



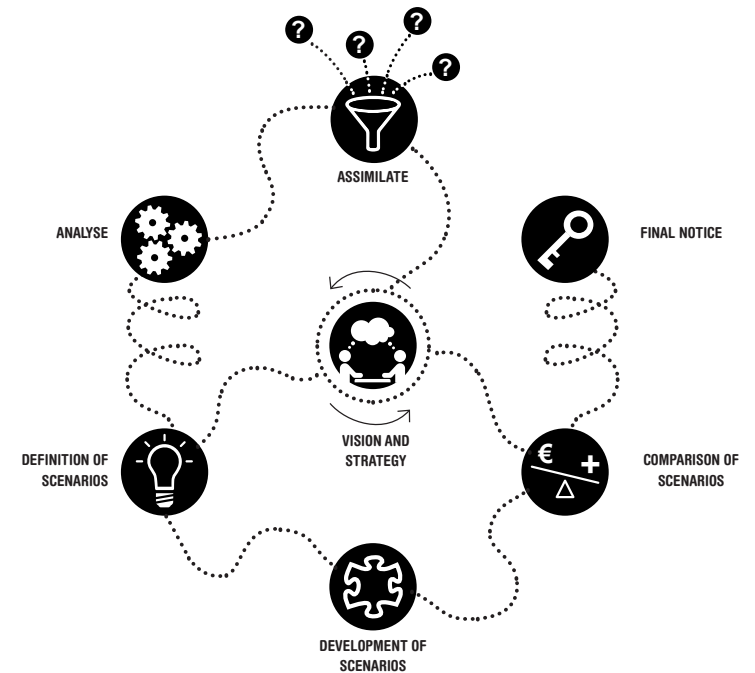
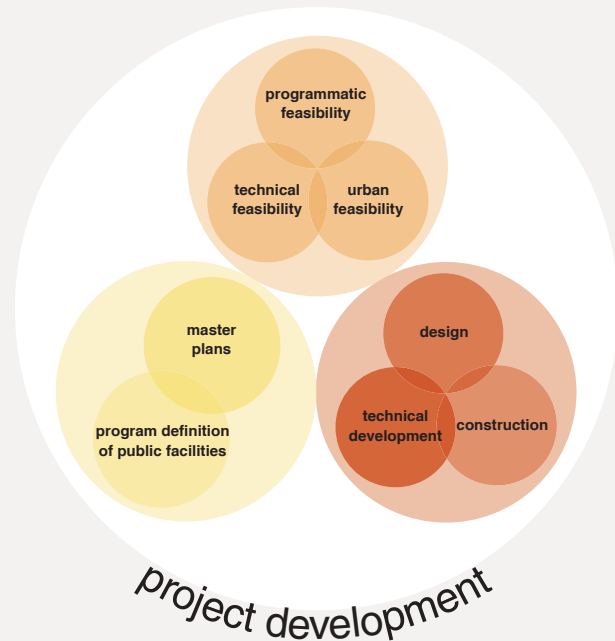
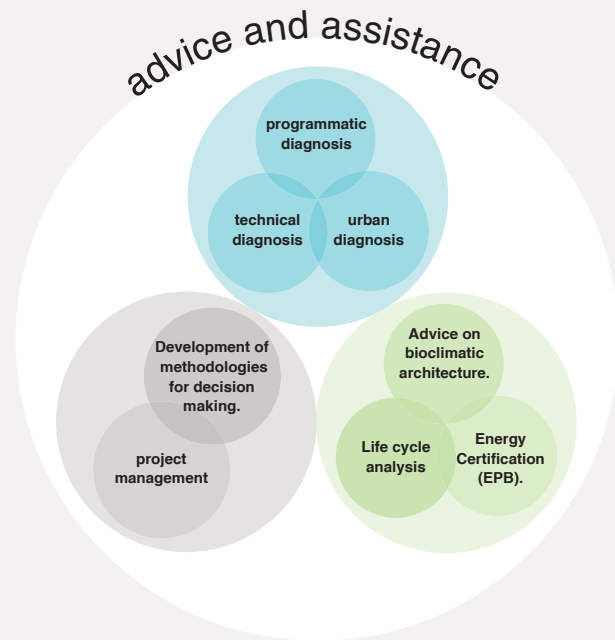
+ research
architecture & urbanism

Aalststraat 7-11 D2-10 B-1000 Brussel
+32 (0) 472 83 16 26 / +32 (0) 488 32 21 86
info@plus-research.com
www.plus-research.com



+ research architecture & urbanism is a collective based in Brussels which mobilizes since 2016 architects and urban planners with diverse fields of expertise and origins committed on reducing our impact on the planet.

Our priority is to give a second life to existing constructions and minimize the impact of the complete life cycle of new developments. The renovation, reconversion, reorganization, redevelopment for updating to current needs and, above all, future needs, are the key principles of our work. With a panoramic look to achieve the best results for the people and the environment, we support public authorities and developers in all phases of decision-making in an integral way, from defining an long-term master-planning to the execution of concrete projects an solutions.



