

ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS





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Energy sourcing

Non-fossil stand-alone
systems

District heating

ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Planning measures

Grouping of functions

User behaviour

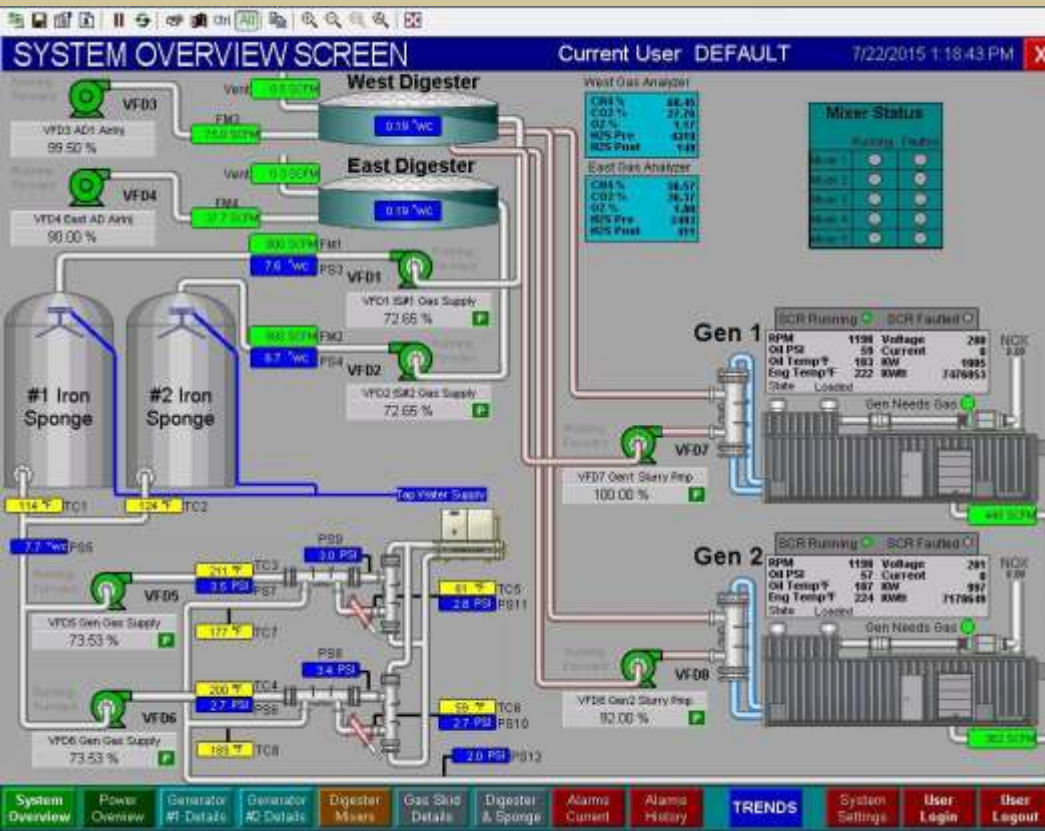


ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

High-tech measures

Daylight control systems

Optimised cooling/heating





ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Low-tech measures

Improving air tightness

Energy glass in inner,
secondary windows



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Low-tech measures

Improving air tightness





ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Low-tech measures

Improving air tightness

Energy glass in inner,
secondary windows

Technical insulation



ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Low-tech measures

Improving air tightness

Energy glass in inner,
secondary windows

Technical insulation

Insulation of ceilings, walls,
and floors





ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Technical limitations

All heating creates
condensation problems



ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Minimizing condensation

Vapour barrier

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Minimizing condensation

Vapour barrier

Ventilation



ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Minimizing condensation

Vapour barrier

Ventilation

Diffusion



ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Do not expect miracles

Application of all possible energy conservation measures within the constraints of a historic building may reduce energy consumption by 25 – 30%

Consumption KWh/m ²	Supervisor's dwelling	Two-story building
Heating	35,2 (56,5)	120,1 (133,0)
El. equipment	37,7 (46,8)	67,7 (96,7)
Lighting	5,1 (4,7)	9,9 (12,1)
Cooling/vent.	3,6 (3,4)	6,6 (8,0)
Total	81,6 (111,4)	204,3 (249,8)
CO₂ kg/m²	30,7 (38,4)	63,9 (83,7)

Consumption KWh/m ²	Half-timbered warehouse	Shed building
Heating	47,8 (105,7)	55,0 (111,4)
El. equipment	66,0 (72,3)	28,2 (27,1)
Lighting	6,8 (8,2)	8,7 (10,3)
Cooling/vent.	11,3 (3,7)	8,2 (4,6)
Total	131,9 (189,9)	100,1 (153,4)
CO₂ kg/m²	53,2 (61,8)	32,9 (39,4)

