




proSTO Solar Thermal Systems in Heritage Buildings

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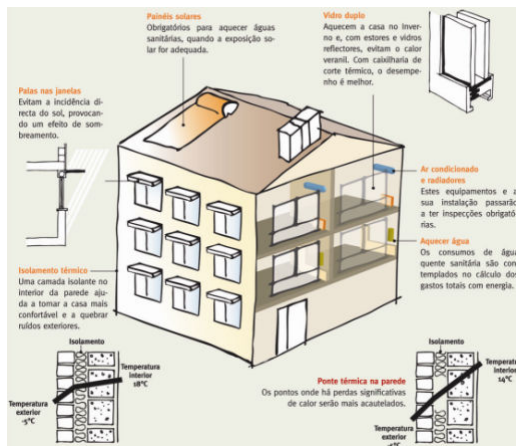
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THE NATIONAL LEGAL FRAMEWORK

The Thermal Performance Building Regulation, RCCTE – Decree Law 80/2006, introduced the compulsory use of solar thermal collectors for hot water production in new and highly refurbished residential buildings, whenever the building’s exposition is adequate.

The obligation considers the installation of 1m²/habitant.

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THE NATIONAL LEGAL FRAMEWORK

Within the Portuguese legislation, historical buildings and protected areas are seen as exemptions to the application of the national legislation on buildings energy performance, namely regarding the obligation for installing solar thermal systems in residential buildings.



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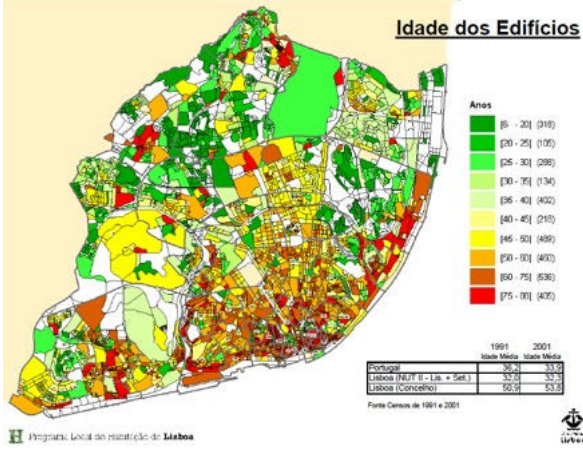
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LISBON

Lisbon has a total of 53.387 buildings. The average age of this real estate is 54 years.

4.665 buildings are abandoned and 4.568 are in need of intervention.

The large majority of these buildings are located in the central consolidated area of Lisbon.



	1991	2001
Portugal	36,3	37,3
Lisboa (NUT II - Lis. + Set.)	52,9	52,3
Lisboa (Concelho)	50,9	53,8

Fonte: Censos de 1991 e 2001

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LISBON

RMUEL - Municipal Framework for Urban Edifications in Lisbon, additional criteria for the installation of Solar Thermal Systems:

- Solar thermal systems must be considered at the initial stage of the project licensing, with the architecture project;
- Buildings should have a User Manual that characterizes the building energy performance and, among other functionalities, defines the hot water production system and maintenance requisites;
- The adoption of centralized solar thermal systems is compulsory in new buildings;
- Solar thermal systems should be integrated in the building architecture and the hot water storage tank should be concealed.

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LISBON

RMUEL - Municipal Framework for Urban Edifications in Lisbon, exemptions to the installation of STS:

63rd article, 6th line – In the cases where it is not possible to install solar thermal collectors an explicit justification has to be added to the architecture project submitted, and the exemption is restricted to:

...

d) listed buildings and buildings located in cultural heritage sites.



