



# VANCOUVER CONVENTION CENTRE WEST

Vancouver,  
British Columbia,  
Canada

**LMN Architects + MCM/DA**

- 
- The first Certified LEED Platinum Convention Center in the world.
  - 2013 AIA National Honor Award for Architecture
  - 2013 AIA National Honor Award for Regional & Urban Planning
  - 2013 World Architecture News (WAN) Sustainable Building of the Year Award
  - 2011 AIA Committee on the Environment Top Ten Award
  - 2011 AIA National Honor Award for Interior Architecture

## PROJECT DETAILS

Situated on Vancouver's waterfront with spectacular views of mountains, ocean, and parks, the Vancouver Convention Centre West is designed to bring together the natural ecology, vibrant local culture, and built environment, accentuating their interrelationships through the architecture. Opened in April 2009, the Convention Centre West expansion facility triples the total square footage and functional capacity as well as completes the development of the public realm on the waterfront.

Seattle-based LMN, in collaboration with Vancouver-based Musson Cattell Mackey Partnership and DA Architects & Planners, designed the Vancouver Convention Centre West as a compelling vision of what a civic building can be—a celebration of people and place and a model of sustainability. The project achieved LEED® Canada Platinum certification, the first convention center to gain such recognition in the world.

In 2010, the Vancouver Convention Centre West will serve as the international broadcast and media center for the XXI Olympic & Paralympic Winter Games. Housing the more than 7,000 media who will be broadcasting live to millions of viewers across the globe, the new facility will be a powerful visual ambassador of the Pacific Northwest region's commitment to sustainability.

### PROJECT DETAILS

#### **Project Completion Date**

April 2009

#### **Project Cost**

\$883,200,000 (CAN) (This figure includes new West facility, renovations to existing East facility and associated infrastructure improvements to the waterfront.)

#### **Project Leadership**

BC Pavilion Corporation (PavCo), a Crown Corporation of the Province of British Columbia

#### **Project Size**

1.2 million square feet

#### **Project Program**

- 223,000 square feet of exhibition hall
- 60,000 square feet of meeting rooms
- 55,000 square feet of ballroom
- 95,000 square feet of retail space
- 400,000 square feet of walkways, bikeways, public open space and plazas

## SUSTAINABILITY FEATURES

- Certified LEED® Canada Platinum
- Six-acre living roof, the largest in Canada and the largest non-industrial living roof in North America
- Shoreline and marine habitat restoration
- Water conservation and reuse system that features black water treatment and desalinization
- Seawater heat pump system for cooling and heating
- Energy efficient lighting fixtures
- Advanced energy management systems
- Natural ventilation
- Extensive use of controlled daylighting
- Local materials, including locally harvested Douglas fir and Hemlock wood finishes
- Radiant floor cooling and heating
- Natural ventilation in west prefunction rooms
- Shoreline replacement and continuation
- 100% irrigation reduction and 60%-70% water use reduction
- Low-VOC flooring

## AWARDS

### 2013

- AIA National Honor Award for Architecture
- AIA National Honor Award for Regional and Urban Design
- World Architecture News Sustainable Building of the Year Award

### 2011

- AIA Committee on the Environment Top Ten Award
- AIA National Honor Award, Interior Architecture
- World Architecture News Effectiveness Award

### 2010

- AIA Northwest & Pacific Region, Honor Award
- AIA Seattle What Makes it Green? Gold Award
- Architect Magazine Annual Design Review, Citation
- British Columbia Wood First Champion
- Green Roofs for Healthy Cities: Green Roof Award of Excellence: Extensive Institutional category
- IESNA Illumination Design Award of Merit
- Lumen West Award of Excellence
- Northwest Wall & Ceiling Bureau, Commercial Project of the Year, British Columbia
- Sustainable Architecture & Building Magazine Canadian Green Building Award
- ULI Award for Excellence: The Americas Competition

### 2009

- AIA Seattle Chapter Honor Award
- Steel Designs Award
- Canadian Consulting Engineer Award of Excellence
- IIDA INawards, Honorable Mention, Design in Public Category
- The Chicago Athenaeum/Green Good Design Award

### 2005

- IIDA INawards, Best in Competition, Design in Concept Category



## PROJECT DESCRIPTION

### PROJECT OVERVIEW

The new Vancouver Convention Centre engages the urban ecosystem at the intersection of a vibrant downtown core and one of the most spectacular natural ecosystems in North America. Certified LEED® Canada Platinum, the project weaves together architecture, interior architecture, and urban design in a unified whole that functions literally as a living part of both the city and the harbor.

The building's vast program encompasses at once a single building and a new urban district. Occupying a former brownfield site on the downtown waterfront, the CAN \$883 million development is approximately 14 acres on land and 8 acres over water, with 1 million square feet of convention space, 90,000 square feet of retail space, 450 parking stalls, and 400,000 square feet of walkways, bikeways, public open space, and plazas. An elevated 6-lane viaduct for vehicles and pedestrians connects the site back to the city grid, while infrastructure for further development extends into the water, creating a base for future commercial and recreational marinas, a float plane terminal, and water-based retail opportunities.

The most visible evidence of the project's deep approach to ecology is its living roof—at 6 acres it is the largest in Canada, hosting some 400,000 indigenous plants and 4 bee colonies of 60,000 bees each. The roof's sloping forms build on the topography of the region, creating a formal connection to nearby Stanley Park and the mountains of Vancouver Island in view across the Burrard Inlet. Biologically, the living matter of the roof forms the terminus of a chain of waterfront parks that rings the harbor and creates continuous habitat between the Convention Center and Stanley Park. Along the perimeter facing the water, an artificial concrete reef drops below the public way. The reef is designed in collaboration with marine biologists and consultants to function ecologically as part of the natural shoreline, supporting salmon, crabs, starfish, seaweed, and a variety of other resident marine species. Runnels built into the tide flats beneath the building create tidal zone habitats that flush daily.

The internal metabolism of the building draws many of its inputs from the site's resident renewable resources. A seawater heat pump system, for example, takes advantage of the constant temperature of seawater to produce cooling for the building during warmer months and heating in cooler months. Backup heat is provided by steam. The facility also includes a water conservation and reuse strategy that uses grey water to reduce potable use by 60 to 70 percent over typical convention centers. The strategy includes a black water treatment plant and a desalinization plant on site.

Addressing the human environment, the architectural approach creates a public experience that is simultaneously a building, an urban place, a park, and an ecosystem. The convention center program emphasizes spaces for both public and private events, gatherings, and circulation. Urban spaces formed by the building's landforms extend the downtown street grid to preserve view corridors out to the water. Waterfront and urban pedestrian activities extend the public realm through and around the site. The entire perimeter enclosure is an ultra-clear glass system, which provides strong linkages between interior and exterior public spaces, and visually reinforces the integration of urban and waterfront context into the user experience of the building.

## REGIONAL AND URBAN PLANNING

The stated goal for the project was to “bring urban ecology into the downtown core,” and upon completion in 2009, the City of Vancouver passed an initiative to become the “greenest city in the world” by 2020, releasing a 10-part action plan addressing carbon, waste, and ecosystems.

