20\textsuperscript{th} Century Architecture, Project Material for the 21\textsuperscript{st} Century Sustainable City
Multi-year research program 2016-2020

In partnership with the Ministry for Ecological and Solidary Transition, the Ministry of Territorial Cohesion and Relations with Local Authorities, in cooperation with the Plan Urbanisme Construction Architecture (PUCA), the National Agency for Urban Renewal, the Caisse des dépôts et consignations and the Union Sociale pour l’Habitat

Call for Research Proposals, Report 2016, 2017 and 2018 Sessions
Multi-year research program 2016-2020
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Call for Research Proposals, Report
2016, 2017 and 2018 Sessions
EXTERNAL EXPERTS

Benno Carre, Architect
Anne-Marie Chabot, Historian, Full Professor at ENSA Strasbourg
Vincen Cass, Architect, Associate Professor at ENSA Paris-La Villette (since June 2019)
Michel Geoffroy, Chief Architect of Historical Monuments (until December 2018)
Franz Graf, Architect, Full Professor at the Swiss Federal Institute of Technology in Lausanne (EPFL), Full Professor at the University of Genoa, with the Division of the Cité de l’architecture et du patrimoine (since May 2019)

EXPERTS APPOINTED BY INSTITUTIONAL PARTNERS

Nicola Clément, Responsible for the Section on Operational Support and Capitalization (PAO), Division of Stakeholder Strategy and Support at the ANRU (until April 2019)

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Foreword

Agnès Vince
Director of Architecture
Deputy to the General Director for Heritage, Ministry of Culture (2014-2019)

Our cities are primarily comprised of spaces built during the twentieth century, the heritage importance of which is still to be acknowledged. We owe it to past and future generations to consider the values of this heritage in view of its envisaged transformation, particularly in terms of energy and ecological transition as well as changes in usage and lifestyle. The recognition of these values, whether cultural, social or technical, is far from being achieved. Nevertheless, it is in light of these values and the adaptability of inherited architecture that expectations of residents must be met in order to generate a better quality of life.

As part of its policy on architecture, the Ministry of Culture has been supporting and carrying out numerous initiatives to promote the awareness, knowledge, valorization and qualitative transformation of these twentieth century buildings, encouraging architects to respond to the growing demand for interventions on this recent heritage — which has been fully integrated into the National Strategy for Architecture since 2013, as well as the Multiannual Strategy for Heritage since 2017.

Regarding the architects, both the stakes and the expectations are high. Now more than ever, it is their responsibility to assert and develop their skills and expertise in order to ensure the evolution and transformation of existing buildings, vis-à-vis decision-makers and local actors, both private or public.

This year marks the twentieth anniversary of the “20th Century Architecture” certification, which was replaced by the “Remarkable Contemporary Architecture” certification under the Law on Freedom of Creation, Architecture and Heritage (LCAP law of 2016). Today, this has led to the establishment of a national certification deployment committee, a device to promote the certification’s recognition and use, itself a suitable tool for raising awareness, diffusing knowledge, as well as analyzing and supporting the inevitable transformations of architecture that is manifest, in one way or another.

At a time when major reform is being carried out within the National Graduate Schools of Architecture (ENSA) throughout France — defining the status of their faculty members and encouraging a beneficial alliance between education, research and professional practices — a priority is to develop architectural expertise in existing building intervention. In each school, this materializes through the implementation of new or renewed heritage curriculum, starting with first year undergraduate students.

In order to highlight innovative pedagogical and scientific practices, symposiums within ENSA establishments will take place in 2020 surrounding the topic of transformation conditions for twentieth century architecture. One of the main actors will be the educational and research network backed by the Ministry of Culture, “Architecture, Heritage and Creation”, which has been gathering relevant faculty members within different schools since January 1st, 2018.

The research program, “20th Century Architecture, Project Material for the 21st Century Sustainable City”, is part of the incentive-based research policy that has been led by the Ministry of Culture since 2002. These multi-year programs give way to calls for research proposals intended for ENSA establishments and their respective research labs, aiming for renewed questions with regard to current challenges and necessary methodological and practical evolutions, whether scientific, educational or professional.

The research project currently underway has a resolutely operational aim. Its primary objective is the development of tools for understanding, diagnosing and evaluating buildings (functional values, spatial, architectural, construction, urban, landscape qualities, etc.) to best support decision-making and transformation processes.

In this brochure, the presentation of thirteen multidisciplinary research projects funded by the Ministry of Culture offers an overview of a wide range of topics, reference corpuses, as well as implementation methods and partnerships, additionally defining the educational components and operational targets of each research team.

The challenge of this research program is the diffusion and appropriation of the research by relevant academic, scientific and technical circles; that is, actors on the ground, local authorities, external and decentralized state services, public or private developers, along with all of the professionals involved in the act of building, for whom the development of expertise relies on experimentation and innovation now more than ever.

I thank the members of this program’s Steering Committee and Scientific Committee for their dedication to these efforts.
Introduction

Frédéric Gaston
Deputy Director of Higher Education and Research in Architecture, General Directorate for Heritage, Department of Architecture, Ministry of Culture

The multi-year research program launched in 2016 by the Ministry of Culture, “20th Century Architecture, Project Material for the 21st Century Sustainable City”, is situated at the heart of a scientific policy that is strongly committed to architecture. Incentivizing in nature, it follows in the footsteps of the major calls for targeted research proposals regularly developed by the Department of Architecture over the last fifteen years, covering themes necessary for disciplinary renewal. In terms of scientific value, it first assembles the knowledge, methods and expertise of the faculty members within the National Graduate Schools of Architecture (and Landscape Design) (ENSA(P)) throughout France, serving public policy that embraces the overall shared challenges of professional and socio-economic circles. The field of architectural education – both initial training and professional development – along with support for all the actors of our lived environment lie at the intersection of the program’s scientific and operational aims. The strategic framework is thus defined by a virtuous circle of beneficial interaction between architectural education, research and profession.

Through present and future lenses, the subject of our inhabited built heritage and its transformation summons all of these dimensions and fields, concerning residents, regions and institutions. Within its governance and the definition of its objectives, this program thus joins together key partners in France, such as the Ministry for Ecological and Solidary Transition, the Ministry of Territorial Cohesion and Relations with Local Authorities, the Union Sociale pour l’Habitat, the Caisse des dépôts et consignations, the National Agency for Urban Renewal along with the Plan Urbanisme Construction Architecture (PUCA) and its program to requalify residential properties to achieve high energy performance (REHA). The interdisciplinary, partnership-based nature of the research projects supported by this program is therefore indispensable; which is ultimately why these scientific works are accordingly coupled with both theoretical and applied teachings, in real time and within educational establishments.

This brochure presents the contents of the research program, along with the thirteen research projects selected for funding. Three calls for research proposals were successively released among faculty members of ENSA(P) in 2016, 2017 and 2018. Each of these calls for proposals received a response of about fifteen proposal applications, demonstrating the interest and expectations of the scientific community regarding this priority issue.

The Ministry of Culture organizes a working seminar on an annual basis, bringing together the financed research teams, the Steering Committee and the Scientific Committee of the program. These sessions contribute to forging a shared culture on this topic, stimulating collaboration between teams and encouraging the involvement of experts and partners in its contents over the long term. A biannual conference is organized conjointly by the Ministry of Culture and one of the ENSA establishments delegated to a research project. These conferences allow for periods of exchange and intersecting debate between decision makers, actors on the ground and relevant professional circles. Furthermore, experts that are recognized in the field of architecture and heritage contribute to informing a regular dialogue with partner institutions and research teams.

RESEARCH TEAMS AND PARTNERSHIPS

Twelve ENSA establishments are delegated to a research project within this program, thus mobilizing more than half of the thirty-seven research labs of these establishments, along with teams comprised of faculty members and doctoral candidates. Each team assembles academic, scientific, educational and professional expertise within an interdisciplinary framework representative of the training of architects. Their principal investigators teach in a diverse range of disciplinary fields, such as History and Culture of Architecture, Theories and Practices of Architectural and Urban Design, City and Territory, Social and Human Sciences for Architecture, Sciences and Techniques for Architecture as well as Arts and Techniques of Representation. Partners include faculty members from several universities, two of which are foreign-based. Almost ten doctoral candidates play an important role, some of whom are funded through doctoral contracts from the Ministry of Culture, others supported by Industrial Contracts for Training Through Research (CIFRE Convention) within an architectural office. Three French architecture offices are stakeholders and two research projects rely on an architectural teaching and research partnership chair, certified by the Ministry of Culture.

The work of the research teams confronts concrete issues and case studies, working closely with the Regional Directorates for Cultural Affairs (DRAC), the Councils of Architecture Urban Planning and the Environment (CAUE), the Public Housing Offices (OPH) and local authorities (regions, metropolitan areas or cities). Close and lasting connections are thus forged with local partners who are on the front lines of research topics and fields.
Several projects involve housing associations, condominums, union councils or real estate agencies. Public archive centers are also present (National Archives, 20th Century Architectural Archives Center, archival records of national departments, public institutions, local authorities), as well as private archives (architect’s archives, in particular). Engineering consultants, experts as well as industrial or building companies are often engaged. Two research projects concerning regions that are in economic decline exemplify the strong implication of local authorities and associative or socio-economic actors.

In the calls for research proposals, partnerships are encouraged amongst team members, decision makers, local actors, developers, designers and companies alike. This reflects a significant progression in the merging of the scientific, socio-economic and political worlds, attesting to the growing importance for the recognition of faculty member expertise in their respective fields and territories.

**CORPUS TYPES AND DIVERSITY OF HERITAGE CHALLENGES**

Although the research program primarily focuses on collective housing, it also integrates other types of buildings, such as public facilities (schools, hospitals, cultural buildings) or individual housing in urban outskirts, in order to embrace the typological and technical diversity of twentieth century architectural heritage. In each case, the question of their development in the face of energy challenges or lifestyle changes is asked with the same level of urgency. Moreover, these subjects are examined at larger scales that determine urban areas with socio-spatial or functional coherence.

The large construction output of the post-war period legitimizes a distinct appetite and mobilization amongst the teams; that is, most of the buildings in question date from the 1950s to the 1970s, incorporating subsequent transformation cycles where appropriate. Certain teams work on a vast body of references that, through a statistical approach, allow for the identification of patterns and reoccurrences along with the creation of adaptation processes for building models worth rejecting. In contrast, others concentrate on a unique or exemplary fragment that is particularly sensitive to future adaptations.

Heritage value characterizes this architecture to varying degrees. Seven buildings or sites certified as “Remarkable Contemporary Architectural Heritage” (ACRH by the Ministry of Culture) are present within the selected corpus. Many of the buildings within the corpus are the works of renowned architects, such as Alvar Aalto, Oscar Niemeyer, Jean Prouvé, Antoine Stinco or André Wogenscky. Several of the research projects concentrate on more modest or common buildings. In every case, however, the results of the research must be able to form groundbreaking processes and recommendations, along with transformation principles for preserving specific characteristics and initial qualities of these manifest or ordinary pieces of heritage.

**RESEARCH METHODOLOGY, INTEGRATION OF SOCIETAL CHALLENGES AND ECOLOGICAL TRANSITION**

Appropriate research protocols are necessary in order to respond to the variety of corpuses, work scales and actors involved. In addition to being necessary prerequisites for carrying out fully informed outputs, archival compolation along with quantitative and qualitative data collection are also material to empirical and practical teachings. Historical and technical analyses, fieldwork and reasoned diagnoses thus rely upon these multiple objective resources.

In accordance with the challenges of the program, all of the research projects seek to analyze the cultural, social and technical values of these twentieth century buildings, building the requirements for energy and ecological transition, as well as socio-economic and demographic changes. Examples of the working methods developed by the teams include: identifying new research instruments, cross referencing others in a reason reunited and unprecedented way, in order to carry out an evaluation that better appreciates building qualities and their ability to evolve; integrating living practices and revealing the memories and expectations of residents; re-investigating doctrines and paradigms of the modern period in terms of living as well as innovation in architectural design and technical procedures.

The projects funded within this program attest to a real diversification of scientific practices: action-based research, project-based research or experimentation are additional forms of research implemented by the teams; some of which have been incorporated at the earliest stages of research project dynamics currently underway, supporting them over time.

**EDUCATIONAL COMPONENTS AND OPERATIONAL TARGETS**

The expected educational components of the research projects within this program are strategic, at a time when the Ministry of Culture wishes to reinforce the teachings at various ENSA establishments with course material on existing building intervention and, to this end, update pedagogical practices. For this reason, the teams take hold of the challenges of interdisciplinary teaching on the subject, combining research project practice, lecture course teachings, research seminars, technical experiences, interactions with territories and their actors, and so on. This dynamic contributes to educating future architecture graduates with a solid comprehension of the socio-economic context of the past and the future.

The teachings linked to this research occur primarily during the Master’s trajectory, sometimes including final degree projects and contributing to the advancement of research or dissertations within ENSA establishments, as well as continuous trainings open to all professionals. Some of the teams also propose daily dedicated to feedback, awareness and training sessions for local actors and professionals.

One of the necessary conditions for this is a careful and reasoned exploration of characteristics, qualities and potentials of twentieth century architecture; which favors the creation of intervention strategies that respect this heritage along with its social and cultural values. The research within this program intends to respond to the expectations of developers, condominium associations and property owners, along with social housing organizations, technical services of local authorities and even engineers and builders.

In terms of its operational objectives, revealing the potential for transformation, informing political and technical decisions and proposing L1 scale test are among the expectations of this program. Specific analysis grids, new indicators, good practice or pre-project guidebooks, specifications, hypothesis simulations, demonstrator or prototype design projects, are all tools developed by the research teams to be used by institutions and professionals involved in the management and transformation of this twentieth century heritage.

