

CURRENT BATHROOM REQUIREMENTS IN HOUSING REHABILITATION



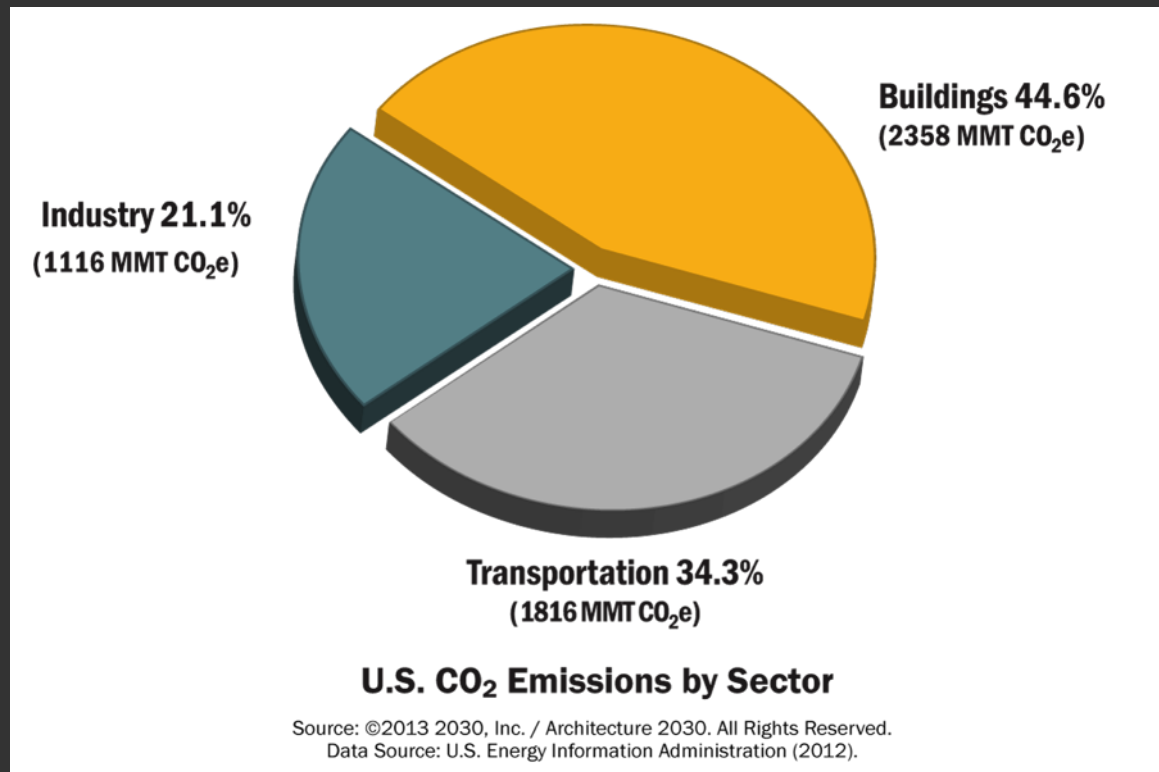
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Framework

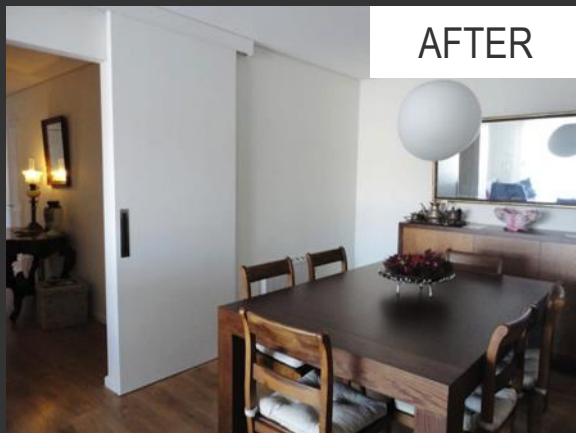
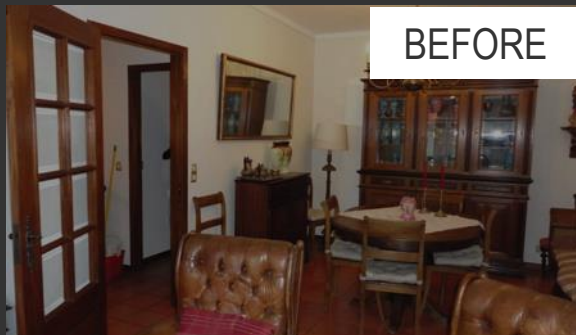
- The construction sector is a major energy consumer, generating about 50% of the global output of greenhouse gases and the agents of acid rain every year.



http://architecture2030.org/buildings_problem_why/

Framework

- With the current European Union policies to reduce carbon footprint, reusing existing vacant buildings would contribute to sustainability by diminishing demolitions and new construction. In this regard, buildings that present functional/comfort/aesthetical debilities need to be rehabilitated and renovated in conformity.