The urban design integrates many layers of built and natural components into a holistic, ecologically productive whole. Once the western terminus of the Canada Pacific Railroad, the Convention District now serves as an ecotone of the riparian and upland habitat networks around the harbor, connecting migrating birds and insects with Stanley Park, English Bay, and the North Shore Mountains. New public amenities in the district double the size of Coal Harbour’s open space, complete an important waterfront pedestrian and bicycle route connecting downtown to Stanley Park, and bring retail and restaurant activity to the water’s edge. The shoreline itself is completely rebuilt, to the extent that a marine habitat skirt emulates the pre-industrial marine ecology, restoring a salmon migration path and bringing marine life back to the harbor.

## URBAN ECOSYSTEM

Built in anticipation of the 2010 Winter Olympics, the Coal Harbour Convention District is thoughtfully planned to serve the public far beyond the timeframe of a single event. The design approach is to create a socially connected experience that embodies all the diverse elements that define its place, creating a public amenity of perennial value to all of Vancouver’s residents and visitors.

### Jack Poole Plaza

Named for the late chair of the Vancouver Olympics Organizing Committee, the plaza is the city’s first gathering place on the water. Hosting the Olympic Torch for the duration of the games, the plaza is now the permanent home of the torch as a memorial to a defining moment in the city’s history. The plaza is continually programmed with concerts, public gatherings, formal and informal events.

### Canada Place Way

The only street facing the district is Canada Place Way, which equally accommodates cars, bikes, and pedestrians. A viaduct below grade serves truck loading and shuttle buses for convention delegates, leaving the surface street open for public access. A large no-car lane hosts bikes and pedestrians, connecting through to the plaza. The street often hosts food trucks and other mobile vendors.

### Choices of Ways to Participate

A guiding principle in designing the district’s public space was to provide choices of ways to use the space. Even as a concert goes on in the plaza, the promenade and green space remain separate, with a variety of seating and eddy spaces available. There are dozens of ways to experience the views, gather with groups, travel through the site, and find activity or solitude.

### Public Art

A \$5 million budget for public art allowed for a diversity of sculptures, installations, and educational plaques to be included at key nodes of the promenade and plazas. Temporary artworks also help to ensure the public realm is a dynamic and engaging experience. These art pieces help to activate and celebrate the local culture of British Columbia.

### Indoor/Outdoor Connections

The perimeter enclosure of the convention center is an ultra-clear glass system, which provides strong linkages between interior and exterior public spaces. Circulation spaces are placed around the perimeter, protecting the privacy of events within the building core while creating a connection between the activity of the building and the life of the city. In a radical departure from the majority of urban convention centers, the Convention District enables feedback and interaction between visiting conventions and the public life of the city, beyond the commerce generated for hotels and restaurants.

## DESIGN NARRATIVE

Vancouver, British Columbia is a sophisticated, multicultural metropolis renowned for its spectacular natural setting of mountains, water, and park spaces and lively urban core. The nexus of these diverse elements—the natural ecology of the waterfront, vibrant city culture, and urban built environment—is embodied in the design for the new Vancouver Convention Centre West.

## ECOLOGY

The Vancouver Convention Centre West is a functional integration of the natural and urban environments—the natural ecology of the waterfront with the human activities within the facility. The building expression is created by intersecting the convention center functions with forms that are folding, sliding, and rising up from the waterfront and adjacent public park. Distinctive features include:

- **A six-acre living roof** that is the largest green roof in Canada and the largest non-industrial green roof in all of North America.
  - The living roof is landscaped with more than 400,000 indigenous plants and grasses, providing a natural habitat to birds, bees, butterflies, insects and small mammals.
  - Four hives on the roof each house 60,000 bees (240,000 total bees), which are producing honey that is used in the centre's kitchen.
  - The living roof is designed to act as an insulator, reducing heat gains in summer and heat losses in winter.
  - The underside of the roof has Douglas Fir slats and metal bar grating fascia that create a visually porous enclosure for the roof support systems.
- **An underwater habitat skirt or artificial reef** that is part of the centre's foundation is providing new habitat for barnacles, mussels, seaweed, starfish, crabs and various fish species.
  - The architects collaborated with marine biologists to develop the restoration plans for 200 feet of shoreline and 1,500 feet of marine habitat.
  - The five-tiered underwater structure looks like a set of bleachers, consisting of 76 concrete frames weighing more than 36 tons each.
  - The structure creates tidal zones underneath the building that flush daily with the rise and fall of the tide.
- **An innovative water conservation and reuse strategy** that is projected to reduce potable water use by 60 to 70 percent over typical convention centers. Water conservation and reuse features include:
  - **Black water treatment**, which processes the building's sewage water to render it appropriate for other uses, to provide about 80 percent of the gray water needs for toilet flushing in the building and supplemental water for irrigation of the living roof.
  - **A desalinization plant** that draws water from the harbor and processes it to meet additional non-potable water demands.
- **A sea water heat pump system** that takes advantage of the constant temperature of adjacent seawater to produce cooling for the building during warmer months and heating for the building in cooler months. Back-up heat is provided by steam when needed.
- **Extensive daylighting** through an ultra-clear structural glass system surrounding the building.
- **Local materials** are used throughout, including Hemlock-clad walls and Douglas fir slat ceilings harvested from Vancouver Island and the Sunshine Coast.
- **Natural ventilation** in the west pre-function spaces to support healthy indoor air quality.

## CULTURE

From the city's sustainability commitment to its vibrant urban character, the essence of the surrounding community is embedded in the architectural design in several important ways, including:

- The design **visually links to Vancouver's harbor greenbelt** and Stanley Park at the city's western tip. "It's more than a building. It is part of the waterfront and the park ecosystems."
- **Over 130,000 square feet of new walkway/bikeway** connects across the site, extending Vancouver's famous waterfront and enhancing the public's access to the water's edge.
- **More than 120,000 square feet of new public plazas**, festival spaces and informal gathering areas encircle the center, providing places for cultural activity.
- **An additional 30,000 square feet of exterior terraces** for public enjoyment are part of the landscaped forms that comprise the overall building shape and culminate with the green roof.
- The project also **provides for future development of marine-based activities** such as a float plane terminal and private marina.
- **Wood block from locally harvested Hemlock** is a predominant interior finish. Douglas Fir slats comprise the ceiling, extending from the outside to the inside and running the length of the building to provide a directional texture to the spaces.
- **Interior colors reflect the building's surroundings** with shades of blue in north meeting rooms, shades of teal in the east meeting rooms, and shades of green in the south meeting rooms. The carpet in the ballroom is a pattern of copper and blue rectangles, graduating from predominately copper on the south side that is closest to the urban core to predominately blue on north side that looks over the water.

## URBAN CORE

The design of the Vancouver Convention Centre West knits with the downtown core, contributing to the evolution of the community's culture and evoking a unique experience of place through the architecture. The design integrates the site's urban surroundings in the following ways:

- The building is designed as an **extension of the waterfront public park** intersected by the convention center functions and the geometries, views and spaces of the adjacent urban setting.
- The building form creates **view corridors from the city's urban core** that extend through to the water, capitalizing on the centre's location at the end of two major downtown streets. From points within the building, the building also frames views into the urban setting.
- **More than 90,000 square feet of retail space** animate the public facades of the building and provide dining and shopping opportunities.
- The building's entire perimeter is enclosed in an ultra clear structural glass envelope, creating a **strong visual connection between inside and outside**.



## ARCHITECTS

### LMN

LMN led the design of the Vancouver Convention Centre West.