Due to the necessary safeguarding of the values of twentieth century architecture, inevitably destined for transformation, the Ministry of Culture has been forced to set up an ambitious method for the evaluation and dissemination of the research results of this program. Its Steering Committee and its Scientific Committee will be responsible for putting forth innovative and daring proposals, commensurate with the threats that weigh and multiply on this heritage. The main objective of this program is thus for the diffusion of research results beyond the scientific and educational arenas, making them accessible to a wider public, embraced by professionals and residents and transferable to other types of buildings or situations. Each research project also presents its own operational aim and justifies a specific valorization method depending on whether it addresses a particular professional circle, thus transmitting detailed, context-specific recommendations, identifying unique levers and offering its own decision-making tools.

Finally, it should be noted that this research can only be carried out over the long term. Often initiated before the Ministry of Culture’s research proposals, the hope is that the research will find simultaneous and future methods for elaborating upon this program and that it be widely accepted, encouraging other research and teaching as well as attracting more students. The possibilities for these subjects are tremendous.

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1. Histoire et culture architecturales (ECSA). Théorie et pratiques de la conception architecturale urbaine et rurale (TCPUR), Ville et territoire (VT), Scénes humaines et sociales pour l’architecture (SHSA), Sciences et techniques pour l’architecture (STSA). Arts et techniques de la rénovation (ATR)

2. Among the twenty ENSA establishments under the authority of the Ministry of Culture, two also offer degrees in landscape design.

3. Architecture, only the last call for proposals (2020) is equipped with the indication of significant changes compared to previous calls for proposals. All of the calls for proposals are accessible at: http://www.culture.gouv.fr/Thematiques/Architecture/Formations-Recherche-Metiers/la-recherche-architecturale-urbaine-et-rurale/organisation-de-la-recherche/la-politique-incentive-a-la-recherche.

4. In 2018, the conference “Living in buildings from the 19th century to 2017 in the 21st century: Priorities, realities and adaptations” co-organized with ENSA Saint-Etienne, took place in Firminy. The final conference will be held in 2022.

5. ‘Habitat of the future’ Chair, supported by the four ENSA establishments from the Auvergne-Rhône-Alpes Region.

6. The entire program may be consulted at: http://www.culture.gouv.fr/Thematiques/Architecture/Formations-Recherche-Metiers/la-recherche-architecturale-urbaine-et-rurale/organisation-de-la-recherche/la-politique-incentive-a-la-recherche/

7. For the research, visit the website of Plan Urbanisme Construction (PUC) (the Ministry for Ecology and Solidarity Transition, the Ministry of Territorial Cohesion and Relations with Local Authorities and the Ministry of Culture). Jean-Bernard Committee (ed.). Valérie Balducchi (assos). Formez les architectes: Enseignements après-courses et programmes pour une à la réhabilitation. Higher and professional teachings. ENSA Normandie and Points de deux éditions, 2018, 216 pages.
Twentieth century building heritage, particularly that constructed after 1945, constitutes a major part of our urban fabric. Exhibiting great diversity in terms of typology and construction, it allows us to envision multiple strategies for its adaptation, transformation, restoration, recycle and reuse. Moreover, it represents an important source of energy savings, in addition to being a resource for property, space, economy, identity and culture, all of which can be mobilized by various architectural and planning actors.

The research program, “20th Century Architecture, Project Material for the 21st Century Sustainable City”, aims to produce innovative intervention strategies and processes for adapted design projects, allowing for the development of meaningful responses to major societal challenges brought about by global change and ecological transition.

The Ministry of Culture’s research program is conjointly supported by the Ministry for Ecological and Solidary Transition and the Ministry of Territorial Cohesion and Relations with Local Authorities, in cooperation with the Caisse des dépôts et consignations, the Union Sociale pour l’Habitat, the National Agency for Urban Renewal along with the Plan Urbanisme Construction Architecture (REHA Program).

Corresponding to the national policy in favor of sustainable urban and regional development, the aim is to support research projects that investigate the capacity of twentieth century architecture — an architectural and urban heritage that constitutes an essential part of our living environment — to shape the sustainable city and integrate challenges associated with its adaptation, transformation, restoration and valorization.

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A RESEARCH PROGRAM THAT Responds to the Priority Issues of the Ministry of Culture

The Stratégie nationale pour l’architecture of 2015 (The National Strategy for Architecture, SNA) is an effective tool serving to provide architectural policy with a fresh impetus, treating twentieth century architectural heritage and existing building intervention as strategic areas of focus for the initial training and professional development of architects. As such, it reinforces the need for close cooperation between education, research and profession, identifies existing buildings as a priority intervention sphere for planning and living environment professionals, and reaffirms the cultural value of this architecture.

Loi n°2016-925 du 7 juillet 2016 relative à la liberté de la création, à l’architecture et au patrimoine (Law n°2016-925 of July 7, 2016, on Freedom of Creation, Architecture and Heritage (LCAP), includes a section on architectural quality promotion, particularly through the “Remarkable Contemporary Architecture” certification, created by its Article 78 and Decree n°2017-433 of March 28, 2017. This certification distinguishes itself from the former “Twentieth Century Heritage” certification in several regards, including buildings or developments built less than one hundred years ago with the consideration that their heritage value and interest evolve alongside perception, thus requiring some hindsight. Historical monuments, whether classified or registered, are excluded from this certification.

The Stratégie pluriannuelle en faveur du patrimoine (the Multi-Year Strategy in Favor of Heritage1, 2017) highlights necessary areas for evolution in the professional training of those who play a role in the heritage sector. This is especially the case for architects, in order to better account for new challenges in regional revitalization, sustainable development or even public mediation. Based on the assessment of the initial training of architecture students, insufficiently focused on existing buildings, it consolidates the SNA, making it a strategic developmental area for the initial training and professional development of architects.

* Announced in 2016 this strategy is only mentioned in this program’s third call for research project proposals.
The Plan Urbanisme Construction Architecture Programme REHA (PUC’s REHA experimentation program) supports developments for a major rehabilitation of the housing stock — especially social housing — from an environmental, economic and social perspective, with the idea of stimulating a new heritage culture. It therefore pursues the following objectives: to demonstrate the interest in undertaking ambitious interventions that meet performance standards of new constructions in terms of energy, environment and comfort, thus presenting sustainable solutions for long-term urban overload; to support innovation by guiding the development of technical and architectural solutions that are proactive, adaptive and low carbon; to develop facilitating tools to assemble these operations from a technical, financial, contractual and legal point of view.

An innovation policy in support of architecture and landscape was defined by the Caisse des dépôts et consignations within the context of the National Strategy for Architecture. The launch of an annual call for research and innovation proposals in the field of architectural and landscape design thus aims to promote the renewal of education and research practices, encouraging collaboration between faculty members and professionals so that the resulting theoretical, technical or methodological innovations are more readily available for use.

The Plans et consignations deals with construction and the material study of their future conditions. It is therefore strongly impacted the urban, economic and social structures of the contemporary city. As a characteristic of the twentieth century, mass urbanization relied on theories that were both progressive and radical in their approach to urban space and social relations. This led to projects with undeniable architectural, urban or construction qualities, whether housing (individual or collective), or infrastructure and facilities. Modern architecture thus developed the conceptual and technical framework that allowed it to be the dominant system of the past century. At the same time, however, it also defined the conditions for its own disappearance, through the rapid renewal of production models and tools, as well as reducing the life cycle of built environments.

The buildings and housing estates constructed in the twentieth century are currently under much pressure, linked to their aging structural and technical elements (sometimes accelerated by inappropriate interventions), the evocation of their usage, along with their regional and political contexts. This especially concerns architectural works from the second half of the century.

Recent achievements rarely benefit from the attention granted to older works in terms of historical and cultural analyses of their existence, their past evolution and the material study of their future conditions. It is thus worth testifying to the contributions of cultural research as dynamics of operational action.

Understood from the sustainable city paradigm, twentieth century architecture appears as part of the analysis of the overall cycle of the city — most significantly from a quantitative point of view — closely linking new production and the use of existing buildings. The sustainable, composite, open and integrated city thus considers all of its composing fabrics according to their potential project strategies. Recent research and experimentation programs dealing with construction and the sustainable city have often regarded existing buildings as a source of energy savings.

Considering twentieth century architecture as one of the basic materials for urban renewal gives way to a shift in paradigm, thereby enabling the creation of calls for projects with undeniable architectural, urban or construction qualities, whether housing (individual or collective), or infrastructure and facilities. Modern architecture thus developed the conceptual and technical framework that allowed it to be the dominant system of the past century. At the same time, however, it also defined the conditions for its own disappearance, through the rapid renewal of production models and tools, as well as reducing the life cycle of built environments.

The Plan Ville Durable of 2008 (Sustainable City Plan), and the many laws passed since, have contributed to the emergence of a new way to design, construct and transform cities and regions.

Since 2009, the missions within the Plan bâtiment durable (Sustainable Building Plan) (General Directorate of Planning, Housing and Nature (DGALN) - Ministry for Ecological and Solidary Transition and the Ministry of Territorial Cohesion and Relations with Local Authorities) have been addressing the necessity to support energy and environmental transition objectives in the building sector. In response to these challenges, a pillar of the inter-ministerial strategies already implemented has been the research and development of innovative architectural and urban planning solutions.

The Plan de rénovation énergétique des bâtiments (Plan for the Energy Renewal of Buildings) was launched by the Ministry for Ecological and Solidary Transition as well as the Ministry of Territorial Cohesion and Relations with Local Authorities in November, 2017. This plan, with its target to achieve carbon neutrality by 2050, aims to renovate 500,000 homes per year. It offers tools adapted to all situations, from housing to tertiary buildings, especially those that are publicly owned.

The twentieth century constituted a radical break in the fields of architecture, urban planning along with ways of living and practicing the city. Throughout the century, the main underlying factors that created wealthy and dynamic societies were the massive urbanization generated by the industrial boom, the concentration of production means, trade globalization, new construction techniques as well as the unprecedented mobilization of financial capital and cheap fossil fuels.

The mass destruction caused by both world wars resulted in enormous population displacement and unprecedented needs for housing and public facilities. In some cities, successive reconstruction efforts led to the complete renewal of almost all the buildings in less than a generation, going so far as to transform their urban layout and tenure structures. In certain cases, these large-scale processes have contributed to the exacerbation of social and regional imbalances, the effects of which, both real and supposed, remain a struggle to fix. In other cases, they created new fabrics with unprecedented usage qualities. This recent history has therefore strongly impacted the urban, economic and social structures of the contemporary city.
The “Remarkable Contemporary Architecture” certification, which replaced the “Twentieth Century Heritage” certification, establishes processes for identifying the architectural, technical, urban, and landscape values of the most iconic architectural and urban planning achievements of the twentieth and twenty-first centuries. It also allows government agencies to inform and oversee construction permit requests, in addition to monitoring certified assets. It is therefore necessary to identify the values of each architectural achievement. The certification of a building or a housing estate must be justified and based upon the identification of its own qualities, following six criteria defined by an implementation decree: the singularity of the work; the innovative or experimental character of the architectural, urban, or landscape design, the technical implementation, or its place in the history of technique; the reputation of the work, particularly regarding publications that investigate or mention it; the exemplarity of the work in terms of adaptation and transformation of existing buildings and the existing city; and the manifest value of the work, particularly regarding publications that investi-gate or mention it; the exemplarity of the work in terms of its role in public policy; the manifest value of the work due to its connection to an architectural movement or recognized ideas; its affiliation to a housing estate or work for which the architect has received national or local recognition. Envisioned intervention works must not undermine these reasons for certification, while still allowing for its adaptation to evolutions in the program or lifestyle.

The need to reinforce the skills of architects in terms of adaptation and transformation of existing buildings gives way to strengthened heritage teachings within every National Graduate School of Architecture (ENSA) in France. The inter-ENSA educational and research network, “Architecture, Heritage and Creation”, aims to build a space for dialogue, exchange and reflection on the place of architectural and urban heritage within project dynamics. It examines stances, practices, theories and professional ethics along with all sustainability issues beyond just the environment. Finally, two partnership teaching and research chairs linked to the topic of the transformation of buildings and the existing city have recently been certified by the Ministry of Culture within ENSA establishments: the “Heritage, Experimentation, Project” Chair supported by ENSA Paris-Beauvais and the “Habitat of the Future” Chair supported by the ENSA establishments of Lyon, Saint-Etienne, Grenoble and Clermont-Ferrand in partnership with the Grands ateliers de l'Île-d’Abeau.

These recent developments in the fields of architectural education and research highlight issues that aim to reinforce the link between “training-research-profes-sion”, to which this research program fully intends to make contributions.

OBJECTIVES

Within the inter-ministerial research program, “20th Century Architecture, Project Material for the 21st Century Sustainable City”, the call for research pro-posals invites the scientific community to shed new light on the adaptive capacity of twentieth century architecture to create cities that are more sustainable and citizen-based.

Its aim is to devise the epistemological conditions, conceptual hypotheses and technical bases conducive to the definition of long-term strategies for valorizing twentieth century architecture, outside of any doctrinal position.

It involves us to consider past century architecture and its diversity of urban scales, architectural types, materials, construction techniques, uses, along with ways of living as tools that are likely to significantly contribute to the challenges raised by the sustainable city paradigm.

Within the framework of this program, the production of knowledge and its application to real situations must form part of an operational aim that seeks to renew de-sign project practices in terms of architectural, technical, social and participative innovations.

The history of architecture may be considered within an objective that allows inhabitants to re-appropriate their lived environments.

