

Montréal's Industrial Projects

Bureau du design Handbooks of Best Practices for Design and Architecture Quality

Handbook 3 – 35 Exemplary Projects Illustrating Best Practices

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Service du développement économique

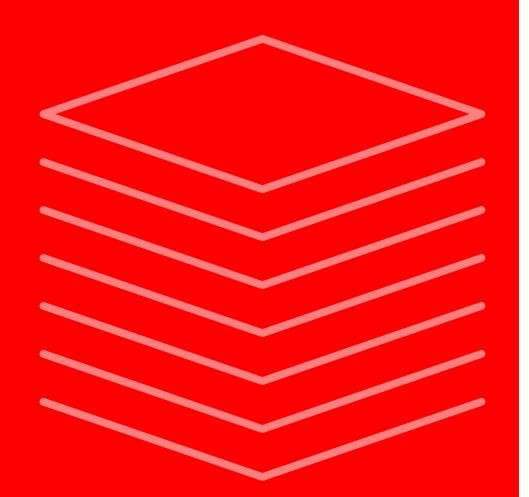


The Handbooks

Handbook 1 – 84 Best Practices to Inspire Action Handbook 2 – Taking Action! Montréal's Industrial Areas in Transition

Handbook 3 – 35 Exemplary Projects Illustrating Best Practices

Type 01: Central, Monofunctional Use



Exemplary Project Sheets

Local projects:

- Allez-Up Climbing Centre (Montréal)
- Dompark Complex (Montréal)
- Bâtiment 7 (Montréal) •
- Énergir Thermal Plant (Montréal) •
- Espace VERRE (Montréal)

International Projects:

- HafenCity District (Hamburg)
- Île de Nantes (Nantes)
- Elbphilharmonie (Hamburg)

Allez-Up **Climbing Centre**

Address: 1555 Rue Saint-Patrick City: Montréal Country: Canada Client: Richer-de la Plante family Architecture: Smith Vigeant architectes inc.

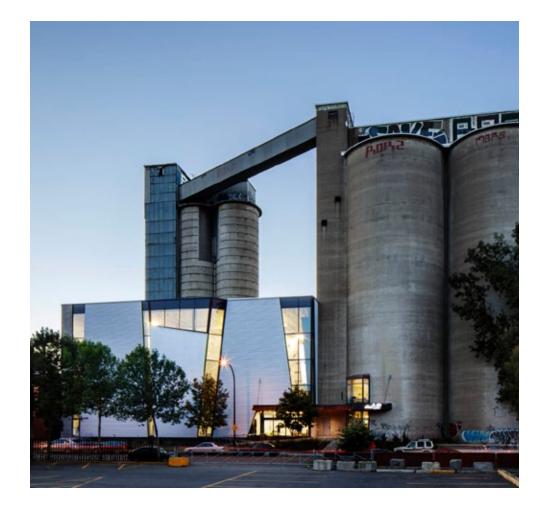
The development of the Allez-Up climbing centre gave new life to the abandoned silos of the Redpath sugar refinery in Pointe-Saint-Charles, in the heart of a traditionally industrial district of southwest Montréal. Site decontamination, rehabilitation of the decaying structures and the addition of a new volume have valorized an industrial building that is a distinctive feature of the cityscape.

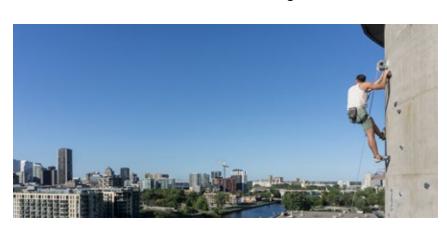
The indoor climbing walls, built as inclined facets, and the angular geometry of the exterior façade contrast with the curvature of the silos. In a clever architectural nod to the original use

Engineering (structural): NCK Inc. / Martin Roy et associé Landscape architecture: Groupe Rousseau Lefebvre Contractor: Espace Construction

of the building, the clarity of the materials used for the addition recalls sugar. Vertical apertures in the envelope, calling to mind cracks in a rock face, let in daylight, enlivening Rue Saint-Patrick and the surrounding industrial neighbourhood after dusk. The exterior cladding in metal complements the industrial, monolithic character of the district.

Climate comfort of users as well as building energy efficiency are ensured by natural ventilation, air filtration and thermal-mass heating solutions.









Best practices observed relative to the six dimensions of quality

	Highlighting of a significant visual landmark and reference to purpose in the architectural statement
	Soil decontamination and bringing-up to standards of outdat
	Integration of recreational use, encouraging active lifestyles
	Heating, ventilation and air conditioning strategy that increas and users' thermal comfort
	Openings and lighting that emphasize natural illumination du to enliven the surrounding area in the evening
	Landscaping of the entrance plaza to include an accessible i
	Dynamic composition of the facade incorporating typical ind



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Dompark Complex

Address: 5524–5530–5532 Rue Saint-Patrick City: Montréal Country: Canada Client: Gestion Immobilière Quo Vadis

Originally built in 1908 along the Lachine Canal, the Dompark industrial complex was originally home to the Mount Royal Spinning Company, and then by Dominion Textile. In 1995 the complex, by then sparsely occupied, was purchased as a bankruptcy repossession. A process of repurposing and transition toward more diversified uses got underway.

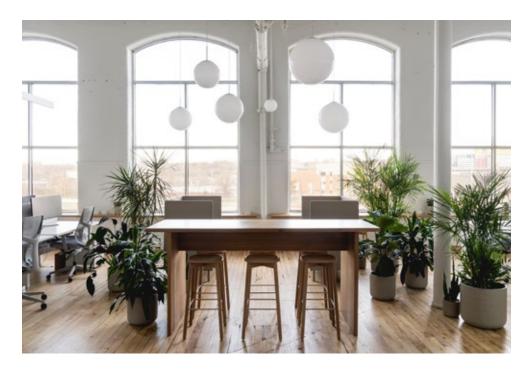
Today the complex houses a network of small and medium-sized businesses that benefit from synergies created by their close proximity to each other. They include offices, studios, a daycare centre, a restaurant and several other types of creative enterprises. Architecture (original building): Jerome Spence Architecture (renovations): Various firms

The preservation of the building envelope and the open-plan interior redevelopment highlighted a number of the original architectural elements: high ceilings, large window openings, brick walls, timber structure, wood flooring, and so on.

The property management model also allows for flexibility in the interior layouts and the possibility of tenants adapting or personalizing their spaces. In April 2022, the Dompark Complex was awarded Zero-Carbon Building certification from the Canada Green Building Council in recognition of the decarbonization efforts made.



Example project: Suite 301 - Sodexo Montréal, by Atelier L'Abri and Vives St-Laurent © Raphaël Thibodeau (all images)





Best practices observed relative to the six dimensions of quality

Re-use of underutilized existing infrastructure and preservati ture and architectural features
Mixed and complementary uses and economic activities; cont nity service offering Zero-Carbon Building certification (decar
Flexible and affortable rent with customization potential
Zero Carbon Building certification (decarbonization project)
Highlighting of local know-how and synergies among creative







Bâtiment 7

Address: 1900 Rue Le Ber City: Montréal Country: Canada Client: 7 à Nous

Bâtiment 7 (B7) is part of a former Canadian National rail complex that was ceded to Collectif 7 à Nous for use by community groups. Having stood vacant for several years, the brick building is now a dynamic, constantly evolving space. It is home to, among others, a materials recycling centre, craft brewery, grocery store and a number of manufacturing and repair shops (e.g., wood, metal) open to the public.

A variety of materials reduction and re-use strategies were used for the renovation: consolidation of the existing structure, re-use of the building's cladding, retention of the existing floor, and adoption of an industrial style, eschewing suspended ceilings and drywall finishing. The masonry work involved removing, Architecture: Poddubiuk architecte / L'OEUF / Coopérative d'architecture Pivot

cleaning and reinstalling bricks from B7, with further bricks salvaged from a deconstructed building in the neighbourhood. Reclaimed materials were used for the interior, including wood from an old barn, doors from the Mont-Royal Convent, and lumber from diseased ash trees.

On the periphery of the site, a blue-green alleyway project incorporates responsible stormwater management and includes spaces for urban farming and outdoor appropriation, enlivening the area and helping to ensure food security.



© 7 à Nous / Alliance Ruelles bleues-vertes



© 7 à Nous / Alliance Ruelles bleues-vertes



© Poddubiuk architecte / L'OEUF



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Best practices observed relative to the six dime

	Site decontamination
	Protection of an existing building and highlighting of its origin architectural components
	Re-use of construction materials in situ and incorporation of I
	Enlivening of public space and provision of community space
	Greening of surfaces, soil permeability and responsible water management in a hardscape environment
	Supply of local community food services and improvements t
	Temporary, evolving site uses during the renovation and cons



© 7 à Nous / Alliance Ruelles bleues-vertes

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Énergir Thermal Plant

Address: 120 Boulevard Robert-Bourassa City: Montréal Country: Canada

Built in 1947, the thermal plant (formerly the CCUM) provides heating and cooling to onethird of Montréal's downtown commercial area, including emblematic buildings like Place Ville Marie, Place Bonaventure, Central Station and the Tour de la Bourse. With a view to improving energy efficiency, the original boilers were replaced by more efficient equipment, including thermal solar panels and a heat recovery unit in the chimney stack, which preheat the air. Three underground closed-loop networks were also installed, helping minimize water consumption in the system.

In 2016, with the lowering of the Bonaventure Expressway and reconfiguration of this gateway Client: Énergir / MU Artist: Ilana Pichon

to the city as an urban boulevard, the plant's façade was exposed to public view. It served as the canvas for Strata, a mural by Québec artist llana Pichon, executed in collaboration with the organization MU. Unifying three of the building's façades and bringing it into harmony with the Projet Bonaventure art corridor, the work simultaneously recalls the three underground networks, the district's historical evolution and the complex machinery that ensures the comfort of downtown residents and workers. The play of colours and light on the piping and machinery, revealed by large glassed openings in the north and south façades, enlivens the public space as well as the night-time cityscape.