LMN specializes in designing convention centers, cultural arts venues, higher education facilities, commercial and mixed-use developments and urban environments that celebrate and enrich communities. The Seattle-based firm designs both public and private projects with a particular focus on their connections to the public realm. Founded in 1979, LMN has earned an international reputation for high-quality design, successfully managing complex projects, and delivering progressive, sustainable solutions.

LMN's approach draws upon the people, program, and place to create architecture that evokes a unique experience and contributes to the evolution of a community's culture. Through rigorous exploration and research of the possibilities offered by modern technology, the firm's work combines functional spaces with concepts that redefine the model of urban development.

The firm's multi-disciplinary, 100-person team includes architects, interior designers and urban planners, with projects throughout the United States and in six foreign countries. LMN is recognized for its outstanding design of civic and public buildings, while strategically navigating the complexities of budget, schedule and process. The firm's work has been honored with more than 175 design awards.

Public projects include Benaroya Hall, home to the Seattle Symphony; Marion Oliver McCaw Hall, home to the Seattle Opera and Pacific Northwest Ballet; the Cleveland Medical Mart and Convention Center, and the Duke Energy Center, an expansion of the Cincinnati Convention Center. Significant higher education projects include the Paul G. Allen Center for Computer Science and Engineering and the Michael G. Foster School of Business at the University of Washington, the Biotechnology/Life Sciences Facility at Washington State University, the Conrad Prebys Music Center at the University of California at San Diego, the School of Music at the University of Iowa, and the performing arts center at the City College of San Francisco.

[www.LMNArchitects.com](http://www.LMNArchitects.com)

### MUSSON CATTELL MACKEY PARTNERSHIP

Musson Cattell Mackey Partnership (MCM) together with DA Architects & Planners served as the local prime architects for the Vancouver Convention Centre West project. Both local firms worked in collaboration with LMN from a project team office.

Musson Cattell Mackey Partnership is one of Western Canada's most accomplished architectural practices. Led by four partners—Bill Reid, Mark Whitehead, Jacques Beaudreault and Mark Thompson—with ongoing contributions from founding partner Frank Musson, MCM provides comprehensive planning and design services for any construction undertaking.

Based in Vancouver on Canada's Pacific Coast, MCM has built its reputation on a foundation of major developments in the city's downtown core and a diverse collection of successful projects in the surrounding communities. MCM's projects range from the very large and complex to the small project that needs experience and attention to detail to succeed.

MCM maintains a staff of over 70 architecture, interior design, hotel and hospitality, planning professionals, technical personnel and administrative staff. The firm offers refinement and innovation in its approach to design, combined with the assurance of solid expertise in construction methodology, cost control, code requirements and contract administration. MCM's goal on every project, large or small, is to provide clients with a level of understanding, effort, service, design expertise and ongoing commitment they simply will not get from anyone else.

### DA ARCHITECTS & PLANNERS

DA Architects & Planners partnered with Musson Cattell Mackey Partnership as the local prime architects for the Vancouver Convention Centre West project.

DA Architects & Planners is one of Vancouver's leading firms, dedicated to craftsmanship and design, collaboration and community building. For four decades, the firm has produced a diversity of structures, combining innovative form with function that is focused on community-building. The firm provides architecture and planning services on convention facilities, hotels, university and post secondary educational facilities, community centers and high-rise residential towers.

DA believes that buildings significantly impact the communities they serve. They not only provide efficient and comfortable enclosures for the activities and occupants within, but equally important, the building's impact on the exterior public realm. This dialogue between the buildings and the spaces between buildings creates significant opportunities to promote livability, enhance the public's experience, and improve the environment. To this end, the firm's policy is that each project receives the direct and continuing participation of partners and associates in every phase of the work. The principals are practicing architects and planners directly involved in project programming, site planning, design development, production of the drawings and contract administration.

## PROJECT TEAM

Project Owner	BC Pavilion Corporation (PavCo)
Design Architect	LMN
Prime Architects	Musson Cattell Mackey Partnership and DA Architects & Planners
Project Manager	VCCEP Ltd. (Stantec Consulting)
Contractor	PCL Construction Enterprises
Civil Engineer	Sandwell Engineering Inc.
Electrical Engineer	Schenke/Bawol Engineering Ltd.
Landscape Architect	PWL Partnership Landscape Architects Inc.
Marine/Foundation Consultant	WorleyParsons Westmar
Mechanical Engineer	Stantec Consulting
Structural Engineer	Glotman Simpson Consulting Engineers and Earth Tech (Canada) Inc.
Acoustic Consultants	Arup Acoustics and Daniel Lyzun & Associates
Audio Visual	Sparling
Barrier Free	Barrier Free Design
Building Code Consultant	LMDG Building Code Consultants Ltd.
Building Envelope Consultant	Morrison Hershfield
Civil Engineer	Sandwell Engineering Inc.
Commissioning Authority and Mechanical Commissioning Agent	KD Engineering Co.
Communications Consultant	The Pace Group
Cost Consultant	BTY Group
Design/Development Manager	K. Grassi Project Development Ltd.
Environmental Consultant	EBA Engineering Consultants Ltd.
Ethics Advisor	Carol Roberts
Facility Operations Consultant	Buckley-Christison International LLC
Fire Protection Engineer	GHL Consultants Ltd.
Geotechnical Engineer	Golder Associates
Horticultural & Ecological Consultant	Rana Creek Habitat Restoration
Food Service Consultant	William Caruso & Associates
Materials Engineer	Levelton Consultants
Parking and Traffic Engineer	Bunt & Associates Engineering Ltd. and ND Lea Consulting Ltd.
Project Management	Stantec Consulting
Public Art Consultant	Public Art Management
Quality Management Consultant	Levelton Consultants Ltd.
Retail Consultant	Urbanics Consultants Ltd.

PROJECT TEAM [CONTINUED]

Revenue Maximization	Bell-Irving Grauer Enterprise Corporation
Security Advisor	3Si Risk Strategies
Signage & Wayfinding Consultant	Gottschalk & Ash
Specialty Lighting Consultant	Horton Lees Brogden Lighting Design
Structural Engineer	Glotman Simpson Consulting Engineers and Earth Tech (Canada) Inc.
Surveyor	Butler Sundvick & Associates
Sustainability Coordinator	Sustainability Solutions Group
Telecommunications Consultant	RADA Technology Consulting Inc.
Value Engineering Facilitator	Olympic Associates
Vertical Transportation Consultant	John W Gunn Consultants Inc.
Wind Consultant	DFA Engineering