<http://gaape-arquitectura.blogspot.pt/2015/01/remodelacao-de-apartamento-em-gloria.html>

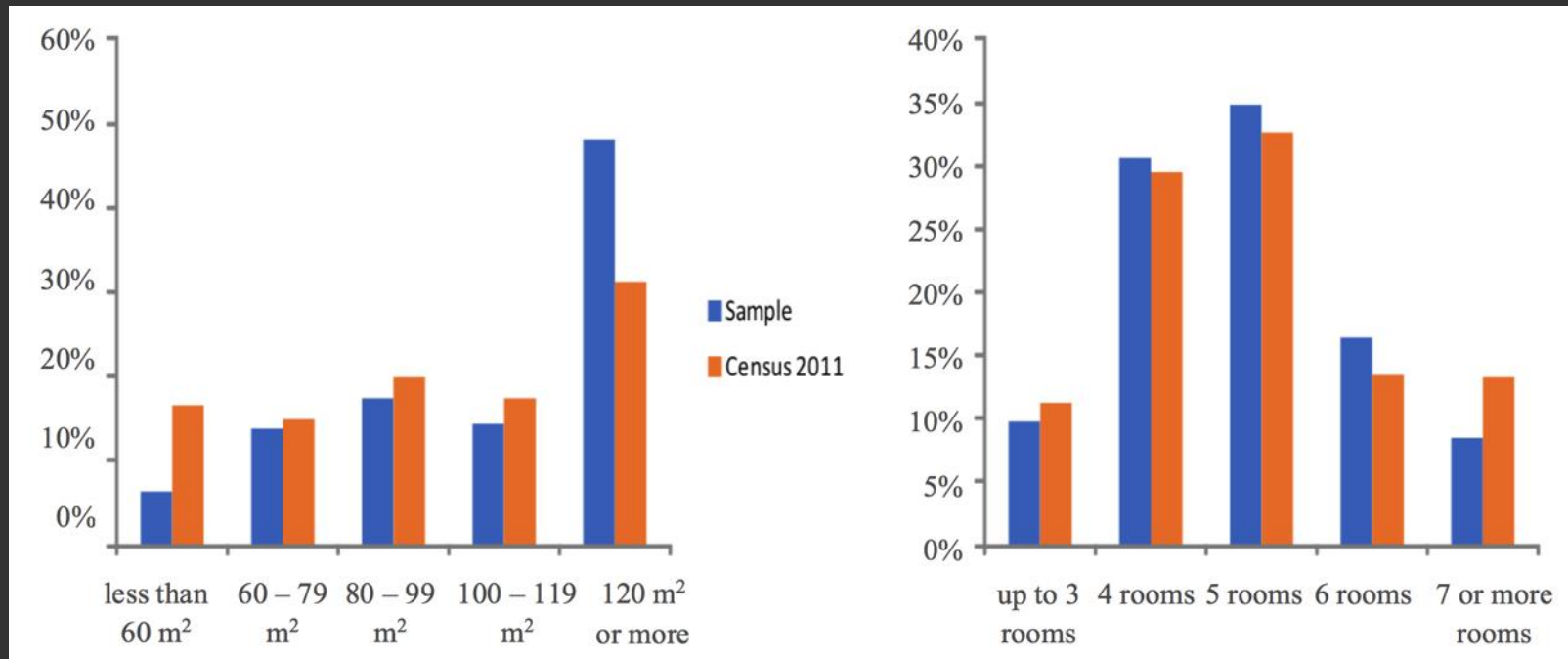
Aim of the study

- Is the number of sanitary facilities in the housing stock consistent with the present society needs?
- If not, the gap between demand and supply needs to be fulfilled.