Approach

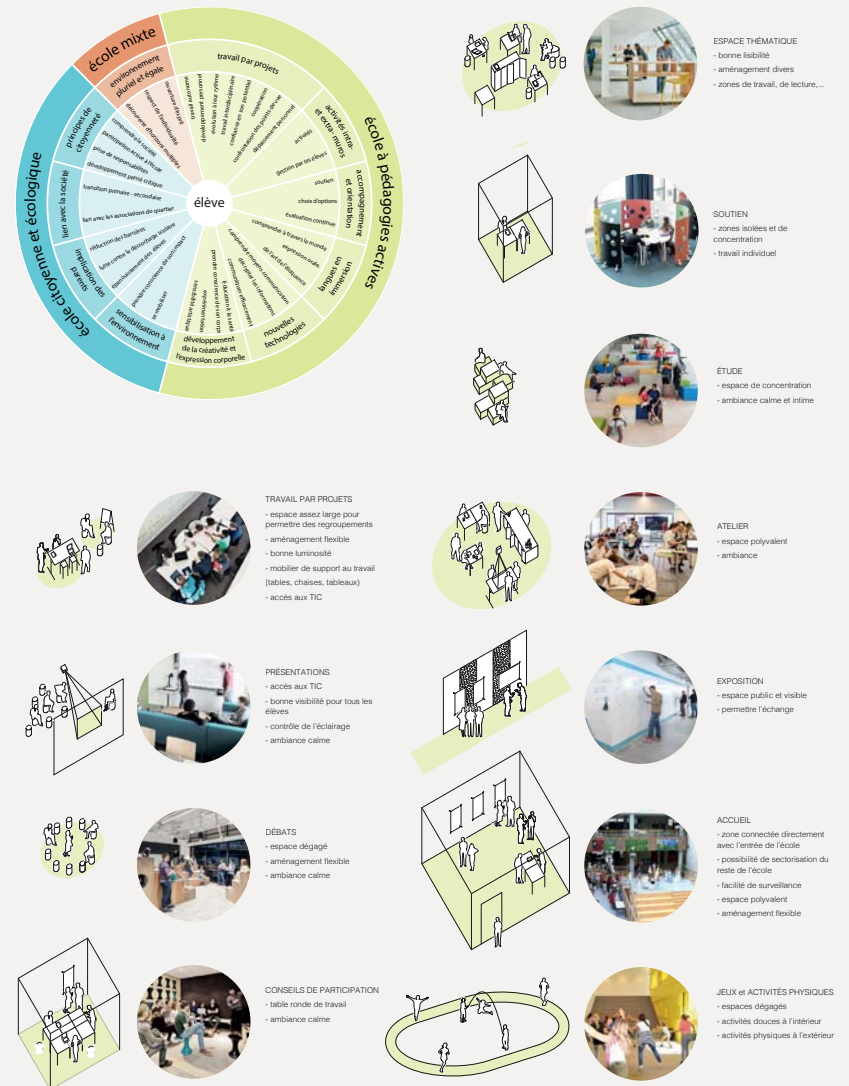
Our approach is research-oriented. In an exploratory phase, we examine the complexity of the specific context in order to target the principles for the development of the project.

Our working methodology starts with the analysis, which we carry out from data, interviews, and various indicators in cocreation with relevant partners and the concerned public. This forms the basis to determine the vision and strategy of the intervention. This analysis is followed by a «research by design» approach to define the best scenarios that meet the desired objective of the project. Through an open and inclusive process, the criteria of the analysis phase are translated into a spatial representation.

School approach

The question of the quality and organization of educational buildings and their urban integration are key in our professional experience and interests. Each member of the team provides their vision and knowledge to solve current school context issues by providing a comprehensive and comprehensive response, from urban planning to project design and construction:

- Multi-criteria assessment of the quality of school infrastructure
- School infrastructure planning and related developments
- Conceptual design
- Construction drawings and technical specifications
- Materialization
- Execution and management of the site



Spatial needs in response to the educational program of the Secondary School Maritime in Molenbeek.

Housing approach

We approach the issue of housing from several points of view: strategic studies to support the management of the built park on a territorial scale until the development of renovation and conversion projects. All this, from the small house, to collective housing, both public and private.

The habitat is re-questioned at each project to better meet the ever-changing needs of the households that inhabit it. But also to minimize the impact on the environment and adapt housing to current requirements, technical and normative (security, EPB, ...)

The economic accessibility to quality renovation by households and public managers is of particular concern to us. Long-term planning, phasing and overall cost analysis throughout the remaining life cycle are part of our projects and studies.