Conditions for valorizing the architectural, urban and landscape qualities of twentieth century housing ensembles, as well as their potential for transformation, will be taken into account so as to reinforce users’ and inhabitants’ adherence to design projects focused on urban renewal and territorial revitalization.

For this reason, the valorization of expertise among local actors will be encouraged (regional and local authorities, associations, inhabitants) and a multidisciplinary approach is preferred (architecture, urban planning, landscape design, engineering, history, sociology, an-thropology, etc.).

More specifically, these calls for research projects first aim to develop intervention strategies for twentieth century architectures that are based upon detailed knowledge of the existing buildings, urban environments as well as economic and social contexts.

The scientific approach must focus on:

• The development of tools for understanding and evaluating twenty-first century architectures that support decision-making processes, based on a diverse corpus of sources (architects, residents, owners, museums, sites and buildings, etc.). Whether this knowledge created by the team or readily available data, an already existing corpus must be taken into account whenever possible.

• The capitalization of knowledge and diffusion of research among public and private developers, regional and local authorities, decentralized governmental services, along with all the players involved in architecture, urban planning and landscape design in a larger sense.

In order to meet the program’s expectations in terms of innovative operational proposals, the research projects should be based on one or more dynamic(s) of current design projects and generate the involvement of stakeholders whenever possible (regional and local authorities, developers, social housing organizations, property owners, public or private local actors).

• A consideration for the reuse of twentieth century architecture in a comprehensive research project approach that integrates the dimensions of culture, history, society, property, economy, environment, energy, construction and space for each building or urban area.

DETAILS OF THE EXPECTED RESEARCH PROJECTS

Building knowledge for practical application

The expected research projects must address questions related to the theory, usage and materiality of twentieth century architecture, alongside contemporary imple-mentation conditions for a building’s transformation, adaptation or valorization. This is also the case for urban spaces and landscapes.

They must also be derived from a practical application of knowledge no matter its nature, method or purpose, with methodological and deontological frameworks that have yet to be established but which form part of the architectural design project approach: maintenance, preventative conservation, adaptation, conversion, rehabilitation, transformation, restoration, etc.

Research projects may bring together expertise in spatial disciplines (architecture, urban planning, landscape design, spatial planning) as well as skills pertaining to the humanities, social sciences, engineering and environmental sciences.
A preliminary state-of-the-art report, covering both the 18th and 19th centuries, may also use a transcalable and interdisciplinary approach to seek out experimentation methods specific to the design project. Furthermore, they may question collaborative and digital tools (especially BIM) through topics such as the digitalization of existing buildings, building transformation and adaptation conditions, heritage management and maintenance, etc.

Informing and supplementing professional practices

The research proposals must bring new and innovative contributions to the discussion surrounding intervention methods for twentieth-century architecture. They must be derived from an original and unprecedented approach, the methodological roots of which may be found in previous works or those underway, but whose overall proposed approach has not yet been implemented.

A preliminary state-of-the-art report, covering both the research works and the operations achieved, may make it possible to take stock of the existing knowledge and practices on the subject. In order to put forth new contributions to the problems addressed, the research project may draw on the field’s most significant studies and, as much as possible, on existing project dynamics. It may also rely on case studies as support for an analysis and intervention method aimed at identifying and implementing the most suitable solutions. The conditions and mechanisms for disseminating and communicating the research results to decision-makers and professional actors must be a topic for special consideration leading to proposals, particularly those regarding innovative building intervention.

Integrating educational components

Research projects must integrate educational components which conform to the format and methodology of the project, in addition to being focused on the adaptation, transformation, restoration or valorization of twentieth-century building heritage.

These educational components deal with all dimensions of architectural research project teachings, including those relative to adaptation, transformation and restoration techniques, as well as construction techniques of the twentieth and twenty-first centuries. It may concern initial training (Bachelor, Master and PhD) or specialized and continuous training, be based on existing teachings or serve as support for new teachings and relate to elements of methodological or educational content.

Subjects of interest

Certain subjects are considered to be priorities, either because they lie at the heart of public policy implemented by the national government and its operations, or because they bring significant potential for innovation and development.

As such, the following are cited:

In the 1st call for research projects (2016)
- Achievements of the second half of the twentieth century
- Typologies of housing, or housing ensembles, with regard to new lifestyles
- Architectural quality criteria and regulatory constraints (especially thermal, but also seismic or accessibility)
- Energy performance evaluation on the life cycle and overall cost of the building
- Renewal of urban forms and landscapes to the perspective of contemporary uses of public space
- Digital transition of the building sector and its application to twentieth-century architecture
- Economic values of buildings within urban renewal strategies
- New uses and reuse strategies of twentieth-century “non-standard” or experimental architecture

In the 2nd call for research projects (2017)
- Programs not covered by the research projects selected in 2016, whether tertiary buildings, commercial buildings, or public facilities
- Investigation of new valorization strategies for twentieth-century architecture using collaborative and digital tools (particularly BIM). The proposal on this field could especially shed light on the digitalization of the existing building stock, the conditions for the transformation and adaptation of buildings as well as the management and maintenance of heritage.
- Existing building approach through the “smart city” paradigm: use of information and communication technologies, optimization of natural resources, integration into communication networks and infrastructure, involvement of regional and local authorities as well as users.
- Scientific procedures involving the effective participation of residents and users (participatory science works) on subjects concerning housing or any other type of building

In the 3rd call for research projects (2018)

Issues relating to continuing building intervention techniques and the development of corresponding professional knowledge (cf. thermal, acoustic, energy, climate, challenges, consideration for natural risks, changes in raw and lifestyle, etc.). In this regard, research projects addressing the use of eco-materials or bio-sourced materials and the need within those practices to meet the criteria in place regarding technical, functional and environmental performance standards are sought out.

- Educational environments (elementary, middle and high schools, universities, campuses, schools of architecture) as well as library environments (multimodal libraries, literatures)
- Scientific approaches involving the effective participation of residents and users (participatory science works) on subjects relating to housing or any other type of building
- Changes underway regarding the professional roles and practices of architects within these processes, which could be the subject of specific reflections and recommendations within this framework.

STRUCTURE OF RESEARCH PROJECTS

Team Composition

Each team brings together the academic, scientific, pedagogical and professional skills necessary to properly conduct the research project using an interdisciplinary framework.

Their collective ambition is open to the theme of the research program in terms of innovation in specific subjects, contexts, methods, practices and scientific outputs. They bring together researchers and professionals from at least two higher education institutions, international or national partner organizations or companies, including at least one National Graduate School of Architecture as a delegate for each team. Researchers belong to one or more authorized research lab(s), or to a research group in training recognized by the Ministry of Culture. Where appropriate, cooperation should be developed and specified with staff involved in research assignments within public services and institutions of the government, local authorities as well as the R&D managers of private companies.

Candidate teams are expected to construct and build upon partnerships with:

- Local actors and decision makers (institutions, organizations, local authorities, etc.) linked to a project currently underway. The purpose and the methods for involving each of the partners should be specified.
- Practitioners, teams of developers, architecture companies or offices, as well as professionals with technical expertise, in order to develop joint research within the framework of this call for proposals, thus strengthening the link between training/research professions.

“A linkage” between the candidate team and certain teams selected under the previous research incentive program, “Ignis mutat res: Architecture, city and landscape from an energy perspective” can be sought out, depending on the subject.

The reception of one or more doctoral candidates within the team is strongly encouraged, particularly those with Industrial Contracts for Training Through Research (CIFRE).

Development of the Scientific Project

The research project must gather team members around a common work perspective that identifies:

- A general research problem linked to the analysis of a topic, a housing estate or a category of buildings regarded for their specific typological-morphological characteristics, their technical and spatial potential as well as the place they occupy in a given urban fabric;
- A particular problem that addresses the qualities of a building in terms of identified transformation, adaptation and valorization challenges in a real context;
- Applicative and experimental tools at different scales of the project to put knowledge into action;
- A set of reflections and investigations likely to supplement a theoretical, design-based and technical positioning within the research team that can be mobilized outside of the research program;
- An educational strategy to valorize the methodology developed as part of the research project framework. This may concern design teachings as well as technical, theoretical or historical fields.

Methodological Expectations

The scientific research project must be structured around a shared methodological position with specified objectives, means and limitations.

Within the team, the link between educational, scientific and professional expertise must also be specified.

Each type of opportunity allowing for the development of an innovative pedagogical device within and at the service of the research project should also be considered both objectively and realistically.

Both internal and external challenges, methods and means of evaluation for collectively implemented scientific outputs must be specified within research proposal applications.
# Summary Table of Submitted Proposals

### 1ST SESSION – 2016

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<tr>
<th>Title of Research Proposal</th>
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<tr>
<td>BEDSYVSUS: When Sustainability Overtakes and Recovers Modern Movements: Lessons, adaptations and inventions of everyday spaces</td>
<td>ENSAP Bordeaux J. Kent Fournier, FoE</td>
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<td>SMART FRENCH: The Resilience of the Modern City</td>
<td>ENSA Bretagne Raphael Labrune, GREFFE/ATR</td>
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<td>Architectural Reuse and Design: Sustainable project potential in a district’s material, technical and cultural resources</td>
<td>ENSA Grenoble Pierre Belle-Ria, AAEC</td>
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<tr>
<td>Toulousans, From Large Housing Estate to the Sustainable City: Prospects and initiatives</td>
<td>ENSA Toulousans Remy Papulliet and Audrey Courbeauas, LIA</td>
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<td>Reconstructed Housing Intervention: From research methodology to action strategies</td>
<td>ENSA Versailles Christel Palant-Proport, LEAV</td>
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<td>Reconstruction, the sustainable city</td>
<td>ENSA Normandie Patrice Gourbin and Caroline Maniaque, ATE</td>
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<td>When “Interior Brings Exterior”: Windows in the architecture of grands ensembles</td>
<td>ENSA Versailles Paolo Arnaldi and Annalisa Viari Navone, LEAV</td>
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| **PROJECTS NOT SELECTED** |                                                |
| From the Radiant City to Recreational Urban Planning: Imagination of the beach as an instrument for transforming modernist public spaces | ENSA Nantes Daniel Siret, CRESSON/ UMR BAAU |
| 20th Century Architecture in Terms of Cultural Hybridization: A resource for the sustainable city | ENSA Nantes Anne Boss, CRESSON/ UMR BAAU |
| Heritagization, Urban Renewal and the Sustainable City: Challenges of a neighborhood symbolizing 20th century architectural, urban and social experimentation - La Maladrerie in Aubervilliers | ENSA Paris-La Villette Ismael Exo, LIA/ UMR LAVUE |
| Facades: Re-inhabiting and rehabilitating the lived environment. Thermal insulation and biodiversity | ENSA Paris-La Villette Yann Nussaume, AMP/ UMR LAVUE |
| Initiating Construction Work in the Public Spaces of Clos Saint-Lazare | ENSA Paris-La Villette Manola Antomoli, AMP/ UMR LAVUE |
| 20th Century Therapeutic Architecture and Environment: A key for the sustainable city of the 21st century | ENSA Paris-Val-de-Seine Denato Severo, EVCAU |

### 2ND SESSION – 2017

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<td>ENSA Marseille Angelica de Araujo, INAMA</td>
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<td>Cultural Resource and Urban Design Proposal: Mid-sized cities of the post-war reconstruction</td>
<td>ENSA Normandie Patrice Gourbin and Caroline Maniaque, ATE</td>
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<td>Firminy, From Modern City to the Sustainable City</td>
<td>ENSA Saint-Étienne Jean-Michel Durand and Rachel Kallmoun, Transformations</td>
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<td>Tropical Modernity in the Face of Seismic Risk: Histories of situated modernism and adaptability strategies of the All Pan school groups in Guadeloupe (1910, 1950-1962)</td>
<td>ENSA Grenoble Sophie Parot, AAEC</td>
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<td>ReMIX – The Reinvention of Industrial Sectors: A tool for 21st century regions</td>
<td>ENSA Paris-Belleville Isabelle Biro and Antonella Tufano, OCS/ UMR AUSSER</td>
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<td>The Future of 20th Century Education Facility Heritage: Knowledge and strategies for requalifying secondary education buildings of the 1960s and 1970s, in France and Italy</td>
<td>ENSA Paris-Belleville Roberta Morelli, IPRAUS/ UMR AUSSER</td>
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<td>Individual Design: What is the future of the existing individual housing stock facing contemporary energy transition?</td>
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<td>MARTA: Critical mass and transect in the service of architecture</td>
<td>ENSA Montpellier Hassan Att Haddab, LIFAM</td>
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<td>SharingLand: From Nîmes to Port-Camargue</td>
<td>ENSA Montpellier Laurent Deprot, LIFAM</td>
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<td>DOMUS LAB: Housing Program and Architectural Transition for Architectural Innovation in Housing, Heritage Identity and Sustainable Investment Cultures</td>
<td>ENSA Nancy Nadège Bagard, LHAC</td>
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<td>Augmented Architecture: Technical-cultural experimentation for the ecological transition of architecture</td>
<td>ENSA Toulousans Daniel Estevez, LIA</td>
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### 20th Century Architecture, Project Material for the 21st Century Sustainable City

