

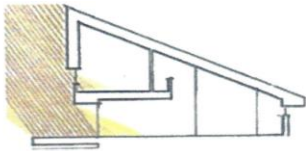
# Architecture and Building Systems Projects

(02.2023)

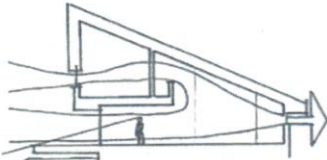
## Roger-Bruno RICHARD Architect

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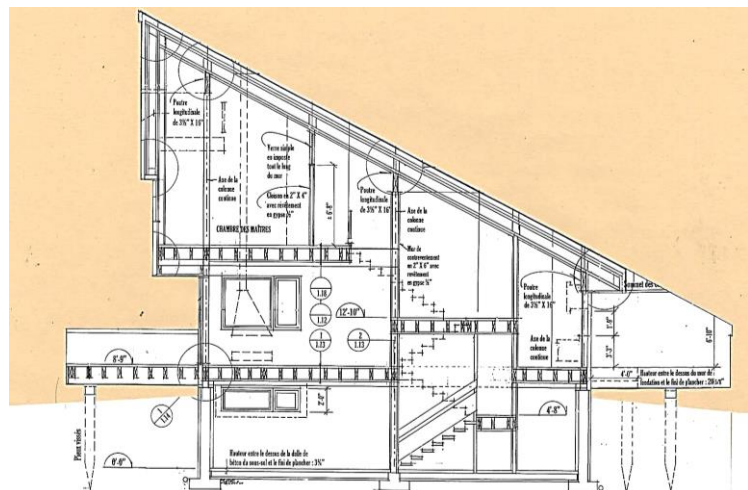
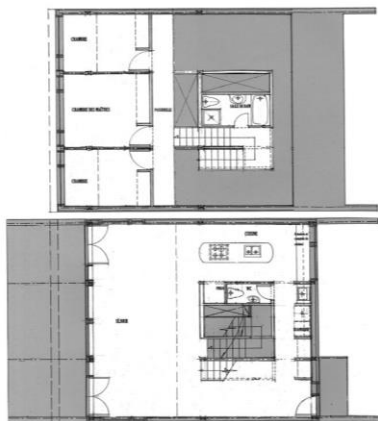
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Straight South cantilevering to reduce solar radiation in the Summer and welcome it in the Winter

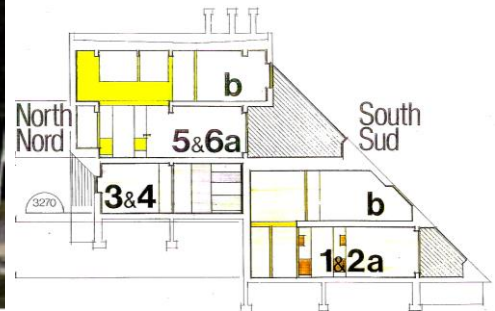


Natural cross-ventilation and 2.6m deep loggia



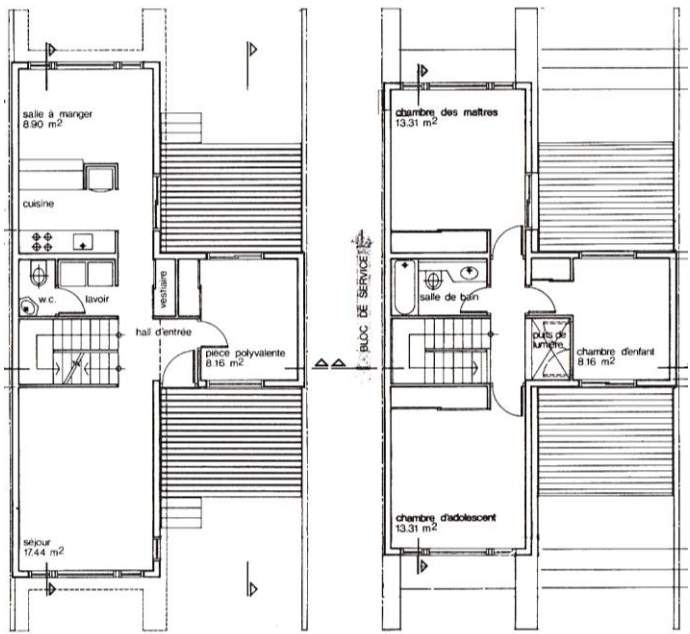
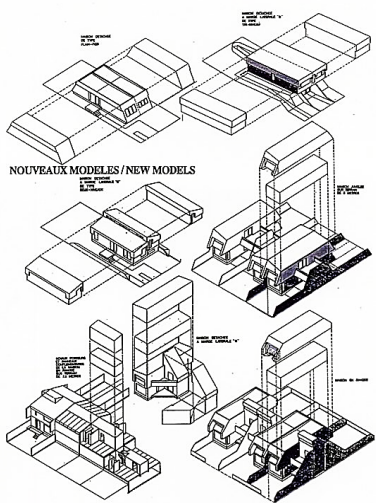
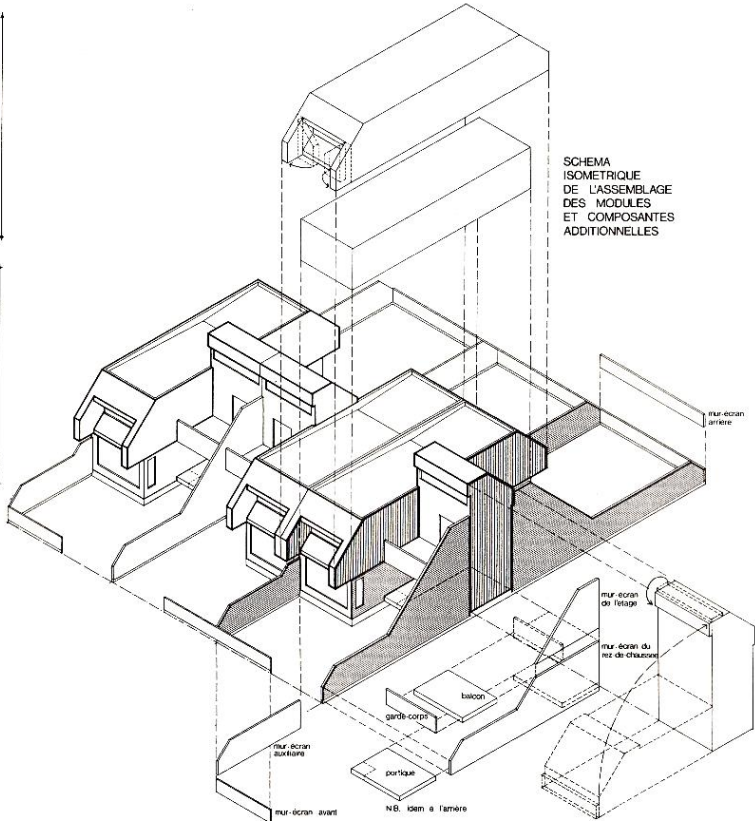
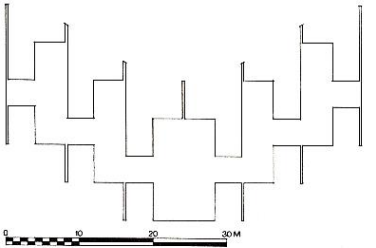
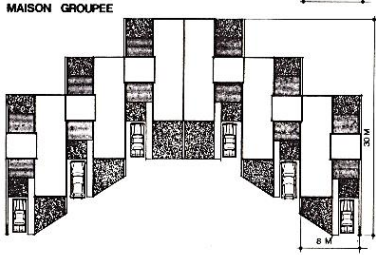
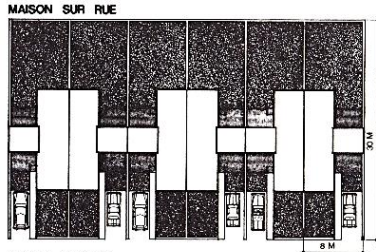
## CARTER Residence

