

AoI.DS

AMa

Envitioning San Siro #2

School Of Architecture
Urban Planning
Construction Engineering

Politecnico di Milano

DESIGN STUDIO HANDBOOK

academic year
2018 / 2019

Prof. G. Postiglione
Prof. F. Leonforte

Tutors
Barbara Brollo
Sibil Strauli

Tutor for graphics and template
Nicola Sirugo

Studio guide

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San Siro area, Milan

The Studio

The Architecture of Interiors Design Studio is inspired by the ever-increasing number of studies that in Italy and Europe are concerned with the need for an opportunity to intervene on the vast residential property built after WWII and, in particular, on the Social Housing building stock that constitutes for many Countries the most substantial part. This is due the European Energy road map (2012) that has fixed the ambitious goal to cut gas emission by the 85% by 2050, investing large amount of money for retrofitting interventions on public buildings, specially on housing stock. These settlements have been affected - not only in Italy - by the consequences of housing policies and intervention strategies conditioned by the pressing housing crisis and the size of the social housing demand that accompanied the post-war reconstruction. The large high-rise residential complexes that in many cases characterize these areas, which are now often embedded in urban city matrix, are subject to a high degree of social degradation as well as technical and functional (abstract Ricerca PRIN 08 “Edilizia Sociale ad alta densità / High density Social Housing”). Moreover, as Ernesto Antonini, Jacopo Gaspari, Giulia Olivieri have pointed out in their paper (DOI: <http://dx.doi.org/10.13128/Techne-11531>) “Densifying to upgrading: strategies for improving the social housing built stock in Italy” the world economic crisis has further depressed – not only in Italy - the production of social housing but it dramatically increased the demand of affordable rental dwellings. A refurbishment and retrofitting campaign of the social housing stock appears to be as a credible and effective strategy, able to be applied in the short term to bring this gap.

Number of studies carried out on the affordable housing in use allow

to identify three main targets for retrofitting strategies, focusing on the combined reduction of operation & management costs, improvement of the building capacity to meet the user needs and increasing of the exploitation ratio of the assets:

- adapting in size and equipment the apartments to the emerging demand trends, pushed by two social trends: the fast increasing of households of one or two persons (typical Italian and European) and those of five and more (mainly people from extra-EU countries), in spite of the middle size flats that still represent more than half of the social housing offer [the Design Studio adds a third phenomenon typical of metropolitan areas: the request of “Temporary Social Housing” for families and people in temporary need];
- improving functionality and usability performances of the buildings – such as seismic safety, energy efficiency, comfort – focusing also on the significant reduction of operating costs which are often obtainable in parallel;
- intensifying the utilization ratio of the built estate and increasing the settlement density, by the addition of new volumes intended to enlarge the available social housing offer.

#Design urgency

The overwhelming majority of retrofitting interventions does not consider architectural quality neither as an objective nor as an instrument of interventions or as the need for an architectural project, directing this type of interventions to mere technical design. In fact, this process is destroying our urban environments, greatly impoverishing both urban and residential quality by virtue of a quantitative and performative supremacy that sees consumption reduction as the only parameter on which to pay attention, completely ignoring the consequences on inhabited environment (both inside and outside the home).

Minimising energy demand by appropriately manipulating the options offered by the urban design is a crucial step for minimising the entropy production of the neighbourhood (thus the contribution to global warming), but it must be remembered that urban design also affects other aspects of sustainability, such as health, liveability, social inclusion, equity and economics.

Of course the architects have to consider not only energy, but also aesthetics, functionality and economy issues.

The challenge is unprecedented and will require a radical transformation of the methods of designing and building. The reduction of CO2 emissions by reducing energy consumption guaranteeing at the same time the quality of the space (external and internal) is the top priority facing the construction industry today.

#Manifesto

Learning from the past, re-designing for the future: the 50s Milanese school.