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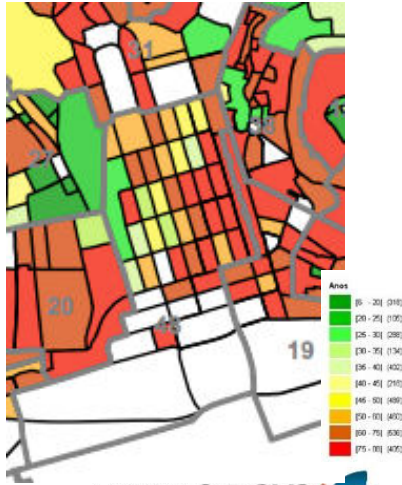
THE BAIXA POMBALINA AREA

The Baixa Pombalina area is considered the most important historical area of Lisbon.

It is listed as heritage area managed by IGESPAR, the entity responsible for the management of the national archaeological and architectural patrimony.

Despite the historical status of this Central Historic Area, Baixa Pombalina is one of the least inhabited areas of Lisbon.

Buildings average age is 75 years old.



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THE BAIXA POMBALINA AREA

Dealing with the problematic abandon and desertification of Lisbon's most important historical area, the Lisbon Municipality decided to define an intervention programme, aimed at the urban requalification and revitalization of the Baixa Pombalina area.

The Municipal Framework for the Baixa Pombalina Detailed Safeguard Plan establishes the soil use and refurbishment conditions for the Baixa Pombalina area.

It's essential to foster real state promoters interest in this area, and for that define at an early stage the rules for intervention.

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THE BAIXA POMBALINA AREA

Being an historical area all the buildings in this area are not required in any way to include solar thermal systems.




Nevertheless, the Municipal Framework for the Baixa Pombalina Detailed Safeguard Plan was perceived as an opportunity to specify the thermal performance conditions of the buildings, regarding the possibility to respond to the legal requirements, also in terms of solar thermal systems integration.

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THE BAIXA POMBALINA AREA



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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

PARTNERS

Lisbon Municipality
The Urban Requalification Direction
The Baixa Chiado Protection Unit

IGESPAR - The Institute responsible for the management and conservation of the national archaeological and architectural heritage.

Solar Thermal systems manufacturers




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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

INPUTS




Aerialphotomap, 2006
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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

INPUTS



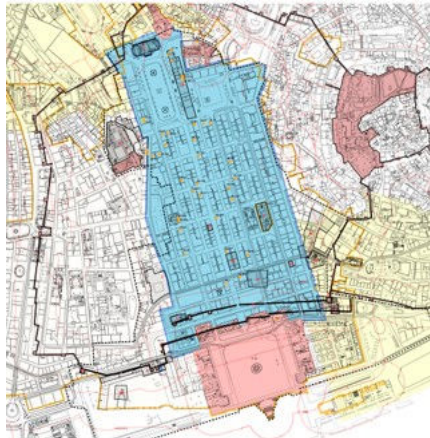
Blocks and buildings limits
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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

INPUTS



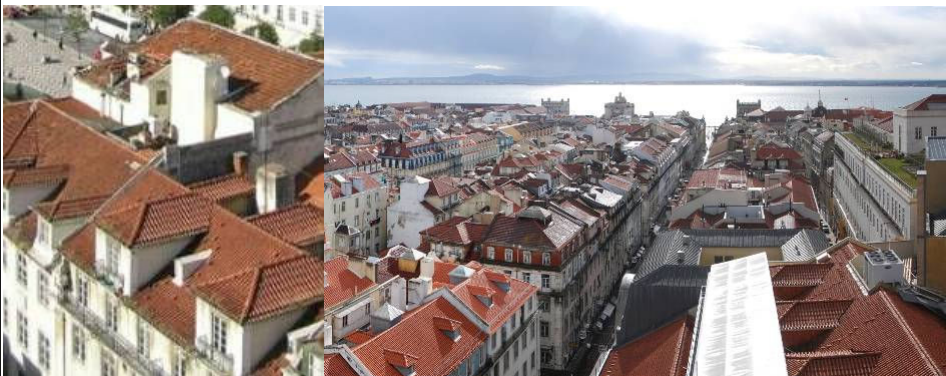
List of the classified buildings.
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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