Passive solar house facing the Grand Lac St-François in Quebec. Parallel strand lumber (PSL) post & beam structure completed with open-web wood joists. The exterior siding is in Eastern pine while its interior walls counterpart is in cedar. Total area : 1 524 square feet. Built in 2001.

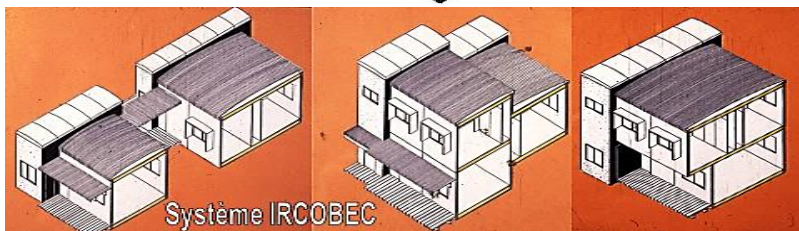
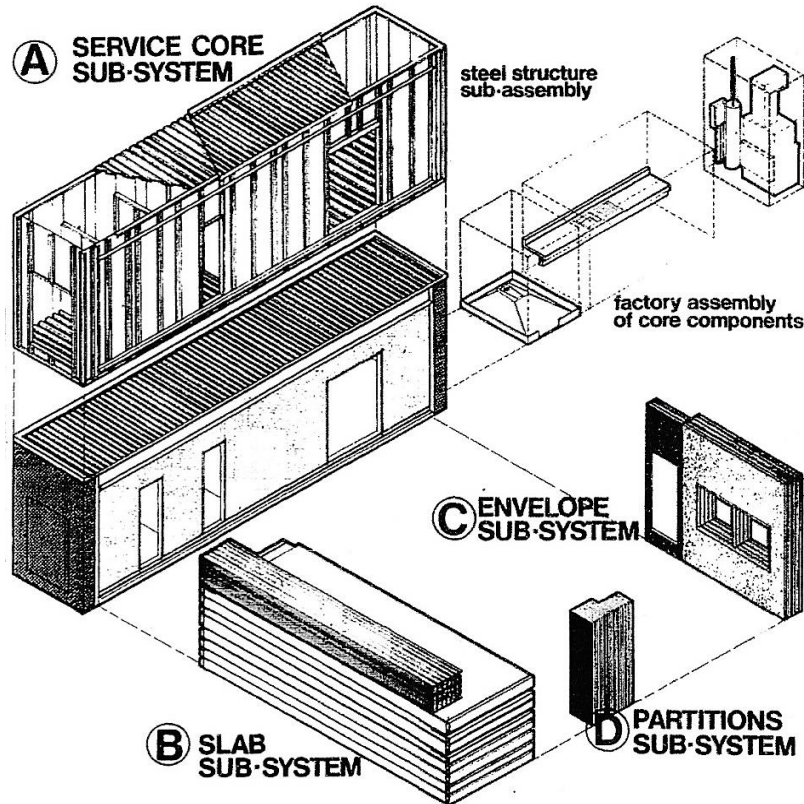


**LES ROCHERS BOISÉS DE STE-ADELE (Phase 1)**

Four six-unit pyramidal passive solar residential buildings, designed to interact with the landscape. Light-frame wood structure and metal cladding. Built in 1984-85.