#### Multi-year research program 2016–2020

**3RD SESSION – 2018**

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<td>Sophie Paulet, AREAC</td>
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<td>Rehabilitation of Light-Weight Facades in 20th Century Housing: From research to experimentation</td>
<td>Philippe Dutieuc, LAURE; UMR EVS and Olivier Balay, CRESSION/ UMBRAU</td>
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<td>Indential Design: What is the future of the individual housing stock in the immediate outskirts of French cities in the face of energy transition?</td>
<td>Yann Nussaume, AMF; UMR LAVUE</td>
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<td>Conversion of 20th Century Therapeutic Architecture: A key for the sustainable city of the 21st century. The cases of Beaujon Hospital (Clichy) and Bichat-Claude Bernard Hospital (Paris)</td>
<td>Yann Nussaume, AMF; UMR LAVUE</td>
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<td>Sensation Machines: Transformation Proposals for Intermediary Spaces of La Ciotat's Housing Units</td>
<td>Magali Patur, CRESSION / UMBRAU</td>
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<td>The Subdivision of Low-Rise Residential Housing Neighborhoods: Material for the sustainable city of the 21st century... under what conditions?</td>
<td>Séverine Steenhouyse, PROJECT(S)</td>
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<td>The Future of 20th Century Education Facility Heritage in France and Italy: Knowledge and strategies for regrouping secondary education buildings of the 1960s and 1970s</td>
<td>Roberta Morcel, IPRAUS / UMR AUSSER</td>
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<td>The Richness of Emptiness: In search of hollow walls. A history of architecture and construction techniques serving thermal restoration of existing buildings with vacuum aired outer walls</td>
<td>Emmanuelle Gallas, MITTEF / UMBRAU</td>
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<td>Modernity, Memory and Milieu: Reprogramming the 20th century base tower for the 21st century, based on the work of A. Wogensky</td>
<td>Joc Fa, AC5 / UMBRAU</td>
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<td>The Library in the Spotlight of Public Space: Cartography, perspectives and intervention strategies for 20th century housing stock</td>
<td>Cristina Manzoni, UMBRAU</td>
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<td>REHAB Recovering and Shaping a Standardized Architectural Heritage - Transmitting and intervening in the daily heritage of the breve floritures</td>
<td>Yannick Fijalou, CRH / UMBRAU</td>
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<td>ACOH: Autonomy Comfort and Optimization of Renovations - Aging at Home: Against energy poverty, for the control of environmental qualities</td>
<td>Emmanuel Ballet, AREAC</td>
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<tr>
<td>Augmented Architecture France-Vietnam: Non-extractive architectural design approaches in the face of the climate crisis</td>
<td>Daniel Estève, LRA</td>
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<tr>
<td>For a “Climate” Rehabilitation of University Building Heritage of the Second Half of the 20th Century</td>
<td>Gregory Anzov, LRAV</td>
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**Summaries of Selected Proposals**

### 2016 SESSION

**REDIVIVUS** – When Sustainability Overtakes and Recovers Modern Movements: Lessons, adaptations and innovations of everyday spaces
- Bordeaux, France / Cincinnati, Ohio, USA
- ENSAP Bordeaux / Full Professor, Associate Professor at ENSAP Bordeaux, PAVE research lab

**SMART FRENCH** - The Resilience of the Modern City
- Raphael Labrune, Associate Professor at ENSA Normandie, ATE research lab

**Architectural Reuse and Design: Sustainable project potential in a district’s material, technical and cultural resources**
- ENSA Grenoble

**Against energy poverty, for the control of environmental qualities**
- ENSAP Marseille

### 2018 SESSION

**REDIVIVUS** – When Sustainability Overtakes and Recovers Modern Movements: Lessons, adaptations and innovations of everyday spaces
- Bordeaux, France / Cincinnati, Ohio, USA
- ENSA Grenoble

**Tropical Modernity and Seismic Risk: Histories of situated modernism and adaptability strategies from the All Tier school groups in Guadeloupe (1930-1977)**
- Sophie Paulet, Associate Professor at ENSA Grenoble, AREAC research lab

**Conversion of 20th Century Therapeutic Architecture: A key for the sustainable city of the 21st century**
- ENSA Paris-La Villette

**Individual Design: What is the future of the individual housing stock in the immediate outskirts of French cities in the face of energy transition?**
- ENSA Paris-La Villette

**Rethinking Innovation: Understand and manage the legacy of experimental and innovative social housing from 1968-1978**
- ENSA Paris-Val de Seine

**Cultural Resource and Urban Design Proposal:**
- ENSA Paris-Val de Seine

**Cultural Resource and Urban Design Proposal:**
- ENSA Paris-Val de Seine

**Bichat-Claude Bernard Hospital (Paris)**
- ENSA Paris-Val de Seine

**Patrice Gourbin, Associate Professor at ENSA Lyon, CRESSION research lab**
- Full Professor at ENSA Lyon, CRESSION research lab - UMR LAVUE

**ENSA Marseille**
- ENSA Marseille

**ENSA Normandie**
- ENSA Normandie

**ENSA Paris-Val de Seine**
- ENSA Paris-Val de Seine

**ENSA Paris-Malaquais**
- ENSA Paris-Malaquais

**ENSA Lyon**
- ENSA Lyon

**ENSA Grenoble**
- ENSA Grenoble

**ENSA Strasbourg**
- ENSA Strasbourg

**ENSA Marseille**
- ENSA Marseille

**ENSA Grenoble**
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**ENSA Toulouse**
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**ENSA Toulouse**
- ENSA Toulouse

**ENSA Lyon**
- ENSA Lyon

**ENSA Strasbourg**
- ENSA Strasbourg
PROPOSAL OBJECTIVES

Focusing on housing districts and residential buildings designed and constructed around 1970, this research aims to analyze the issues of rehabilitation and urban reintegration of inherited architecture in light of requirements stemming from the sustainable city paradigm.

Our main hypothesis is that, from the perspective of sustainable urban development in the twenty-first century, the intent of considering these operations as heritage is twofold. As the final manifestations of a modernist lineage initiated several decades earlier, these pieces of heritage constitute both specific problems and distinctive opportunities amidst a system of architectural and urban production that has narrowed itself around relatively constrained standards and typologies. This research therefore attempts to reveal the remarkable qualities of this heritage while shedding light on the technical, political and social mechanisms at play in its adaptation to the constraints of the sustainable city.

Combining methods and tools drawn from architectural design, social sciences and physical sciences, the research underscores the ways in which everyday users view their modernist heritage. Four cases in Bordeaux that have been "overtaken" and "salvaged" by present-day urbanization are investigated: two neighborhoods combining individual housing blocks and small housing blocks (Pointet-Lamartine district & Hameau de Noailles) and two podium-and-tower districts (Mérida district and Bordeaux city center’s Aubiers housing estate in the Bordeaux Lac peripheral district). These cases embody spatial theories, doctrines and principles that are legacies of the modernist movement and function as "analyses" of changes currently underway. They were chosen to cover a wide array of parameters: the principles they materialize (morphology, typology, location); the initiators, managers and participants of their requalification (territorial collectivities, social housing organizations, condominium associations, residents); and the operational context of the project (i.e. the "50,000 housing units surrounding public transportation routes" program, the Guide-Vert district in Bordeaux, or the "Hétaï Venus program in the United States")

While the cases in Bordeaux are at the heart of the research, a sample of operations in Cincinnati provides perspective on the French context in light of two transnational phenomena: the variations on modernism as it spread through different countries during the post-war era, and the global dimensions of sustainable development issues today.

METHODOLOGY

Our initial observation is that housing operations that exemplify various currents of post-war modernism are currently being overtaken by urban growth that, in contrast, embodies a combination of challenges, principles and objectives that have emerged since the 1980s. Gathered under the concept of sustainable city, these contemporary characteristics tend to discredit architecture that predates the energy crises of the 1970s.

The following hypotheses are thus formulated:

- Current sustainability injunctions can compound the preservation of this architecture and provoke its stigmatization; certain of its inherent qualities make it conducive to a certain idea of sustainability and available for achieving sustainable objectives at the metropolitan scale.
- These qualities can serve as a positive reference for residents of this modernist architecture and promote its preservation as heritage of everyday life.
- To test these hypotheses, forty-nine semi-structured interviews were conducted with residents, property owners, and managers of the study sites in Bordeaux and Cincinnati, as well as with experts and scholars familiar with them. As occupied plans and environmental measurements in the housing units and neighborhoods were systematically carried out, along with an analysis of consumption records. The data was completed with spatial analyses (from the scale of the building to that of the district) using maps and plans to show environmental qualities as well as how urban fabric and uses evolved over time. Thus, through the entirety of the research project, residents were involved in workshops, seminars and conferences in order to forge shared experiences and collective knowledge.

REFERENCES CORPUS

  - Architect in Chief: Jean Royer
  - Architect: University of Cincinnati
  - Delegated developer: Bordeaux Planning and Construction Corporation (BPHC)
  - Developers: Gilbert Sarrazin, Noailles Hotel, Talence (1966-1972)

- *Regency Square (1969-1971)*
  - Developer: University of Cincinnati
  - Architects: Adrien Courtois, Pierre Lepetit, Michel Sibeth and Pierre Baker
  - Developer: Jean Claude Mertzet, FPE, Ronald Tichon


- *Cincinnati*
  - Park Tenen Co-op (1960-1964)
  - Architect: Constabien Apostolos Domale
  - Developers: Reynolds Aluminum
  - Service Corporation
  - Three streets (1964)
  - Architect: Fred W. Prender and Associates
  - Developer: University of Cincinnati
  - Regency Square (1969-1970)
  - Architect: Louis Sour
  - Developer: E.J. Frankel Enterprises

- *Les Aubiers, Bordeaux (1968-1972)*
  - Principal Investigator: Paths to Frankel Enterprises
  - Architect: Jean Royer
  - Delegated developer: Bordeaux Planning and Construction Corporation (BPHC)
  - Automobiles: AUA33 (Architecture and Construction Corporation (SBRU)
  - Delegated developer: Bordeaux Planning
  - Public Housing Office (OPHLM)
  - Architec: Jean Royer

- *In the background: Le Guyenne, 1976*
  - Architects: Andre Lagarde, Pierre Rignole and Jean Willerul

- *Various subject that emerged through the tri-partite approach and the educational component*
SMART FRENCH - The Resilience of the Modern City

1st SESSION 2016

2-year project

Bretagne National Graduate School of Architecture (ENSA Bretagne)*

PROPOSAL OBJECTIVES

The primary focus of the research is to form a deeper understanding of the collective housing stock built for operational purposes after World War II. This stock suffers from a globalizing deprecative judgment, both on the part of the public concerned as well as development stakeholders, elected officials and technicians; the latter having initiated recurrent major transformation policies since the early 1980s, especially in the field of social housing. Through normalized computing engines, financial and regulatory measures have favored a general thermal approach by redeploying new construction methods on already existing architecture. Furthermore, previous studies have already demonstrated the architectural, urban, landscape and environmental qualities found within the building heritage of the post-war period.

The initial hypothesis claims that it appears possible to extrapolate the evaluation at a larger scale with the use of statistical tools. The research seeks to engage with the quantitative and qualitative reality of this heritage within the following fields: history, heritage, architectural and construction analysis, material sciences, as well as the control of environmental qualities. Its goal is to propose new approaches for the development of a global energy performance initiative by building on existing capacities and potentials.

METHODOLOGY

The methodology played out in several simultaneous phases. Firstly, a systematic examination of architectural reviews allowed for the creation of a database using File Maker Pro.

Several studies were then conducted on all or part of the corpus, making it possible to carry out simulations and specify the methodology for creating relevant indicators. The analyses concentrated on shadow masks, bioclimatic characteristics, natural ventilation or light quality.

A classification of primary recurrences was also carried out based on master plans and distribution frameworks. In order to extract data analysis for each recurrence, the database was restructured in terms of these results.

EDUCATIONAL COMPONENTS

The educational components relied on various academic settings. Initial drawing and analysis works were carried out by 3rd year Bachelor’s students of History at the Bretagne National Graduate School of Architecture (ENSA Bretagne). Students were exposed to a body of routine quality operations, often derived from iconic models and proposing unique frameworks. Data analysis was additionally conducted during the research portion of a seminar at ENSA Bretagne.

OPEATIONAL TARGETS

The first operational target is to present a comprehensive analysis of a constructed context, illustrated by a variety of mechanisms, with particular attention allotted to the constructed or distributive qualities of the existing landscape. Certain aspects of recurrences have also led to the emergence of construction practices that hold great potential for improving the energy efficiency of those housing estates.

The definition of recurrences based on qualitative and quantitative data made it possible to draft a series of context-specific recommendations.

Finally, the project highlights the value of statistical tools in architectural and urban analyses for the development of a relevant macro approach.
PROPOSAL OBJECTIVES

The reuse of construction materials has been a topic of increasing interest throughout the last several years. Many reasons exist for its resurgence and newfound popularity. In addition to being a practice exhibiting ecological parameters for validation, reuse raises a wide variety of both tangible and intangible issues, concerning all disciplines implicated in architectural and urban production.

Based on the resources of a local territory, this research questions the potential for the development of professional reuse practices in the construction industry according to two main themes:

- With regard to building construction and operational action conditions: how can the methods and processes for diagnosing and evaluating reusable elements be improved?
- In terms of models and processes for architectural design: how can reusable resources influence architectural design, both in the professional and academic realms?

The research program is thus interdisciplinary, connecting different partners and areas of expertise.

METHODOLOGY

Several guiding principles characterize this research project:

- Research from a territorialized pool of resources located in the City of Grenoble;
- An educational activity within ENSA Grenoble and the University of Grenoble-Alpes supports part of the research;
- The principle of action-based research involving public operational partners and local authorities;
- Cooperation between universities in Grenoble.

Three areas of development are proposed:

- Diagnostics: the state of current practices, methodological tests and comparisons, participation in the development and implementation of a “catalogue of local reusable resources”;
- Circulation of resources, the relationship between supply and demand, supply chain, affilations, networks and platforms;
- Processes of design and implementation using reusable resources, both in the professional and academic fields.

