

Re-school. How to rethink the school starting with spaces

*Original*

Re-school. How to rethink the school starting with spaces / Barioglio, C.; Campobenedetto, D. - In: The Future Urban Legacy Lab. A Report, 2017-21 / Coricelli F. , Martini L., Robiglio M.. - STAMPA. - Torino : Politecnico di Torino, 2021. - ISBN 978-88-85745-69-8. - pp. 299-305

*Availability:*

This version is available at: 11583/2996075 since: 2025-01-02T10:38:07Z

*Publisher:*

Politecnico di Torino

*Published*

DOI:

*Terms of use:*

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

*Publisher copyright*

(Article begins on next page)

**the Future**  
*Urban Legacy*  
**Lab**

---

**a report**  
**2017-2021**

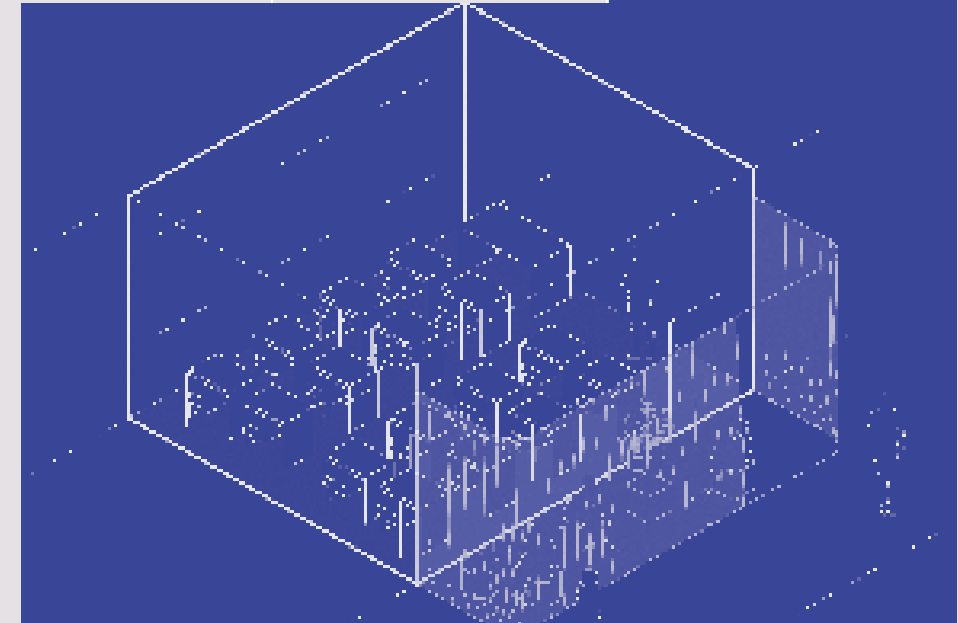


University of Bobo-Dioulasso in Burkina Faso. The work carried out redefined an existing spatial scheme of the hospital, providing compositional, technological and environmental solutions to respond to the need to adapt the ventilation health parameters required by WHO - Téchne in a context of energy and material scarcity. These indications were produced following some studies and simulations conducted on experimental aspects defined in collaboration with the on-site personnel of the WHO - Téchne and Professors by the Nazi Boni University of Bobo-Dioulasso in Burkina Faso. The work achieved the definition of compositional and engineering solution that could respond to the request of relying on natural ventilation in context of scarcity to respond to the emergency of COVID-19 in health structures. This project has allowed WHO - Téchne to refine the ventilation and spatial scheme parameters for all SARI treatment centers in similar climatic zones and has stimulated interest in the relationship between engineering, architecture and health. Furthermore, the interest in this project has prompted possible funds for the construction of prototypes to be tested at full scale of sections of the building. The second and current phase of the collaboration sees the involvement of the Politecnico di Torino in collaboration with WHO - Téchne and UNICEF for the design, simulation and verification of the spatial / compositional and ventilation aspects of the 'High Performance Tents'. This work focuses on the redefinition and verification of existing tents, which are not designed in response to health emergencies not related to airborne diseases as in the case of COVID-19. In order to make these tents usable even during the current pandemic, the Politecnico di Torino is simulating and verifying the ventilation requirements for different climatic areas, in order to manage and contain any infections and consequently, establish the spatial and morphological parameters necessary for the correct use of one or more assembled curtains. Also in this case, a possible allocation of funds is under discussion to envision a prototyping and test activity to be carried out at the premises of Politecnico di Torino.