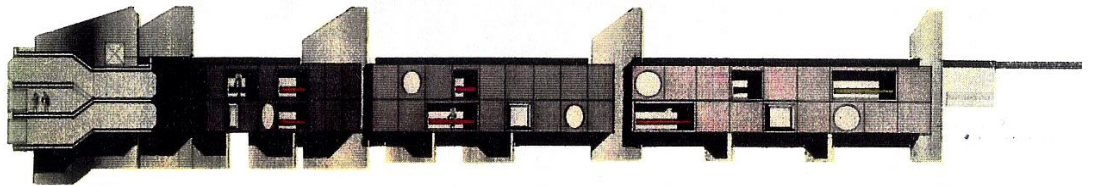
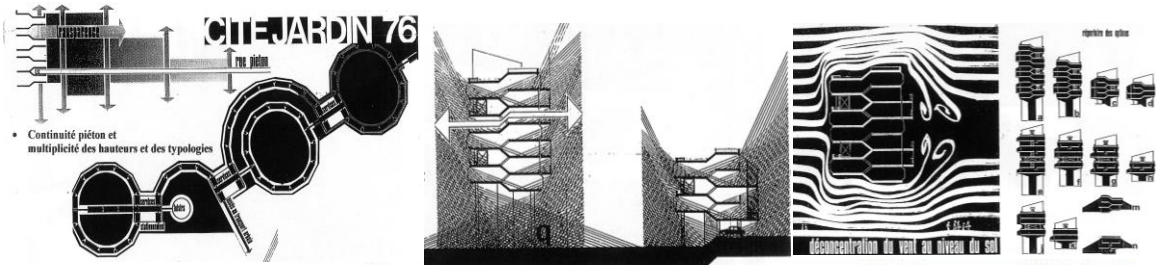


**NEW MODELS for the SQMH**  
 A three-modules townhouse notably offering three bedrooms and a multipurpose room at the entrance: one of the 7 wood-framed 3D affordable prototypes developed for the *Société Québécoise des Manufacturiers d'Habitations* (SQMH) in 1979.



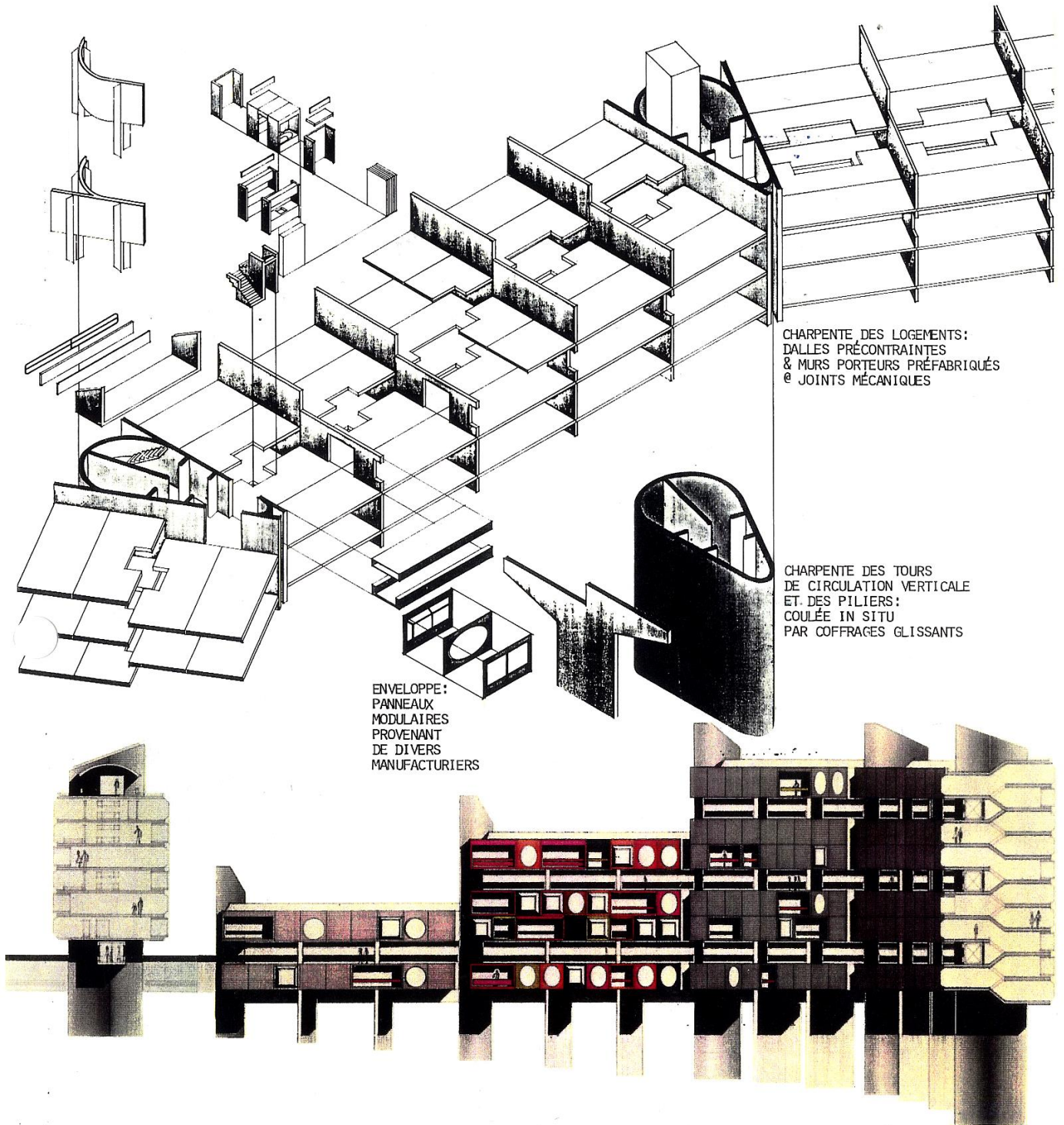
### **IRCOBEC Load-Bearing Service Core**

**WINNER OF A CLOSED COMPETITION** sponsored by the Government of Iran to build 3 000 townhouses in Bandar Abbas. Design and development of an industrialised Service Core residential system: 2.4meter wide light steel linear Cores (kitchen / WC / staircases), steel composite slabs, cellular concrete envelope panels and movable lightweight partitions. Consortium of Quebec manufacturers (1976-78).