- Strategic evaluation and master planning
- Planning and phasing of renovation or reconversion interventions
- Planning Permit Application
- EPB advice and certification
- Project design
- Definition of technical specifications
- Materialization, management and site monitoring

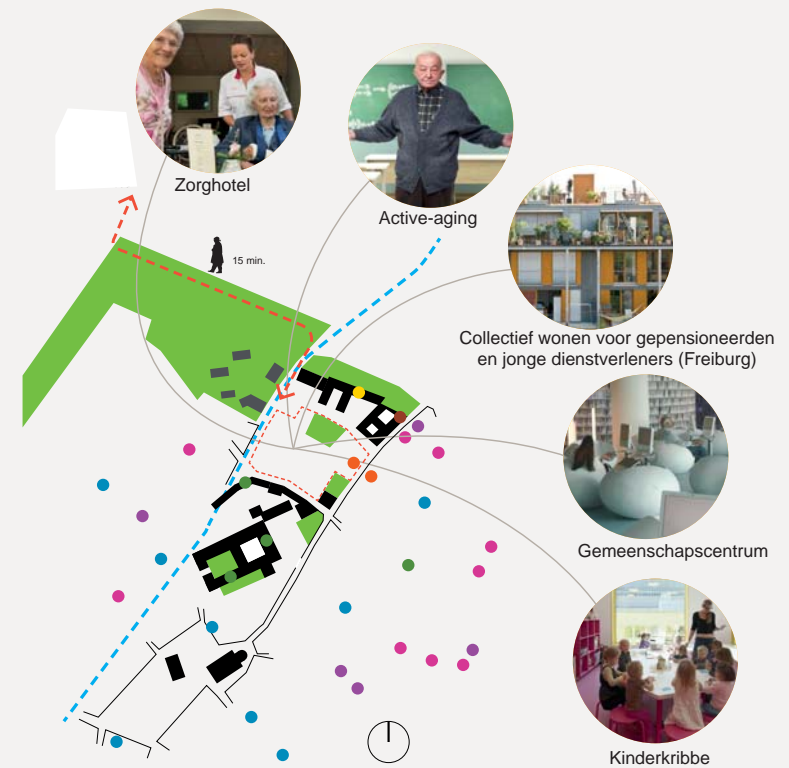


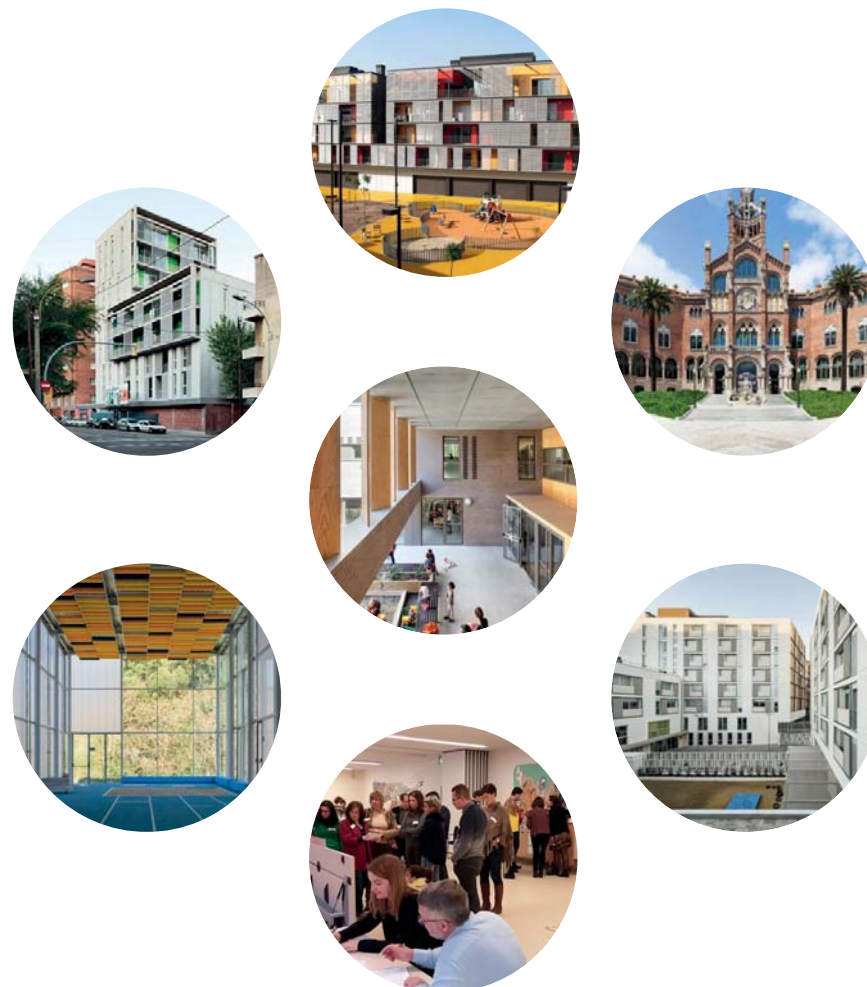
Diagram of the Sint-Anna Campus with housing and hospital program, Sint Truiden (BE)

Experience

As an extension of our construction, urban planning and academic research activities, we have joined our fields of expertise to approach projects in a holistic and integrated manner.