© Olivier Bousquet / MU (all images)

Best practices observed relative to the six dimensions of quality

Production and redistribution of heat in an urban thermal net
Integration and use of renewable energy sources
Highlighting of an existing building, its primary function and in equipment and operations
Creation of a compelling visual identity and a landmark in the at one of the entry points to downtown
Greening of a hardscape environment (project to come)



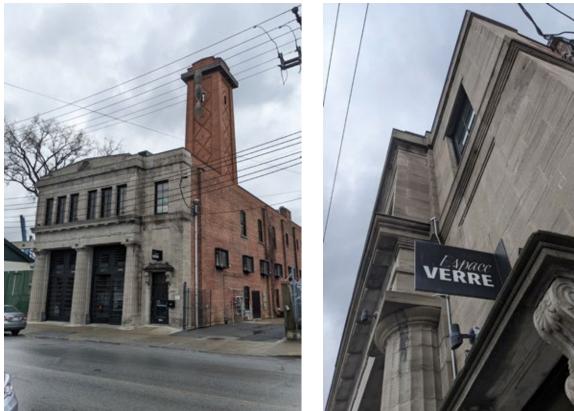
Espace VERRE

Address: 1200 Rue Mill City: Montréal Country: Canada Client: Espace VERRE Architecture (original): Finley & Spence

Espace VERRE, occupying in a former fire station in the Bridge-Bonaventure district, is a centre for research, training, promotion and recognition of the glass arts in Québec. Built in 1912, the building is a witness to the history of firefighting in Montréal as well as to the evolution of the former working-class district known as St. Ann's ward. After closing its doors in 1972, the station was renovated in 1986 and leased to the Centre des métiers du verre du Québec, which installed a firing shop and an exhibition space for artists and visitors, among other amenities.

Architecture (renovations): Lapointe Magne & associés (2008-2009) Contractor (renovations): T. Lessard

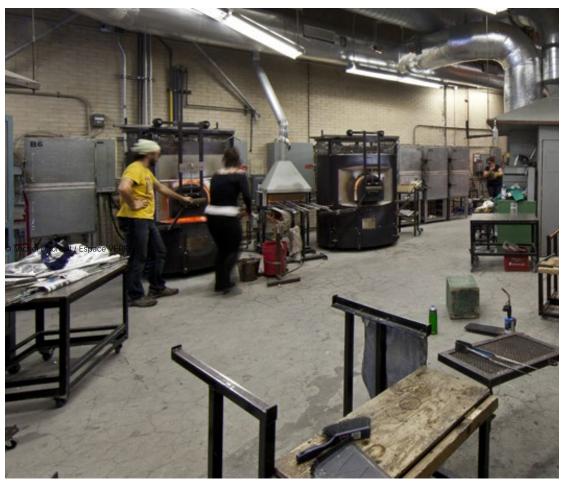
Located in an industrial district between the Bonaventure Expressway and Victoria Bridge gateways to the city, the fire hall built in the Greek Revival style retains the architectural features of its envelope, not least the remarkable stone façade on Rue Mill. The large, glazed openings and projecting windows provide views of the works and the creative process inside the well-lit studio space. A shaded and planted picnicking area has also been installed along one of the lateral brick façades.



© Michel Dubreuil / Espace VERRE

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© Michel Dubreuil / Espace VERRE



© Michel Dubreuil / Espace VERRE



© Michel Dubreuil / Espace VERRE

Best practices observed relative to the six dimensions of quality

Conservation and highlighting of an unoccupied heritage bui
Promotion and exhibition of local culture, arts and crafts
Development of a planted space and reduction of heat island setting
Optimization of the ground plan and diversification of activiti



© Espace VERRE

© Michel Dubreuil / Espace VERRE



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HafenCity District

City: Hamburg Country: Germany Client: HafenCity Hamburg GmbH

Extending over more than 155 hectares, Hamburg's new integrated urban district, dubbed HafenCity, exemplifies the adaptation of a port setting and its major transformation into a complete living environment that retains a strong maritime and industrial identity. Previously underused and contaminated, the vast spaces dedicated to various industrial and transshipment activities (e.g., sheds, warehouses) have been transformed into a denser and more diversified zone. Renovated existing buildings as well as new constructions house work spaces, new residences, schools, shops as well as cultural, recreational and community facilities. HafenCity is expected to have 12,000 inhabitants and 40,000 workers

Master plan: ASTOC Architects and Planners / Kees Christiaanse Architects and Planners

by 2027. Planning of the district emphasized active mobility and public transit through an innovative sustainable development approach that includes a district heating system powered by multiple renewable energy sources.

To ensure an environment for all, strategies to ensure social mixing, ecomobility and mixed uses were implemented. Except for the quays and waterside promenades, the area was raised to between eight and nine metres above sea level. The new live/work environment thus benefits from a protective topography that anticipates sea level rise while maintaining connections with the water and the historical port atmosphere.





© Burkard Kuhn (Fotofrizz) / HafenCity Gesellschaft (all images)

Best practices observed relative to the six dimensions of quality

Valorization of a port space through its transformation into a co
Initiative to mitigate sea level rise
Inclusive development of public spaces that fosters social mi
Mixed-use strategy that ensures availability of local goods ar
Greening and urban agriculture in a hardscaped setting



Île de Nantes

Address: Île de Nantes City: Nantes Country: France Client: Nantes Métropole Publicly owned local development corporation: SAMOA

Initiated in the early 2000s, the urban regualification of Île de Nantes aims to redevelop brownfields in the city's abandoned former shipyards. Located opposite the historical and administrative city centre, the 350-hectare site is a testimony to the port industry that shaped the urban landscape of Nantes. The legacy of the city's industrial heritage is asserted by the opening up of views onto key industrial remnants such as the railway tracks, sheds, chimney stacks and cranes located at either end of the island, which are listed historical monuments.

Nantes is building a new centrality, accessible to all, through a series of experiments, leveraging the creativity, ingenuity and collaboration of a diversity of stakeholders. Drawing inspiration from the geography of the area, the redevelopment is structured around a succession of parks—a network of public spaces linking micro-neighbourhoods with reasserted ambiences (e.g., the new République district). The program includes new forms of housing, sharing of spaces and services, and a neighbourhood with key public and community facilities (hospital, courthouse, schools, universities) as hubs.



General view Nantes © Valéry Joncheray/Samoa

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Beaux-Arts Nantes Saint-Nazaire, by Franklin Azzi Architecture "In a silent way" installation by Nathalie Talec (Hall 6) © Valéry Joncheray/Samoa



Poste source Erdf., by Darzonval © Valéry Joncheray/Samoa



Bâtiment B. Siège d'Atlanboi, by Barré-Lambot © Samoa





Quai des Antilles. Bananas Warehouse, by Agence Roulleau architectes urbanistes © Valéry Joncheray/Samoa

Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 - The dimensions of quality

Introduction of new physical and visual openings that create per onto emblematic landscapes

Optimization of spatial planning to promote sharing of commo and of services (Halle 6 and Banana Warehouse)

Preservation and promotion of an industry sector (wood): time buildings, interpretation centre celebrating this resource (Bâti

Integration of attractive, appropriable common spaces, public and event/cultural presentation venues

Energy storage/distribution via construction of a high-voltage accommodate increased energy needs and mitigate possible (ERDF source station)

Reassertion of the site's island character through creation of a incorporation of water into the landscaping, and redevelopmer

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Le jardin des voyages, by landscape architect Alexandre Chemetoff © Jean-Dominique Billaud/Samoa

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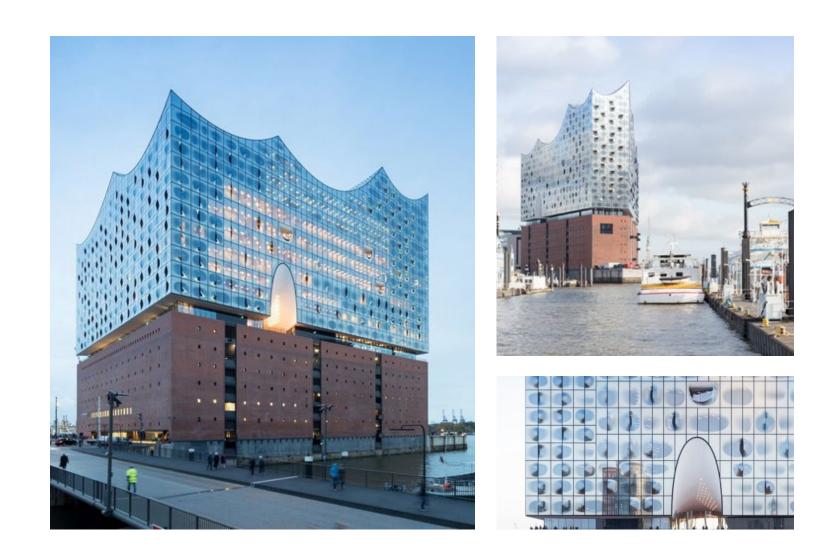
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Elbphilharmonie

Address: Platz d. Deutschen Einheit 4 City: Hamburg Country: Germany

The Kaispeicher A, a former cocoa bean warehouse completed in 1966, became the base of the new Elbphilharmonie complex in 2016, giving the city of Hamburg an architectural and urban landmark on its riverside. A new public destination that stands out in the Hafencity district, the complex combines a range of cultural, residential and commercial uses. The newly constructed addition houses residences, a hotel and two concert halls with capacities of 170 and 2,150 respectively, while the original building contains a parking facility, restaurants, a smaller performance venue, a wellness space and conference rooms for the hotel. Client: City of Hamburg Architecture: Herzog & de Meuron

The interstice between the former warehouse and the upper addition contains a public place, with restaurants, bars, the hotel lobby and the entrances to the concert halls. This common space with a height of 37 m affords visitors a panoramic view of the city and the port of Hamburg below. Reflecting the water, the sky and the cityscape, the new glass extrusion soars upward, distinct from the monolithic brick mass that forms its pedestal yet accentuating its texture and colour. The profile of the addition and its curved panels stand in contrast to the orthogonal regularity of the base.