INPUTS



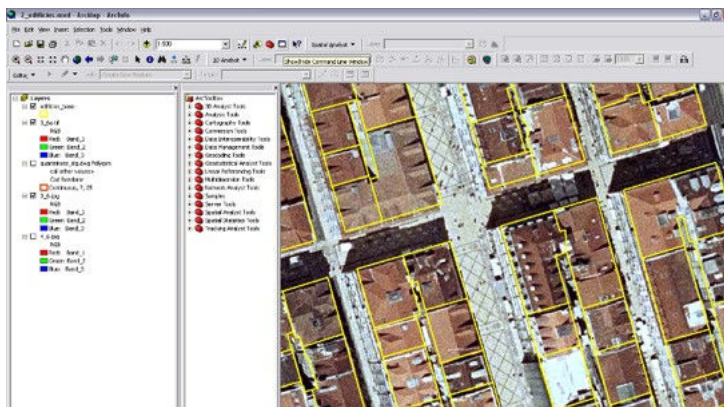
Photographic assessment.
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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

METHODOLOGY

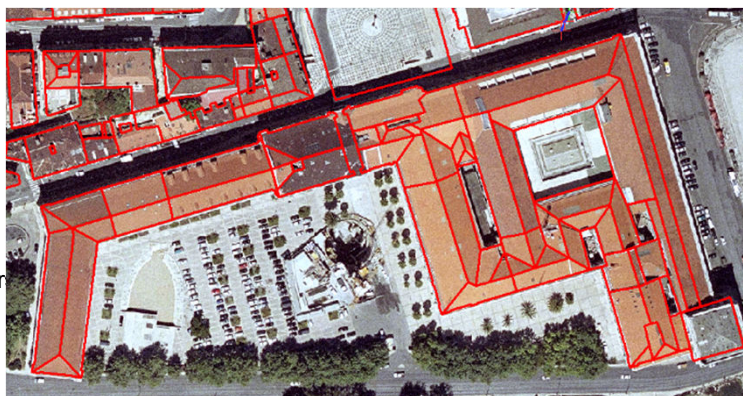
Work in the software ArcGis, scale 1/1000



THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

METHODOLOGY

Definition of the roof cover limits according to the roof orientation.







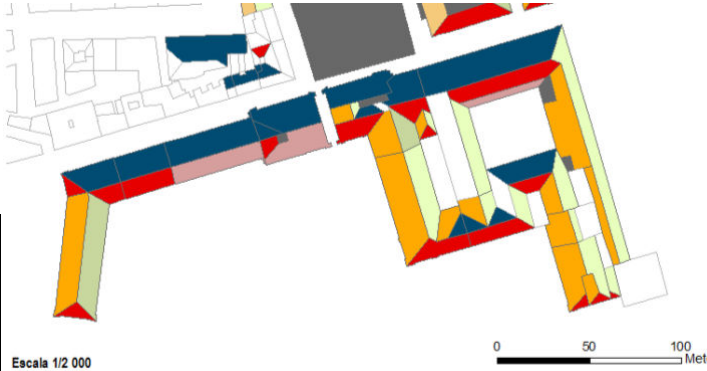
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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

METHODOLOGY

Classification of the roof covers orientation.

Orientation	Subtitle
East	
South	
West	
North	



Escala 1/2 000

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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

SOLAR SYSTEMS INTEGRATION POTENTIAL MAP FOR THE LISBON BAIXA POMBALINA AREA

Classification and quantification of the total area. Identification of the buildings to be treated as exemptions due to their high historical value.



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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

SOLAR SYSTEMS INTEGRATION POTENTIAL MAP FOR THE LISBON BAIXA POMBALINA AREA

This first Map is to be gradually updated with the information that is being gathered within the development and implementation of the Safeguard Plan, namely:

- cross reference the map with the assessment on the different types of roof covers;
- consider the building high and shadowing effects between buildings.