Experts, Rotor and Bellastock, are invited to participate in study days organized by professionals and based on these three themes.
TOULOUSE FROM LARGE HOUSING ESTATE TO THE SUSTAINABLE CITY - Prospects and initiatives

1st SESSION 2016
Toulouse National School of Architecture

PROPOSAL OBJECTIVES

Throughout France, many large housing estates are viewed as closed structures having experienced various ineffectual renovation policies over the last several decades. Since 2003, the National Urban Renewal Agency (ANRU) signed 299 conventions for the implementation of policies in “sensitive neighborhoods”, under the framework of the National Plan for Urban Renewal. In a close analysis of those districts, significant technical and financial means have been largely used for radical reconfiguration rather than restoration-transformation projects.

The research “Toulouse, From Large Housing Estate to the Sustainable City: Prospects and initiatives” thus explores the large housing estate rehabilitation project based on its architectural, urban and landscape qualities, as well as usage and transformational capacities.

How can large housing estates be integrated into the sustainable city? Considering their nature, their resident identity as well as their structural (including construction), environmental and landscape qualities, how can we imagine motivated, receptive and reasoned transformations that both respect continuity and are open to change?

These inquiries concern the future of the large housing estates constructed within the administrative city limits of Toulouse between 1950 and 1975 that, at a 17 large projects comprised of 300 to 1,100 housing units, either condominiums or social housing. Three of these are studied more carefully.

This interdisciplinary and multi-scale research project surrounds the concepts of “mixity(ies)”, “shared nature” and “energy(ies)”, recurring terms in sustainable housing programs as seen through the questions of use and time, which underscore the rehabilitation projects of the buildings concerned. These concepts are explored relative to the singular issues of each large housing estate at the scale of the residential building, the large housing estate and the district. Throughout the three years of research, they are handled through a sequence of critical analyses, project and experimentation.

The approach questions both the research methodology as well as the process of safeguarding or heritagizing large housing estates.

METHODOLOGY

Both for analysis and foresight, the methodology relies on three themes of the sustainable city paradigm which are developed through a multi-scalar intersection.

Multi-tools are used, derived from both the social sciences and engineering sciences as well as architecture.

“Mixity(ies)”, be it functional, typological or social, is addressed by combining quantitative statistical analysis with cartographic formatting and qualitative analysis from interviews with residents.

“Shared nature”, which addresses the collective spaces of the large housing estates (roof terraces, housing extensions, etc.), is expressed through interviews with residents.

“Energy(ies)”, focusing on grids, materials, lighting, etc., requires detailed technical and environmental diagnosis based on the thermodynamic simulation method.

We hypothesize that the values of use and capacity for conversion are revealed by the residents themselves at different scales of the large housing estate.

While recording and analyzing testimonies allows for the identification of a shared intangible (and tangible) heritage, the qualitative and/or dysfunctions are highlighted through survey drawings of material appropriation and alterations already carried out based on the original plans.

This action research relies on resident appropriation and regular dialogue in order to envision a fair rehabilitation project that balances both renewal and maintenance of existing qualities.

EDUCATIONAL COMPONENTS

By means of Cédric Dupuis’ dissertation (Adjunct Doctoral Candidate) on the strategies of actors involved in the rehabilitation and transformation of large housing estates in Toulouse, the partnerships with condominium associations and landlords as well as our design-experimentation proposals, the operational objectives are:

- To emphasize the architectural, landscape, urban and usage qualities, as well as the transformative capacity of these large housing estates amongst property managers, residents and professionals.
- To reveal the implementation conditions of such transformations through the instruction of thermal renovation and within national urban renewal programs.
- To develop appropriate tools (in academia and in both pre-operations and operations) specific to the transformation and with respect to the large housing estates.
RECONSTRUCTED HOUSING INTERVENTION

From research methodology to action strategies

1st SESSION 2016

3-year project

Versailles National Graduate School of Architecture (ENSA Versailles)

PROPOSED OBJECTIVES

The research project "Reconstructed Housing Intervention: From research methodology to action strategies" provides a strong link between research, education and intervention strategies. The goal is to promote new methodologies amongst the future generation of architects in particular, both in terms of historical knowledge as well as building analysis. More than just a simple historical study, the research incorporates action methods that rely on historical knowledge and archival resources in order to undertake educational interventions on existing buildings.

The implementation makes it possible to shed light on the question of reconstructed housing units and their adaptability to current livability standards. Its goal is to collect and produce knowledge on post-war constructions, both from a historical perspective and from that of understanding buildings and construction techniques.

Still in use today, housing units from the reconstruction period raise different case-dependent issues when thinking of their evolution in terms of rehabilitation, modernization, destruction and heritage. In order to confront these phenomena, the research relies on both experimentation, as well as research actions and knowledge enrichment projects.

METHODOLOGY

The goal of this research is to promote new design methods to future architects, both in terms of historical research and housing analyses. It intends to expose students to current issues brought about by context-specific realities, and to train them in methodologies for historical research.

Several action research studies on reconstructed districts were researched in the cities of Vendôme, in Department 41, Sully-sur-Loire, and urban planning of the post-war reconstruction in France. Current researches in the cities of Vendôme, in Department 41, Sully-sur-Loire, and Saint-Dié des Vosges in May 2018 enabled researchers to connect with actors and authorities in order to develop concrete ideas and actions for the future of post-war era housing.

The organization of "Protect, Promote and Intervene: Architecture and urban planning of the post-war reconstruction in France. Current events and the future of a little-known heritage" in Saint-Dié des Vosges in May 2018 enabled researchers to connect with actors in the field, as well as professionals and residents. The goal of this dialogue was for the intersection of views and investigations on the future of ordinary reconstruction heritage, in connection with current regional and national ideas on the attractiveness of mid-sized cities.

EDUCATIONAL COMPONENTS

- In-depth History study courses for 3rd year students: Strasbourg (2017)
- In-depth History study courses for 3rd year students: Villeneuve-Saint-Georges (2018)
- Design Studio Master Course I: Sully-sur-Loire (2017)
- Design Studio Master Course I: Vendôme (2018)
- Théorie Master I "Intervening on the existing" (2017-2018; 2019-2020)
- Research Masters Internship: Gien (2016)
- Research Masters Internship: Orlice (2017)

OPERATIONAL TARGETS

The repercussions for professional and operational milieu were researched in the cities of Vendôme, in Department 41, Sully-sur-Loire, in Department 45, and Saint-Dié des Vosges, in Department 88. The aim of the research is to support local and regional authorities in order to develop concrete ideas and actions for the enhancement and/or development of the reconstructed heritage of their cities.

A new graduate training session on twentieth century architecture and ecological transition is under examination at ENSA Versailles. Training days were additionally planned for future curators at the National Heritage Institute (INP) in 2019.
RETHINKING INNOVATION
Understand and manage the legacy of experimental and innovative social housing from 1968-1978

20th SESSION 2017
2-year project

Marseille National Graduate School of Architecture (ENSA Marseille)

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References
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PROPOSAL OBJECTIVES

In the midst of the mass housing era, the failure of the urban form generated by large housing estates forced the French government to reinvent its housing construction policies towards the revival of French life quality. Innovation became the new moto of the state and was promoted as a source of growth. In 1971, a large housing research program was initiated with the creation of the Plan Construction, which favored innovation in building technology as well as typological renewal. Initiated by public authorities and relying on new procedures (Programme Architecture Nouvelle, experimental architecture, Modèles-Innovation), this housing research lab produced plural housing.

The first hypothesis suggests that the experiments carried out by the Plan Construction hardly fulfilled this long-awaited union between technological progress and the revival of spatial quality; often prioritizing innovation rooted in industrial and technical devices at the detriment of typo-morphological renewal. As part of the model policy submitted for approval and aimed at reproducibility, Modèles-Innovations generated engineered dominated architecture-systems (three-dimensional, Meccano, etc.) that mainly favored the collective, albeit individualized. The second hypothesis rests on the idea that innovative architectural production was not a priority of the central authority. Questioning rationalist conceptions of the 1960s-era modern movement drove architects to rethink the relationship between the housing unit, as a base, and the city, resulting in the re-emergence of the intermediary’s compact form. In contrast to the collective individualization movement known as Modèles Innovations was intermediary housing, which began with the housing unit to explore their grouped forms, aiming for the collectivization of the individual (C. Moley, 1979). Launched by the renewed urban policy of new cities, major architectural de-sign competitions heavily contributed to the revival of this grouped individual housing.

Depriving from a triple approach in terms of critical history, architectural analysis along with contemporary and heritage expertise, the objective of the research is to question the innovative character of the experimental and qualitative social housing production of the 1960s and 1970s. It does so by comparing the actively promoted experiment of the French Department of Construction with those various voluntary measures conducted by the state within a framework that we have characterized as “frees”.

METHODOLGY

In terms of fundamental research, the aim is to question representativeness as well as cultural and historical value, along with the material value of experimental social housing. This will be done through the concept of innovation, based on two very distinct corpuses: Modèles-Innovation at ENSA Lille and intermediary housing at ENSA Marseille.

In terms of heritage approach, the first step consisted, in the case of Lille, documenting Modèles-Innovation operations in Hauts-de-France and, for Marseille, classifying intermediary housing research program based on a sample that includes architects who are engaged in this genre. The research then develops a study of these operations from the perspective of their initial proposal, planning, design, implementation, evolution and reception up to today.

The research/educational collaboration enables these same experimental housing operations — already examined from an artificial, spatial and technical angle — to also be analyzed through the lens of energy efficiency, thermal comfort and quality of use, in order to generate architectural intervention strategies with respect to their inherent transformation potential (design of “empty” space, densification processes by extension / elevation, improvement in use and / or materiality).

EDUCATIONAL COMPONENTS

ENSA Marseille
Bachelor’s trajectory option “Augmented reality and digital models”, Master 1 and 2
- Seminar, Critical History of the proposal, Master 1 and 2
- Eco-construction Seminar, Master 1 and Transitions & Sustainable Construction Seminar, Master 1 and 2
- Research project studio, Transformation of forms and use, Master 1 and 2

ENSA Lille
Four research seminars throughout the Master’s trajectory.
Three research seminars:
Project Archaeology
- Contemporary Architecture
- Maturity and Tectonic
And an exploratory seminar during the Master’s contribution:
Two Master’s trajectory research project studios in the field of History, Theories and Design (autumn and spring semesters).

OPERATIONAL TARGETS

The aim of this research is to generate expertise within the technical, spatial and urban qualities of these innovative operations by following the scientific protocol of the Documentation and Conservation of Buildings and Sites of the Modern Movement (docomomo), followed by an evaluation of the heritage value along with the contemporary value of this heritage.

These guidelines will be the basis for proposals under the “Remarkable Contemporary Architecture” (ACR) certification for unidentified large housing estates and inquiries on the ways in which this important corpus can respond to present situations, both from the perspective of heritage management (type-morphological conditions and potential for evolution, the definition of serial-type technical and spatial interventions at domestic and urban scales, etc.), as well as from the viewpoint of its value and potential as an architectural and urban model that responds to current environmental and social challenges (alternative to low-rise residential housing and reduction of property requirements, technical norms oriented by sustainability requirements, etc.).
**CULTURAL RESOURCE AND URBAN DESIGN PROPOSAL**

Mid-sized cities of the post-war reconstruction

2nd SESSION 2017

2-year project

**Normandie National Graduate School of Architecture**

(ENSA Normandie)

**PROPOSAL OBJECTIVES**

The research “Cultural Resource and Urban Design Proposal” examines the heritage process as a tool for the development and transformation of mid-sized urban centers in Normandie.

We chose to focus on reconstructed cities, which constitute an important piece of heritage in the region, both in quantity and quality, and which currently receive heavy institutional investment.

In the five cities selected for the study (Vire, Saint-Lô, Louviers, Lisieux, Coutances), the research team undertakes a retrospective and prospective examination of the interaction between planning and recognition processes of this architecture.

Its members are involved in various valorization and mediation efforts (regional certification implementation, a revitalization program in Lisieux and Saint-Lô, a participatory exhibition in Louviers, etc.).

The goal is to pave the way for the repurification of architecture and urban planning from the post-war reconstruction, by taking into account its material (historical, aesthetic, architectural, urban) and social (memory, sociability) qualities.

**METHODOLOGY**

The project is deeply embedded in a regional context that is highly active in the types of cities chosen. It is additionally rooted in the current national context of mid-sized urban center revival.

The research first aims to understand these local intervention mechanisms, integrating a team comprised of numerous planning actors. The study thus relies on a constant dialogue between the resource persons from each of the chosen cities.

At the national scale, the research also includes a retrospective analysis of first generation studies on reconstructed cities, which took place in the 1980s and 1990s and which contributed one of the first interdisciplinary encounters in this field.

**OPERATIONAL TARGETS**

- The implementation of a diagnostic and research project exercise (diagnostic and research project exercise) in Louviers and Saint-Lô, in order to imagine innovative and participative courses of action that foster urban growth which takes human dimensions and sustainable development into account.
- The organization of an “urban registry” workshop in Lisieux, open to students and young graduates. The aim is to integrate new urban functionalities into an “in-between” of urban design proposals between the “Lisieux 2022” reconstructed center renovation proposal and the National Urban Renewal Center (ANRU) Hauteville large housing estate proposal.
- The workshop is the subject of a partnership with the City of Lisieux and the Piscine club.

**EDUCATIONAL COMPONENTS**

The study aims to experiment with new project strategies, particularly through pedagogical activities.

On the ground, we seek to highlight the inherent strengths and dysfunctions of both public space and the urban systems of reconstructed cities which lack an established heritage character.

In that sense, our goal is to reveal the design project potential in the places studied, along with their changeability and capacity to evolve and transform.