+ research has expertise in sustainable construction and renovation, based in particular on the design and implementation of school projects and other public and private infrastructures in Belgium and abroad. Our projects concern small to large scale infrastructures (crèche, schools, social housing, conservatory of music, conference centre, cultural centre and libraries, ...). We also have a good knowledge of the regulations of the construction sector (Flemish Region and Brussels-Capital Region), public procurement, as well as collaboration with government agencies and public-private partnerships.

One of our main pillars is the development of school projects where we have gained special experience in the analysis and organization of school infrastructures, the development of masterplans in urban development, as well as planning, design and the drafting of school architecture projects. The scope of our work extends from the micro level (pedagogical innovation integrated into a learning environment) to the macro level (vision of politics, spatial and strategic).



Images of our previous professional experience in the fellow offices
DDS+, onl arquitectura, Flexo arquitetura, Claus en Kaan architecten, aSZ architects et Irisarri Piñera architects.

the team



Marina Berbel

Ing. architect and urban planner (ETSAB, UPC), with over 10 years of experience in all phases of the design and construction process on various complex public and private projects realized in Belgium, Spain and Netherlands. By combining its thorough knowledge of all process stages with her experience from different countries she manages to come up with a fresh look to other insights. Her work includes the design and construction of social housing projects in Spain, international competitions and master plans in the Netherlands, large scale projects in Belgium and various schools and restoration of monuments (Hospital Sant Pau, Barcelona, UNESCO heritage) in Spain.



Maruxa Touceda

Ing. architect (ETSAB, UPC), PhD in Art de bâtir et urbanisme (ULB), masters in bioclimatic architecture and environment (ETSAM, UPM). Her background combines the experience in architecture offices in Barcelona and Paris with academic and applied research. She provides the team with her experience in developing assessment methodologies to assist guidance for decision-making when related to housing retrofitting, from a life cycle perspective. Her background in diverse fields of expertise provides her with the capacity to address the development of assessment methodologies through a panoramic view; from the dwelling conception and design or bioclimatic strategies in architecture and urbanism, to energy performance and technical requirements for high-performing renovation, eco construction, environmental and socioeconomic life cycle assessment, ...

Depending on the project, + research expands with other members, collaborators and consultants.

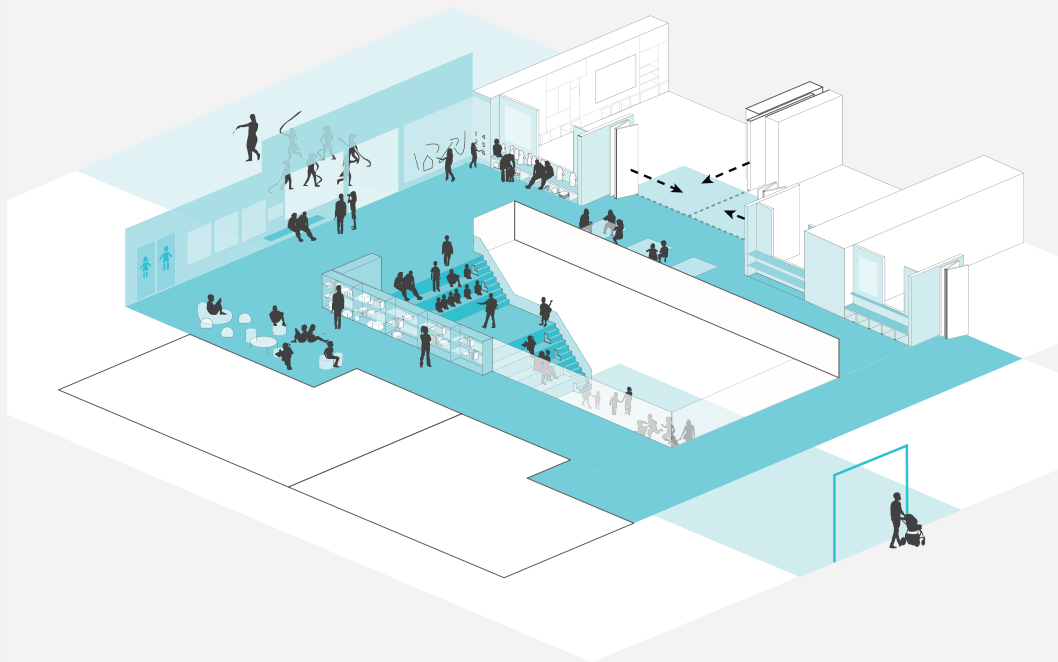


Diagram of circulation spaces for the Guide of quality spaces for ordinary basic education schools in the Brussels-Capital Region, Brussels (BE).