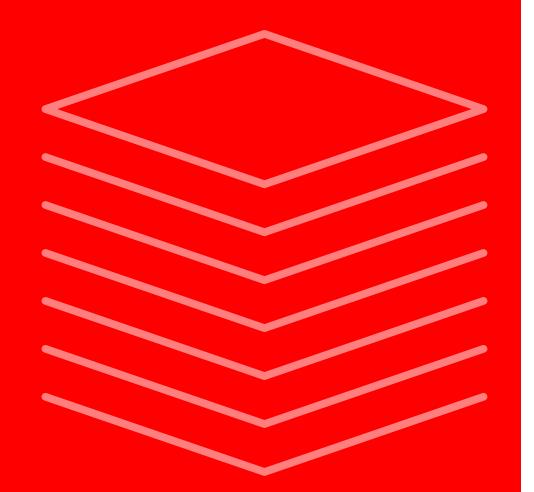
© Iwan Baan, courtesy of Herzog & de Meuron (all images

Best practices observed relative to the six dime

Optimization of the ground plan
Creation of an urban hub through diversification and complem uses and economic activities
Re-use of an existing building and highlighting of its structura architectural features
Valuing of culture and integration of event presentation venue
Enhanced provision of commercial services and spaces for rea and entertainment
Creation of an identity-shaping building destined to become a

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Type 02: Central, Mixed Use



Exemplary Project Sheets

Local projects:

- McGill University Power Plant (Montréal)
- Hydro-Québec 315-25 kV De Lorimier (Montréal
- Water Intake, Canal de l'Aqueduc (Montréal)
- Urbacon Data Centre (Montréal)
- Bellechasse Transport Centre (Montréal)

International projects:

- SMOORE General Quarters (Shenzhen)
- Vertical Harvest Farms (Jackson)
- 9th Avenue Parkade + Innovation Center (Calgary)
- Greenbiz (Bruxelles)

McGill University **Power Plant**

Address: 820 Avenue du Docteur-Penfield City: Montréal Country: Canada Client: McGill University

Commissioned in 2019, the new electric power plant at McGill University houses three 1.5 MW natural-gas-powered emergency generators that enable research work to continue uninterrupted in the event of a blackout or significant energy demand.

Built on an abandoned mountainside lot, the plant integrates sensitively with the rich historical and institutional context of its surroundings. The glass pavilion provides transparency and preserves the visual permeability of the protected Mount Royal heritage district, while the Trenton limestone podium on which the pavilion sits reinforces the architectural character of the McGill campus. An interstitial space between these two volumes serves as a ventilation plenum for air, steam and electricity, and houses vent grilles.

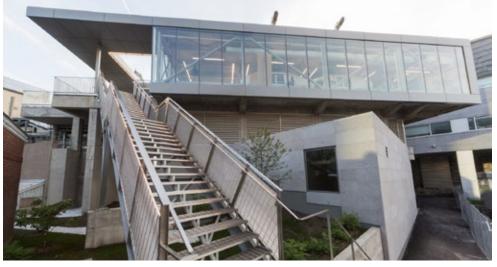
Architecture: Les architectes FABG Engineering (structural, civil): CIMA+ Engineering (mechanical, electrical): BPA Landscape architecture: WAA

The offsetting of the volumes helps integrate the building with the urban fabric on its lower side as well as with Avenue du Docteur-Penfield, which veers up toward the mountain on the upper side. A lighted staircase along the building's exterior creates a new, more direct link between the lower and upper levels of the campus.

Indigenous plants, transparent materials and a green roof reduce the heat island effect and improve stormwater management on the steeply pitched site.



© Steve Montpetit / FABG

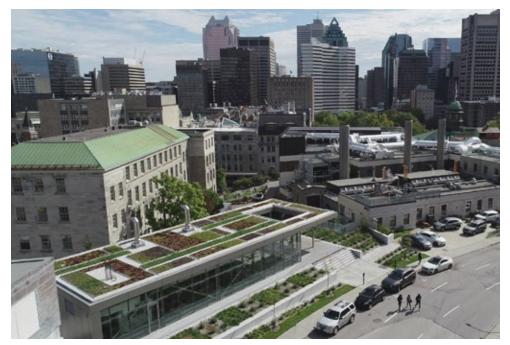


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Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 - The dimensions of quality

Highlighting of a heritage site and sensitive integration of the bui lot with a significant gradient
Improvement of existing pedestrian connections and animatio public domain
Siting and volumes that maximize views of heritage buildings a
Resilient, diverse plantings on the site and on green roofs
Rooftops and landscaping designed to ensure responsible sto
Integration of local and indigenous plants
Glassed façade highlighting the technical function of the build integration of the mechanical elements with the envelope
Architectural language that converses with the surrounding bu



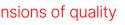
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© Steve Montpetit / FABG





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Hydro-Québec 315-25 kV **De Lorimier Substation**

Address: 1800 Rue Parthenais City: Montréal Country: Canada Client: Hydro-Québec Architecture: Jodoin Lamarre Pratte architectes

Replacing the former 120-12 kV substation on the same site in Sainte-Marie district, the new De Lorimier substation accommodates growing energy demand in the eastern part of downtown Montréal. The facility comprises three main volumes, housing the control centre, the switching room and the SF6 gas-insulated power supply room respectively.

The building is located in a primarily residential urban neighbourhood, its brick, aluminum and glass envelope in harmony with the architectural character of adjacent constructions.

Long, horizontal glassed openings let in natural light and provide views to the outside from the work spaces. The division into multiple volumes lessens the visual impact of this technical facility as seen from Parthenais Street, giving it a scale akin to that of other buildings in the neighbourhood.

Replacement of the electrical equipment also helped optimize the building's footprint and minimize noise pollution.



© Adrien Williams / Jodoin Lamarre Pratte architectes (all images)

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Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 - The dimensions of quality	Resilen	e thing	hent sconor	ontrue	Equity of the	Heathard Hard
Siting, volumes and materiality in harmony with the scale and character of the surrounding built environment				•		
Technical equipment selected so as to optimally address ground constraints on a tight lot			•			
Horizontal openings favouring natural light and views to the outside						•
Siting respectful of neighbouring uses and activities (e.g., a nearby school)					•	•



Water Intake, Canal de l'Aqueduc

Address: 4133 Boulevard Champlain City: Montréal Country: Canada Client: City of Montréal, Service de l'eau, Direction de l'eau potable

The water intake sits in the narrow linear park between the Canal de l'Aqueduc and Boulevard Champlain, beneath a high-voltage line and beside a cycle path. This sleek, luminous and bold glass structure rests on a masonry pediment, housing turbines and a water filtration system. The upper volume's double envelope exposes and illuminates a horizontal play of tones, varying from white to dark blue and suggesting the different phases of the

Architecture: Smith Vigeant architectes inc. Engineering (structural, civil): HATCH Engineering (mechanical, electrical): HATCH

water cycle. The siting on open ground creates a distinctive landmark along the canal, while preserving visual openings onto it from Rielle and Gordon streets, which are perpendicular to the water. A green roof and perforated pavers keep hardscaping to a minimum in a greenspace context and facilitate visual integration with the park as seen from the nearby housing complexes.





© David Boyer (all images)





Best practices observed relative to the six dimensions of quality

Creation of a distinctive landmark with an architectural lightin
Reference to the water-related technical function of the build the architectural statement
Siting scale consistent with that of the surrounding context
Green roof that compensates for the building's footprint in the





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e existing linear park		•	

Urbacon Data Centre

Address: 544 Rue de l'Inspecteur City: Montréal Country: Canada Client: Urbacon

Located between Montréal's downtown core and the Griffintown neighbourhood, the Urbacon data centre incorporates a new construction into an existing heritage architecture building. The Williams Wilson Limited building was preserved, and its four floors now house office spaces that benefit from generous natural light. A two-storey power station was added above the original structure, and attached to these two volumes is a new 10-storey building that houses servers and data rooms.

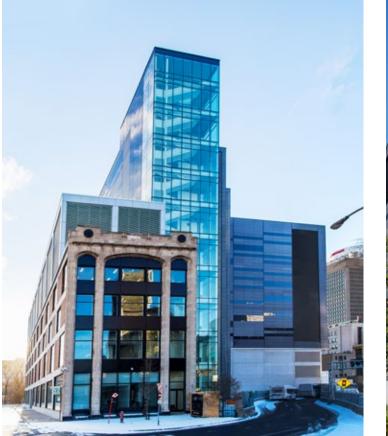
Architect: Lemay Engineering (structural, civil): Elema Engineering (mechanical, electrical): Consultants DND Contractor: Les Entreprises QMD

Two illuminated screens highlight the exit stairs, turning them into urban landmarks; one faces north along the Rue Mansfield axis and the other is visible from the Faubourg des Récollets to the east.

The building envelope is not only composed of various recycled materials, but is also designed to maximize energy efficiency. To reduce resource consumption, including water, the equipment in the building is cooled by air rather than water.







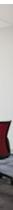
© Julien Lauzon-Fullum / Lemay (all images)



Best practices observed relative to the six dimensions of quality

	Requalification and highlighting of a heritage architecture build
	Use of recycled materials during construction
	Openings that let natural light in and afford views to the outside
	Envelope design that improves the building's energy efficiency
	Choice of technical equipment that minimizes use of resource
	Lighting plan and creation of signage-based landmarks that hig technical function







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Bellechasse Transport Centre

Address: 100 Rue de Bellechasse City: Montréal Country: Canada Client: Société de transport de Montréal

At the meeting point of several transportation axes in Rosemont district, the new Bellechasse Transport Centre is slated to become the first underground multi-storey garage in North America, with three levels below grade and two above.

Concealing maintenance and servicing operations for the Société de Transport de Montréal (STM) bus fleet under a green roof, the measured relief of the structure creates a public space that interfaces with the district and connects to the linear park parallel to the rail line. The volumes are articulated so as to enhance the siting context and open up views toward urban reference points such as the Van Horne overpass and the emblematic Villeneuve retail business. The site development also contributes to reducing the environmental

Architect: Lemay Engineering (structural, civil): Elema / SNC-Lavalin Landscape architecture: Lemay Contractor: Pomerleau

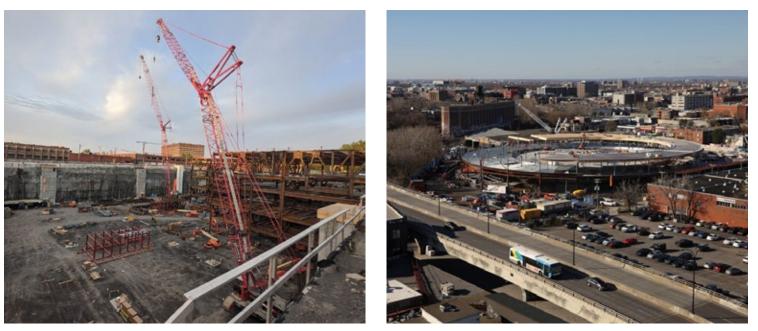
impact and potential nuisances of the centre's operations. Emerging from the inclined plane, a circular volume creates a new landmark in the district and at a city-wide scale. Deployed around a largely glass-enclosed central courtyard, it houses work spaces, a cafeteria, a meeting room and a gym for employees of the transit authority.