# Re-school

## How to rethink the school starting with spaces

TYPE	YEAR
Research project	2020 - ongoing



### TEAM

**Scientific director:**  
Matteo Robiglio

**Research coordinator:**  
Caterina Barioglio

**Research team:**  
Daniele Campobenedetto,  
Marco Cappellazzo,  
Giulia Sammartano,  
Nannina Spanò,  
Caterina Quaglio

### Collaborators:

Lucia Baima,  
Angelo Caccese,  
Elena Guidetti,  
Chiara Iacovone,  
Lorenzo Murru,  
Edoardo Orabona,  
Andrea Pollio,  
Giuliana Prifti,  
Maria Paola Repellino,  
Roberta Taramino,  
Ilaria Tonti,  
Alberto Valz Gris.

### Fondazione Agnelli:

Andrea Gavosto  
Martino Bernardi  
Marco Gioannini  
Stefano Molina  
Raffaella Valente

For this research project FULL has collaborated with Fondazione Agnelli. The project has had great visibility in national newspapers.

The Re-school project is the result of a collaboration between Fondazione Agnelli and the Future *Urban Legacy* Lab that aims to

POST - PANDEMIC CITY | Re - School

offer tools for the regeneration of the Italian school building stock by addressing issues of safety, environment and educational innovation. The research has taken the form of a series of projects developed over different, complementary phases. The first outcome was the document "Fare Spazio" (July 2020), a study aimed at supporting local authorities and school administrations in the context of the uncertainty surrounding the return to school during the pandemic. Between October 2020 and July 2021, a direct request from teaching staff at the school Istituto Comprensivo C. Alvaro - P. Gobetti in Turin provided the opportunity for an experimental application of the principles identified in Fare Spazio. In parallel, the research team was awarded funding under the FISIR 2020 - Covid call for proposals launched in May 2020 by the Italian Ministry of University and Research (MUR) with the project 'Re-school. Rethinking educational spaces in latent pandemic conditions', aimed at creating an interactive web application to provide school principals, local authorities, teachers and pupils with a practical tool for recognising the resources - in terms of space - available in school buildings, in order to assess possible transformations. Finally, these experiences have led to more extensive collaboration with local and regional authorities (the Metropolitan City of Turin and the Piedmont and Lombardy Regions) with the aim of systematising knowledge on school infrastructure as a support for strategic planning on a regional scale.

## The starting point: support decision-makers in adapting school spaces

In recent months, school principals and local authorities have faced the challenge of a critical transition from an extraordinary to the ordinary management of the school building stock. Starting from very concrete problems and re-contextualizing them into a broader perspective, the Re-school project aims to offer a method of action and a "toolbox" useful to those who are working on the difficult task of regenerating school spaces. In order to do that, it is however necessary to overcome the logic that has guided school regeneration projects so far, which varied between an experimental and qualitative approach on individual pilot cases on the one hand, and extensive retrofitting actions aiming at meeting minimum requirements rather than at the effective quality management of a comprehensive action plan. The research intends therefore to elaborate an alternative model of intervention in order to propose an action plan on the regional scale which tries to fill the gap between these two extremes on the basis of two fundamental assumptions: firstly, to take into account the whole stock of buildings of the regional infrastructure and, secondly, to select priorities for intervention and enhance the quality of transformations.