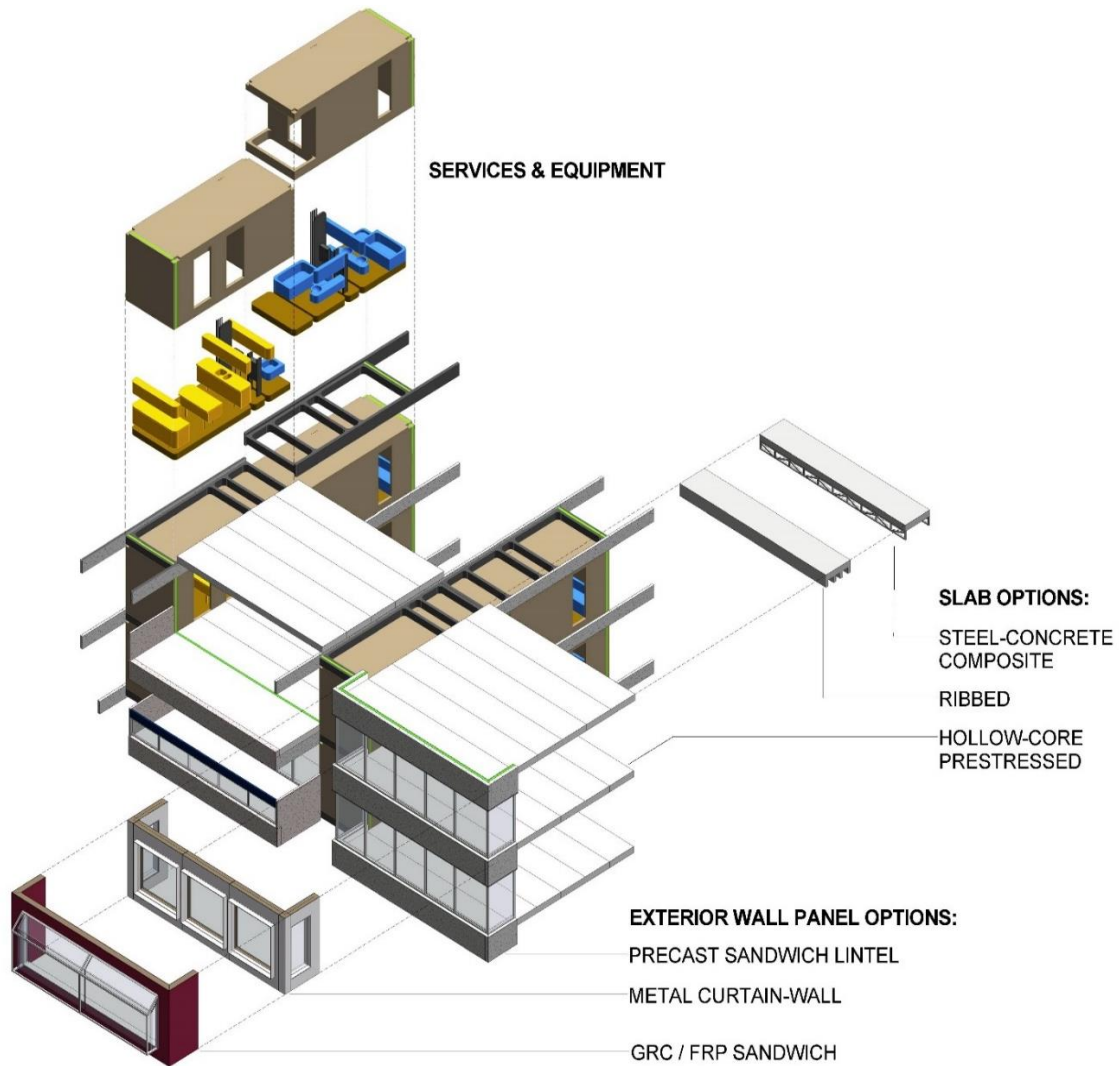


## **CITÉ JARDIN 76**

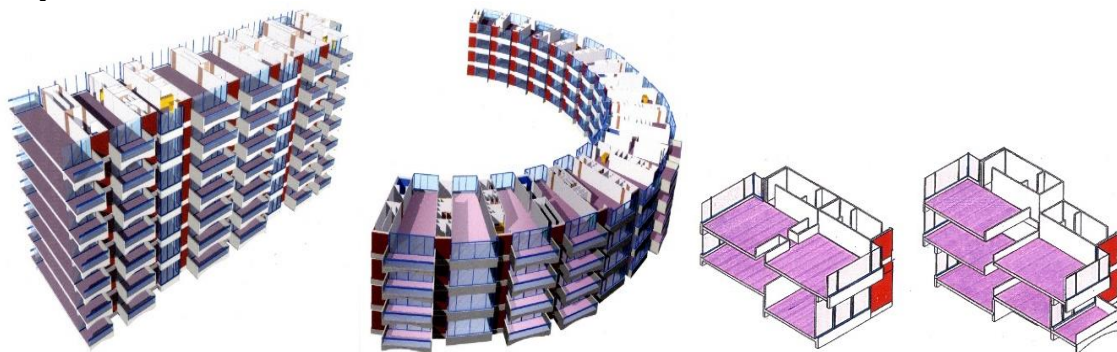
Project of 1 655 dwelling units encouraged by the Mayor of Montreal within the call for tender to build the 1976 Olympic Village. Density of 100 units per hectare, continuous raised pedestrian network, 90% landscaped area to create a « City over the Park », adaptability & individualisation of the transversal apartments and industrialised strategies based on off-the-shelf technology (1973).



The *CITÉ JARDIN 76* project is archived at the Canadian Centre for Architecture (CCA) in Montreal: *Fonds Roger-Bruno Richard* (AP036).



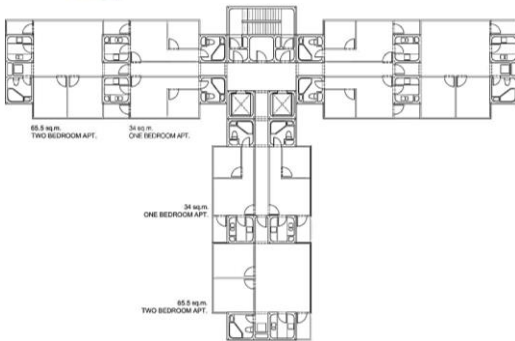
© Roger-Bruno Richard



## RICHARDESIGN Load-Bearing Service Core

Hybrid precast concrete industrialised system where the « SERVING » spaces of a dwelling unit (equipment & services) are concentrated in factory-made 3D Cores. These Cores are joined vertically through cantilevered connecting frames also supporting large slabs and envelope panels spanning between them to generate the « SERVED » spaces (living areas) once at the site. The majority of units offer natural cross-ventilation. A pre-engineered wood version is also available. Development initiated in 1985.