The project employs bioclimatic principles to reduce the impact of thermal overloads and heat islands. Use of a timber structural system adds to the ambience of the site, echoing its industrial dimension and its cultural affiliation.



© Lemay (all images)





Best practices observed relative to the six dimensions of quality

Optimization of the ground plan
Safe co-existence of transportation modes and enhancemen
Signature building that contributes to a sense of shared identi
Provision of attractive, accessible and appropriable collective
Highlighting of existing landscapes and opening up of new un downtown and the mountain (heritage landscapes)
Greening, canopy enhancement and biodiversity of plant spec industrial environment





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SMOORE Headquarters

Address: Xixiang Street City: Shenzhen Country: China Client: SMOORE International Holdings Limited

Designed in the style of a campus, the headquarters of the SMOORE company occupies nine buildings on a site that formerly held three independent industrial complexes. The new configuration is home to shops with street-facing entrances, dormitories, equipment rooms and manufacturing plants. The overall esthetic statement is unified through the use of undulating aluminum sheets as cladding.

Besides office spaces, laboratories and clean rooms, the campus boasts several common

Architecture: CM Design Engineering: Shenzhen Xing kai jia Architecture Design Contractor: Dongguan Guanjiang Co. Ltd.

areas and a café with a patio. The site is enhanced by proximity to a park, exploiting roof space with, notably, an exercise area. A gable wall on one façade contributes to the site's integration with the surrounding landscape. The change in use of the campus required modifications to traffic lanes and incorporation of parking facilities and staircases into some existing buildings.









Best practices observed relative to the six dime

See Handbook 1, p. 12 – The dimensions of quality

Local community service offering for workers as well as visito
Statement of a strong visual identity / landmark building
Removal of hardscapes, vertical and horizontal greening (reco ty corridors)
Re-use of existing buildings
Unifying landscape design (a heterogeneous architectural ensand new)
Integration of event-presentation spaces and public art
Preservation and highlighting of tangible or intangible landscape

© Chaos Zhang (all images)

Bureau Montr du design Handb



ensions of quality	Resilent	e Environ	Economic Fconomic	Cutture .	Found in all the second	teal the all and the all all all all all all all all all al
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connection of biodiversi-		•				
		•				
nsemble blending old				•		
e or natural heritage						

Vertical Harvest Farms

Address: 155 W. Simpson Avenue City: Jackson Country: United States Client: Vertical Harvest Farm

Vertical Harvest Farms is a hydroponic urban farm in the downtown core of Jackson, Wyoming. The project aimed to eliminate fruit and vegetable supply challenges created by the region's cold climate.

The farm made good use of an under-utilized sliver of land on the side of the parking garage and by building 'up' created growing systems and increased overall canopy production and yields.

The three-story steel-and-glass structure provides 1,670 m2 of growing area, stacked vertically. The hydroponic system allows

Architecture: E/YE Design Engineering: Larssen Ltd.

for significant water savings compared with conventional soil-based farming methods. In addition, a recycling system integrated into the various gardens drives productivity and efficiency gains.

The complex's ingenious programming sets an example for other social-economy projects to follow. The social and economic benefits of the project, notably in terms of jobs and hyperlocal supply, are observable in all of the neighbouring communities.



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© Alexander Herring

Best practices observed relative to the six dimensions of quality

Optimization of the ground plan
Inclusion of collaborative spaces for the market gardening pro marking and distribution operations
Linkage of old and new architectural language and use of an e as the welcome structure for the new building
Use of hydroponics with a water recycling system incorporated i
Promotion and valorization of the building and its primary func- to generate social and economic benefits

© Hanna Hardaway



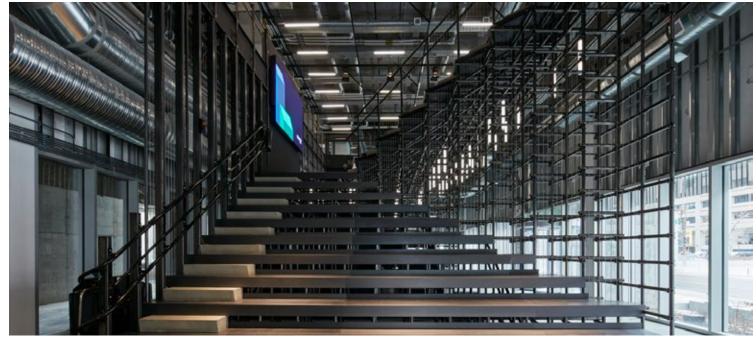
9th Avenue Parkade + Innovation Center

Address: 407 9th Avenue City: Calgary Country: Canada Client: Calgary Municipal Land Corporation (CMLM) + Calgary Parking Authority (CPA) Engineering (structural): Intuitif

This 32,520 m2 mixed-use building in downtown Calgary incorporates a 510-place parking garage and an innovation centre on two levels. It also includes a sports field open to the public and outdoor rental spaces with panoramic views of the downtown area. The "future-proofed" building design allows for a potential change of use thanks to more generous floor-to-floor heights in the parking section. In the same vein, traditional spiral ramps were eschewed in favour of one continuous gently sloping floor creating multiple parking levels.

Engineering (mechanical, electrical): Smith + Andersen Engineering (civil): Aplin Martin Architecture: 5468796 Architecture + Kasian Architecture, Interior Design and Planning Contractor: Ellisdon

The addition of a central atrium allows natural light to flood the full building height. Although the atrium reduces the number of parking spaces available over the short term, it guarantees an open, light-filled area that could one day benefit residential or commercial tenants. The structure is ringed by aluminum tubes, suspended strategically around the perimeter to demarcate pedestrian, cyclist and motorist access routes.

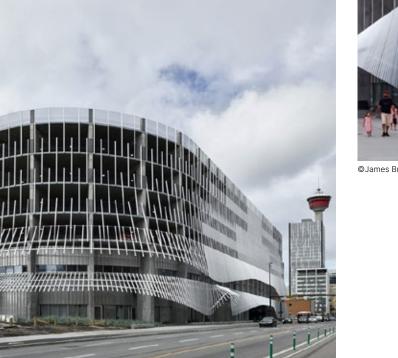


©James Brittair



©5468796 Architecture

©James Brittain



©James Brittain

Best practices observed relative to the six dimer

Adaptable building structure allowing for eventual use conver
Attractive, appropriable public spaces
Emblematic building that contributes to a sense of identity ar
Design that favours access to natural light and city views
Provision of various activities and programming within a single maximizing its usage

©James Brittain

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Greenbizz

Address: 37 Rue Dieudonné Lefèvre City: Brussels Country: Belgium Client: citydev.brussels

Located on a vacant lot of an industrial site that is being repurposed, the Greenbizz incubator hosts start-up companies that are playing an active role in Brussels' green and sustainable transition. Located near the Vergote basin, a waterway used mainly for transportation of construction materials and recycling of ferrous materials, the project has led to the creation of an innovative, collaborative ecosystem. Through an emphasis on energy-efficient design, it has enabled reduction in embodied carbon from the building's construction and operation.

Architecture: architectes **assoc+** Engineering (structural): Setesco + Ney WOW Engineering (mechanical): Istema - FTI - Cenergie Contractor: CEI-de meyer

The building's innovative architecture lends it a unique character that is a source of pride for the entire community. Offering 5,500 m2 of production studios and 2,800 m2 of office space, it includes an exhibition hall and a café open to the public. The building's dimensions and layout are consistent with the surrounding built environment, in which industrial activity and residential use co-exist. Rhythm is imparted to the interfaces by the play of transparency and materiality, the insertion of physical openings (carriage entrances) and the distinctive treatment of the entrance thresholds.







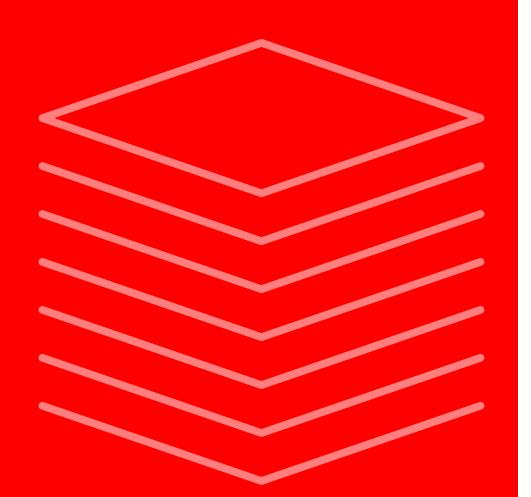
Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 – The dimensions of quality	Resilien	Environ	tent tecnon	Culture .	Falithic	estd Lison Arand Healthes
Site decontamination and construction of an energy-efficient building using biocli- matic design principles (e.g., natural ventilation, sunlight for passive solar heating)	•	•	•			
Co-working spaces and shared services (logistics, reception, fablab), flexible layouts to meet eventual changes in needs		•	•		•	
Design and manufacturing compliant with green building principles: waste management and sorting, materials selection in consideration of life cycle and adverse health effects		•	•			•
Use of passive strategies to improve building energy efficiency: high- performance insulation and waterproofing of facades, photovoltaic panels		•	•			
Identity-shaping building with a glassed-in ground floor opening onto an atrium that creates a dynamic interface, which fosters enlivening of the neighbourhood and affirmation of a sense of ownership of the site				•		

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Туре 03: Peripheral, Monofunctional or mixed Use



Exemplary **Project Sheets**

Local projects:

- Lumenpulse Headquarters (Longueil)
- MiQro Innovation Collaborative Centre (Bromont)
- The Lufa Farms (Montréal)
- adMare bioInnovations Innovation Centre (Montréal) •
- Stinson Transportation (Montréal)
- Lafond Desjardins Dental Laboratory (Laval)
- St-Germain Égouts et Aqueducs (Longueil)
- Campus Simons (Québec)

International projects:

- The Plus for Vestre (Magnor)
- Envabox Factory and Offices (Crevillente) •
- Air France Maintenance Centre (Orly)
- Carlsberg Research and Development Centre (Obernai)
- National Automotive Innovation Centre (Warwick)

Lumenpulse Headquarters

Address: 1120 Boulevard Marie-Victorin City: Longueuil Country: Canada Client: Lumenpulse Architecture: Lemay Engineering (structural): DSM Consultants Inc.