**Imagery Credit**

LMN: pages 3, 4, 6, 7, 8, 10, 11, 12, 13, 14, 18, 23, 28

LMN/Studio 216: pages 1, 2, 9

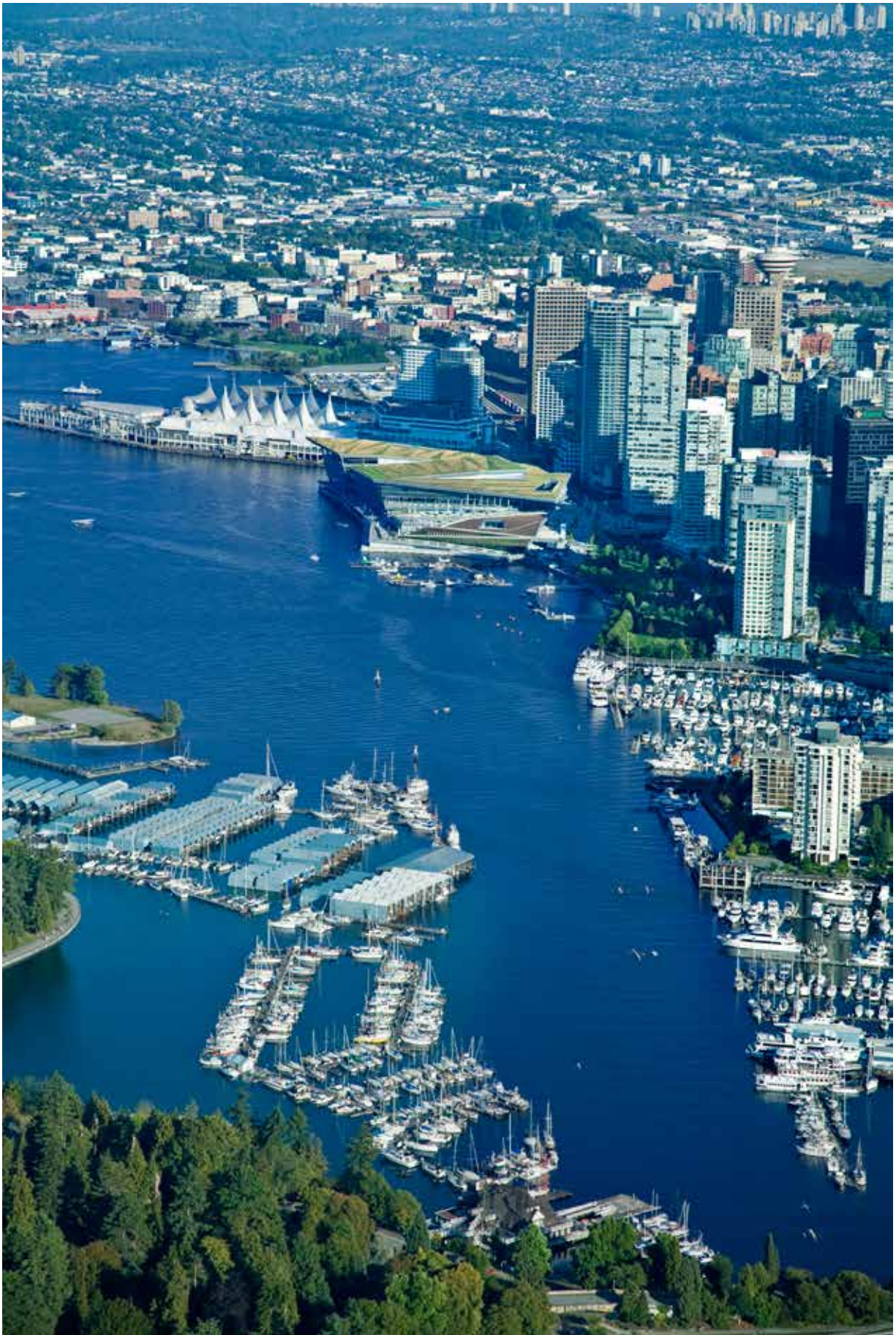
Nic Lehoux Photography: pages 5, 15, 16, 17, 19, 20, 22, 24, 29, 30, 32, 33,

PWL Partnership: pages 21, 26

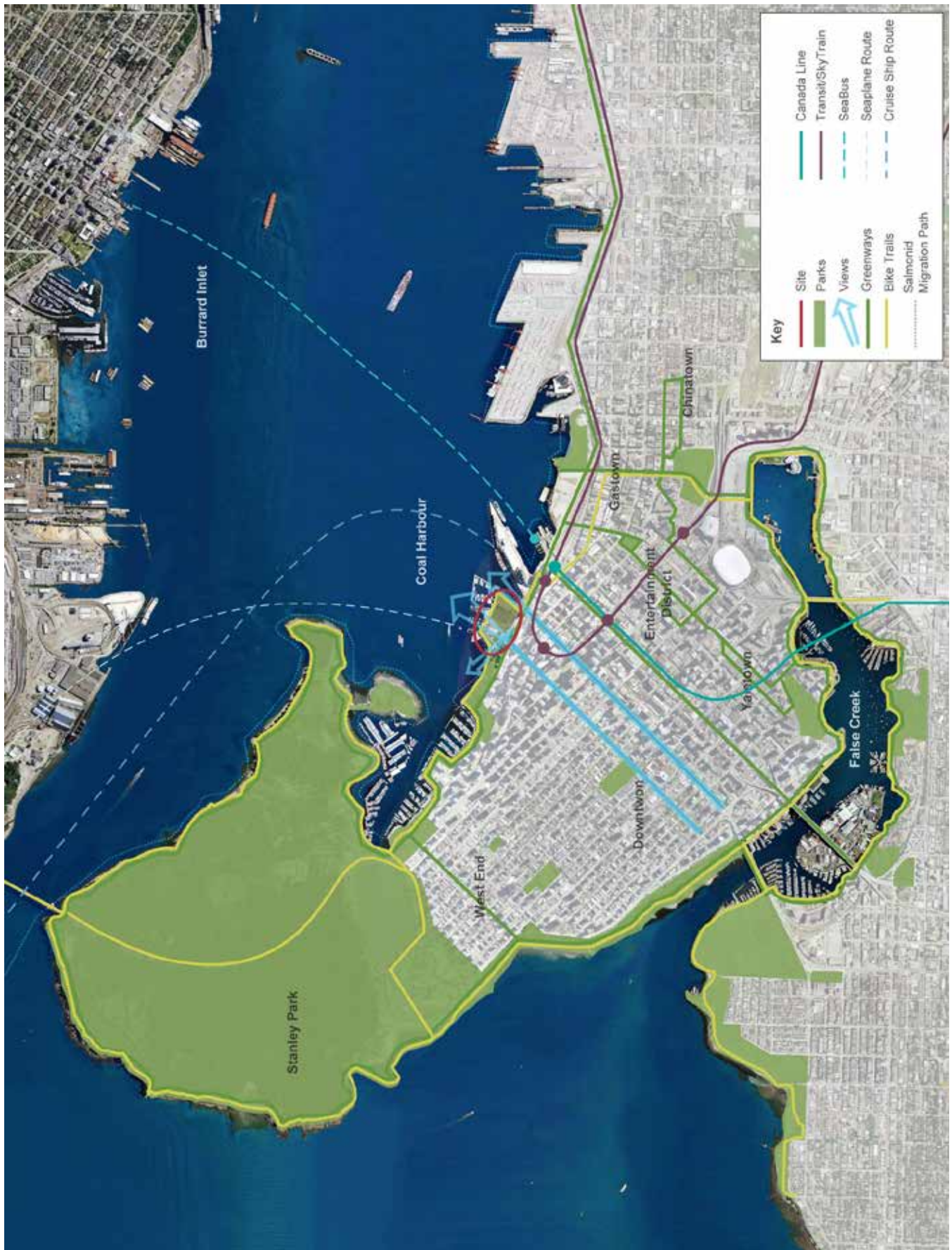
Vancouver Convention Centre: pages 25, 27, 31