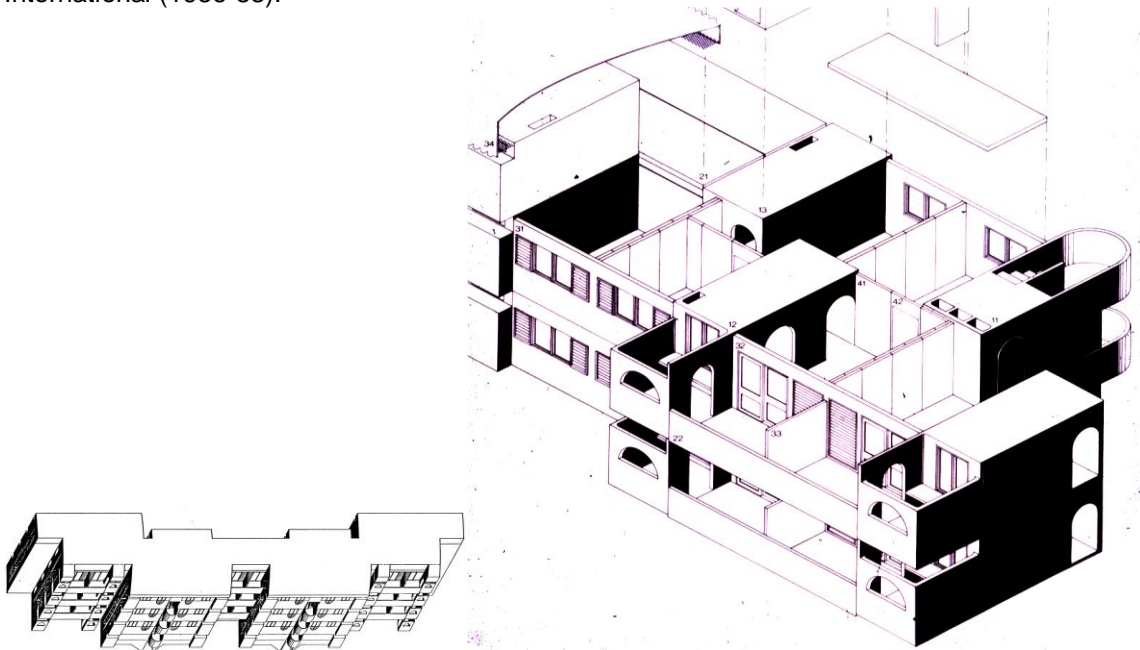
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**High-rise version** of the RICHARDESIGN Load-Bearing Service Core Configuration of the system to the context of Hong Kong and other high-density South-East Asian cities in order to reach 60 stories. The Cores are acting as hollow tubular mega-columns bracing the building when perpendicular to each other at the key locations (2015-16).



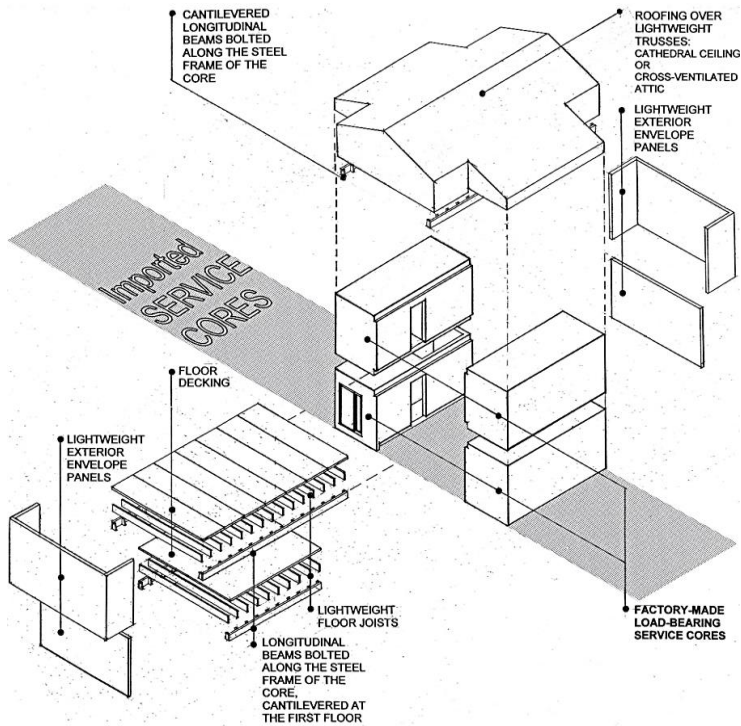
### MILCAM Project

Development of a 1 000 units residential project at the invitation of the *Société Immobilière du Cameroun* (SIC). Precast concrete « C » panels & linear beams for the multifamily buildings and lightweight steel frames for the townhouses; with lightweight thin concrete sandwich envelope panels in both cases. BBGL-Richard Architects in partnership with Janin International et Dessau International (1986-88).



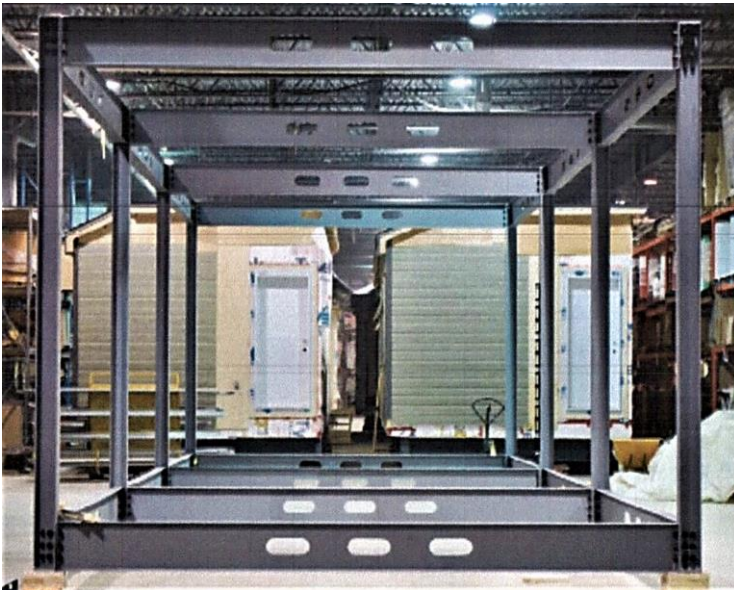
### GINTER Load-Bearing Service Core

System developed for the context of North Africa (Algeria and al.). Three basic factory finished precast concrete cores corresponding to the Kitchen-Laundry, WC and Staircase functions (1982).