The work of the research team focuses particularly on the strategies of actors and their training.

The gathered observations also seek to distinguish the ways in which networks are organized from the perspective of information and method diffusion.

**REFERENCE CORPUS**

The research focuses on five mid-sized cities that were rebuilt in the 1940s and 1950s:

- Louviers
- Saint-Lô
- Coutances (Safeguarded sectors or protection zone ZPPAUP)
- Vire (PLUE partial)
- Lisieux

In each city, a different actor accordingly ensures the link between heritage action and urban design proposal: country of art and history, municipal museum, heritage architect, project house. These structures all serve as references for the research group.

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- Michel Natier, Architect, Heritage Curator, Consulting Architect for the Normandie Regional Council
- Christine Leconte, State Architect and Urban Planner, Architect of the Bâtiments de France
- Florence Declaveillère, State Architect and Urban Planner, Director of the Saint-Dié-des-Vosges Museum
- Éléonore Buffler, Doctor of History, Territorial Development for the City of Saint-Lô
- Florence Ormancey, Doctor of Architecture, Associate Professor at ENSA Versailles
- Elsa Gallien, Doctor of History, Research Engineer at ENSA Normandie
- Yvonne Moar, Doctor of History, Associate Professor at ENSA Normandie
- Jean-Baptiste Marie, Full Professor at ENSA Clermont-Ferrand

**Partners**

Louviers Museum, Coutances Town of Art and History, Normandy Region, City of Lisieux, City of Saint-Lô, City of Vire

**Educatinal Components**

The workshop is the subject of a partnership with the City of Lisieux, open to students and young graduates. The aim is to integrate new urban functionalities into an “in-between” of urban design proposals between the “Lisieux 2022” reconstructed center renovation proposal and the National Urban Renewal Center (ANRU) Hauteville large housing estate proposal.

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**Operational Targets**

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**Partners**

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PROPOSAL OBJECTIVES

Can grands ensembles constructed during the modern city paradigm be "re-used" by the sustainable city paradigm? Is this desirable? For who and why? Under what conditions? How can it be done pragmatically?

"Firminy, From Modern City to the Sustainable City" addresses these issues by exploring at least two pathways for investigation and hypothesis:

- Grand ensemble viability, in terms of contemporary lifestyle and housing issues (including energy transition), which is investigated and analyzed from architectural and technical perspectives as well as social and human;
- Sustainable management of grand ensembles, which is investigated through two key components: firstly, the global economy of architectural and urban design proposals (not solely in terms of financial questioning, and within a highly regulated context); secondly, political, addressing the role and the implication of residents.

This issue, these investigations and these hypotheses are embodied, rooted and tested in one specific case, that is the Firminy-Vert grand ensemble in Firminy, Loire, France. This grand ensemble presents two specificities, remarking it particularly interesting in regard to the questions raised. On the one hand, Firminy-Vert (1957-1966) is an icon of the Modern City, with the Adonis Charter as a source of inspiration as claimed by its designers. It is therefore recognized and valued as heritage, with numerous measures such as the "Remarkable Contemporary Architecture" certification, along with historical monuments for Le Corbusier and Wogenscky’s buildings as well as Areas for the Enhancement of Architecture and Heritage (AVAP), a UNESCO Management Plan.

On the other hand, a peculiarity of Firminy-Vert is its location in a municipality that has been experiencing a decrease in population since the late 1960s, caused by the decline of the metallurgical industry. This situation has led to the emergence of distinct and harmful phenomena in Firminy-Vert, including population insecurity, building vacancy and elimination of low-income housing, which are at odds with the question of heritage and its conservation.

The methodological approach is organized into six units:

- Unit 1: State of the art and reference corpus
- Unit 2: Historical study of Firminy-Vert and Firminy low-income housing (HLM), architectural, social, economic and political aspects
- Unit 3: Social, economic and political investigation (a significant part of which includes interviews with institutional actors and residents)
- Unit 4: Architectural and technical diagnostics
- Unit 5: Simulation projects
- Unit 6: Experimentation at a 1:1 scale (prototype - demonstrator - facade excerpt)

First, each unit investigates the issue and hypotheses using their own approaches, expertise and goals. A second phase of the research will then differentiate and discuss all of the results obtained in the different units.

To allow this discussion to henceforth take place, the units are linked by BIM (transversal activity), a working method that allows the various disciplines to collaborate around digital models among themselves.

METHODOLOGY

In order to achieve these objectives, the methodology put in place gathers the skills and expertise of a team of faculty members with diverse disciplinary and experiential backgrounds — architects, geographers, historians, political scientists, thermal engineers (urban and building climatology) and BIM (Building Information Modeling).

EDUCATIONAL COMPONENTS

The research and pedagogy supplement one another within the framework of various teachings at the Saint-Étienne National Graduate School of Architecture (ENSァ Saint-Étienne) and at the University of Saint-Étienne. Each studio has been linked to a course or a research project studio.

- Studio 1: Social Housing (Course (Master 1 ENSァ Saint-Étienne)
- Studio 2: Research Tools Course: Architect (Master 1 ENSァ Saint-Étienne) and Research Project Studio
- Studio 3: Collective Design Studio (Master of City and Urban Environment, Alterville trajectory, University of Saint-Étienne)
- Studio 4: U3E: Housing, Urbanity and Environment, Design Studio (Master 2 ENSァ Saint-Étienne)

OPERATIONAL TARGETS

The research will use its insights and analyses to contribute to the advancement of the critical situation in Firminy Vert (economic, social and heritage problems) by mobilizing and informing various actors, as well as reducing contradictions found within different proposed responses.

To this end, a contruple role is granted - project-based research, which alone allows for concrete verification (hypothetical, architectural, technical, economic and social) of the potential for the replication and coherent reclassification (feasibility) necessary for this heritage and this site.

This work should ultimately culminate in a project-tool allowing for the simulation of hypotheses and expertise with regard to the various objectives; and for operators, the preparation of concrete solutions and proposals.
TROPICAL MODERNITY AND SEISMIC RISK

Histories of situated modernism and adaptability strategies from the Ali Tur school groups in Guadeloupe (1930-1937)

3rd SESSION 2018

2-year project

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Partners
- Guadeloupe Division of Cultural Affairs, Department of “Historical Monuments, Architecture and Museums”
- Division of Environment, Planning and Housing of Guadeloupe, “Natural Risk” Section

PROPOSAL OBJECTIVES

What is the future of tropical modernism in the face of seismic risk? Modernism in the French West Indies concerns us today more than ever; as it raises the social issue of local recognition for this colonial heritage, along with the technical issue of reducing the earthquake vulnerability of its buildings. Compared to Martinique and Guayana, the case of Guadeloupe is unique; its early modernity displaying a tri-unity of time, place and architect that render it a remarkable creation in the history of twentieth century architecture. Furthermore, modern architecture and its use of reinforced concrete were introduced in Guadeloupe following the cyclone of September 1928, which caused over 1,200 deaths and 13,000 injuries in just a few hours. It was under these conditions that Ali Tur, a Parisian architect commissioned by the Ministry of Colonies, succeeded in constructing over one hundred different public buildings throughout the duration of seven years.

Although this architecture was celebrated in its time and is well-known by heritage experts, it never seemed to generate interest amongst Guadeloupians, despite its presence in every municipality throughout the archipelago. The recognition of its architectural and urban qualities is thus all the more strategic, as the question arises surrounding its vulnerability in the event of an earthquake. The “Caribbean Earthquake Plan” made public safety an emergency, especially for children. Nevertheless, the high cost of earthquake reinforcement for the school groups built in the first half of the twentieth century makes it difficult to reasonably foresee, specifically in regards to the techniques recommended by consultants Ali Tur’s architecture is therefore left vacant, opting to ensure children's safety through the construction of new schools.

In this context, the research intends to propose alternative, more frugal strategies that comply with public safety standards, in order to adapt the schools built between 1930-1937 in Guadeloupe. Two objectives are therefore pursued accordingly. On the one hand, to support the creation of a Guadeloupian sense of heritage for early twentieth century architecture by analyzing its architectural and urban qualities and by writing its political, architectural and material histories. On the other, to increase the likelihood of the continued existence of the schools by developing low-cost earthquake risk mitigation strategies associated with potential changes in use.

The project approach (new or rehabilitation), associated with the concept of limited resources, serves as an excellent educational tool for training architects in seismic design, requiring that “turnkey” reinforcement solutions be replaced with the use of intelligent tools.

The output of this research supplements the following teachings:
- Research Studio Course, Master 2 at ENSA Grenoble (comparisons with similar heritage situations in Europe and Africa in terms of fragility and vulnerability).
- Continuous earthquake-resistant architecture training of ENSA professors (directors A. de la Fonte and J.-C. Grosset).
- Diplômes Propres aux Écoles d’Architecture (DPEA) “Engineering for architecture in situations of intense natural risks and resource scarcity” (Creation in progress at ENSA Grenoble, Director J.-C. Grosset).

METHODS

The research combines historical and engineering approaches to carry out an informed evaluation, then retrofit the 1930s-era Guadeloupe school groups into a project setting. It begins with extensive fieldwork, archival research, identification of buildings, architectural and construction surveys, identification of pathologies, surveys, samples of material, static laboratory testing, and dynamic tests in the buildings.

After reviewing the political and economic conditions in which these buildings were constructed, the goal is to clarify their material history in order to identify and appreciate some of their physical characteristics.

Earthquake-resistant diagnostics reports from six of the schools, based on guidelines that include all major tools for seismic vulnerability reduction, are compared with the diagnoses and recommendations formulated in the 2009 “Caribbean Earthquake Plan” framework. Three of those are incorporated into a detailed investigation, along with architectural, urban and heritage quality analyses. A typology of foreseeable intervention procedures can then be established at the intersection of architectural and engineering methods.

EDUCATIONAL COMPONENTS

The project approach (new or rehabilitation), associated with the concept of limited resources, serves as an excellent educational tool for training architects in seismic design, requiring that “turnkey” reinforcement solutions be replaced with the use of intelligent design.

OPERATIONAL TARGETS

This research focuses primarily on the technical departments of the developers responsible for the earthquake risk mitigation operations of heritage buildings constructed prior to the arrival of seismic construction standards.

More specifically, the goal is to create a first level of methodological tools, as part of a call for design proposals aimed at reducing the seismic vulnerability of a heritage building, allowing them to:
- Draft specifications that anticipate the emergence of cost-efficient responses and are concerned with the architectural and heritage dimensions.
- Expand the analytical framework for assessing the technical and architectural relevance of responses.
Multidisciplinary research examining five renovation projects

3rd SESSION 2018
2-year project

Lille National Graduate School of Architecture and Landscape Design (ENSAP Lille)

Principal Investigators
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Academic Institutions of Team Members

LACTH research lab (ENSAP Lille)
AAT research lab (ENSAP Normandie)
UMR CRIST/URV research lab (ENSAP Grenoble)
CREDI research lab (University of Picardie – Julie Verne)

A Scientific, Technical and Artistic Council (CSTA) of around twenty members supports this team.

Partners
National Presseye Studio of Contemporary Art Film Archive of Geographic

PROPOSAL OBJECTIVES
This research aims to establish an understanding and knowledge of late twentieth-century cultural facilities – a singular architectural typology – through the lens of building evolution, which will be measured using a multidisciplinary approach.

The research encompasses a wide range of topics, rendering statistical studies or inventory work difficult to carry out. It is thus centered around a pre-established corpus of multifunctional buildings that were constructed from 1945-1985, situated throughout France and having undergone various adaptations and renovations. These sources are meant to be representative of “problematic nodes” in heritage material and in rehabilitation practices.

In their day, these experimental buildings were at the intersection of spatial arts (studio art, scenography, lighting, music, etc.), enabling designers to conduct open architectural research. As such, they represent original and prestigious objects that are defined by users. Due to their rarity as architectural constructions of the post-war era, in addition to their marking a specific moment in public policy (for example, the evolution of requests leading to their renovation), we are invited to reflect upon the questions brought about by their transformation in a cross-sectional and in-depth way.

Over sixty-five to sixty years of existence, many of these buildings have reached the end of a usage cycle. The renovation of a significant number of these structures has thus been triggered by the obsolescence of certain technical devices, by current requirements regarding accessibility and energy expenditure, along with new trends and needs of cultural world consumers.

The challenge of this research will therefore be to highlight their surrounding cultural and collective value from the time of their construction up until today. The aim is to bring forth the symbolic and imaginary aspects of these architectural buildings, which are seldom called into play as building adaptation projects.

The research thus seeks to highlight unforeseen moments linked to their evolution, which somewhat elucidate the technical and decision-making spheres. Through the development of five building monographs, unexpected sources linked to the renovation processes are examined: memory, popular appropriation, stories, artistic expression, media reception, audiovisual production.

METHODOLOGY
The research is based on a collaboration between several areas of expertise (human and social sciences, art and architecture) found within different working groups affiliated with the research: the “nucleus” of researchers, the student sphere, the Scientific, Technical and Artistic Council (CSTA) along with professional and institutional partners.

The project seeks to pay close attention to the intersection of different levels of complementary skills, particularly by organizing specific exchange periods between everyone (in situ exploratory seminars, workshops, CSTA meetings, etc.).

Two devices are imagined to support and showcase these collaborations:

- The creation of an online research blog which articulates the inputs of concentrated or extending teams (CSTA), from students and a wide range of stakeholders. Regular film work, whether internal, with the CSTA or open (teaching periods, study days, etc.), to document each period of exchange between the team. The film also serves to produce new documents for the research project (filmed interviews with various actors involved in implementation, thematic and/or poetic films, filmed transitions, etc.).
- Several other research seminars also include this corpus, particularly those of Guillaume Moignieux and Xavier Dousson (ENSAP Paris-Vallée-Seine), Bruno Prich, Elise Guillerm and Dominique Debeau (ENSAP Normandie) or Éric Monin and Catherine Blain (ENSAP Lille).