Located alongside Highway 20, near residential as well as industrial zones, the new Lumenpulse headquarters adds an identity marker to the landscape. The 14,000 m2 complex houses a manufacturing plant, laboratory, design and engineering centres, offices and an experiential space. The architectural approach draws from the company's values and aims at strengthening employees' sense of shared identity, reducing the carbon footprint, consolidating functional relations and offering flexible and adaptable work spaces. The articulation and superimposition of three distinct volumes results in a spatial configuration that inspires users to discovery.

Engineering (civil): Les Consultants MESC Inc. Engineering (electrical, mechanical): Dupras-Ledoux Landscape architecture: Beaupré Associés Contractor: Montoni Lighting plan: Ombrages

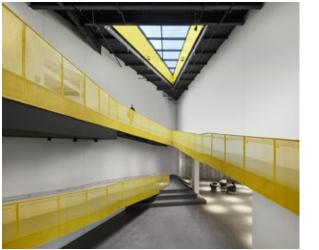
The St. Lawrence River is visible through visual openings in the office spaces and outdoor terrasses laid out on the second floor. Inspired by a prism, a light-filled triangular volume enclosed by an architectural staircase forms the building's central gathering and traffic space. Topographical modulation created by the addition of a vegetated embankment that serves as the base of the central part of the building structure creates an acoustical and visual screen. In terms of energy efficiency, specific measures such as soil decontamination, re-use of demolition and construction waste and a high-performance lighting system earned the project LEED Silver certification.





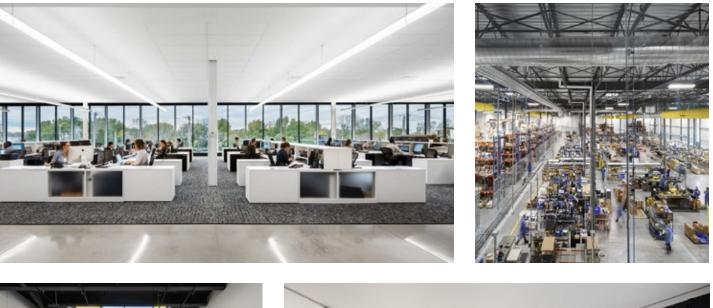
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Best practices observed relative to the six dime

Improved energy efficiency through use of Low-E-certified w to penetration by sunlight
Onsite rainwater recovery system
Emblematic building that embodies the client's business and thanks notably to the transparent, luminous envelope treatme
Design incorporating biophilic principles in the interior layout (e.g views to the outside, active routes)
Installation of a white roof membrane to mitigate the urban he
Reduction of nuisances through addition of a vegetated embar the highway and placing of parking at the rear





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.g., natural light,						•
neat island effect						
ankment screening						•

MiQro Innovation Collaborative Centre

Address: 45 Boulevard de l'Aéroport City: Bromont Country: Canada Client: Université de Sherbrooke

The project implemented by the MiQro Innovation Collaborative Centre, an international pioneer in microelectromechanical systems and wafer-level packaging, was the outcome of an alliance between Université de Sherbrooke and industrial partners such as IBM Bromont and DALSA Semiconductor Inc.

With a design suggesting the flow of ideas from conceptualization to realization, the interior spaces are open and connected by an entirely windowed corridor. The building Architecture: Menkès Shooner Dagenais LeTourneux Architectes and Cimaise, Favreau Blais associés in consortium Engineering: CIMA+ / TEKNIKA-HBA

covers an area of 15,200 m2 and comprises two distinct volumes of similar dimensions. One is dedicated to office space and the other contains laboratories as well as ISO Class 4 and 5 white rooms, which conform to stringent air cleanliness standards.

The project's complexity is accommodated through a modern, timeless architectural statement that blends cleanly into the surrounding landscape, providing high-quality interior layouts.

















Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 – The dimensions of quality	Resilien	e Environ	Hent Econof	outure out	Editoriolitics	the all and the all and the all all all all all all all all all al
Provision of modern, flexible and adaptable work areas that allow for potential expansion scenarios	•		•			
Separation of functions (design and manufacturing) with efficient management of traffic and logistics flows			•			
Identity-shaping building and landscape design				•		
Glassed-in pedestrian link between the two volumes that promotes interaction and collaboration						•
Highlighting of the natural environment through extensive fenestration and openings to the outside				•		•

The Lufa Farms

Address: 1400 Rue Antonio-Barbeau City: Montréal Country: Canada

Built in 2010, Lufa's first hydroponic farm sits atop the roof of an industrial building in the borough of Ahuntsic-Cartierville. In a sector known for industrial, commercial (Marché central farmers market) and manufacturing (Cité de la mode fashion district) uses, the site is strategically located due to its proximity to a substantial labour pool.

The Lufa Farms facility is the first rooftop commercial greenhouse operation in the world. The success of the project prompted the company to build three additional farms, including the world's largest rooftop greenhouse, located in the borough of Saint-Laurent.

Client: The Lufa Farms Architecture: GKC Architectes (greenhouse in Ahuntsic-Cartierville bourough) / The Lufa Farms

Aiming to develop a new model of food production that promotes local consumption in large urban centres, the urban farming company seeks to make a positive environmental impact.

Over the years, Lufa Farms has deployed innovative new technologies to improve building insulation and energy efficiency, by installing thermal curtains and double glazing, enabling it to reduce heat loss by 50%.



© Lufa, Montréal (borough of Saint-Laurent)



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du design



© Lufa, Montréal (borough of Anjou)



© Lufa, Montréal (borough of Ahunstic-Cartierville)



© Lufa, Montréal (borough of Anjou)



© Lufa, Montréal (borough of Saint-Laurent)

Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 - The dimensions of quality

Re-use and valorization of an unexploited rooftop surface for
Establishment of partnerships with local companies to build a net
Heat recovery and redistribution among building occupants
Incorporation of a rainwater recovery system to supply the hydr
Responsible management and reclamation of organics via an composting system
Establishment of a direct-donation program providing families to fresh produce online
Implementation of a community program to raise awareness urban agriculture (educational tour, workshops)
Delivery of 20,000 baskets of fresh food throughout the provelectric vehicles





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urban market gardening	•		•			
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Innovation Centre adMare BioInnovations

Address: 7171 Rue Frederick Banting City: Montréal Country: Canada Client: Institut Néomed and adMare BioInnovations

The adMare innovation centre, which for several years has operated in one of Canada's first high-tech science and industrial parks, recently expanded its facility to more effectively pursue its activities in the fields of chemistry and biology. Connected to the existing building by a completely glassed-in walkway, the new building offers 7,400 m2 of space on three storeys and is home to biotech companies, research organizations de recherche, a drugdiscovery centre and other commercializationsupport services. Architecture: NFOE Engineering (structural and civil): Tetra Tech Contractor : BTL Construction

The design of the traffic-flow spaces, gathering areas and laboratories optimizes social interaction, teamwork and mutual support principles and values that have a significant impact on the industry sectors' attractiveness and on workforce retention. The high quality of the construction materials and details and integration of biophilic design principles into the architectural statement (natural light, natural colours and textures, views to the outside) exemplify the architects' commitment to delivering a sustainable environment of quality that contributes to staff's physical and mental wellness. The project is certified LEED® v4.













Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 – The dimensions of quality

Optimization of building use and operations through shared con
Modern architectural language of the expansion that complem and volumes of the existing building
Emblematic building that contributes to affirmation of the Tech international research and development hub
Significant setback margin which highlights the distinctive treatm entrance
High-quality interior spaces benefiting from natural light and or connection to the outside
Addition of green outdoor spaces and pedestrian links incerasin the site

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nsions of quality presidence common spaces • common spaces ommon spaces • • • ments the dimensions • • • chnoparc as an • • • offering a direct • • • ing the permeability of • • •

Stinson Transportation Centre

Address: 635 Rue Stinson City: Montréal Country: Canada Client: Société de transport de Montréal Architecture / interior design: Lemay Engineering (structural): Pasquin St-Jean et associés

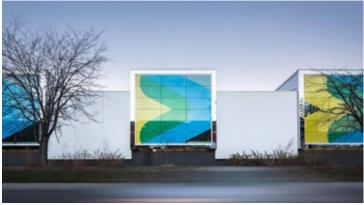
Reinventing the traditional template for largescale facilities, the Stinson Centre is integrated into a fairly dense and sensitive urban sector. Its environmentally responsible architecture and distinctive esthetics contribute to the identity of the neighbourhood, notwithstanding a horizontal footprint of some 35,000 m2. To improve community acceptance of the project as well as to minimize noise and visual nuisances, all of the manoeuvring, repair and washing, parking and refuelling areas for the 300 buses are concealed inside the building.

Engineering (civil): P. Charbonneau et associés / Roche Engineering (electrical): BPR Engineering (mechanical): Bouthillette Parizeau Landscape architecture: Version / Vlan paysages Contractor: LA Hébert

In the interest of urban integration, the rooftop was treated as a fifth facade designed to enhance residents' views. With more than a guarter of its surface planted, it reduces heat islands while allowing natural light to flood the building through low-reflectance skylights, which brings wellness benefits for the 800 occupants.

Lastly, the program called for insertion of a long bar through the centre of the structure, which breaks up its massing. This volume houses office spaces along with communal rest and gathering areas.