## JAPANESE MANUFACTURED 3D MODULES SERVING AS LOAD-BEARING SERVICE CORES AROUND THE WORLD

Implementation of the Misawa Hybrid and Sekisui Heim 3D modules as Load-Bearing Services Cores to reach the international housing market. Once delivered to the sites, the Cores are completed by locally produced floor structures and envelope panels: two Cores for the single level house and four Cores for the *maisonnette* (2007).

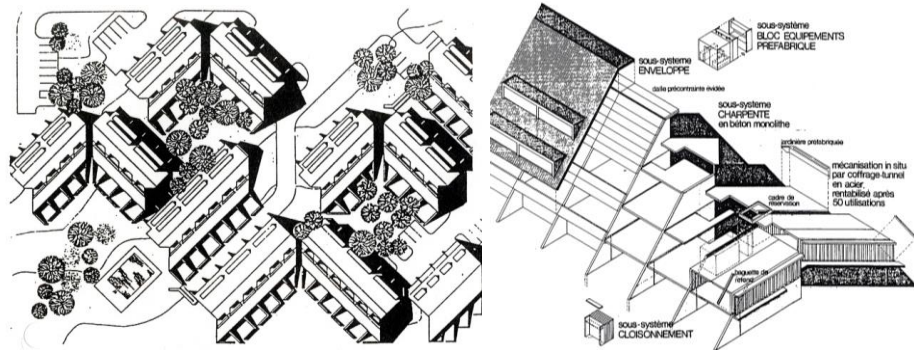


### TRANSIT PAVILLON in Puvirnitug

Residential annex to the Inuulitsivik Hospital of Puvirnitug in the Nunavik (Quebec). Steel-framed 3D modules entirely manufactured in the Montreal area and transported to the site by boat. 2010-11.

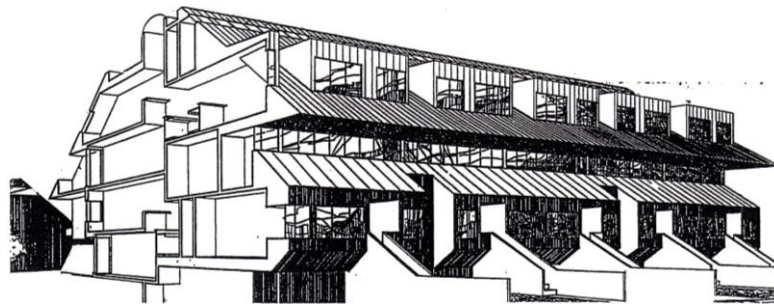


**Montreal MUSEUM OF COMTEMPORARY ART Competition (1984)**



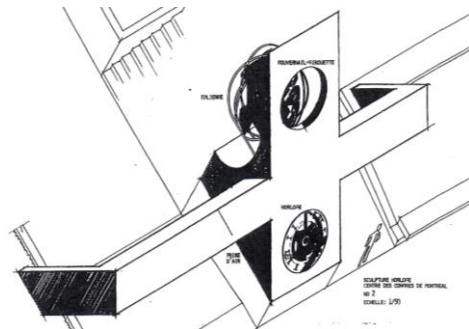
**DENSINERGIE Closed Competition**

Multifamily urban fabric optimizing the southern exposure. Hybrid system combining concrete tunnel formworks, composite sloping roof (prestressed hollow-core slabs + metal sandwich panels) and factory-made equipment & services modules (1984).



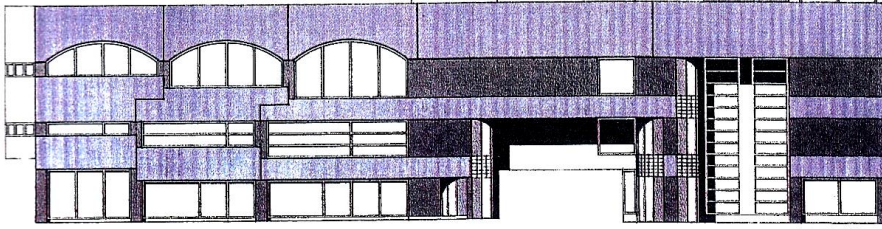
**ST-SULPICE Housing Competition**

Proposal within the "Operation 10 000 Units" City of Montreal competition (circa 1980).