Addressing quality:

- on the Interiors (lay-out, typology and materiality)
- on the Façades (as strong urban determinant)
- on the Public Space (the inside/outside relationship on the ground floor)

#Method

Addressing every building as a “system of ecologies” and not as a simple and autonomous artifact; this means: addressing even the intervention only on the building envelope (the Façade) as a mediator between the Interiors and the Urban Environment; considering the potential empowering consequences on the Interiors; considering the potential empowering consequences on the Urban Environment; considering, whenever possible, the Public Space and its interrelation with the Building (the material Neighborhood); considering, last but not least, the potential empowering consequences on Social cohesion (the immaterial Neighborhood); minimise energy demand in buildings by means of Climate responsive design building whose architectural features are such that they take advantage of local climatic resources to provide an indoor environment which is as comfortable as possible, thus reducing energy consumption due to the need for mechanical heating or cooling; maximise efficiency of energy conversion technologies; fulfil the remaining energy consumption with renewable energy sources.

The calendar in brief

FL: Francesco Leonforte GP: Gennaro Postiglione BB: Barbara Brollo
SS: Sibil Strauli ML: Morning Lecture GL: Guest Lecture FFL: Fabrizio Leonforte Lecture

	#01	Extra Programme	#02	#03
tuesday M (aula B.3.4)	26th February Studio Presentation h. 9:30 GP ML#01 - BB+SS	2nd March Milan 50's architecture city tour	5th March Site Visit	12th March GL#02
tuesday A (aula B.3.4)	Seminar #01 FL+GP		FFL#01 GL#01 ML#02 - BB+SS Work and revision	FFL#02
LAB KICK OFF				
	#04	#05	#06	#07
tuesday M (aula B.3.4)	19th March FIRST DELIVERY SEMINAR (all day)	26th - 27th March Zurich study trip	2nd April FFL#03 ML#03 - GP	9th April FFL#04 ML#04 - GP
tuesday A (aula B.3.4)		Work and revisions	Work and revisions	FFL#05 Work and revisions
FIRST STAGE		SECOND STAGE		

	#08	#09	#10	#11
tuesday M (aula B 3.4)	16th April Conference #01	23th April Easter holidays	30th April MID-TERM SEMINAR (all day)	7th May Work and Revisions (all Day)
tuesday A (aula B.3.4)	Work and revisions			
SECOND STAGE		THIRD STAGE		
	#12	#13	#14	#15
tuesday M & A (aula B.3.4)	14th May Work and Revisions (all Day)	21st May Work and Revisions (all Day) Conference #02	28th May Work and Revisions (all Day)	4th June INSTANT EXHIBITION + PRESENTATIONS WITH GUEST CRITICS
THIRD STAGE				
	#16	#17		
tuesday M & A (aula B.3.4)	18th June (Exam: 1st session)	16th July FINAL EXHIBITION WITH PRESENTATIONS (Exam: 2nd session)		
FOURTH STAGE				

AMa - Architecture [quality] Matters

AI-DS1-2019 - Architecture of Interiors – Design Studio 1 – 2018-19

Gennaro Postiglione (Interiors) & Fabrizio Leonforte (Building Physics) + Stina Jensen (PhD Candidate/Aarhus)



A NEED FOR
ENERGY
RENOVATION

**“EU goal to cut greenhouse gas emissions
by 80–95% by 2050.”**

European Union, 2012: *Energy roadmap 2050*.

“Buildings are responsible for approximately 40% of energy consumption and 36% of CO2 emissions in the EU.

European Union, 2012: *Energy roadmap 2050. (our highlights)*

“A substantial share of the stock in Europe is older than 50 years with many buildings in use today that are hundreds of years old.
More than 40% of our residential buildings have been constructed before the 1960s when energy building regulations were very limited.”

Buildings Performance Institute Europe, 2011. Europe’s buildings under the microscope.



A NEED FOR
IMPROVED
SOCIAL
HOUSING

European Social Housing from the 1930's-1970's represents
a **significant heritage of housing**.