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THE BAIXA POMBALINA SOLAR THERMAL OBLIGATION

Municipal Framework for the Baixa Pombalina Detailed Safeguard Plan,

Article 22º
Roof Covers

2 Intervention in the roof covers are only allowed for the following works:

...

f) integrating solar energy technologies;

3. Intervention works for changes in roof covers are allowed to:

...

h) Installing solar energy technologies in the locations not excluded in the Solar Systems Integration Potential Map for the Lisbon Baixa Pombalina Area.

4. The installation of STS should be done according to the Manual for integration of Solar Systems in Lisbon's Baixa Pombalina.

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SOLAR THERMAL SYSTEMS INTEGRATION

MANUAL FOR INTEGRATION OF STS IN LISBON'S BAIXA POMBALINA AREA

- a) the integration of solar panels on the roof cover is compulsory, and the installation should be performed in accordance to the roof's orientation and slope, not interfering with the support structure of the existing coverage and the overall composition of the adjoining buildings roof covers;
- b) the integration of solar panels must consider the criteria of integration that enables the preservation of the various types of roofs in the Baixa Pombalina area. The integration proposal must be submitted along with the architecture plan;
- c) the STS must be of forced circulation, concealing the storage tank in the building;
- d) the non-integration of the STS may be accepted subject to technical reasons.

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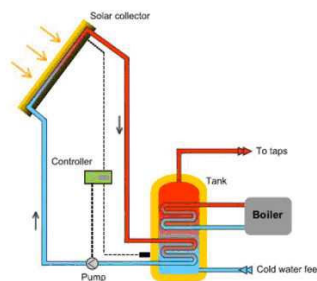
SOLAR THERMAL SYSTEMS INTEGRATION

MANUAL FOR INTEGRATION OF STS IN LISBON'S BAIXA POMBALINA AREA



Integration of solar thermal panels in the roof cover

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Forced circulation system

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SOLAR THERMAL SYSTEMS INTEGRATION

MANUAL FOR INTEGRATION OF STS IN LISBON'S BAIXA POMBALINA AREA



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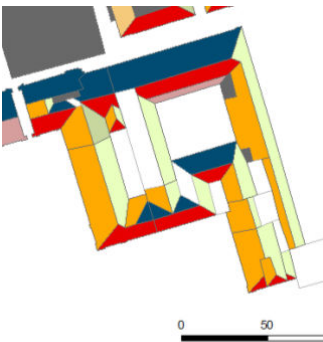
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MONITORING THE SOLAR THERMAL OBLIGATION

The Baixa Pombalina Safeguard Plan is to enter in force still this year, as it is presently under public discussion.

In the project submission phase the promoter must present the solar thermal system project or, in its absence, technically justify the exemption.

The Solar Systems Integration Potential Map for the Lisbon Baixa Pombalina Area is an informative document that presents the expected productivity of solar thermal panels on the buildings roof covers where solar systems are allowed.



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MONITORING THE SOLAR THERMAL OBLIGATION

The proposal is assessed by the Municipality and IGESPAR and, if approved, in the specialities definition phase the solar thermal system execution project and the definition of the expected performance should also be presented.

Lisboa E-Nova is the technical partner, to be consulted whenever needed and should also receive information on the evolution of the STO.



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UPDATED INFORMATION - LISBOA E-NOVA'S WEBPAGE


Direct link to PROSTO webpage

Links to all the initiatives organized within this framework

Link to the relevant legislation at national and municipal level

Presents all the articles on PROSTO

Briefly all the information on the Baixa Pombalina Solar Integration Potential Map will be available.



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WORKSHOP - THE BAIXA POMBALINA SOLAR POTENTIAL

The PROSTO Project – The Baixa Pombalina STO and the Solar Potential Map
9th December 2010

Official presentation of the potential for integrating solar systems in the Baixa Pombalina area and the guidelines defined for the STS integration.

Speaker: Lisboa E-Nova, Lisbon Municipality, IGESPAR and Enerone

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THANK YOU FOR YOUR ATTENTION

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