## The method: from typology recognition to design action

To tackle the issue of developing an action plan for operational regeneration on territories with different characteristics, the research team developed a model aimed at integrating the identification of recurring typologies of school buildings in their physical consistency with the specificities and potentials of different territories.

## Measure

Italian Regions have access to an extraordinary amount of data on the school building heritage - collected in the national databased SNAES (Sistema Nazionale dell'Anagrafe dell'Edilizia Scolastica) and in its regional "nodes" the ARES (Anagrafe Regionale Edilizia Scolastica). Quantitative and qualitative analyses based on these data sets make it possible to identify and quantify recurring criticalities (e.g. with respect to the issue of sustainability and energy efficiency) and spatial resources (e.g. surplus space in schools in non-urban areas). In doing this, the research aims to spatialize and systematize our knowledge of the school infrastructure and to elaborate an overview of the existing assets in terms of transformation potential.

## Assess

The second step involves classifying school buildings (defined by their layout, structure, settlement, etc.) and their micro-urban context (accesses, relationship with the street network, etc.) according to some recurrent typologies. These typologies result from multiple historical, legislative, and technical seasons which are reflected in continuity and occurrences in the school building stock across Italy.

The typological classification is furthermore intertwined with the distribution of buildings on a territorial scale: this connection aims at identifying statistically significant categories, which can provide a concise but comprehensive description of the national school infrastructure. This approach allows the research team to explore the potential of transformation on an architectural level without renouncing a territorial perspective.

## Select

By introducing evaluation parameters (e.g. resources available for transformation; cost-benefit analysis etc.) the results of the measurement can be evaluated and prioritized against regional objectives. In this way, the analyses developed in the previous phases can provide guidelines to identify priorities for intervention on a regional scale. So, through this methodological approach, the research moves "from measurement to action" providing useful tools for local authorities to identify priorities of intervention and to develop strategic planning actions.

## First outcomes

Different outcomes were produced at various stages of the research project. The first phase of the work resulted in the drafting of a document entitled "Fare spazio. Idee progettuali per riaprire le scuole in sicurezza" (Make space. Design ideas to reopen schools safely), published online in July 2020. This report aims to provide design ideas, primarily addressed to school principals, in order to adapt educational spaces to the COVID-19 emergency and to ensure the best environmental conditions for a safe return to school. As a result, the whole report is conceived as a "toolbox", for technical and non-technical users, valid to identify the more suitable spaces for transformation and the techniques needed to do so. Reflecting the contingency of the report - elaborated under the the COVID-19 pandemic - the suggestions are meant to be timely, achievable with the available resources and reversible.

Another outcome of the "Re-school" research is the report "Dentro Fuori Oltre. Ripensare gli spazi dell'Istituto Comprensivo 'C. Alvaro - P. Gobetti' a partire dalle sue potenzialità" (Inside Outside Besides. Rethinking the spaces of the school building 'Istituto Comprensivo C. Alvaro - P. Gobetti' starting from its potential", submitted to the school's manager and teachers at the end of July 2021. The report presents the results of the research project on the