Project list

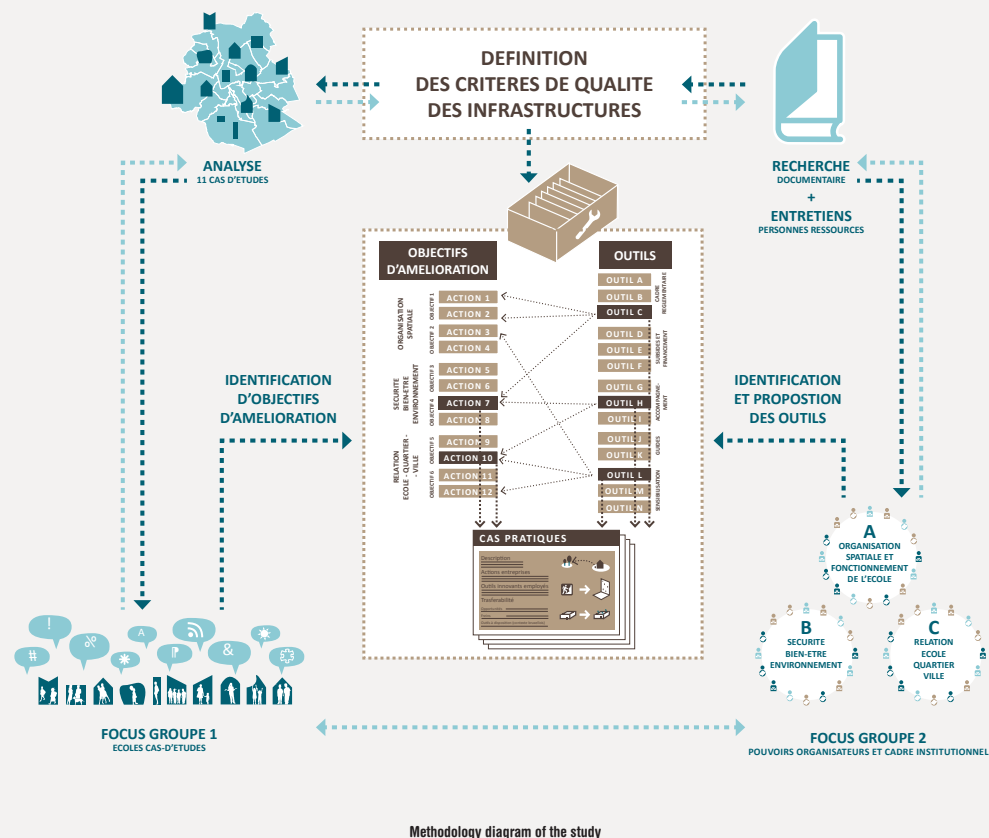
- 2018-
in progress **International analysis and proposal of a new regulatory framework for school and preschool infrastructure in Chile.**
External consultants for Bio-Bio University.
Client: Ministry of Education. Government of Chile.
- 2017-
in progress **Guide on quality school spaces for the schools of ordinary primary education in the Brussels-Capital Region**
Client: Department School Facilitator, Perspective Brussels.
- 2017-
in progress **Mission de programmation et de conseil en vue de la construction d'un bâtiment à destination de la Faculté d'Architecture.**
Commanditaire: Université Libre de Bruxelles.
- 2017-
in progress **Practice-oriented research into powerful learning environments in school buildings.**
Partner: Departement Lerarenopleiding (IDLO) van de VUB.
Client: Ministerie van Onderwijs en Vorming. Afdeling Strategische Beleids ondersteuning. Vlaamse overheid.
- 2017 **Huisje Woningent.**
Conceptual idea for the realization of a pavilion in the public space of social housing districts in Gent. 40 m2.
Client: Woningent
- 2017 **Secondary school Maritime, Molenbeek (BE)**
Competition for the refurbishment of an existing office building into a temporary secondary school in Molenbeek, Brussels. Client: Pouvoir organisateur Pluriel. Brussels.
- 2017 **Haalbaarheidsstudie voor het (her)ontwikkelen van projecten Bellefleurstraat, St. Bernadettewijk en A. Van Hoorebekehof**
Finalist at the competition. Client: Woningent
- 2016-17 **Study on the quality and sustainability of the infrastructure for primary schools in the Brussels-Capital Region.**
Client: Department School Facilitator, Perspective Brussels.

Study on the quality and sustainability of the infrastructure for primary schools in the Brussels-Capital Region.

Client: School Facilitator, Perspective Brussels. Brussels capital Region.
Year: 2016-2017

The quality of primary schools in Brussels is under pressure because of the increasing population, scarcity of places, and age of the infrastructures. In this framework, and within the 2025 strategy for Brussels, the School Facilitator of the Brussels Planning Office (Perspective Brussels) has commissioned in 2016 this study to +research, together with the Collectif Ipé. The objective of this study was to draw up an overview of the current situation of infrastructures regarding quality. This study led to the definition of a set of quality, context-specific criteria and to some recommendations for improvement, which constituted the main result.





The study has been developed in different phases. After the draw up of an exhaustive inventory of norms, guidelines and existing tools, we developed an observation methodology. The criteria covered addressed the following aspects:

- the functional and programmatic convenience in terms of organization, equipment, adaptability, and flexibility of spaces indoors, outdoors and interfaces like the entrance or the limits of the site.
- the security conditions of spaces indoors and outdoors (regarding fire, physical security, regarding asbestos, pollution of soil, etc.)
- the health and comfort conditions (thermal, acoustic, visual, air quality, hygiene) and accessibility
- environmental sustainability (related to energy, water consumption, biodiversity, waste management and materials)
- the opening-up of the school to the neighborhood, the relation and integration of the school with the urban environment (share of equipments, contribution to urban quality, mobility, etc.)