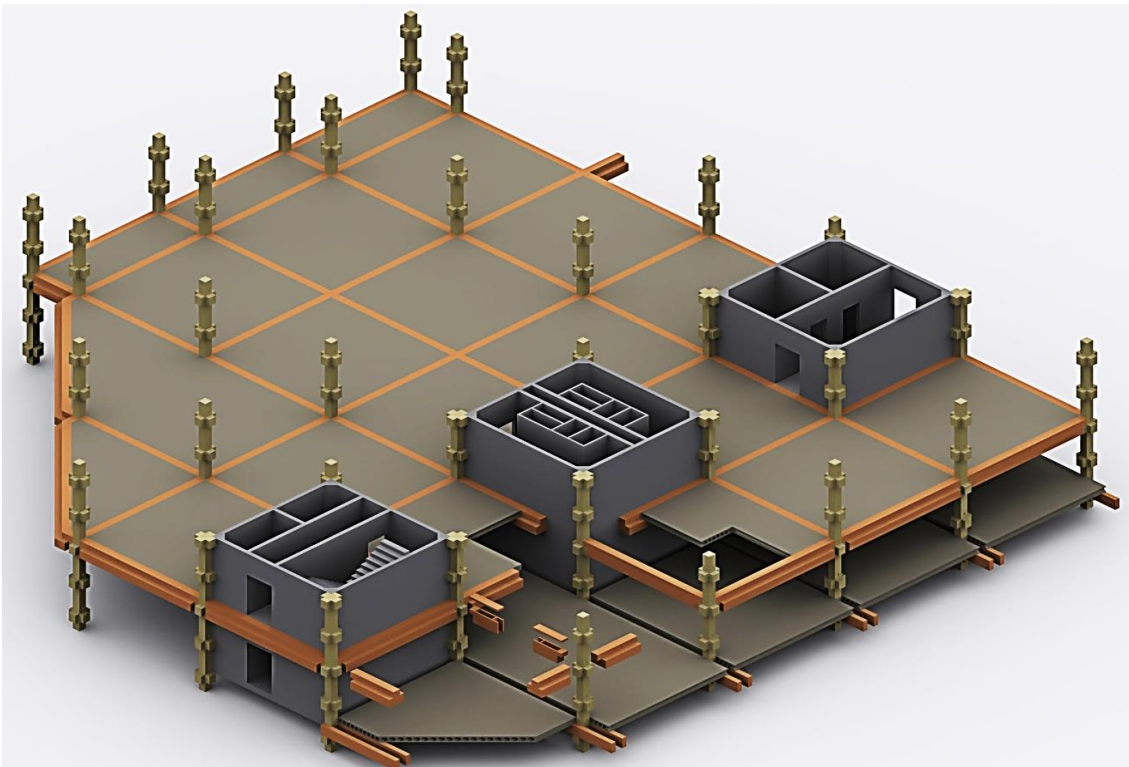
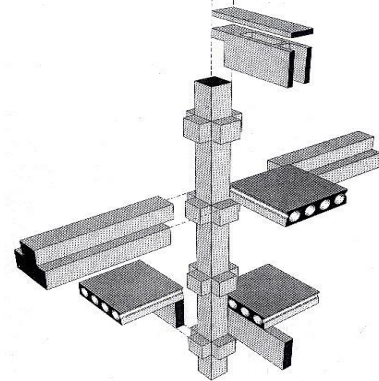
**Second Prize of the CLOCK-SCULPTURE Competition**

Intregation of a work of art at the main entrance of the Montreal Convention Center (1981-82)



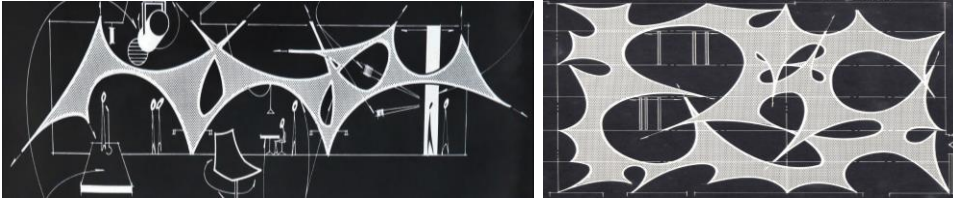
## DALAT Building

Restaurants and shops complex on President-Kennedy avenue in Montreal (1988).



## IFD System

Development of an Industrialised / Flexible / easy to Dismantle precast concrete post & beam system for institutional and commercial buildings, featuring the availability of cruciform corbels at each half-floor level. Bolted connections whereas the bracing is generated by twinning two 3D equipment blocks (7.2 X 3.6 meters each) within the structural grid (2007).



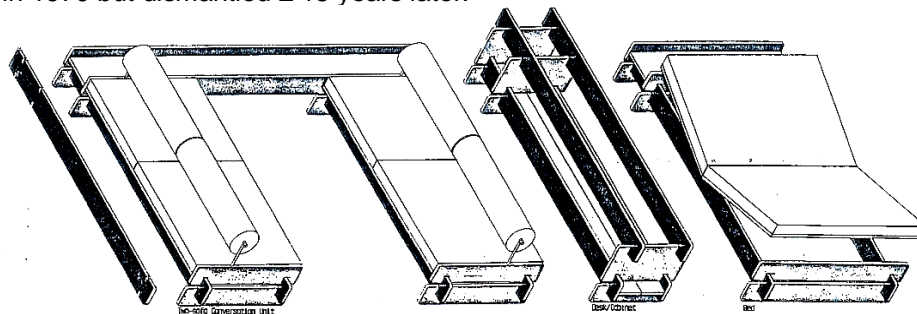
### **LA RÉSILLE, « boîte à chanson » at Laval University**

Design and assembly of a floor-to-ceiling nylon tensile structure at the Pollack Pavilion. Project selected from a closed competition, realized in 1966 but dismantled  $\pm$  7 years later.



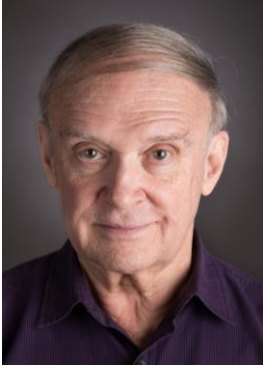
### **MURAL at the GTQ : foyer of the Octave-Crémazie hall**

Sequence of posters relating various performance arts events in Québec at the foyer of the experimental theater integrated in the Grand Théâtre of Quebec (GTQ). Designed and realized in 1970 but dismantled  $\pm$  15 years later.



### **ADAPTABLE FURNITURE System**

Wood furniture system based on the combinability of interchangeable longitudinal variables meeting a limited number of identical components on the transversal axis (1972).



## **Roger-Bruno RICHARD**

M.Arch. (UC Berkeley) / B.Arch. (U Laval) / B.A. (U of Sherbrooke). Registered Architect in Québec (OAQ) and Professor of Architecture at the *Université de Montréal* (teaching courses and residential design studios on industrialised building systems).