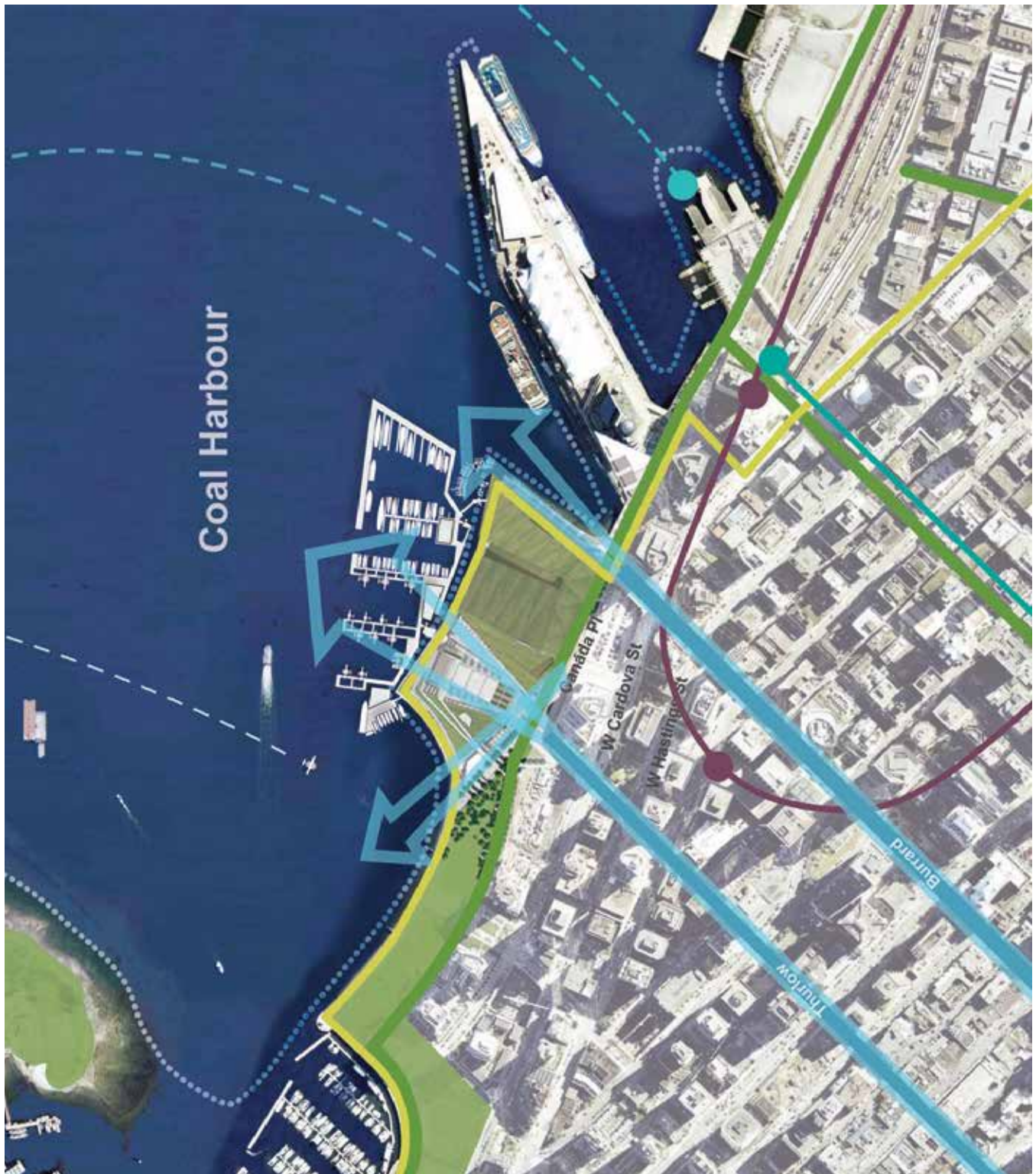


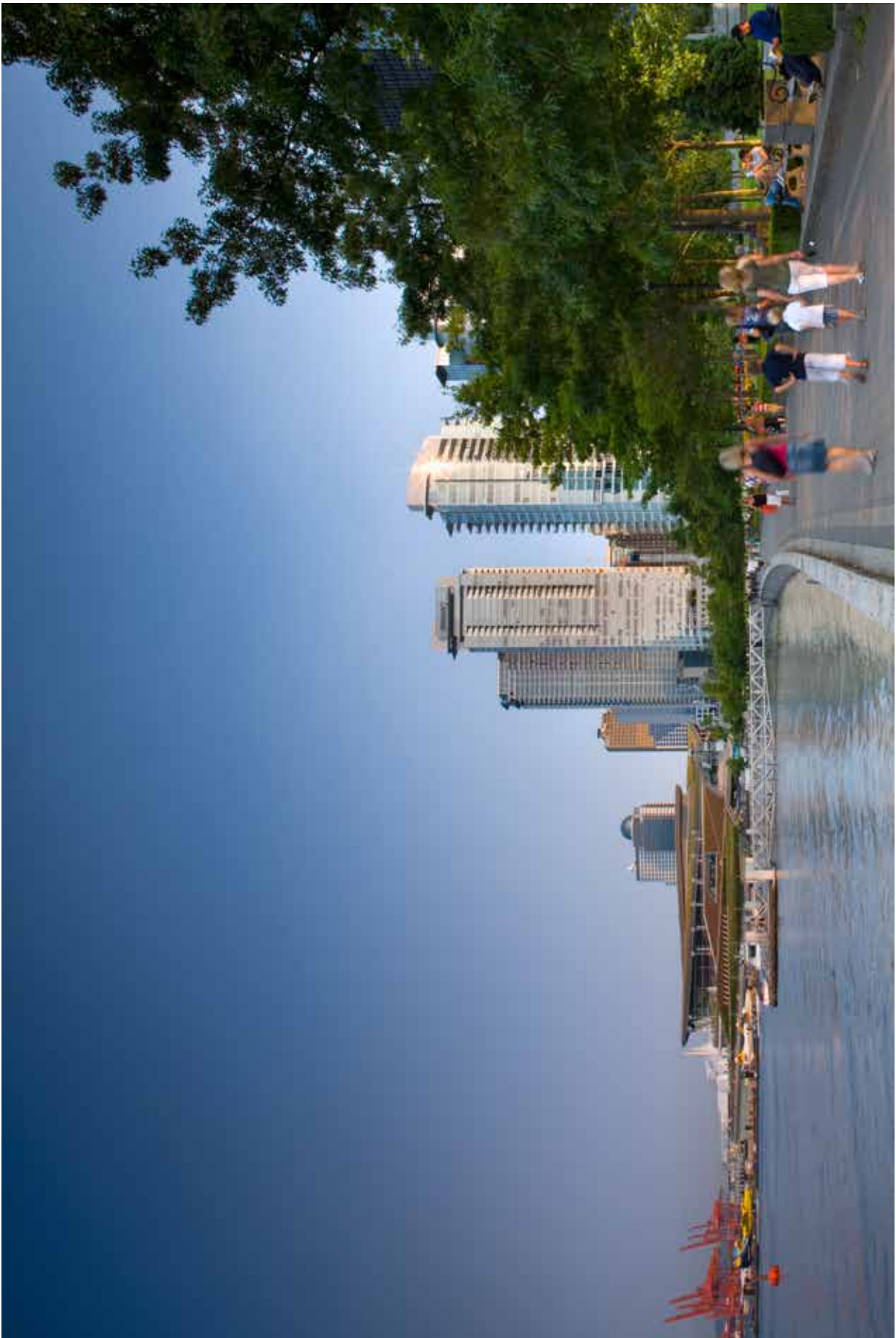




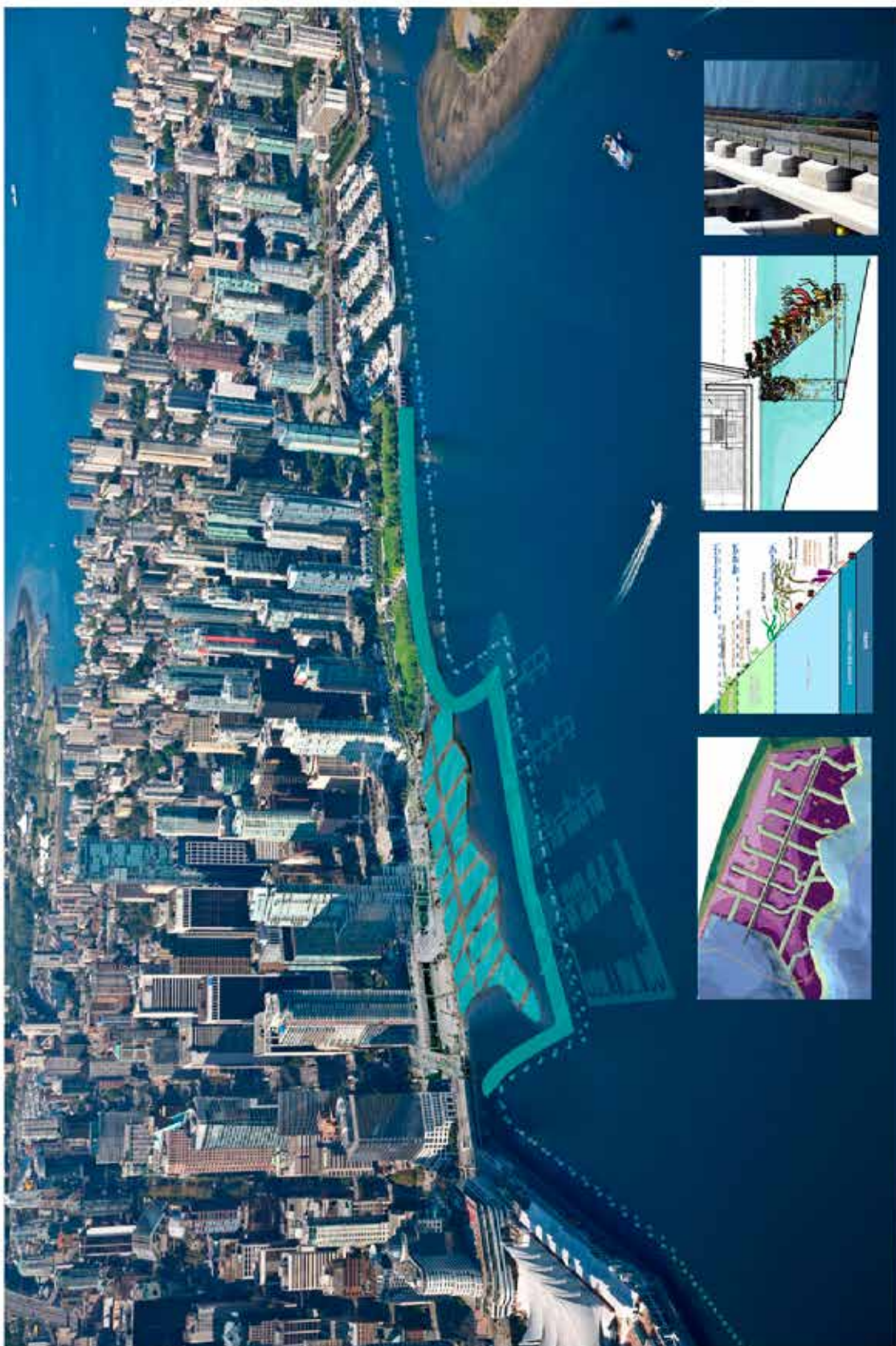






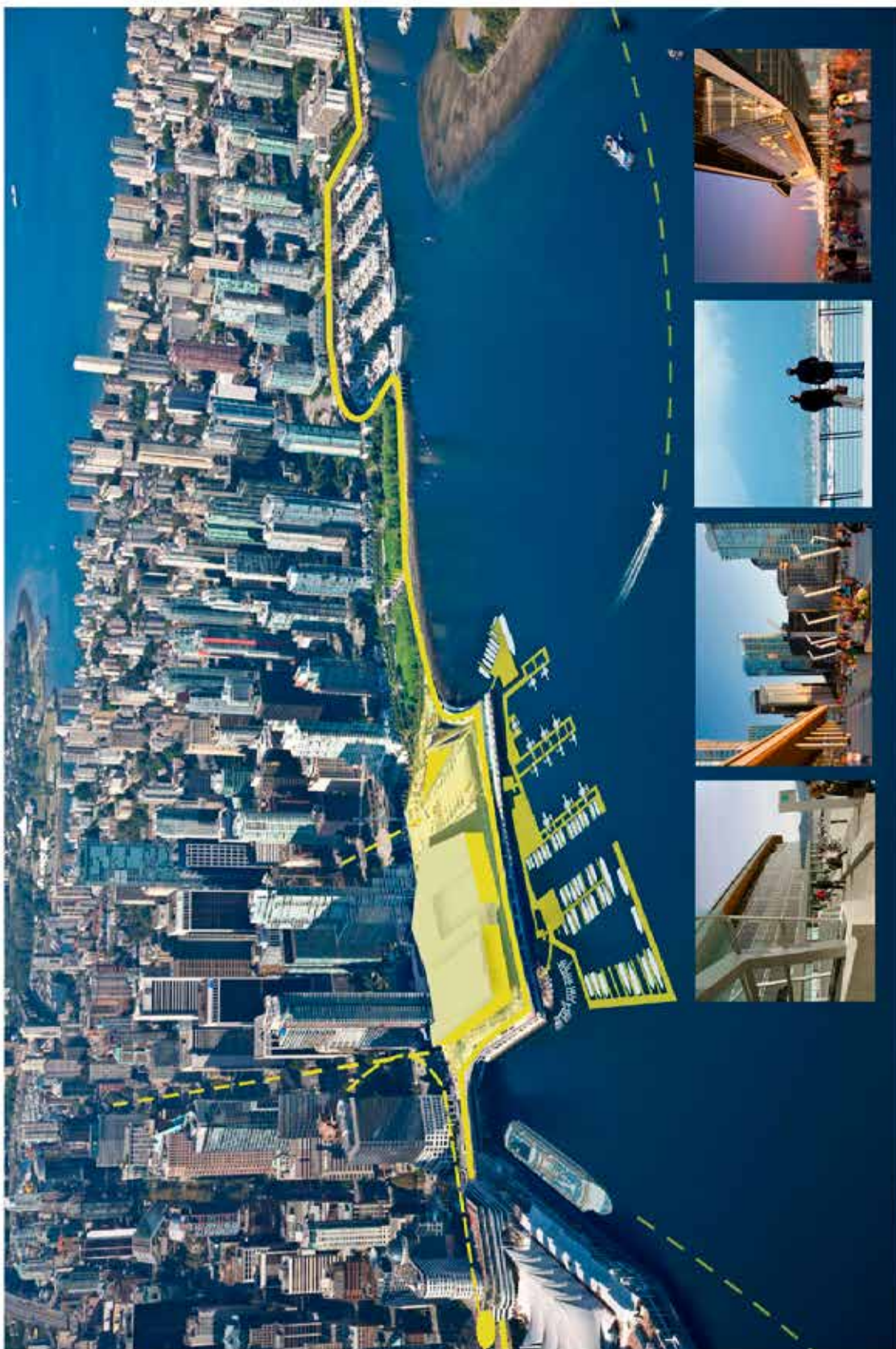