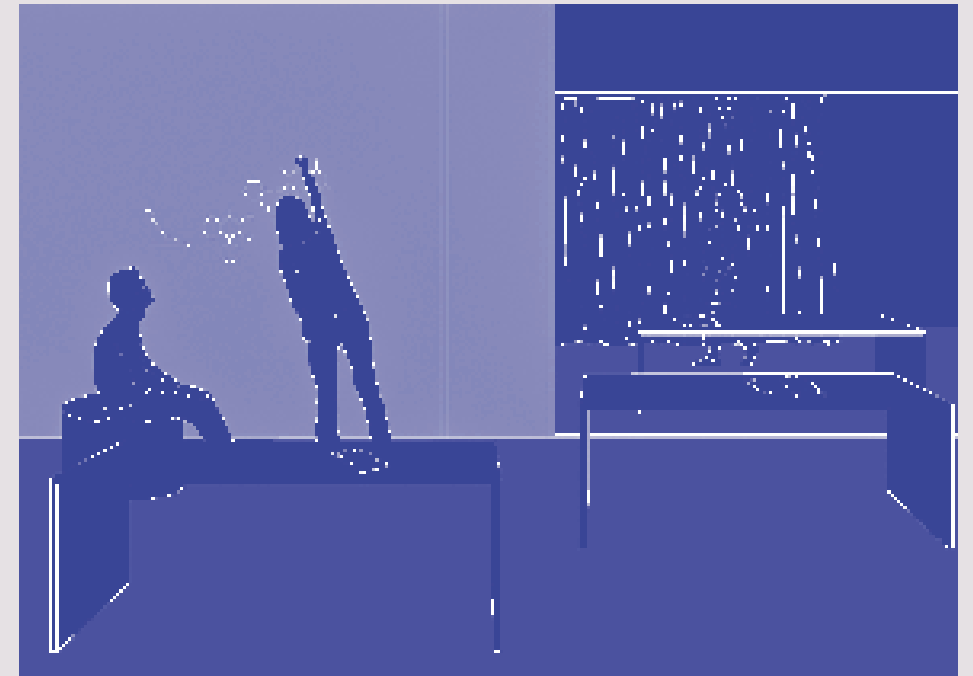
internal and external spaces of the school in collaboration with the teaching staff. The work aims to share analysis and design ideas to be used as a starting point for the development of architectural projects which are able to meet the needs of an enlarged school community and as a stimulus to educational innovation, even in changing and uncertain planning conditions.

Two further products are currently under development. Firstly, the project “Re-school. Rethinking educational spaces in latent pandemic conditions” developed within the framework of the FISR 2020 - COVID call for proposals, is going to create an interactive web application to support school directors and local authorities in identifying the transformative potential of school buildings. More specifically, the project aims to create an interactive website with a simple and intuitive interface to lead users through a series of questions to identify the spatial resources of a specific school. The outcomes of the query system are both the recognition of the transformative potential of school buildings based on parameters such as morphological characters, building type and position on the lot, settlement situation (etc.), and a collection of design suggestions according to the needs declared by the user.

Finally, in the extensive research projects just launched as the result of the cooperation with the Metropolitan City of Turin, Piedmont and Lombardy Regions, the objectives of the work have definitely moved from an emergency logic (dealing with immediate/short term and possibly temporary/reversible transformations) to a medium-long term transformation perspective. In the preliminary phases of these works were elaborated the tools and methods for systematization of the knowledge on a territorial scale and laid the groundwork to support local authorities in defining guidelines for strategic planning.

## Next steps

In the coming years, school buildings will be one of the main targets in the allocation of European and Italian funds. In this context, as a next phase, the Re-school research project aims to



become an effective tool to support Italian local authorities in the elaboration of guidelines and strategic planning measures for the transformation of the existing school building stock. Following the methodology tested and implemented in different contexts during the first stages of the research project, a number of analytical processes combining the territorial and architectural scales will be employed as a starting point to identify areas and priorities of intervention (e.g. assessing weaknesses of a technical or regional nature, or questioning the relationship between spaces and didactic activities). After focusing on the emergency in the first phase of the work, the second phase covers medium- and long-term transformations, thus bringing to the forefront further issues and above all, an effort to re-conceptualize the relationship between schools and the territories in which they are located. In a framework in which tools and funds are and will be available for a substantial restructuring of the Italian public infrastructure, the aim is, therefore, to support the vitality and capacity for initiative of local realities through the development of an effective and replicable operative model.

