from the white metal building skin by 20mm. This cavity is vented but effectively provides a

layer of still air against the house cutting down drastically on the heat gain and loss through conduction. In the same way a windbreaker works to keep one warm the polycarbonate skin keeps wind off the house. The massive concrete wall acts like a giant radiator. In winter this mass of concrete collects heat from the sun. In summer, it spills heat during the night. The net effect is a reduction in the spike between hot and cold providing the south facade with a more constant moderate temperature.

The concrete wall and the polycarbonate panels also represent two different thoughts with respect to what a home might be. The concrete is stoic and stable, while the polycarbonate is ephemeral and whimsical, constantly changing with different lighting patterns and colours. These ideas come together to form a home.

Construction Manager

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Architect

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Construction Team**Mechanical Design/Build:**

Advance Mechanical, Inc.
Box 61 Group 336 RR No. 3, Winnipeg, MB Canada R3C 2E7

Electrical Design/Build:

GREB Holding Ltd.
224 Sharp Boulevard, Winnipeg, MB Canada R3J 2K4

**Project General Description**

Location: Winnipeg, Manitoba, Canada

Date Bid: Apr 2010

Construction Period: June 2010 to Dec 2010

Total Square Feet: 3,206

Site: 4,000 square feet.

Number of Buildings: Two.

Building Size: Garage, 352;
basement, 760; first floor, 1,114;
second floor, 980; total, 2,854
square feet.

Building Height: Garage, 12';
basement, 8'; first floor, 10';
second floor, 14'; total, 24'.

Basic Construction Type:

New/Wood frame.

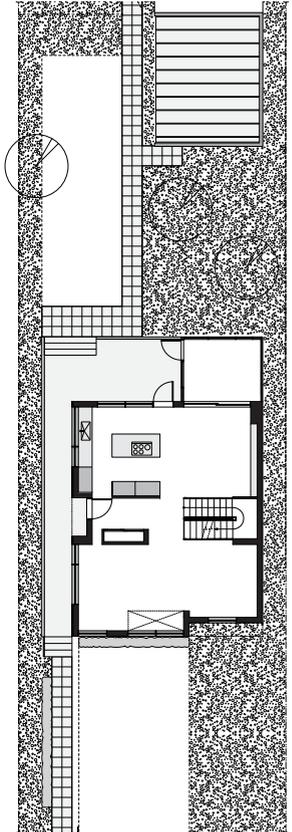
Foundation: Cast-
in-place, reinforced
concrete.

Exterior Walls:
Polycarbonate/sheet
steel siding.

Roof: Membrane.

Floors: Wood.

Interior Walls:
Wood stud drywall.

**Currency Conversion Rate: April 2010 (0.9703)**

DIVISION	COST	% OF COST	SQ.FT. COST
GENERAL REQUIREMENTS	38,618	8.84	12.05
CONCRETE	37,985	8.69	11.85
METALS	15,404	3.52	4.80
WOOD, PLASTICS & COMPOSITES	105,876	24.23	33.02
THERMAL & MOISTURE PROTECTION	77,907	17.83	24.30
OPENINGS	48,883	11.19	15.26
FINISHES	52,272	11.96	16.30
PLUMBING	18,010	4.12	5.62
HVAC	15,719	3.60	4.90
ELECTRICAL	26,364	6.02	8.22
TOTAL BUILDING COSTS	437,038	100%	\$136.32
EXISTING CONDITIONS	15,015		
EARTHWORK	26,974		
TOTAL PROJECT COST	479,027		

SPECIFICATIONS

Temporary facilities & controls, execution & closeout.
Cast-in-place (concrete breakdown: cubic yards foundation, 12; cubic yards walls, 6).
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Rough carpentry, finish carpentry, architectural woodwork.
Dampproofing & waterproofing, thermal protection, roofing & siding panels, membrane roofing.
Doors & frames, windows, glazing.
Plaster & gypsum board, tiling, flooring, painting & coating.
Piping & pumps, fixtures.
Air distribution.
Medium-voltage distribution, lighting.
Demolition & structure moving, water remediation.
Earth moving, shoring & underpinning.
(Excluding architectural and engineering fees)

UPDATED ESTIMATE TO FEBRUARY 2012: \$141.36 PER SQUARE FOOT**Regional Cost Trends**

This project, updated to February 2012 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta GA	\$132.70	\$425,443	Dallas TX	\$128.37	\$411,570	Los Angeles CA	\$171.65	\$550,301
Pittsburgh PA	\$167.32	\$536,428	Kansas City KS	\$173.09	\$554,925	Las Vegas NV	\$157.22	\$504,057
New York NY	\$213.48	\$684,408	Chicago IL	\$180.30	\$578,047	Seattle WA	\$171.65	\$550,301

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