Marine Habitat





Human Habitat

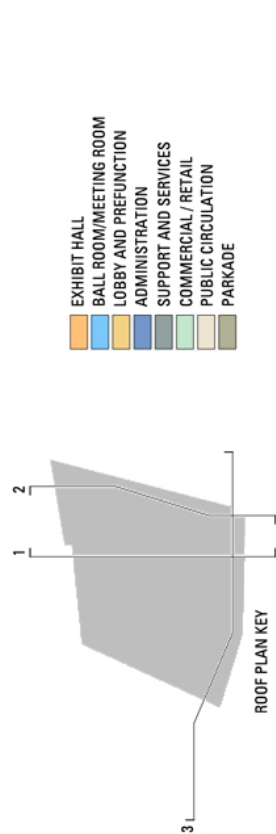




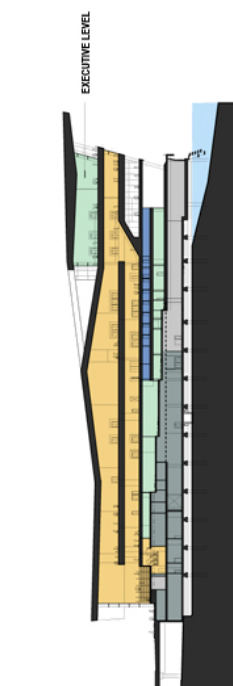
Landscape Habitat



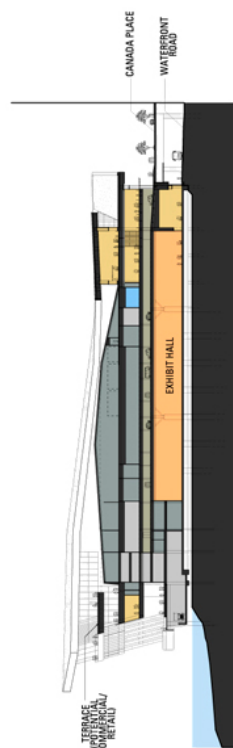