### **R&D**

His R&D activities are focusing on industrialised strategies & technologies capable of generating affordable high-quality architecture and providing adaptability without demolition. He is the author of technological and functional innovations including four “Load-Bearing Service Core” building systems, passive solar prototypes as well as large scale projects in North America, Africa and Asia.

Roger was invited at the University of Tokyo on a Research Fellowship from the Japan Society for the Promotion of Science (JSPS) in 2007 and at the University of Hong Kong as Visiting Researcher in 2015-2016. His Generic Classification of Industrialised Building Systems is recognised internationally and published in 4 key books on that topic.

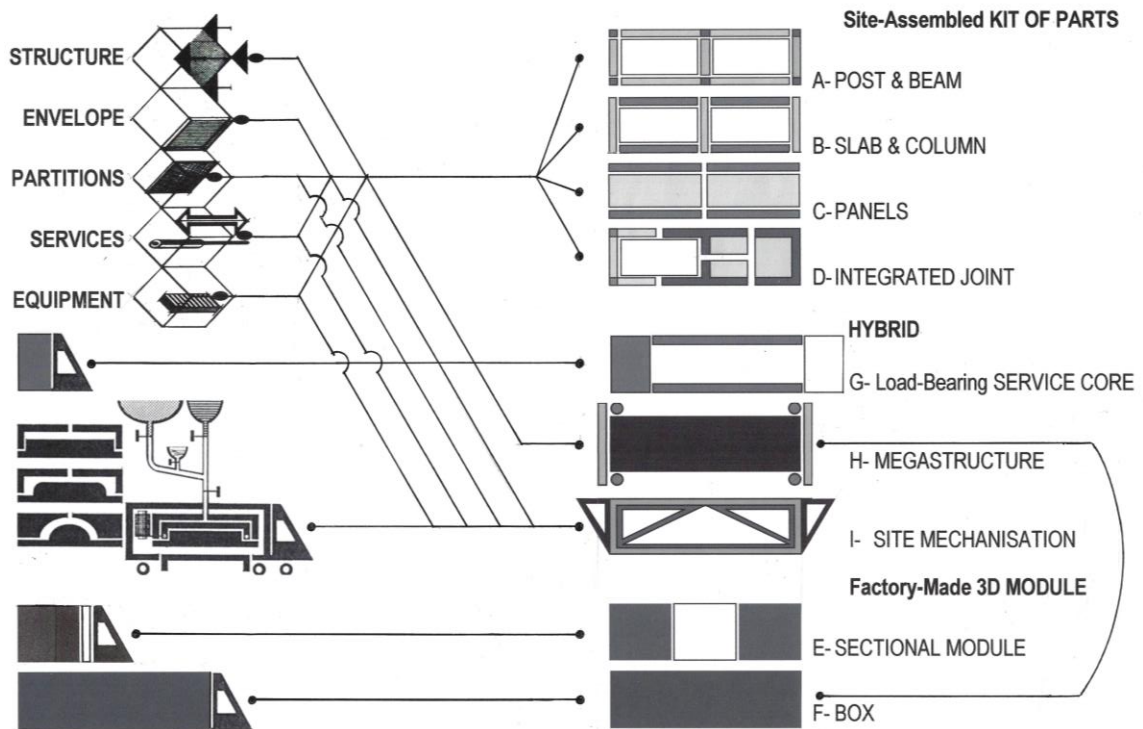
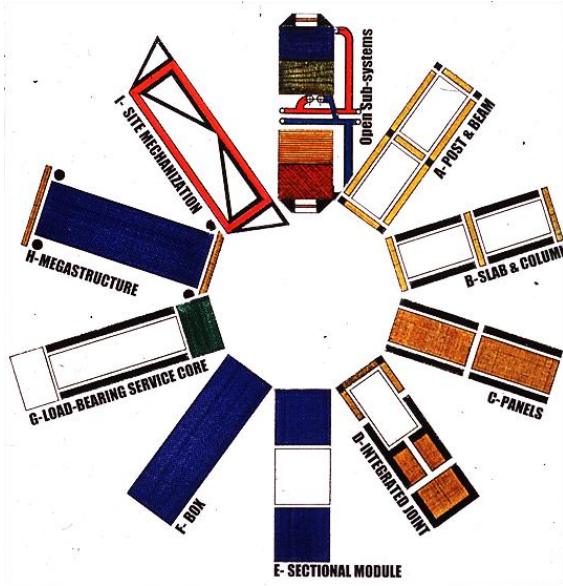
### **Academic activities**

Director of the School of Architecture at the *Université de Montréal* for a period of ten years (1989-99), he notably founded the Tryptic Studio and initiated the movement raising the professional education of architects at the Master level in Quebec. He chaired the Canadian Architectural Certification Board (CACB) in 1997-1998 and represented Canada on the Board of the Association of Collegiate Schools of Architecture (ACSA) in 1997-2000.

He also served as Associate Professor at Laval University (1971-76) and part-time Auxiliary Professor at McGill University (1976-89). He was Visiting Professor at Waseda University and Chongqing University as well as Visiting Scholar at the Polytechnic University of Hong Kong.

### **Collaboration**

Roger-Bruno Richard was the assistant of Victor Prus for the winning project of the RCAF Memorial Competition in Canada. He was in charge of the preliminary studies for the floor-ceiling and (in collaboration) the curtain wall sub-systems of the Place Desjardins office towers Montreal. He participated as consultant to several other architectural projects in Quebec and at the international level.



## GENERIC CLASSIFICATION OF INDUSTRIALISED BUILDING SYSTEMS

Generic classification based on the typology of the sub-systems together with the distribution of the work between the plant and the site; recognised internationally, notably in the following two books:

- Chapter IV-A of the book *NEW PERSPECTIVE IN INDUSTRIALISATION IN CONSTRUCTION – A State of the Art Report* ([www.irbnet.de/daten/iconda/CIB18177.pdf](http://www.irbnet.de/daten/iconda/CIB18177.pdf)) published in 2010 by the International Council for Research and Innovation in Building and Construction (CIB);
- First Chapter of the book *OFFSITE ARCHITECTURE: Constructing the Future* (Routledge, 2017).