Energy efficient refurbishment of public tertiary buildings in Stockholm

Smart solution 1
Energy retrofitting of buildings

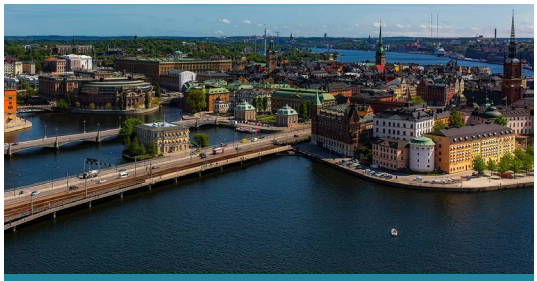
Photo: Sven Lindwall

Measured impacts

28%
total energy savings in Kylhuset

57%
heating savings in Slakthus 8

47%
total energy savings in Slakthus 8



Stockholm

Technical partners

L&T:
Peter Andersson
Peter.Andersson@L-t.se

City of Stockholm
Royne Julin
royne.julin@Stockholm.se

City contact

Mika Hakosalo
mika.hakosalo@stockholm.se

What is it?

This type of energy refurbishment focuses on buildings that are listed as culturally and historically valuable. New energy efficiency criteria and local energy generation are introduced in an old industrial area of a city, now under transformation into a housing and commercial area with public services. It also introduces energy retrofitting of a publicly-owned commercial office building, mainly through active measures.

What did GrowSmarter do?

The City of Stockholm has implemented the integration of passive and active energy efficiency criteria in the full renovation of a heritage brick building (Slakthus 8) in the city's old meat packing district. The building is now used as a cultural centre and is owned by the city.

Kylhuset, a publicly owned office building in the same area, had energy retrofitting interventions including the

installation of a heat pump for waste heat recovery from a nearby data centre, delivered through the district heating network infrastructure, and photovoltaics.

Lessons learnt

Energy efficiency interventions in old heritage buildings are often justified by values other than mere energy savings, e.g. the will to protect the built industrial heritage and make it accessible for everybody or the use of the building as a kind of showroom for citizen education on energy-efficient practices.

The main challenge with the implementation was that the buildings are listed as culturally and historically valuable. Consequently, very thorough studies were required to define how the energy targets could be reached with the prelisted energy efficiency measures. It was important to carefully evaluate and agree on every single measure.

For the waste heat recovery action, the contractual condition that will determine the economic feasibility of the installation the price of the recovered heat sent to the district heating network, and the energy savings for the excess heat producer.

Upscaling & replication potential

Urbanization plans of the municipality affect the potential for replication, since the value of the building will increase when the area becomes more popular after the transformation process.

The intervention in Kylhuset has a high potential for replication as the applied active measures show a short payback time. The potential for upscaling the heat recovery from excess heat producers is directly dependent on the existing district heating network infrastructure and the number of stakeholders (the up-front investment for the heatpump is high).

Photo: Sven Lindwall

It is important to analyse each building as part of its surroundings to find possibilities for energy exchange.

How did the measure work?

Technical feasibility ●●○

The refurbishment and selection of energy saving techniques in buildings that are historically protected is challenging. The architectural demands can make installation cost higher.

Economic feasibility ●●○

Full renovation investments in old heritage buildings are often justified by other values than energy savings. The model used at Slakthuset could reach financial sustainability by marginally increasing rents

Replication potential ●●●

Due to the high initial investment, the replicability of energy retrofitting of publicly-owned heritage buildings is highly dependent on Municipality urban planning policies. The replication of heat recovery from nearby buildings depends on DH infrastructure.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 646456. The sole responsibility for the content of this document lies with the author and in no way reflects the views of the European Union.