By participatory dynamics during the workshops organized, a toolbox could be build. This toolbox collects all the tools that exist to help improving the different aspects, including subsidies, guidelines, synergies and networks, etc.

The observation methodology developed and the toolbox for improvement constituted the main core of the study. These have been furtherly synthesized into an operational guide addressed to directions of schools, building managers or municipal authorities to evaluate the quality infrastructures, to identify weak points ant to outline ways to improve the situation.



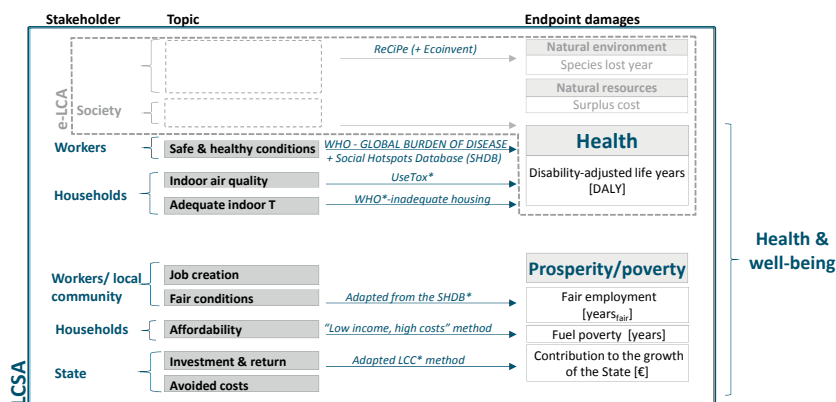
Implementation of socio-economic criteria in a life cycle assessment framework applied to housing retrofitting.

The Brussels-Capital Region case study.

PhD thesis in the art of building and urban planning, Université Libre de Bruxelles on the sustainability of housing renovations in the Brussels-Capital Region. (Year 2016)

In European policies, priority is given to energy and climate; it is assumed that positive social and socio-economic impacts linked to the renovation of housing are implicit, such as the reduction of the unemployment rate, the fight against poverty and social exclusion These impacts, however, need to be integrated into policies and instruments to promote renovation to ensure more sustainable development.

Life Cycle Assessment (LCA) is a consolidated methodology for analyzing environmental impacts; this work explores the possibility of quantifying socio-economic impacts within the same methodological framework. Thus, models are defined to quantify the impacts on the health of households, the risk of fuel poverty of the same, and the contribution to the economic development of the Region, associated with a renovation, of a life cycle perspective. The Lifecycle Sustainability Analysis (LCSA) makes it possible to consider environmental and socio-economic benefits in parallel in order to guide a potential adaptation to policies and instruments to encourage renovation according to certain scenarios that combine typologies of building, with housing conditions, and with the vulnerability of the household that inhabits it.



Characterization models of the proposed socio-economic impacts

Secondary school

«Maritime»

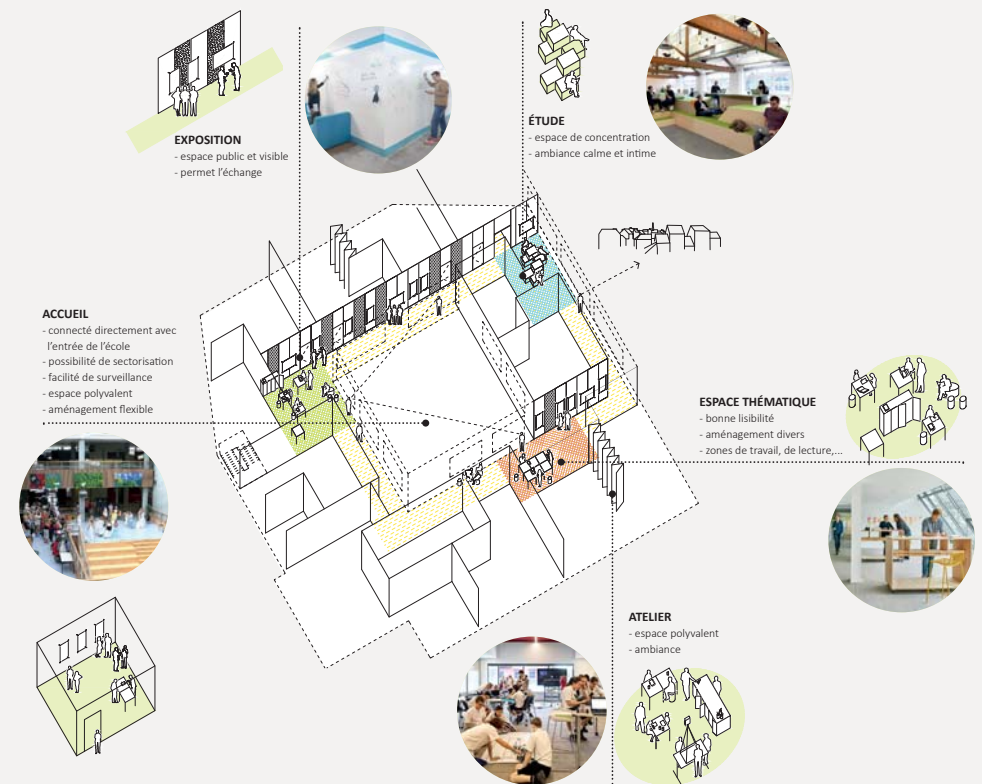
Competition for the refurbishment of an existing office building into a temporary secondary school in Molenbeek, Brussels