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© Gagné + Roy / Lemay



© Stéphane Groleau / Lemay



© François Descôteaux / Lemay

Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 – The dimensions of quality

and installation of basement retention basins for grey water re Installation of a heat redistribution network, enabling a 70% re consumption Brand image expressed in the entrance volume, the large bay wi the yellow programmatic bar Re-use and recycling of in situ materials during construction	Landscaping strategy that enhances ecological aspects: 230 w preserved; 600 new trees were planted and an interior green w
consumption Brand image expressed in the entrance volume, the large bay with the yellow programmatic bar Re-use and recycling of in situ materials during construction Inclusion of a public plaza, bicycle parking and a car-sharing sy	Installation of low-flow plumbing fixtures for reduced potable and installation of basement retention basins for grey water re
the yellow programmatic bar Re-use and recycling of in situ materials during construction Inclusion of a public plaza, bicycle parking and a car-sharing sy	Installation of a heat redistribution network, enabling a 70% re consumption
Inclusion of a public plaza, bicycle parking and a car-sharing sy	Brand image expressed in the entrance volume, the large bay wi the yellow programmatic bar
	Re-use and recycling of in situ materials during construction
	Inclusion of a public plaza, bicycle parking and a car-sharing sy to all employees





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voodland trees were vall was installed			•	•		•
water consumption ecovery	•	•	•			•
eduction in energy		•	•			
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ystem available				•	•	•

Lafond Desjardins **Dental Laboratory**

Address: 1885 Boulevard Industriel City: Laval Country: Canada Client: Lafond Desjardins Architecture: ACDÉ Architecture

Located in the heart of Laval's industrial zone, this recently completed building with an uncluttered design helps enhance the landscape identity of the surrounding area. The building's volumes reflect the programmatic needs prompted by the client's industry segment: manufacturing of dental prostheses. The articulation of the façade, via the treatment of the pediment and the entrance thresholds, enhances the interfaces with the outside and enlivens the public domain. The glazed façades maximize the supply of natural light to the common spaces and work areas, as well as regulating thermal comfort through passive

Engineering (structural): SDK Engineering (civil): MHA experts-conseils Engineering (electrical, mechanical): AlbCad Design Contractor: Construction Matem

solar heating. The main staircase, responding to functionality and space usability principles, runs along the common wall separating the reception area from the manufacturing facility and leads to the employee lounge and kitchen and, beyond that, to a pair of expansive rooftop patios.

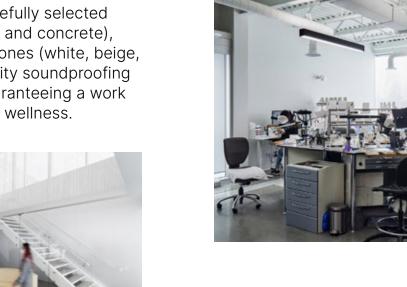
The views to the exterior, carefully selected quality materials (wood, steel and concrete), furnishings in sober, natural tones (white, beige, anthracite) and the high-quality soundproofing are among the strategies guaranteeing a work environment focused on user wellness.

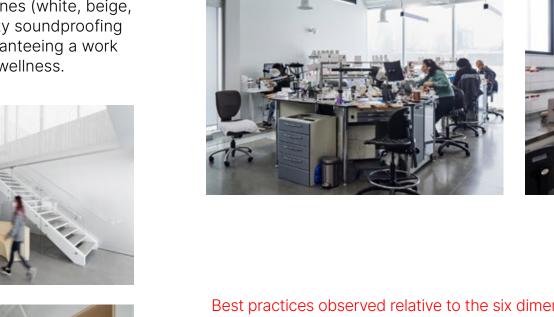




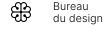


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Emblematic building that celebrates its manufacturing operation visible from the public domain
Attractive, comfortable interior and exterior common spaces manufacturing areas, quality of soundproofing)
Use of passive strategies for energy efficiency (e.g., temperature
Application of biophilic interior design principles (e.g., views t use of wood)





ensions of quality	Resilien	e Environt	tent tconom	S CULTUR	Folio Holi	Heathard
ons by making them			•	•		
(e.g., distancing of the					•	•
e and humidity control)		•	•			
to outside, natural light,						•

St-Germain Égouts et Aqueducs

Address: 3800 Boulevard Sir-Wilfrid-Laurier City: Longueuil Country: Canada Client: St-Germain Égouts et Aqueducs

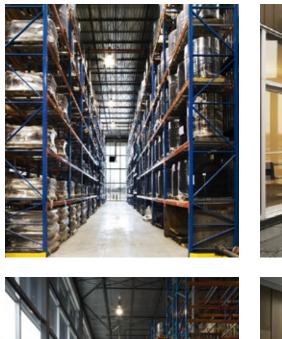
St-Germain, a manufacturer of sewer and water main infrastructure components, decided to build a new state-of-the-art facility to improve productivity while enhancing service quality. Located in the centre of an industrial sector, adjacent to a residential area and built on fallow farmland, the new headquarters is adjacent to road and rail links that facilitate product handling and shipping.

The siting and the articulation of the façades considered the topographical constraints of the lot, including the prevailing northeasterly winds. The formal simplicity and orthogonal nature of the exterior envelope are meant to evoke

Architecture: ACDF Architecture Engineering (structural): Métaux-Spec Inc. Contractor: Construction Tigre Inc.

water lines. Set against the landscape, the architectural statement is striking owing to the contemporary design and selection of noble, local and environmentally responsible materials (steel, charred wood, slate and concrete).

Providing unfiltered visibility to the manufacturing process, the large rectangular openings in the volumes allow natural light to flow into the spaces adjacent to the reception area (an exhibition hall as well as administrative, storage and manufacturing spaces). Lastly, the natural element intrinsic to sewers and aqueducts, water, is highlighted by the large pond laid out along the façade.

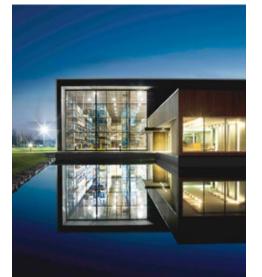








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Best practices observed relative to the six dimensions of quality

Carefully considered volumes that optimize the manufacturing operations and evoke, from the exterior, the product production sequence (manufacture, assembly, storage)		•	•		
System for recovery of rooftop rainwater and re-use to supply the pond		•			
Reuse of raw material in situ (wood) for interior and exterior cladding, recalling the site's original woodland	•		•		
Landscaping strategy respectful of the site's natural character, with reintroduction of native plants	•				•
Incorporation of an educational component with an exhibition hall showcasing the product line as well as the history of the family business			•	•	





Campus Simons

Address: 9205 Rue John-Simons City: Québec City Country: Canada Client: La Maison Simons Architecture: GKC Architectes Landscape architecture: BC2

Built on the outskirts of Québec City in the Espace d'innovation Chauveau, the new head office and distribution centre of the Maison Simons department store chain occupies an expansive 185,000 m2 lot at the intersection of highway infrastructure and a woodland. To strike a balance and achieve symbiosis between landscape and architecture, the project manager emphasized environmental quality and sustainability principles from the outset.

Two volumes, one glazed and the other solid, overlap in a scheme of contemporary, uncluttered lines. The building's function is reflected in the treatment of the exterior envelope, moving from transparency to opacity in keeping with the interior program.

Interior Design: Aedifica Engineering (structural): Magela Engineering (electrical, mechanical): CIMA+ Engineering (civil): EXP Contractor: Reliance construction group

The variation in materiality alludes to the transformation of raw materials into finished textile products, with anthracite aluminum panels cladding the office spaces and patterned white concrete for the distribution centre, punctuated by ample glassed surfaces.

Special attention was paid to optimizing the building's energy efficiency and integrating biophilic principles into the interior design (a verdant indoor garden, recycled materials suggestive of nature, and thermal comfort through provision of natural light). This helps create an environment of quality geared toward collaboration and communication that is a source of price for building occupants.

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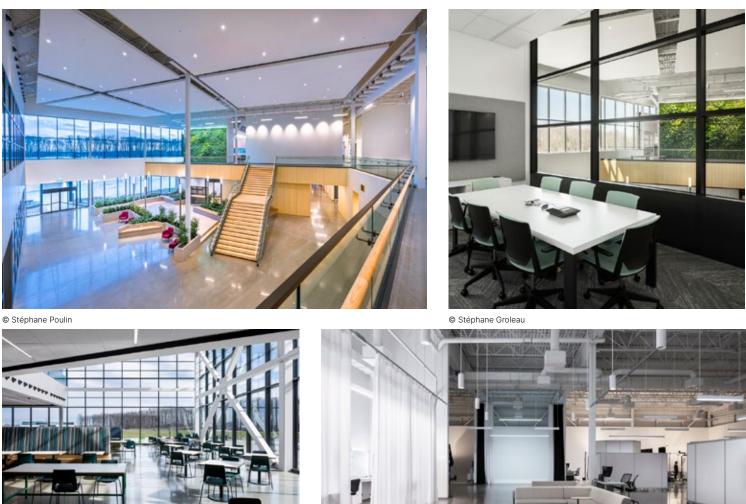
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Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 – The dimensions of quality	Resilence	Environt	tent conom	Culture	Edity Child	Healthese Healthese
Bioclimatically informed building orientation for energy efficiency and maximized interior comfort		•	•			•
Selection of recycled and low-carbon-footprint materials to mitigate the environmental impact of the new LEED-certified green building	•	•	•			•
Assertion of Maison Simons' values and culture in the architectural composition, which complies with biophilic principles to deliver a stimulating, inspiring work environment			•	•	•	•
Programming of interior spaces that achieves optimal traffic flows between the offices and distribution centre and also encourages direct pedestrian routes			•			•
Incorporation of appropriable common spaces both inside and outside the building: atrium, cafeteria, terrasses, public square					•	•

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The Plus for Vestre

Address: Gaustadvegen 140 City: Magnor Country: Norway Client: Jan Christian Vestre / VESTRE AS

This factory built in the heart of a Norwegian forest for urban and outdoor furniture manufacturer Vestre is set to become the first Nordic industrial building to receive the BREEAM Outstanding rating, one of the world's most stringent environmental performance assessment systems for real estate. That recognition has earned it the title "world's most environmentally friendly furniture factory."

The building's cruciform plan organizes traffic flow and production zones into four distinct wings, each of which connects directly to the outside. Its biophilic architectural design is distinguished by enormous window openings in the larch façades that offer direct views of the furniture construction and assembly Architecture: Bjarke Ingels Group Engineering: Bjarke Ingels Group General contractor: Fokus Rådgivning AS

processes. A central courtyard is accessible to the public via two staircases made of zinc, providing a unique experience for visitors, who can access the roof and admire the expansive pine forest around them, which is criss-crossed by hiking trails.