Other seminars offer research counterparts, such as that of Nathalie Simon (ENSAP Versailles) and the University of Paris (Saclay), Guillaume Bolle (ENSAP Strasbourg), Simon Taizier (University of Picardie) or Ariela Katz (ENSAP Paris-Malaquais).

REFERENCES: Operative Targets

One of the challenges of this research is to encourage alternative forms of professional appropriation of the issues related to the renovation of cultural facilities.

For this purpose, various tools are deployed throughout the research:
- A good practice guide booklet, which aims to promote the flood of meta-research, and cover the full spectrum of this research.
- Several other research seminars also include this corpus, particularly those of Guillaume Moignieux and Xavier Dousson (ENSAP Paris-Vallée-Seine), Bruno Prich, Elise Guillerm and Dominique Debeau (ENSAP Normandie) or Éric Monin and Catherine Blain (ENSAP Lille).

Other seminars offer research counterparts, such as that of Nathalie Simon (ENSAP Versailles) and the University of Paris (Saclay), Guillaume Bolle (ENSAP Strasbourg), Simon Taizier (University of Picardie) or Ariela Katz (ENSAP Paris-Malaquais).

OPERATIONAL TARGETS

One of the challenges of this research is to encourage alternative forms of professional appropriation of the issues related to the renovation of cultural facilities.

For this purpose, various tools are deployed throughout the research:
- A good practice guide booklet, which aims to promote the flood of meta-research.

The creation of an online video channel, for the purpose of publications and exchanges:
- Two devices are imagined to support and showcase these collaborations:
- The creation of an online research blog which articulates the inputs of concentrated or extending teams (CSTA), from students and a wide range of stakeholders.
- The creation of an online video channel, for the purpose of publications and exchanges.

EDUCATIONAL COMPONENTS

Throughout the research, the imagined curricula are improved upon based on these first results:
- Caroline Biaux’s lecture course (ENSAP Lille) allows for the creation of a useful focus for this type of request.
- Guillaume Moignieux’s studio and visual arts course (ENSAP Paris-Vallée-Seine) uses the same corpus as this research.
3rd SESSION 2018

2-year project

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LSAA Design Office, acoustics
THRU Design Office, thermal and sustainable design
ECAK, scaffold and metal workers
Other
“Les Cèdres” Condominium Management Committee
Franchel Local Authority
The Grands Ateliers Innovation Architecture (GAIA / ENSA Lyon)

This research project was carried out in 2017/2018 within the Architecture and Eco-Construction Transition Master’s Program in the post-carbon studies at AAAC research lab, directed by Olivier Baley and two students from ENSA Lyon (final project carried out on Les Cèdres building). Their research led to the development and manufacture of a solar protection prototype at the Grands Ateliers Innovation Architecture in Isle d’Abeau.

The research focuses on several objectives. On the one hand, it serves to provide an overview of the investigations conducted on this building since 2017, involving numerous actors in an interdisciplinary approach. This will allow us to provide a detailed overview of the issues pertaining to history, heritage, architecture, construction, thermal, acoustic and environment, along with social (residents) and management (condominium regulation) demands. On the other hand, it serves to construct working hypotheses aimed at resolving these issues, identified through the specific problems raised during the renovation of the building’s curtain facade. In an approach combining heritage, comfort, energy and economy, these hypotheses seek to design and construct a panel prototype capable of being manufactured on a larger scale at the Grands Ateliers Innovation Architecture in Isle d’Abeau.

PROPOSAL OBJECTIVES

This research serves to finance the construction site of a demonstration project developed around a manifesto-building (Les Cèdres) built by architect François-Régis Cottin and engineer Jean Prouvé in Lyon (1959-1962). The condominium currently has limited resources.

The research focuses on several objectives. On the one hand, it serves to provide an overview of the investigations conducted on this building since 2017, involving numerous actors in an interdisciplinary approach. This will allow us to provide a detailed overview of the issues pertaining to history, heritage, architecture, construction, thermal, acoustic and environment, along with social (residents) and management (condominium regulation) demands. On the other hand, it serves to construct working hypotheses aimed at resolving these issues, identified through the specific problems raised during the renovation of the building’s curtain facade. In an approach combining heritage, comfort, energy and economy, these hypotheses seek to design and construct a panel prototype capable of being manufactured on a larger scale at the Grands Ateliers Innovation Architecture in Isle d’Abeau.

METODOLOGY

The first phase of the research process focuses on understanding the building and its needs.

It begins with significant data collection across documents from private or public archives, a bibliographic review and many interviews with actors (managers, residents and surviving members of architecture teams). These explorations will allow us to better understand the specific logics and principles developed by the designers.

To identify the internal composition of the panels, the research is completed with a detailed survey and core sampling. These surveys are themselves achieved by observing the technical and mechanical characteristics of the building, such as its level of thermal and acoustic insulation, its lightness, the state of its carpentry and expansion joint degradation as well as natural ventilation. Measurement campaigns and a structural study are also carried out.

Complementary to these diagnoses are interviews and consultations with residents in order to identify comfort issues and expectations. Past and present uses are analyzed by way of interviews and participatory observation practices (CRESSON research lab).

Through these interviews, the team can draw up both normative and performance-sensitive specifications for the future facade.

REFERENCE CORPUS

Les Cèdres building stands at the heart of a plot located at 44 rue de la Favorite in the 6th arrondissement of Lyon.

It concerns a low-rise, nine level housing complex, oriented north and south, and with a double-height ground floor dedicated to common areas. Each floor has 69 housing units, ranging from one room to six rooms, and is divided into three corridors. The main building facades are made up of various wall types with prefabricated panels, giving it a unique, perfectly smooth and homogeneous appearance, with outstanding finesse and lightness for such a massive building.

The construction of Les Cèdres occurred at a decisive moment in Jean Prouvé’s contemporary reflections on facade panels, the first patents of which were tested in 1947 relating to double-walled aluminum sheet panels.


EDUCATIONAL COMPONENTS

Preliminary investigation work was carried out in 2017/2018 within the Architecture and Eco-Construction Transition Master’s Program in the post-carbon studies at AAAC research lab, directed by Olivier Baley and two students from ENSA Lyon (final project carried out on Les Cèdres building). Their research led to the development and manufacture of a solar protection prototype at the Grands Ateliers Innovation Architecture in Isle d’Abeau.

An exhibition project on lightweight facade panels designed by Jean Prouvé is under examination at ENSA Lyon for autumn 2019.

OPERATIONAL TARGETS

The construction site constitutes the final “rendering” of this research. Its purpose is to assess the rehabilitation of the building’s original lightweight facade through a set of assembled components. These components characterize a new lightweight envelope made of bio-sourced materials, adapted to the local environmental context and the needs of the inhabitants.

In order to evaluate the viability of the proposed solution, plans to carry out one or more full-scale prototypes are underway, which will be proposed to residents and spatial experts and debated upon based on their experiences on the ground.

This prototype will allow for the interdisciplinary work carried out by professionals (who will have participated in solution development) to be validated, for instance, perceptions and adaptations of the future site to be anticipated and for implementation costs to be specified.

Through this approach, our hope is to extend the life of a building and its lightweight facades while respecting the architecture, economic conditions of its implementation, comfort as well as sensitive requests from experts and residents.

Furthermore, the transferability of such an initiative must be examined. Since the design phase is largely dependent on existing resources, the proposed solutions may vary depending on the case.

In order to evaluate the viability of the proposed solution, plans to carry out one or more full-scale prototypes are underway, which will be proposed to residents and spatial experts and debated upon based on their experiences on the ground.

This prototype will allow for the interdisciplinary work carried out by professionals (who will have participated in solution development) to be validated, for instance, perceptions and adaptations of the future site to be anticipated and for implementation costs to be specified.

Through this approach, our hope is to extend the life of a building and its lightweight facades while respecting the architecture, economic conditions of its implementation, comfort as well as sensitive requests from experts and residents.

Furthermore, the transferability of such an initiative must be examined. Since the design phase is largely dependent on existing resources, the proposed solutions may vary depending on the case.

In contrast, it appears that the overall approach must be adaptable to projects carried out by condominium and housing associations.
What is the future of the individual housing stock in the immediate outskirts of French cities in the face of energy transition?

2-year project

INDIVIDUAL DESIGN

This research examines the evolution of existing individual homes as a result of new thermal requirements through two components:

- A situated study on the evolution of low-rise residential housing in the four chosen settings, including:
  - Geographical, historical and typological analyses to highlight the features of low-rise residential housing and its respective land;
  - Interviews with mayors, technical departments, real estate agencies and property owners;
  - Multi-criteria studies of houses that recently underwent construction work, integrating different typologies.

- A prospective study, corresponding to project-based research.

This will be based on analyses, suggestions for operational transformations or even prognosis work for some of the analyzed districts, in order to promote their thermal and spatial improvement and, or restructuring.

It will contribute to the implementation of the Energy Efficiency Training for Companies and Building Professionals (FEFEBAT) program, on which the Ministry of Culture is currently collaborating with the Environment & Energy Management Agency (ADEME) and Électricité de France (EDF).

OPERATIONAL TARGETS

The objective is twofold:

- To create an updated synthesis of knowledge on the future of the individual housing stock in the immediate outskirts of French cities, questioning its obsolescence in the age of contemporary energy transition through investigations among various actors (mayors, technical department directors, real estate agencies, property owners) and analyses of the construction carried out;
- To propose “frugal” low-rise residential housing transformation methods through project-based research, with interdisciplinary cohesion amongst professionals, researchers and residents that results in an analysis, agreed upon by all, at the scale of the housing district in order to develop a sustainable built landscape.

3rd SESSION 2018

2-year project

Principal Investigator

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Alina Ponsiosu, Architect, Doctor, Associate Professor at the University of Liége and ENSA Algiers
Caroline Viallet, Architect, Adjunct Professor at the School for Advanced Studies in the Social Sciences (EHESS)
Philippe Ziegler, Architect, Doctor, Associate Professor at ENSA Paris Val de Seine
Marina Cyria Diaz, Student at ENSA Paris-La Villette, Intern

CIRENCA and CRESSON research labs, UMR LAVUE

Cédric Delneuf, Architect, Doctor of Architecture, Research Fellow at the Ministry of Culture
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Ignacio Roque Breton, Architect, Doctor, Associate Professor at ENSA Montpellier
Davide Bal, Architect, Doctor, Accredited Research Director (HDR), Director of UMR MC-DANUB ENSA Grenoble
Nicolas Titzer, Architect, Doctor, Full Professor at ENSA Grenoble, Instructor at the Urban Planning Institute of Grenoble and the Janney School of Fine Arts
Yann Nussaume, Architect, Doctor, Accredited Research Director (HDR), Director of UMR LAVUE7218

Cité Foch, Olivet, Google earth

Cité Foch, Olivet, Google earth

REFERENCE CORPUS

Fear field investigations were selected in which individual housing is faced with significant challenges in terms of property and economy:

- Fontenay aux Roses, Paris
- Raw, Nantes
- Saint-Egrève, Grenoble
- Oliver, Orleans

In the coming years, a significant portion of the IH stock will be in need of renovation to ensure that energy consumption in the buildings can truly be reversed. With respect to the renovation taking shape in these IH, we can already notice a range of situations: implementation of technical devices aimed at improving thermal comfort, morphological modifications, extensions, redecoration, etc.

METHODOLOGY

This research examines the evolution of existing individual homes as a result of new thermal requirements through two components:

- A situated study on the evolution of low-rise residential housing in the four chosen settings, including:
  - Geographical, historical and typological analyses to highlight the features of low-rise residential housing and its respective land;
  - Interviews with mayors, technical departments, real estate agencies and property owners;
  - Multi-criteria studies of houses that recently underwent construction work, integrating different typologies.

- A prospective study, corresponding to project-based research.

This will be based on analyses, suggestions for operational transformations or even prognosis work for some of the analyzed districts, in order to promote their thermal and spatial improvement and, or restructuring.

It will include an examination of potential developments beyond the individual scale of these homes, focusing instead on the housing blocks that shape them, thereby allowing for the selection of different settings as cases to be tested.

Throughout the study, a state of the art on low-rise residential housing transformation is conducted in order to take into account the constant evolution of the research and design proposals on this topic.

EDUCATIONAL COMPONENTS

Educational interaction is planned at multiple levels:

- Through the engagement of students at different degree levels (Bachelor, Master, PhD) in the fulfillment of research objectives;
- By raising awareness for the contemporary questions essential to thermal renovation and “sustainable” densification of the existing individual housing stock, within the framework of research project modules along with theoretical courses on building pathology.

This research also encourages research teams from four graduate schools, and also promotes inter-institutional academic encounters on the topic.

It will contribute to the implementation of the Energy Efficiency Training for Companies and Building Professionals (FEFEBAT) program, on which the Ministry of Culture is currently collaborating with the Environment & Energy Management Agency (ADEME) and Électricité de France (EDF).
CONVERSION OF 20TH CENTURY THERAPEUTIC ARCHITECTURE: A KEY FOR THE SUSTAINABLE CITY OF THE 21ST CENTURY

The cases of Beaujon Hospital (Clichy) and Bichat-Claude Bernard Hospital (Paris)

3rd SESSION 2018
2-year project

Principal Investigator
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Olivier Vialoux, President of Investments at University Hospitals, Paris Nord University of Paris Diderot
Marie Barbeyron, Architect of the Public Assistance Hospitals of Paris
Anaelle Li, Architect, Historian, Member of ICT research lab, University of Paris Diderot

Paris-Val de Seine National Graduate School of Architecture (ENSA Paris-Val de Seine)

Partners
Public Assistance Hospitals of Paris (APHP)
Archives of the Public Assistance Hospitals of Paris
Graduate School 382, University of Paris Diderot
University Hospitals Paris Nord Val de Seine; University of Paris Diderot
University of Paris Diderot

An agreement was signed in April 2017 between ENSA Paris-Val de Seine, EVCAU research lab, APHP Hospital of Paris Nord Val de Seine and the University of Paris Diderot.