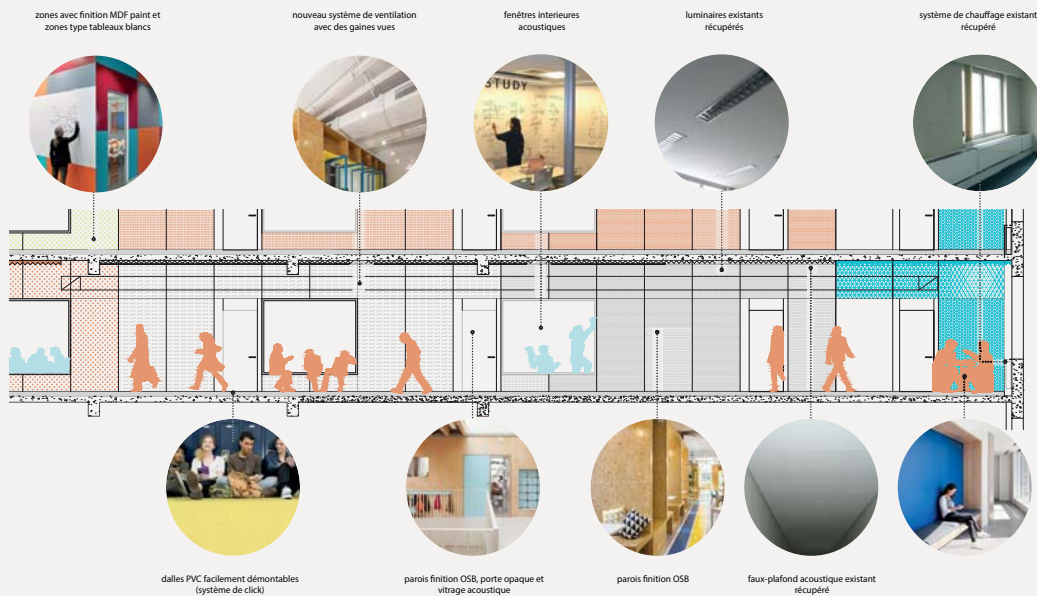
Client: Pouvoir organisateur Pluriel
Year: 2017
Finalists in the competition

The creation of this school involved an innovative character, pioneer on different aspects. The school network being plural, its pedagogic project is based on active pedagogies, focusing a social mix, connection hub between primary, secondary schools and parents.

Pedagogic project and space are deeply interrelated; the physical environment does not determine the living experiences but can facilitate and encourage interactions, personal development, or personal work.

A correctly designed learning environment favors the learning practices in a school where children are the main actors. Working in groups, presentations, debate, meetings, thematic spaces, workshops, exhibition, personal concentration, corporal expression, ... Every activity and pedagogical needs foreseen are related to the definition of spaces and of their articulations.





The work space

The traditional concept of "classroom" is not valid anymore in active pedagogies. Flexible, adaptable, connectable, articulated, ... the classroom stays an essential space in the organization of school.

« The space should be articulated in the sense that you are sort of protected but feel part of each other. It's a sort of balance between concentration on what you are doing and being part of the whole" (Hertzberger).

The "corridor », space for share and learning

In opposition to the traditional corridor, circulation spaces articulate life in the school, becoming streets and squares

"(...) instead of corridors you could make what I call a 'learning street' (...) You don't need large corridors for that reason anymore, but you can make nooks and places for people to sit and have tables there so that you get a 'learning street', like a shopping street" (Hertzberger)

Project intentions

The consideration of the pedagogical program, the spatial needs and the program defined are combined to characteristics of existing building. The rhythm of openings in the façade, structure or the typology of the central atrium, highly determine possibilities for intervention. The combination of these factors results in a sober spatial distribution, where spaces articulate in a clear manner.

An open and adaptable school, in evolution

Given the temporary nature of this intervention (3 years), every construction element is foreseen for a dry assembly (partitions, floor covering, etc.) and can be recovered for a future use in the definitive project of school. In a similar way, the facilities proposed (ventilation, lighting) are adapted to the future occupation, and adaptable to a different spatial organization. Quality of materials is of high-quality, to stay after the first two years. All of them can be integrated in the final project, in the same or in a different position.

Practice-oriented research into powerful learning environments in school buildings in Flanders.

Partner: Interfacultair Departement Lerarenopleiding (IDLO) van de Vrije Universiteit Brussel (VUB).