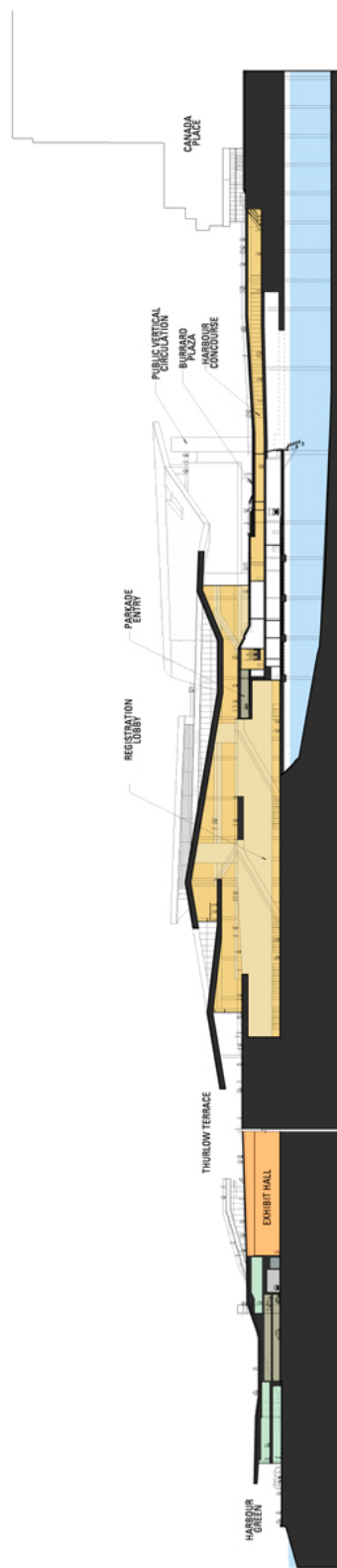
- EXHIBIT HALL
- BALL ROOM/MEETING ROOM
- LOBBY AND PREFUNCTION
- ADMINISTRATION
- SUPPORT AND SERVICES
- COMMERCIAL / RETAIL
- PUBLIC CIRCULATION
- PARKADE