The plant is equipped with a state-of-the-art energy-supply system that enables generation and storage of around 250,000 kWh of renewable energy per year via rooftop solar panels, as well as storage of excess production.





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Best practices observed relative to the six dime

Combination of multiple energy sources (17 geothermal wells, enabling reduction in energy consumption and GHG emissions
Installation of equipment to capture and store excess energy
Promotion, distribution and sharing with the public of knowled production and recovery as well as the life cycle of construct
Use, reuse and recovery of low-carbon, local (wood) and/or r construction
Materials and finished furniture transported by an all-electric
Architectural concept that optimizes the relationship between through the play of various openings and transparent glass fac

ensions of quality	Resilier	e Environt	lent tconom	CURUS	FolitArch	Heathers
900 photovoltaic panels) s			•			
/			•			
edge about energy tion materials		•			•	
recycled materials for		•	•			
c fleet of trucks			•			
indoors and outdoors çades				•		•

Envabox Factory and Offices

Address: 29 Poligono Industrial I-4 City: Crevillente Country: Spain

The Envabox cardboard-box production plant, located in an industrial area in the city of Crevillente, underwent expansion and optimization of its facilities so as to improve productivity. The project was developed in response to two main prompts: reorganization of the production spaces and rethinking of traffic flows.

The existing building structure has been retained and valorized in a way that celebrates the manufacturing operations while creating a new symbiosis between the former and new architectural language. Through the addition of a rectangular volume spanning two levels, the manufacturing area now offers a more functional work space that is also adaptable over time, allowing for more timely responses to market demands. Client: Envabox Architecture: Estudio Alberto Burgos Engineering (structural): Joaquin Solbes / José Luis Perez

The water in the hydraulic system required for the printing process is now disinfected and filtered, prolonging its use cycle. The sawtooth-profile roof structure, inspired by English textile-industry architecture, creates a one-of-a-kind volumetric modulation in the industrial landscape. The succession of double roof slopes helps improve the building's energy efficiency (passive solar heating, influx of natural light) and creates a dynamic façade, among other things through selection of natural materials and colours. Biophilic principles were also applied to the design of the expansion, including via the supply of natural light from the roof to the interior spaces and the exterior walls, which feature ample glass windows.





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Best practices observed relative to the six dime

Transformation and re-use of the existing building
Volumetric modulation of the roof line and manual-opening wi façades for improved thermal comfort and addition of vertical sunshades
Design of a reversible buffer space to ensure easy adaptation (universal grid and standards compliance, non-fixed furniture)
Relocation of loading docks to improve the efficiency and fluid external traffic related to logistics and distribution
Recovery and re-use of water in the hydraulic system required process



ensions of quality	Resilien	e Environt	tent tconomi	Culture	Faird include	Heathand
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ed for the printing		•	•			

Air France Maintenance Centre

Address: 9 Route Charles Tillon City: Orly Country: France Client: Air France

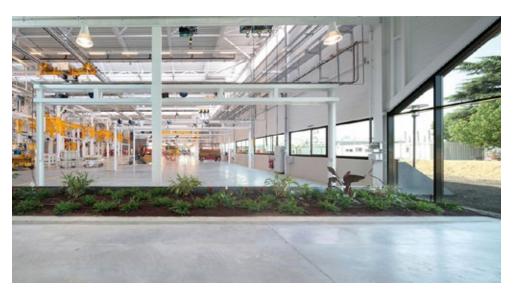
Air France's new maintenance centre, where aircraft engines are washed, dismantled and inspected, is housed in a 10,500 m2 building. The majority of operations involve machinery and overhead cranes mounted to the building's steel frame, requiring considerable ceiling height. A saw-tooth roof design and window bands bathe the shops and other work spaces in an abundance of natural light.

To reduce the industrial building's construction costs as well as the carbon footprint, the architects designed an 8 m wide indoor

Architecture: JFS Architectes Engineering (structural): Cabinet Jaillet-Rouby Landscape architecture: SLG paysage

street in lieu of a firewall. The result is a welcoming, light-filled space, bordered by large planters at ground level that purify the air by phytodepuration.

Renewable energy sources, solar collectors and other environmental systems further contribute to reducing the complex's environmental impact and maximizing its energy autonomy.









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Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 – The dimensions of quality	Resilience	e thuiton	ment sconom	Culture	Editoria inclusion	Heathers
Compact building design that simplifies aircraft maintenance sequences			•			
Spatial organization that accommodates potential changes in use function and evolving industrial needs	•		•			
Maximization of window openings and addition of skylights, ensuring bright, comfortable work spaces						•
Increased use value of the building by incorporation of biophilic design principles (greening, relationship with nature)		•	•			•
Use of renewable energy sources with solar collectors to help reduce operational carbon	•	•	•			





Carlsberg Research and **Development Centre**

Address: 67210, route D501 City: Obernai Country: France Client: Carlsberg Group

Architecture: S&AA Patrick Schweitzer & Associés Engineering (structural, civil): Groupe OTE

At the entrance to the Kronenbourg brewery site, the innovation centre is where Carlsberg Group's beers are created and developed for international markets. The building architecture celebrates the ingredients used in beermaking: a screen of vertical wooden slats, calling to mind ears of barley, envelops the building and filters sunlight. The slats are vertically modulated to reveal the centre's entrances and exits, lending it a distinctive architectural character that contributes to the industrial sector's identity. A tilted volume, resembling a case of beer, highlights the main entrance and houses a key feature of the centre, the tasting room.

The volumes and treatment of the envelope are in keeping with the program. Large openings in the façade showcase the brewery and its production operations by revealing the brewing equipment. The work spaces, offices and laboratories also benefit from the abundant fenestration and natural light. Conversely, the warehouses are concealed behind blind facades, one of which is adorned with an image of a gigantic barley field, blending into the landscape and creating a visual and solar filter for passers-by.













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Compact building design that simplifies aircraft maintenance s
Spatial organization that accommodates potential changes in evolving industrial needs
Maximization of window openings and addition of skylights, er comfortable work spaces
Increased use value of the building by incorporation of biophili (greening, relationship with nature)
Use of renewable energy sources with solar collectors to help carbon

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National Automotive Innovation Centre

Address: Lord Bhattacharyya Way City: Coventry Country: England Client: WMG / University of Warwick / Jaguar Land Rover / Tata Motors UK

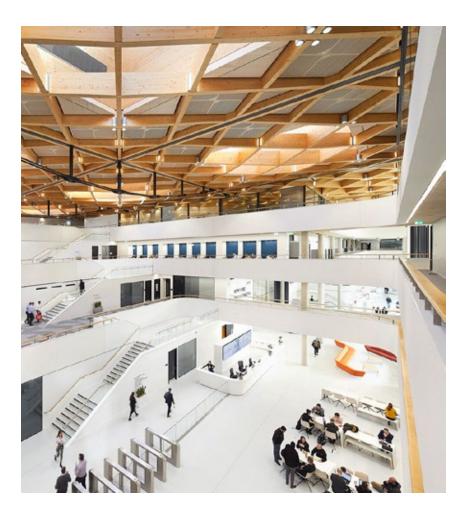
Located in the heart of the University of Warwick, the Prof. Lord Bhattacharyya Building, housing the National Automotive Innovation Centre (NAIC), is home to researchers, engineers and designers with expertise on the leading edge of automotive technology. The L-shaped building encompasses diversified uses, including spaces dedicated to work, study, design and development, exhibition, meetings and relaxation.

Thanks to the offset atrium linking all four floors of the building, traffic flows converge, promoting occupant interactions. The laminated-timber roof frame ties the entire

Architecture: Cullinan Studio Engineering: Arup General contractor: Balfour Beatty

complex together visually and imparts rhythm to the interior spaces. Curving passageways lend a theatrical effect to the overall building and encourage active mobility within it.

The NAIC has been awarded BREEAM Excellent certification for its sustainability performance. The mechanical ventilation system enables heat recovery, as well as cooling via chilled beams when required. The landscape architecture promotes biodiversity through the use of native plants and water features hosting a variety of aquatic species.





© Hufton + Crow / Cullinan Studio (all images)





Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 - The dimensions of quality

Increased outreach and diversity in recruitment into the auton by siting the building in an accessible location in a university inaccessible compound, and by including open public function space) with views into the heart of the activity.

Optimization of uses and operations through sharing of space

Insertion of glass skylights to maximize supply of natural light to the timber roof structure, which extends to the exterior and crea

Architecturally designed stairwells around the atrium to promwithin the building

Use of a system of thermal networks for heat recovery and coc

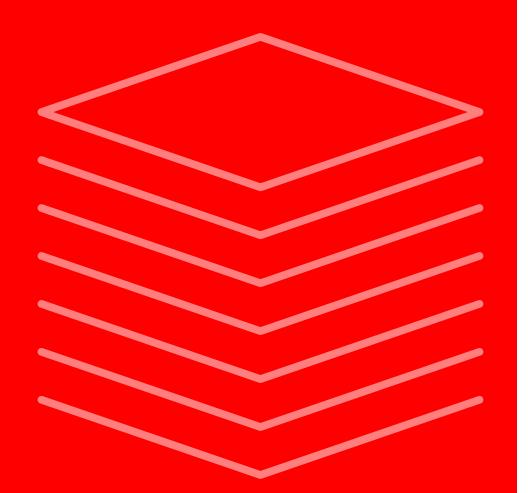
Landscaping strategy that enhances biodiversity through plant and a layout of waterways conducive to a diversity of aquatic p



motive industry, e.g., rather than a private, ons (café, exhibition				•	
es and services	•	•			
o the interior and highlight ates shaded areas			•		•
note active travel					•
oling		•			
iting of native species plants	•				

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Type 04: Peripheral, <u>Extensive</u> Monofunctional or Mixed Use



Exemplary **Project Sheets**

Local projects:

- Valoris Sorting Centre (Bury)
- Saint-Thomas Biogas Cogeneration Plant (Saint-Thomas)
- Saint-Michel Environmental Complex (Montréal)
- Soprema Plant (Woodstock) International projects:
- Cophenhill (Copenhague)

Valoris Sorting Centre

Address: 107 Chemin Maine Central City: Bury Country: Canada Client: La Régie intermunicipale Valoris

Located in the Valoris eco-industrial park, the new multi-material sorting centre enables the sorting and transformation of some 100,000 tonnes of waste into energy or raw materials that can then be shared with industrial partners. Calling itself a proactive, innovative player committed to the community and its partners, Valoris has built a plant that reflects its values. Based on sustainability and circular economy principles, its synergistic operation targets significant reductions in the volume of reclaimable residual materials directed to landfill.