Client: Ministerie van Onderwijs en Vorming. Afdeling Strategische Beleidsondersteuning. Vlaamse overheid.

Year: 2017 – in process

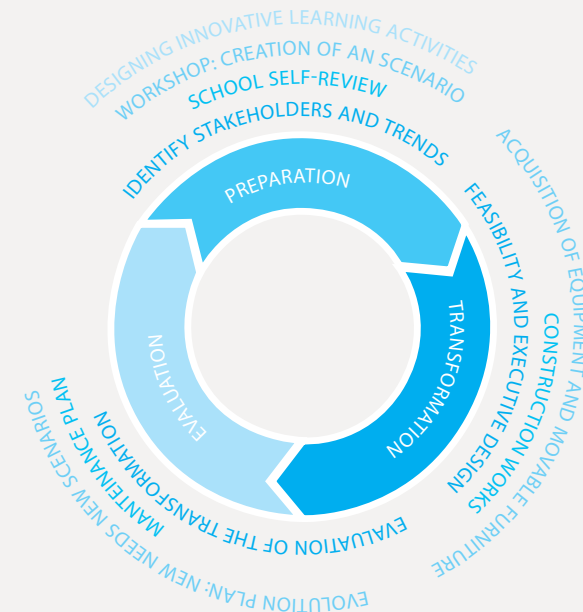
"You can't expect children to learn 21st-century skills in schools built for the 1950s. We need schools designed for 21st-century success." » (Chad P. Wick, head of the Knowledge Works Foundation)

Which schools do we need in the 21st century? What should future learning environments look like? What is the place for 'traditional' classrooms? Which competences are important to prepare students for a rapidly changing society? Such questions are central in the current education debate. In July 2015, the Flemish Government approved the concept memorandum of the Masterplan Scholenbouw: 'Building together a stronger school heritage'. The aim is to adapt the physical learning environment to the educational challenges and learning styles that characterize the 21st century. Education is often expected to teach the necessary knowledge and skills to function in this new society to its pupils; the whole of these skills is described as 21st century skills.

The Onderwijs en Vorming (Education and Training) department of Flanders has commissioned to the partnership of Vrije Universiteit Brussel and + ReseARCH the project "krachtige fysieke leeromgevingen voor de 21ste eeuw".

The aim of this project is to explore how the physical learning environment can be used as optimally and flexibly as possible to provide an answer to these changing educational needs, to stimulate the development of these 21st century skills, and what should be considered at the school level.

TRANSFORMATION PROCESS



The main result of this project will be an operational, inspirational guide that can serve as an instrument for shaping powerful physical learning environments for the 21st century in existing schools.

This guide presents several proposals, practical solution, best practices, complemented with the corresponding success conditions, and illustrated with real cases (in Belgium and abroad) that can be applied within the Flemish context, and on which the school team can base their discussions. The proposal will inspire and sensitize architects, principals, building managers, etc. on low-cost, high-impact transformations tailored to their needs, within the framework and limitations of the physical and financial norms. The guide also provides guidance on the risks and threatens to ensure a successful result.

Guide for quality primary school infrastructures in the Brussels-Capital Region

Client: School Facilitator, Perspective Brussels. Brussels capital Region.
Year: 2017 – in process

The guide is a tool to provide guidance on decision-making. It asks the right questions to identify weaknesses in existing schools and to define the priorities for action and investment. It also identifies where a school can act to improve the quality of its built and outdoor spaces as well as to improve the integration with the neighborhood and the city.

Definition of priorities

The Guide thus helps to identify, based on a «complete» diagnosis, actions related to school spaces. In some cases, these priorities correspond to «absolute» or obvious emergencies. This is the case, for example, when an indicator relating to security proves to be seriously problematic. In other cases, these are more related to the mismatch between certain characteristics of the school infrastructure and the educational choices of the school. A school that would highlight the interest of working by groups of different ages and that would have no space for this type of teaching practice in good comfort or a school wishing to develop the use of ICT, but not having the necessary technical conditions (cabling, network access, etc.) could consider these situations as priorities.

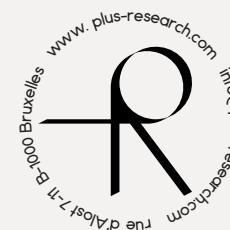


Inspire the action

Based on the defined priorities, an action plan can be outlined, including projects of diverse nature ranging from heavy and structural interventions to management or measures to increase awareness. The guide also provides the documentary resources necessary to refine the diagnosis and to define project paths.

Dialogue with other actors

The guide can be a support for discussions between the actors of the school (users, educational managers, administrative staff, technical staff, etc.) and external (common, associations from the neighborhood, regional services, etc.) For example, if the school does not have a direct grip on the public spaces that surround it, it can use the criteria related to it in the guide to interact with the communal and regional services concerned.



Aalststraat 7-11 D2-10 B-1000 Brussel
 +32 (0) 472 83 16 26 / +32 (0) 488 32 21 86
 info@plus-research.com
 www.plus-research.com