Salt Building revival

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OWNER City of Vancouver **DEVELOPER** The Vancouver Salt Company Ltd • Acton Ostry Architects Inc. • The Haebler Group • Citysphere Project Management Corp. • Boyer Hospitality **ARCHITECT** Acton Ostry Architects Inc. **PROJECT MANAGER** Citysphere Project Management Corp. **STRUCTURAL ENGINEER** Glotman Simpson Consulting Engineers **MECHANICAL ENGINEER** Cobalt Engineering **ELECTRICAL ENGINEER** Cobalt Engineering **BUILDING ENVELOPE** Morrison Hershfield Limited **HERITAGE CONSULTANTS** Commonwealth Historic Resource Management • Jonathan Yardley Architect **SUSTAINABILITY/LEED** Recollective **GENERAL CONTRACTOR** The Haebler Group **PHOTOGRAPHY** Bob Matheson

The Salt Building is centrally located in Vancouver's new Southeast False Creek [SEFC] sustainable neighbourhood. Dating from the 1930s, it is the only remaining structure in the first phase of SEFC that connects directly back to False Creek's rich industrial past of sawmills, shipbuilding, and steel fabrication.

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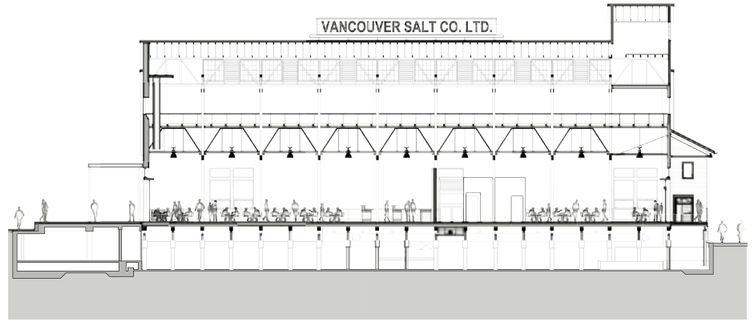
Restored heritage warehouse targets LEED-Gold certification

Before land reclamation stranded it more than 200 metres from the shore, the north end of the Salt Building was on the waterfront where raw salt from San Francisco was unloaded from barges. Once processed, the semi-refined salt was carried on a series of conveyor belts to the south end of the building and loaded onto railroad trucks for use in the fishing industry.

The building stood idle for several years as plans for the SEFC neighbourhood evolved and changed. As owners of the property, the City of Vancouver recognized that the restoration and rehabilitation of the Salt Building presented a rare opportunity to integrate concepts of adaptive re-use and heritage conservation with sustainable design and construction practices, and at the same time create a focal point for the emerging neighbourhood.

In 2007, in response to the City of Vancouver's call for proposals for the restoration, rehabilitation and adaptive re-use of the Salt Building, Acton Ostry Architects and three other companies, [see project credit list below] formed the Vancouver Salt Company Ltd. and submitted what proved to be the successful proposal.

The renewal project was challenging due to the tight schedule, the derelict condition of the building and the surrounding site context.



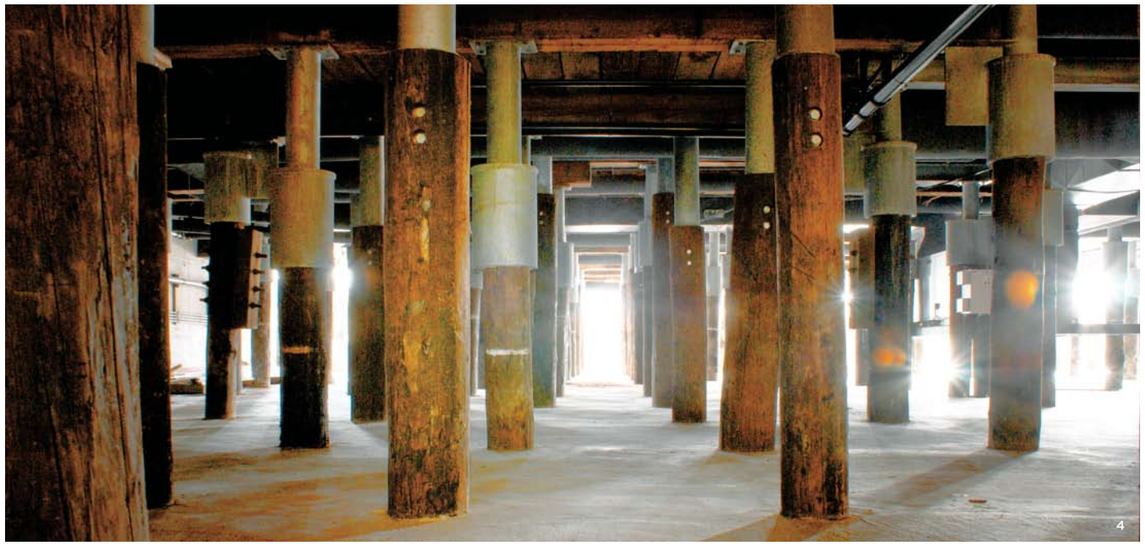
Longitudinal section

THE NORTH SIDE OF THE BUILDING FACES SHIPYARD SQUARE. ITS CANOPY AND PATIO WERE ONCE A DOCK AT WHICH RAW SALT WAS UNLOADED FOR PROCESSING [1]. HISTORIC IMAGES OF THE SALT BUILDING, ONCE A PROCESSING PLANT THAT REFINED SALT FOR USE IN THE FISHING INDUSTRY [2 AND 3].