# COLOPHON

## The Future *Urban Legacy Lab* A report. 2017–2021

### Editors

Federico Coricelli  
Laura Martini  
Matteo Robiglio

### Collaborators

Adriano Aimar  
Angelo Caccese

### Contact

Future *Urban Legacy Lab*  
c/o OGR Tech  
C.so Castelfidardo, 22  
10138 Turin, Italy  
full.polito.it

### Editorial assistant

Ludovica Rolando

### Translation

Landoor

### Art Direction + Graphic Design

FIONDA:  
Roberto Maria Clemente  
Arianna Smaron  
Gioele Prette

### Typefaces

Akzidenz-Grotesk pro  
Adobe Caslon Pro

### Paper

Fedrigoni Arena EW Smooth  
Fedrigoni Imittlin Flat

### ISBN

978-88-85745-69-8

### Printed and bound in Italy by

Arti grafiche Parini



### Rector

Guido Saracco

### Deputy Rector

Laura Montanaro

### Vice Rectors

David Chiamonti,  
*International Affairs*  
Stefano Paolo Corgnati,  
*Internal Affairs*  
Claudia De Giorgi, *Welfare  
and Equal Opportunities*  
Sebastiano Foti, *Education*  
Patrizia Lombardi,  
*Sustainable Campus  
and Communities*  
Giuliana Mattiazzo,  
*Technology Transfer*  
Luca Settineri, *Policy  
Planning and Infrastructure*  
Matteo Sonza Reorda,  
*Research*

### FULL Department Directors

Andrea Bocco, DIST  
Paolo Mellano, DAD  
Elena Maria Baralis, DAUIN  
Marco Perino, DENERG  
Andrea Bianco, DET  
Francesco Laio, DIATI  
Maurizio Galetto, DIGEP

### Thanks to

Mario Ravera, *Head of PPA*  
Annita Dei Tos,  
*Interdepartmental Centres  
Supervisor*  
Graziella Mauro, *Assistant  
to the Supervisor*

### Maicol Negrello Research fellow

is an architect and research fellow at FULL and DAD (Politecnico di Torino). Graduated in Architecture after two international experiences at TTÜ Tallinn and at the CCA (Montréal), he holds a PhD at Politecnico di Torino with the thesis “Architecture for urban agriculture”. He is currently involved in studying the different forms of integration of nature in the city in the research NUI- Nature as Urban Industry.

### Emanuele Protti PhD candidate

is an architect and PhD student in Architecture History and Design at Politecnico di Torino. He collaborated with Carlo Ratti Associati, Plateau Collaboratif, UdA Marcante-Testa. In 2016, he won in collaboration with Plateau Collaboratif the international competition for the redevelopment of the industrial sector Pasubio in Parma. He lives and works in Turin.

### Elisa Sirombo Research fellow

architect, leed ap bd c, o m, itaca protocol expert Since 2011 he has been a consultant on energy-environmental sustainability issues and on the LEED and Itaca certification processes and since 2014 he has been collaborating with Macro Design Studio. Since 2013 research fellow at the Department of Energy of the Polytechnic of Turin, he carries out research in the field of sustainable construction. Author of several technical and scientific publications.

### Natalia Bonilla Research fellow

finished her major in Architecture at the Universidad de Costa Rica, Natalia gained experience for two years in design and construction as a junior architect in the San José based firm Grupo Terraba. In 2015, she undertook the masters joint programme PLANET Europe, part of Erasmus+, between Radboud Universiteit (Netherlands) and Cardiff University (United Kingdom) in European Spatial Planning and Environmental Policies.

### Caterina Montipò PhD candidate

is an architect and PhD She graduated from Politecnico di Milano in 2013, and earned her PhD from Politecnico di Torino in 2019 with the thesis “Loft Working. Urban manufacturing spaces in North American cities.” She has a rich and diversified international experience developed both as a student as well as a professional between Spain (Universitat Politècnica de València), Chile (Pontificia Universidad Católica de Chile), and USA (Carnegie Mellon University). She has been collaborating with different architectural studios and engineering companies between Chile (2013-2014) and Italy (2015-current).