PROPOSAL OBJECTIVES

The purpose of the research is to define heritage values – historical, architectural, memorial, topical, utility, artistic – of 20th century hospital architecture, within a framework that characterizes its future; that is, the de-commissioning of buildings and hospital activities as well as future conversion. What values are enshrined in hospital architecture of the twentieth century? What should be protected? What should be conserved? What should be transformed? How can time stratifications be identified and understood?

As twentieth century hospital architecture is confronted with the challenges of contemporary well-being, questioning its transformation is tantamount to reflecting upon the sustainable city. Hospital facilities, treatment facilities and educational facilities (CHU) are project material for the sustainable city and a testing ground for other facilities or architectural estates.

The selected issue is based on three main hypotheses. Firstly, that granting attention to therapeutic architecture is a relevant tool for analysing heritage in an interdisciplinary way. Secondly, that architectural dimensions of the relationship between architecture and nature, typical of the twentieth century, are disrupted by a new paradigm: that of the environment, both in terms of the surrounding world as well as physical, human and urban ecology. Finally, in order for twentieth century healthcare buildings and sites to form part of a successful transformation project in the twenty-first century, differences between the spatial, philosophical and cultural thought of both centuries must be understood. Through case studies of 20th century hospital buildings, including interior spaces and exterior design, the proposed research aims to highlight the means and potential for future transformation and conversion in order to collect project materials for the city of the twenty-first century.

The research links architectural and heritage analyses of existing buildings, paying particular attention to the questions of the building envelope and its transformation. Two lines of work are focused: to describe (surveys, designations, archaeological analysis, historical analysis) and to classify (archive and document works) the constructed, programmatic and architectural complexity of sanitary buildings.

METHODOLOGY

The methodology is based upon a comparative approach of concrete case studies that reflect the diversity of conversion strategies and potentials.

The objective of this research is first to specify the history, the original context and the different stages of implementation, then to attempt to shed light on the evolution of these sites since the time of their creation.

Inspections of the buildings allow for the identification of values, in order to recognize which heritage interests of the sites all future conversion projects must strive to preserve. The various residual value components of the building’s authenticity in its current state are identified and evaluated, as well as different categories of disturbance and alteration. An analysis of technical devices is also established in order to specify the state of the facilities and the architectural and spatial layout of the buildings with regard to current regulations (fire, accessibility for people with reduced mobility, etc.) and thermal environmental standards.

This analysis serves to highlight the conversion and transformation potential of the site and its buildings. To respond to these various aspects, archives and documents provided by the Archives of the Public Assistance of Paris Hospitals and the technical departments of Boujon and Bichat-Claude Bernard Hospital are reviewed and analysed.

EDUCATIONAL COMPONENTS

The first objective is to ensure genuine synergy between research and pedagogy during the Master’s program. In terms of teaching, interdisciplinary experience and themes addressed in the research project are led by and developed upon in project groups and research seminars within the following field of study: “Transformations: The temporalities of heritage.”

Involved in this discussion are research units from EVCAU research lab, ENSA Paris-Val de Seine, particularly in regards to the use of IT resources and techniques as well as the creation of digital models. After one year, a doctoral seminar is offered around the themes of architecture, health and well-being, as part of the research focus within EVCAU.

OPERATIONAL TARGETS

The project supplements a more general reflection on public and urban policy as well as public service missions. In order to rethink the suitability of the idea (invention) and implementation by all the various actors on the ground (innovation), it also seeks to imagine new collaborative tools in the space between public and private actors involved in the conversion of hospital buildings.

Analyzing the results of the approach must allow for a theoretical framework (theoretical and methodological proposals) to be established, which will be verified in the field.

The research also integrates aspects of action research in order to give the researcher knowledge that concerns the transformation of already existing architecture and landscapes.

REFERENCES

Beaujon Hospital, Clichy, 1933 (2 W. Walter, L.V. Pleuvry and U.C. Camera, architect)
Bichat-Claude Bernard Hospital (Paris, 18th), several designs (comprised of plans) (1935), buildings from 1980 to 2000, and a 21-floor CHU (1978).
Appendices

PROPOSAL APPLICATION FORMAT

Research teams that are specifically organized to respond to calls for research project proposals must prepare an application (maximum 20 pages in A4 format), the content of which will not be examined until confirming its compliance to the structural requirements of the sections outlined below:

A. Content of the Research Project (max. 3 pages)

A1. General topic, research hypotheses and state of the art
A2. Specific question pertaining to the subject of study and field of investigation, presentation of the reference corpus
A3. Objectives in terms of epistemological reflection and theoretical construction
A4. Objectives in terms of project and experimentation
A5. Objectives in terms of pedagogical innovation

B. Methodological principles (max. 4 pages)

B1. Interdisciplinary approach of the team
B2. Methods of integrating the combined skills
B3. Methods of the team’s work organization

C. Valorization perspectives (max. 2 pages)

C1. Diffusion and valorization of the research results
C2. Valorization of the pedagogical developments within the schools
C3. Diffusion of the hypotheses amongst professional circles

D. Team composition (max. 6 pages)

D1. Name and position of the team’s principal investigator
D2. Composition of the research team
D3. Individual references of team members
D4. Institutional references of partners of the team

E. Calendar, budget and abstract (max. 3 pages)

E1. Calendar and phases
E2. Estimated budget and funding request amount
E3. Research project abstract in 4,000 characters

The application must be accompanied by a letter from the director of the delegated establishment.

TERMS OF THE CONSULTATION

Resources

Selected research projects may receive funding between 40,000€ and 80,000€.

Research projects can be co-funded by other incentive schemes or through public or private partnerships. In the case of co-financing, partnerships and additional amounts will be precisely indicated.

Criteria for Selection

For the calls for research projects of the three sessions:

1. Originality and relevance of the research question, particularly with regard to the challenges raised by the Multi-Annual Strategy for Heritage, the National Strategy for Architecture (SNA) and the Law on Freedom of Creation, Architecture and Heritage (LCAP)
2. Relevance and exemplarity of the method
3. Feasibility of the investigation timeline
4. Consideration for educational challenges
5. Dimensions and synergy of national and international partnerships
6. Prospects for scientific valorization and circulation amongst professional circles
7. Adequacy of human resources and budgetary means

CALENDARY

Calls for research project proposals

1st session

– Publication of the call for research proposals: June 17, 2016
– Deadline for proposal submissions: September 18, 2016
– Announcement of the selected teams: October 2016

2nd session

– Publication of the call for research proposals: February 27, 2017
– Deadline for proposal submissions: June 5, 2017
– Announcement of the selected teams: July 2017

3rd session

– Publication of the call for research proposals: July 5, 2018
– Deadline for proposal submissions: October 1, 2018
– Announcement of the selected teams: November 2018

Research duration

– For the 2016 call for research proposals: 2, 4 or 6 semesters (the latter case if the proposal is linked to doctoral dissertation research).
– For the 2017 call for research proposals: 2 to 4 semesters.
– For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.

CALENDAR

2016

1st session

January

Research begins

Seminar

January 2016

February

Intermediate report

Seminar

February 2016

March

Symposium

March 2016

April

Final report

Seminar

April 2016

Research duration

For the 2016 call for research proposals: 2, 4 or 6 semesters.

For the 2017 call for research proposals: 2 to 4 semesters.

For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.

CALENDARY

2017

2nd session

September

Research begins

Seminar

September 2017

October

Symposium

October 2017

November

Intermediate report

Seminar

November 2017

December

Final report

Seminar

December 2017

Research duration

For the 2016 call for research proposals: 2, 4 or 6 semesters.

For the 2017 call for research proposals: 2 to 4 semesters.

For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.

CALENDARY

2018

3rd session

January

Research begins

Symposium

January 2018

February

Symposium

February 2018

March

Intermediate report

Seminar

March 2018

April

Symposium

April 2018

May

Final report

Seminar

May 2018

Research duration

For the 2016 call for research proposals: 2, 4 or 6 semesters.

For the 2017 call for research proposals: 2 to 4 semesters.

For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.

CALENDARY

2019

2nd session

September

Research begins

Seminar

September 2019

October

Symposium

October 2019

November

Intermediate report

Seminar

November 2019

December

Final report

Seminar

December 2019

Research duration

For the 2016 call for research proposals: 2, 4 or 6 semesters.

For the 2017 call for research proposals: 2 to 4 semesters.

For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.

CALENDARY

2020

3rd session

January

Research begins

Symposium

January 2020

February

Symposium

February 2020

March

Intermediate report

Seminar

March 2020

April

Symposium

April 2020

May

Final report

Seminar

May 2020

Research duration

For the 2016 call for research proposals: 2, 4 or 6 semesters.

For the 2017 call for research proposals: 2 to 4 semesters.

For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.

CALENDARY

2021

3rd session

January

Research begins

Symposium

January 2021

February

Symposium

February 2021

March

Intermediate report

Seminar

March 2021

April

Symposium

April 2021

May

Final report

Seminar

May 2021

Research duration

For the 2016 call for research proposals: 2, 4 or 6 semesters.

For the 2017 call for research proposals: 2 to 4 semesters.

For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.

CALENDARY

2022

3rd session

January

Research begins

Symposium

January 2022

February

Symposium

February 2022

March

Intermediate report

Seminar

March 2022

April

Symposium

April 2022

May

Final report

Seminar

May 2022

Research duration

For the 2016 call for research proposals: 2, 4 or 6 semesters.

For the 2017 call for research proposals: 2 to 4 semesters.

For the 2018 call for research proposals: 4 semesters.

Research program schedule

It is expected that the selected teams:

– Participate in symposiums organized within the research program framework.
– Participate in annual seminars bringing together research teams financed by the program.
– Submit one or more intermediate research reports and then a final report.
The APC Educational and Research Network (Architecture, Heritage and Creation)

The Architecture, Heritage and Creation Network aims to construct a space for dialogue, exchange and reflection on the place of architectural and urban heritage within design project dynamics. It exceeds objects and temporalities to question instances, practices, theories and professional ethics as well as issues of sustainability beyond just environmental challenges. The APC network aims to capitalize educational experiences related to training, as well as heritage awareness and intervention on existing built areas, within National Graduate Schools of Architecture and their respective research labs; to establish an inventory of the debates, theories and practices at work in this field by promoting interdisciplinary dialogue; to combine educational practices, professional issues and scientific outputs surrounding the specific questions that heritage interventions raise; to promote and diffuse scientific research about issues that arise through dialogues between contemporary architectural and urban history and design, and finally, to develop a network on a national and international scale. The Lyon National Graduate School of Architecture piloted the APC network, which was certified by the Ministry of Culture in 2018 for a duration of three years. It is directed by Philippe Dufieux, Full Professor at ENSA Lyon (Laurea/UMR EVS), Benjamin Chavardès, Associate Professor at ENSA Lyon, and coordinatoby Étienne Léna, Associate Professor at ENSA Grenoble, and Mathilde Lavenu, Associate Professor at ENSA Clermont-Ferrand. The network brings together twenty ENSA establishments and the École de Chaillot, along with individual and institutional partners, particularly internationally. Many of the team's faculty members from the program, "20th Century Architecture, Project Material for the 21st Century Sustainable City", are members of the APC network which, through its actions, contributes to the valorization of research projects underway and promotes coherence between the teams.

1. Raise awareness for and develop knowledge of architecture amongst the general public and all public and private actors of the building sector

2. Account for twentieth and twenty-first century architectural heritage and develop upon architectural intervention in order to valorise and transform the existing built environment

3. Link training-research-profession and bring together the professional worlds of architecture, construction and living environment

4. Identity and mobilize architectural skills

5. Distinguish the economic value of architecture and guide professional transformations

6. Support experimental approaches and their cultural value

The National Strategy for Architecture (2015) identifies six key strategic pathways for changing our society's relationship to architecture and achieving "ordinary excellence in everyday spaces":

1. Raise awareness for and develop knowledge of architecture amongst the general public and all public and private actors of the building sector

2. Account for twentieth and twenty-first century architectural heritage and develop upon architectural intervention in order to valorise and transform the existing built environment

3. Link training-research-profession and bring together the professional worlds of architecture, construction and living environment

4. Identity and mobilize architectural skills

5. Distinguish the economic value of architecture and guide professional transformations

6. Support experimental approaches and their cultural value

The Multiannual Heritage Strategy (2017) sets out four challenges for heritage: restoration, valorization, transmission and advancement of Europe. These challenges are part of a cultural policy focused on "proximity", for which heritage is one of the "pillars".

The "Remarkable Contemporary Architecture" certification was created by article n° 78, law n° 2016-925 of July 7, 2016, on Freedom of Creation, Architecture and Heritage and by its implementing decree n° 2017-433 of March 28, 2017. It aims to identify works of architectural interest less than 100 years old, to promote their quality to the public and to guide their transformation.

The "Remarkable Contemporary Architecture" certification was created by article n° 78, law n° 2016-925 of July 7, 2016, on Freedom of Creation, Architecture and Heritage and by its implementing decree n° 2017-433 of March 28, 2017. It aims to identify works of architectural interest less than 100 years old, to promote their quality to the public and to guide their transformation.