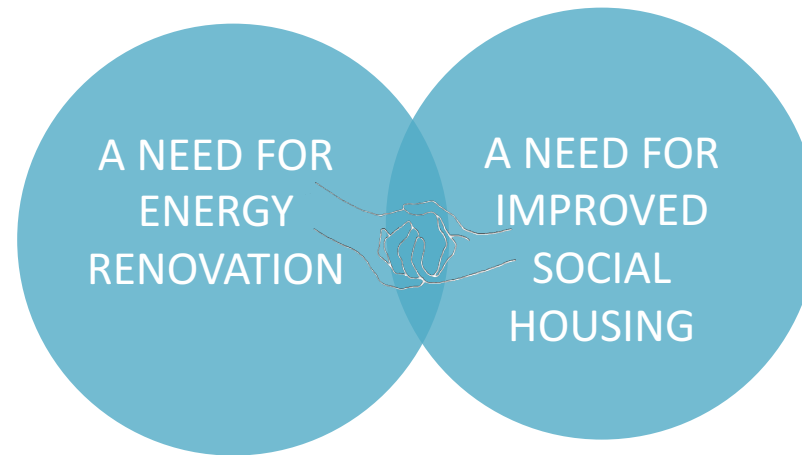
– however, most of this heritage is in need of renovation to
meet current user needs and to overcome social stigma.

Bech-Danielsen 2015. Peters 2015.

Robin Hood Gardens
London 1967-72
Alison and Peter Smithson
Video Do Ho Suh, Biennale di venezia 2018



Energy renovations can be viewed as a kick-off for addressing these issues **through attention to spatial quality.**



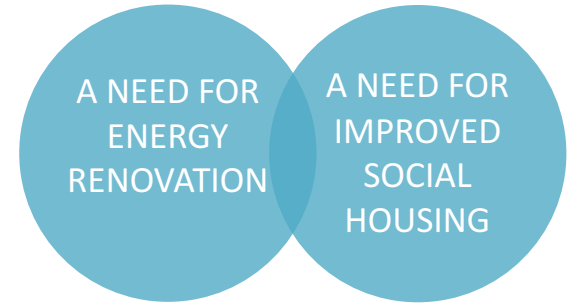
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**HIGH SOCIETAL
IMPACT!**

Abstract

Given the increasing environmental and legislative demands to reduce energy consumption, not only new constructions but also the existing urban fabric is about to change radically in the coming decades. Existing buildings cannot simply be restored but must undergo a transformation to comply with these demands. As the largest potential for energy savings lies in re-insulation of the building envelope, specifically by adding an additional insulation layer, this transformation will dramatically affect the everyday experience of the built environment. Articulating the architectural consequences and potentials of this transformation is an urgent matter if it is not to be realized solely as a monotonous technical cladding. In this matter, that of conceiving such extra insulation layer simultaneously as a technical 'principle' and as a spatial 'gesture' revealing an aesthetic architectural potential through this transformation is inevitably a tectonic question. By analyzing three historical examples, Adolf Loos' Villa Moller, Le Corbusier's Unité d'Habitation, and Frank Lloyd Wright's Johnson Wax Administration Building, chosen for their tectonic ability to exploit the technical 'principle' defining the building envelope as an aesthetic 'gesture', this paper discusses the architectural challenges related to energy renovation in a Danish context and tectonic design method as an approach to these challenges in everyday practice.

The current state of BUILDING RENOVATION emphasizes technical performance and efficiency, costs and user responses to technology. However, there is a facet that is hardly explored in the current practice & literature, which is **IF** and **HOW** building renovation **INVOLVES** and also **AFFECTS SPATIAL QUALITY** [inside and outside the building].



The Four main challenges of the Studio:

1. to demonstrate that **ENERGY RENOVATION** always affects **SPATIAL QUALITY** but actually usually with a very negative impact;
2. to challenge **RETROFITTING** interventions able to consider **SPATIAL QUALITY** both as a **TOOL** and a **GOAL** of any action of functional and energy renovation;
3. to highlight that these interventions effect the **SPATIAL QUALITY** not only for in the **INTERIORS SPACES**, but also impact the **URBAN ENVIRONMENT**. Element to be considered when performing costs/benefits analysis of interventions;
4. To keep **People Places Practices** always at the center of the design activity.

OUR DESIGN TARGETS

ARCHITECTURE IS THE ART OF BUILDING
ARCHITECTURE ALWAYS ENCOMPASSES ITS FUNCTIONAL DIMENSION
ARCHITECTURE IS NOT [MERE] CONSTRUCTION

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