The phased construction included the seismic upgrade of the structure, the raising of the building with steel pile extensions to align with new neighbourhood street grades, and the restoration and rehabilitation of the heritage shell to a Gold standard, based on the LEED Core and Shell rating system.

In November 2009, the City of Vancouver handed over the newly restored Salt Building to the Vancouver Olympic Organizing Committee for temporary use as the 'community living room' at the heart of the athletes village for the 2010 Winter Olympic Games.

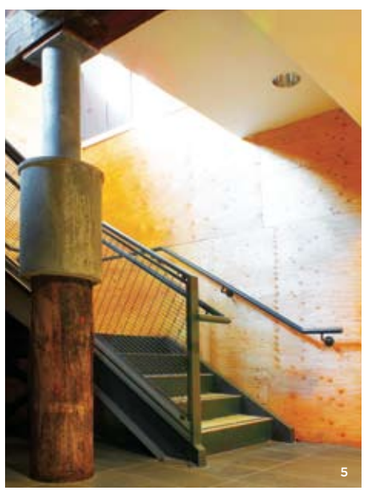
The SEFC Neighbourhood sustainability mandate not only encompasses environmental performance but also addresses social sustainability. When people enjoy communal experiences, share resources, support each other and develop trust, it not only enhances community resilience but also contributes to the overall well-being and health of people.



With the Games now over, the Salt Building will undergo its final transformation into what is hoped will be the permanent social hub for the SEFC neighbourhood. In support of this objective, and in keeping with its industrial past, the Salt Building will accommodate three 'light manufacturing' enterprises that many would consider critical to contemporary urban life: a coffee roaster and café, a bakery and a brew pub/restaurant. An interpretive installation will be incorporated to educate the community and the public about the history of the Salt Building and the industrial heritage of the area.

The Salt Building is one of very few heritage projects in Canada to target Gold certification under LEED–CS. The building is tied into the SEFC Neighbourhood Energy Utility that reclaims heat from sewage wastewater to provide heat to a radiant floor heating system. The building is projected to save 1,400 gigajoules of energy and eliminate over 150 tons of carbon dioxide emissions per year — an increase of 60% in energy efficiency. The enhanced energy efficiency is projected to realize energy cost savings of 43% compared to a standard building code-based model.

More than 75% of the existing building envelope was reused and retrofitted to create a unique rainscreen wall system while respecting the heritage characteristics of the structure. [See sidebar] Diversion of more than 98% of construction waste from landfills was achieved. The rehabilitation incorporates more than 15% recycled materials, with more than 10% of all the new materials used