SECTION 2 @ EAST PREFUNCTION



SECTION 1 @ THURLOW TERRACE / HARBOUR GREEN TRANSITION



SECTION 3 @ THURLOW TERRACE / HARBOUR GREEN TRANSITION

SECTION 3 @ SOUTH LOBBY / HARBOUR CONCOURSE

## BUILDING SECTIONS



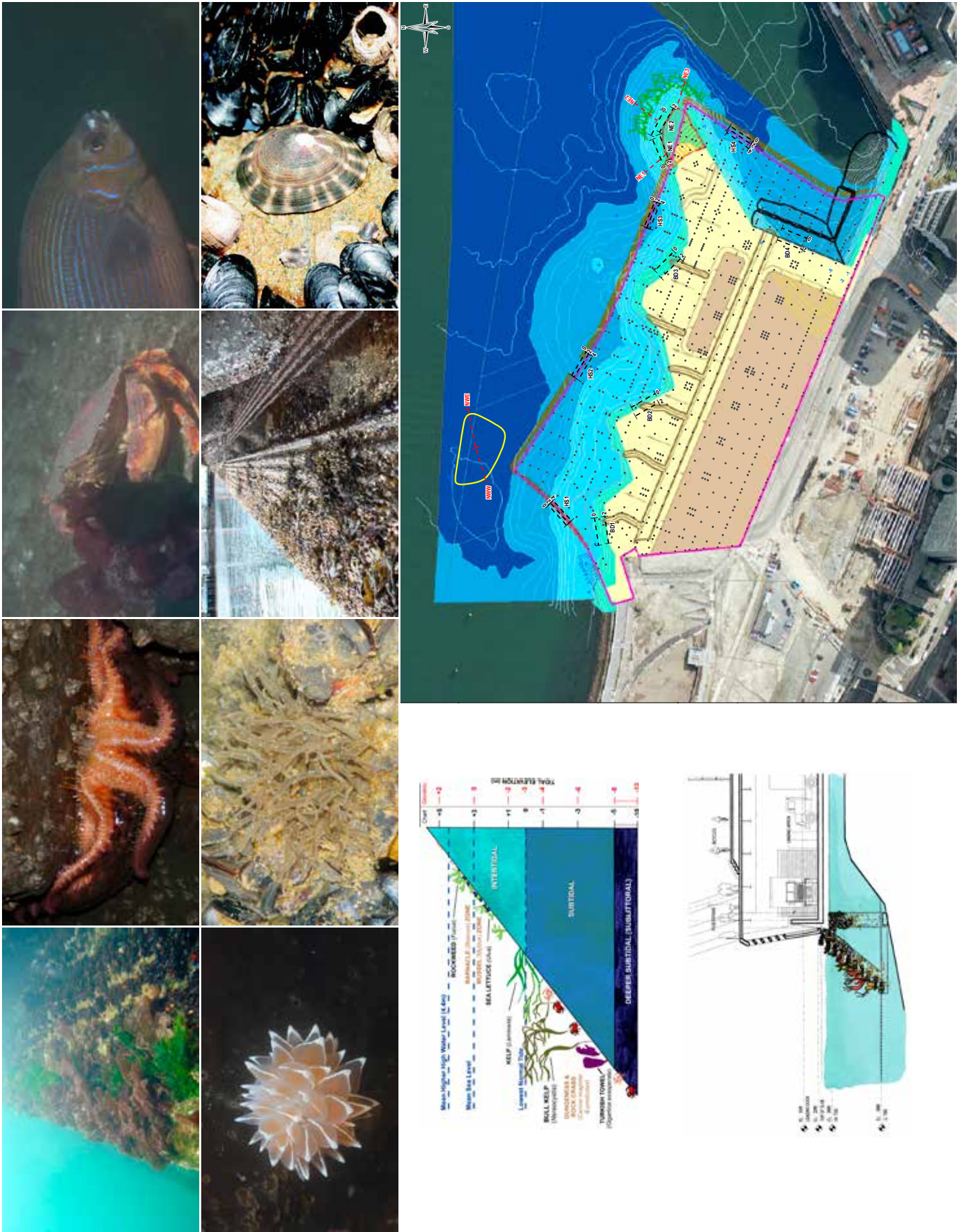
VANCOUVER CONVENTION CENTRE WEST  
LMN Architects + MCM/DA

# VANCOUVER CONVENTION CENTRE WEST LMN + DA/MCM







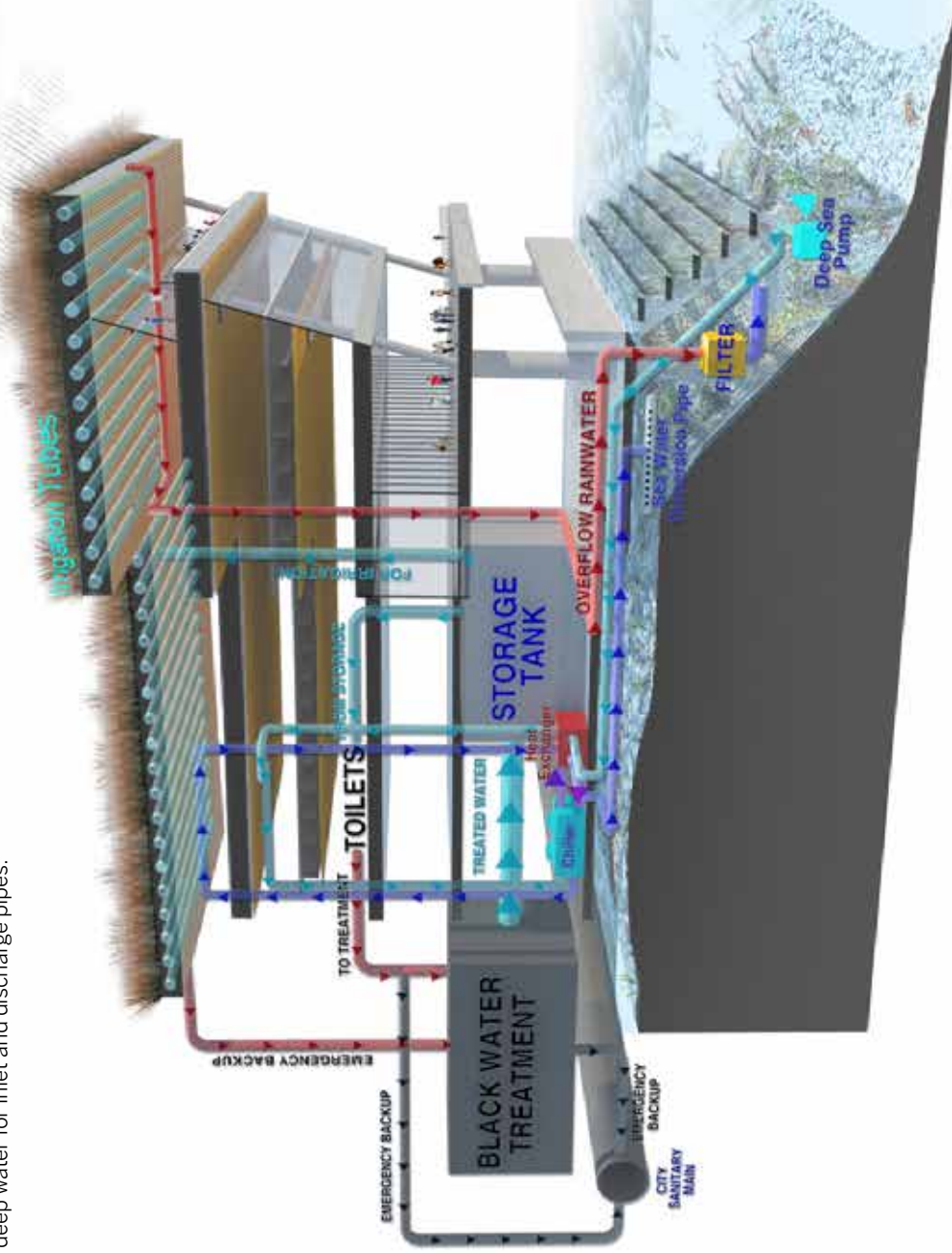




## Energy

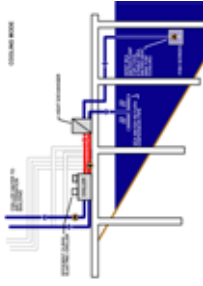
The new facility uses seawater heat pumps as an integrated renewable resource. This system decreases the amount of energy devoted to heating and cooling by about two-thirds. Overall, seawater heat pumps contribute a 30% reduction in energy use. Impact to marine life from these heat exchanges is minimal, due to the harbor's strong tidal mixing and the availability of deep water for inlet and discharge pipes.

## Precipitation

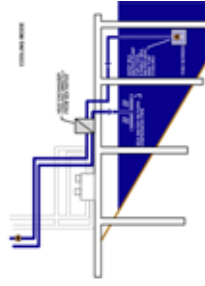


## Water

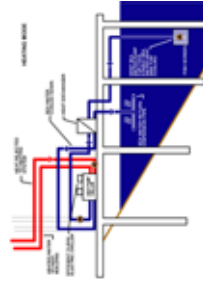
100% of waste water is reused on site. All effluent is processed through an on-site bio membrane reactor treatment system, which provides about 80% of the gray water needs for the facility. In addition 68% of total water use is from reclaimed sources and 100% of precipitation is managed on site. The water reduction strategy also includes a backup desalinization plant to supply additional irrigation to the living roof.



winter



intermediate



summer