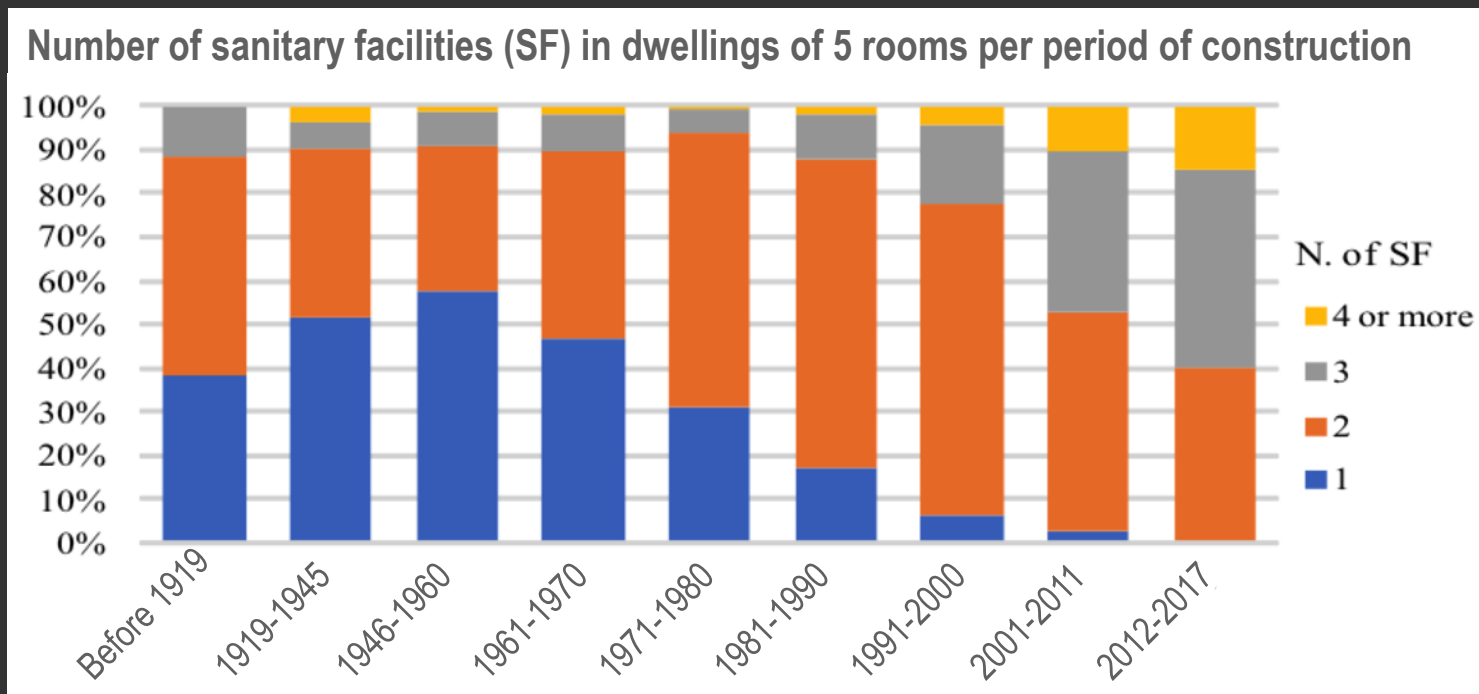
Housing stock characterization in terms of the number of sanitary facilities

- Since no study was performed in the European Union regarding the number of sanitary facilities per dwelling, ~ 29 000 dwellings presently for sale in Portugal and advertised online (www.imovirtual.com) were studied.
- The sample was observed to be similar to the data from the the Portuguese *Population and Housing Census* conducted in 2011 (LNEC-INE 2013), in the framework of the EU Census 2011.



Housing stock characterization in terms of the number of sanitary facilities

- The most recently built dwellings have the largest share of sanitary facilities.
- It is plausible to conclude that this is a reaction of the market to the requirements/demand of the users.
- In this regard, one can observe that buildings with more than 10-20 years do not fulfill the needs of the users in terms of number of sanitary facilities.
- Therefore, solutions are required to tackle this specific problem.



The traditional bathroom in rehabilitation

- In order to effectively improve the comfort and habitability of existing buildings in terms of number of sanitary facilities, the majority of the traditional interventions carried out are:
 - extensive,
 - intrusive,
 - time consuming,
 - costly,
 - with high amount of demolitions,
 - with high production of waste,
 - sometimes detrimental to the preservation of the building and corresponding image.



<http://gadlapor.com>



<http://rolartepinturas.com>



<http://rolartepinturas.com>

A new concept of bathroom for rehabilitation

transported in parts

bathroom pod

can fit into smaller spaces



Reflects sustainability concern

versatile

with high standards of aesthetics

Conclusions

- In order to fulfil the European Union policies to reduce carbon footprint, is more sustainable to rehabilitated and renovated buildings that present functional/comfort/aesthetical debilities than to perform demolitions and new constructions.
- This study shows that society needs in terms of number of sanitary facilities in the housing stock increased along the years.
- To adapt older buildings to fulfil the requirement of more sanitary facilities, a new concept of bathroom pod for rehabilitation is being developed.

Scientific Research and Technological Development Project

This study is being developed in the framework of the project "*MoBaK – Modular Bathroom Kit*", nº 17719, 33/SI/2015 – *Enterprises SR&TD Projects*, funded by *European Regional Development Fund (ERDF)* through *Operational Competitiveness Programme – COMPETE 2020*

Funding



Team



Partners



Thanks are also due to FCT/MEC for the financial support to the research unit RISCO (FCT/UID/ECI/04450/2013).