Architecture: Cimaise Contractor: Gératek

The plant, with a surface area of 6,445 m2, is unique in that it is unconditioned and uninsulated. Excluding the plant, the building achieves energy efficiency 34% higher than buildings of the same type through careful control of ventilation and heating. The 880 m2 administrative building is on two floors and includes offices and common areas (a cafeteria and auditorium), all of which benefit from natural light.













Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 – The dimensions of quality	Resilience	e Environ	hent conom	outure	Eduto dive	Healthest Healthest
Application of the industrial symbiosis concept, which involves sharing raw and resi- dual materials, post-sorting and transformation into energy, with industrial partners	•	•	•			
Re-use of 97% of construction waste, including 59 tonnes of recycled glass reclaimed for the concrete slab of the office building			•			
Use of renewable energy sources (solar wall and photovoltaic panels) to reduce building energy consumption and ensure comfortable work spaces	•	•				•
Industrial and administrative functions separated into distinct volumes or via a box-in- box concept, for energy management reasons (e.g., HVAC in the plant vs. the offices)		•	•			•
Reduction of water consumption by 41% through use of low-flow plumbing fixtures		•	•			

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Saint-Thomas Biogas **Cogeneration Plant**

Address: 499 Chemin Saint-Joseph City: Saint-Thomas Country: Canada Client: EBI Énergie Inc.

This fully automated new cogeneration plant transforms biogas produced by waste materials at the Saint-Thomas technical landfill site into electricity and heat.

The plant will generate an estimated 9.4 MW of electricity, produced by seven gas generator sets, over a 25-year period. In addition, the heat recovered will supply close to 10,000 homes, with zero greenhouse gas emissions.

Architecture: B+B Architecture + Design Inc. Engineering: Aecom Contractor: GMI Construction

This novel industrial and technological process will result in a reduction of 40,000 tonnes of atmospheric CO2 emissions. Heat exchange and recovery will allow heating of both the building and the water in the leachate ponds to achieve an energy efficiency level of 64%.

The plant's green and sustainable architectural design includes open, light-filled workspaces, insulated and adjustable lighting and ventilation systems, and parking facilities that encourage car-sharing and electric vehicles.











Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 – The dimensions of quality

Biogas-to-electricity production to ensure the plant's energy a
Use of local (40%) and recycled (95%) materials with low ecol for construction of a carbon-neutral building, certified LEED P environmental performance
Recovery and routing of rainwater to existing wetlands, with a vie and protection
Reduction in energy consumption of 23% through improved the

Reduction in energy consumption of 23% through improved thermal resistance performance of the roof, walls and foundations

Production of compressed natural gas in a sister facility to fuel 250 waste-hauling trucks

© Denis Trudeau / B+B Architecture + Design Inc. (all images)



Saint-Michel Environmental Complex (CESM)

Address: 2235 Rue Michel-Jurdant City: Montréal Country: Canada Client: Ville de Montréal

Landscape architecture: BC2 / Lemay Industrial design (well casing) : Morelli Designer Contractor: Jeskar Inc. / Côté jardin

The 192 ha site, located in the heart of Villeray-Saint-Michel-Parc-Extension borough, is the subject of an extensive project to rehabilitate the former Miron guarry, a portion of which was used as landfill. Thirty years after the demolition of the two quarry chimney stacks, the area was renamed the Cité des arts du cirque, and now houses the facilities of Cirque du Soleil, the École nationale de Cirgue and the TOHU. As a legacy of Montréal's 375th anniversary celebrations, a vast urban park stretching over 153 ha was developed, covering the 41,000 tonnes of waste in the former landfill.

The substantial methane output from the landfill is converted into electricity at the Biomont cogeneration plant. Three generators with a capacity of 1.5 MW each produce electricity that provides heat to some 2,000 homes in the area, while surplus heat is recovered and supplied to neighbouring buildings. White spherical

casings conceal the heads of more than 200 biogas-capturing wells spread throughout Frédéric-Back Park and connected via a 17 km underground network.

Lastly, the unique landscape design promotes biodiversity through a variety of features (plain, small valley, woodland, wildlife habitat). Example of environmental initiatives:

- Re-use of stone flakes from the cliffs on site as material for the footpaths and filling for the gabion walls
- Re-use of in situ soil for the landscaping
- Incorporation of a runoff-water management system that significantly reduces discharge to the municipal storm sewers







Source : Lightemotion

See Handbook 1, p. 12 - The dimensions of quality Capture of methane emissions from the former landfill site an biogas to electricity to supply nearby homes (soil decontamin

Montréal's Industrial Projects Handbooks of Best Practices

Bureau du design



Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 – The dimensions of quality	Resiller	ce Environ	inent teconom	C.JHUIC	Equity include	teon testines
Capture of methane emissions from the former landfill site and conversion of this biogas to electricity to supply nearby homes (soil decontamination system)			•			
Electricity production and recovery of heat from industrial processes for sharing with the neighbouring community (industrial symbiosis and circular economy)	•	•	•			
Promotion and provision of community and participatory activities throughout the planning stages of the project to foster a sense of belonging and pride in the site				•	•	
Creation of a linear park bordered by a 5 km bikeway, encouraging physical activity and active travel within the site (walking, cycling, snowshoeing, cross-country skiing)		•			•	
Physical connections to the surrounding neighbourhood through affirmation of the entrance thresholds and creation of visual landmarks in the form of public art (the work Anamnèse 1+1)				•	•	

Soprema Plant

Address: 1620 Commerce Way City: Woodstock Country: Canada Client: Soprema

Soprema, a company specializing in roofing and waterproofing products, built a new 8,350 m2 plant in Woodstock, Ontario.

In an architectural environment that articulates the company's culture, the plant incorporates state-of-the-art environmental technologies including alternative energy, green roofs and recovery of heat from manufacturing processes. The futuristic plant includes a warehouse, offices, ancillary spaces and a manufacturing line featuring the very latest technology. Outside, the facility includes an inner courtyard

Architecture: Lemay Engineering (structural): Elema Landscape architecture: Lemay

and a hybrid reflective/green roof equipped with solar panels along with a terrasse and rest areas. The terrasse affords views onto an extensive landscaped area that promotes local biodiversity and reduces the heat island effect thanks to a pair of stormwater management ponds and planted trees.

The outcome of a multidisciplinary collaboration, the plant is one of the few industrial projects in Canada to have obtained LEED v4 certification.









Best practices observed relative to the six dimensions of quality See Handbook 1, p. 12 – The dimensions of quality	Pesilience	e Environ	hent fronon	o cuture	FOULD HOL	Health and
Building design that anticipates incorporation of future alternative and renewable energy sources with an eye to environmental resilience and reduced energy consumption	•	•	•			
Demonstrated environmental impact reduction through 60-year building life cycle analysis		•	•			
Integration of a sustainable water and waste management system during construc- tion of the plant		•				
Highlighting of the industrial equipment via a bold architectural design that is respect- ful of the environment while helping to shape the company's identity and culture		•	•	•		
Creation of outdoor spaces (e.g., rooftop terrasse) that can be appropriated by employees and visitors						•
Highlighting of local biodiversity through diverse landscaping features: green interior courtyard, green roof, tree planting as well as rainwater and runoff retention ponds					•	•
Biophilic design principles applied to the interior to ensure comfortable, light-filled work spaces that interact with nature					•	•

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CopenHill

Address: Vindmøllevej 6 City: Copenhagen Country: Denmark Client: Amager Resource Center

Located in the waterfront industrial zone on the island of Amager in Copenhagen, the new power plant extends over an area of 41,000 m 2 and promotes waste-to-energy production. The innovative repurposing of its incinerator, capable of converting 400,000 tonnes of waste into electricity and heat annually, has enabled a 25% increase in energy production while reducing its CO 2 emissions. Symbolizing the sustainable city of tomorrow, the multifunctional structure enables a one-of-a-kind coexistence of industrial activity and recreational pursuits.

Architecture: Bjarke Ingels Group Engineering (structural, civil): AKT II

The interior is structured in three distinct spaces for waste storage, treatment and incineration. On the enormous wedge-shaped roof, an artificial ski slope has been laid out, along with hiking trails between the ventilation shafts, the air intakes of which give the impression of a mountain landscape.

CopenHill is new landmark in the Danish capital's skyline, and its singular architectural volume in the form of a parallelepiped with rounded corners delivers a unique experience for users, who enjoy panoramic views from its 85-metre summit.



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Best practices observed relative to the six dimensions of quality

See Handbook 1, p. 12 – The dimensions of quality

Promotion of resource circularity by implementation of a clean produces electricity and heating for the surrounding district (1
Celebration of industrial activity through a signature structure an architectural landmark thanks to its volumes and the rhythm

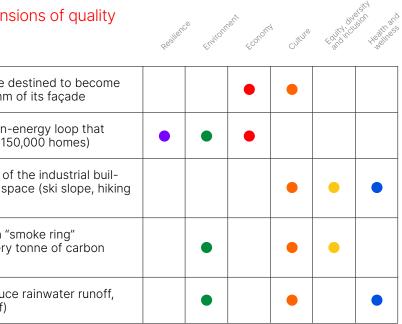
Addition of a recreational component to the primary function of the industrial building, encouraging play-centred appropriation and use of the space (ski slope, hiking trail and climbing wall)

Awareness-raising and educational action via production of a "smoke ring" of vapour from the chimney, visible from downtown, with every tonne of carbon dioxide released

Use of innovative, eco-friendly landscaping strategies to reduce rainwater runoff, absorb heat and create more resilient biodiversity (green roof)



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Credits Collaborators

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- The firm Lemay, mandated as principal provider responsible for researching and writing the Handbooks.
- The firm L'Atelier Urbain, mandated to facilitate the issue tables.

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