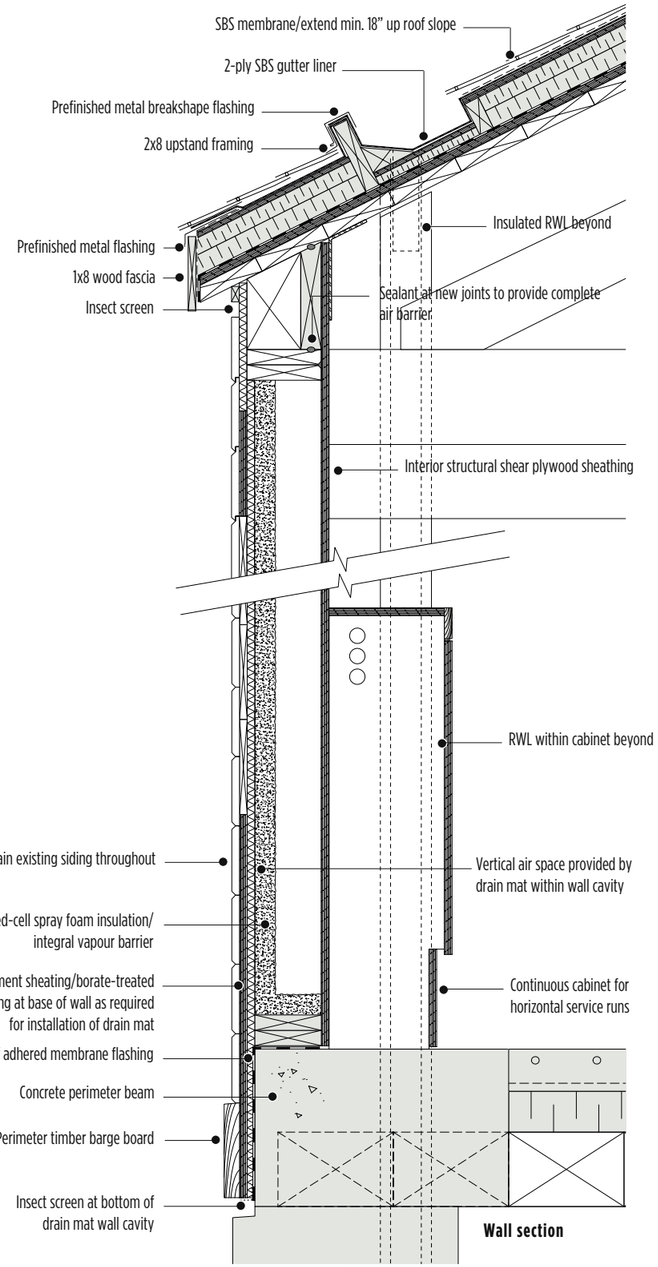


Envelope Upgrade

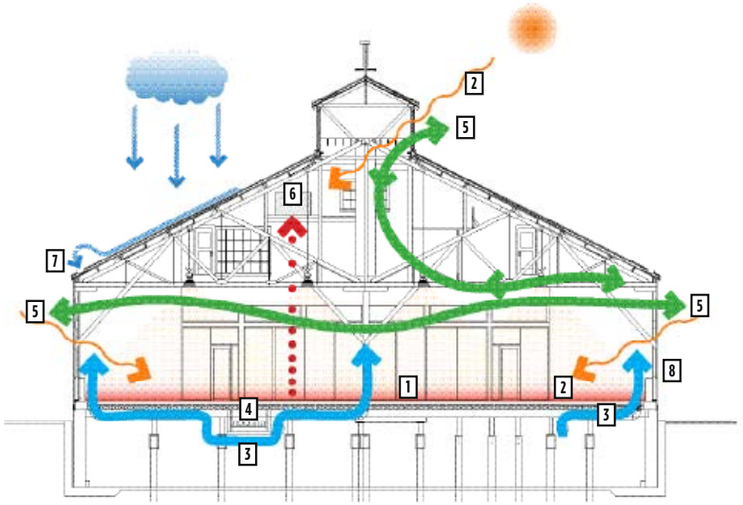
A unique rainscreen wall system, that retains 75% of the original building envelope, was a major up-grade performed on the building's shell. To retain the weathered cedar siding, the wall envelope had to be upgraded from the inside. All gaps in the structure were sealed with literally kilometres of sealant, after which drainage mat was fixed to the back of the existing siding.

Spray-foam insulation was then applied to improve the thermal performance of the wall assembly and shear ply sheathing was added as the "finish" layer of the shell upgrade. The heritage consultant deemed that the interior appearance of the heavy timber trusses and diagonal 2x8 roof sheathing was of heritage value and should be retained. To achieve this goal, the roof envelope had to be enhanced from the outside.

Approximately one-third of the roof sheathing was replaced due to rot. A layer of shear ply and rigid insulation was fixed to the existing sheathing. A layer of roof sheathing, roofing mem-brane and high quality asphalt shingles - to recall the roof type at the time of rehabilitation - completed the roof assembly. A hidden gutter detail was added to preserve the original appearance of the building which had never been fitted with gutters and had always shed water directly from the eaves.



ORIGINALLY ON THE WATERFRONT, PRIOR TO THE RECLAMATION OF FALSE CREEK, THE SALT BUILDING STOOD ON WOODEN PILES. TO MEET THE STREET GRADES AT MILLENNIUM WATER, THE BUILDING WAS RAISED AND STEEL PILE EXTENSIONS INSTALLED [4]. A STEEL STAIRCASE PROVIDES ACCESS TO THE BASEMENT AREA WHERE ONE ENCOUNTERS THE ORIGINAL WOODEN PILINGS [5]. A KEY GOAL OF THE RESTORATION WAS TO PROVIDE LARGE AREAS OF GLAZING AT THE NORTH AND SOUTH ENDS OF THE BUILDING, TO MAXIMIZE THE VISUAL CONNECTION BETWEEN INSIDE AND OUTSIDE [6].



Heating and ventilation patterns

1 In-slab radiant heating for thermal efficiency
2 Natural daylight to interior spaces
3 High efficiency mechanical unit for air handling
4 Mechanical
5 Natural ventilation
6 Heat recovery unit
7 Rain flow control
8 High performance envelope

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in the process being sourced regionally.

The linear light monitor running down the central spine allows daylight to enter deep into the interior. This feature has been enhanced through the creation of large glazed openings in the north and south gable walls of the building to create direct sightlines through the building to the public plaza, water and mountains to the north and to the activities on the street to the south.

A heritage building that meets a high standard of modern seismic and environmental performance is a rare accomplishment that has caught the attention of Parks Canada, which will use the project as a case study when considering heritage building related changes to the National Building Code in 2015.

RUSSELL ACTON IS A PRINCIPAL WITH ACTON OSTRY ARCHITECTS INC. IN VANCOUVER.

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THE MOST IMPRESSIVE ARCHITECTURAL FEATURE OF THE BUILDING IS ITS HEAVY TIMBER ROOF STRUCTURE. ALL CONNECTIONS HAD TO BE REINFORCED WITH STEEL PLATES TO MEET CURRENT SEISMIC CODES [7]. VIEW FROM THE NORTH PATIO ACROSS SHIPYARD PLAZA [8].