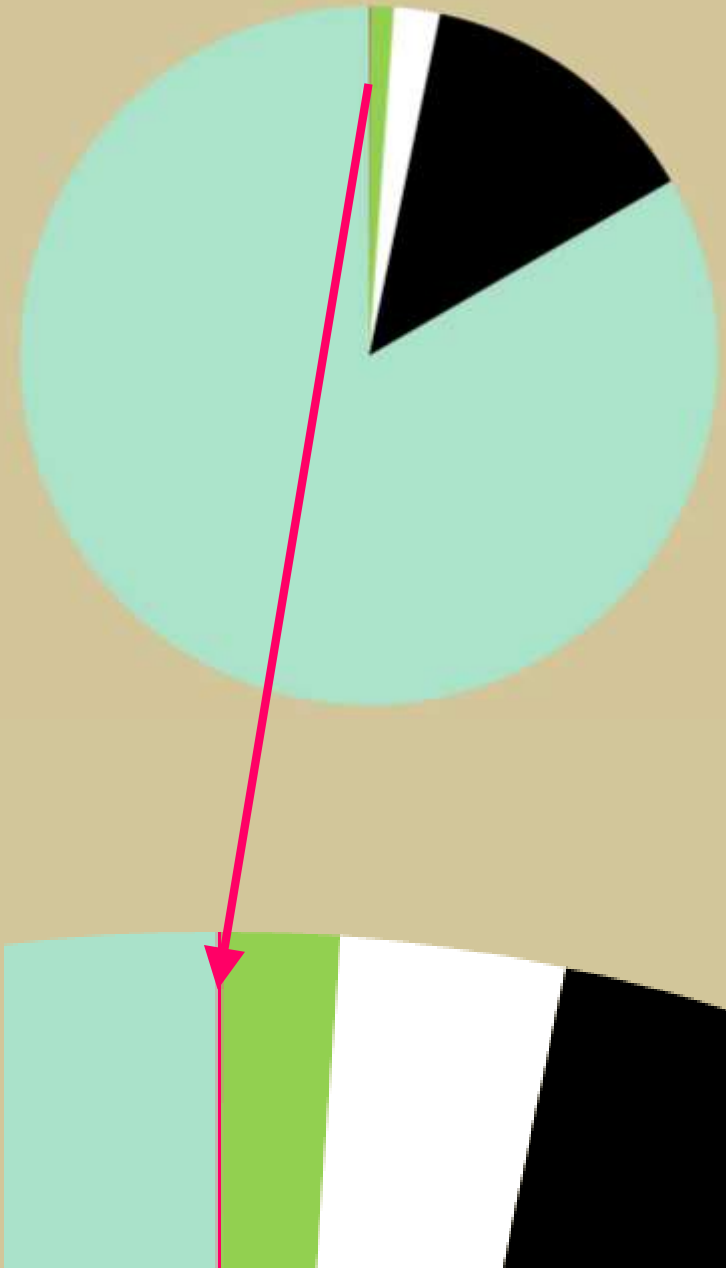
ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Does it matter?

Heating (and cooling) causes
~17% of all emissions

Listed buildings: 0,05%

Other historic buildings: 3,2%



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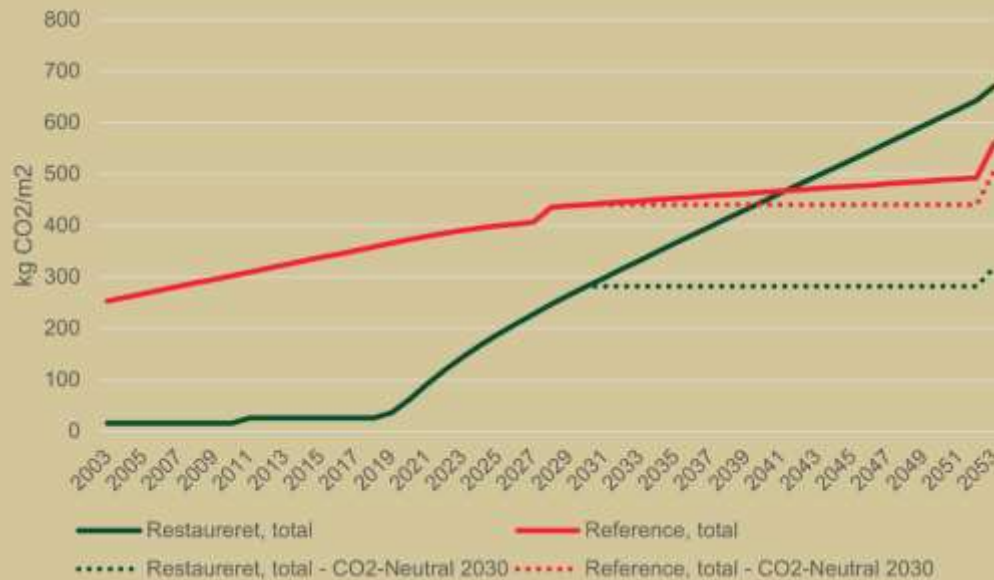
Does it matter?

Heating (and cooling) causes
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Listed buildings: 0,05%

Other historic buildings: 3,2%

And given improved (non-fossil) energy sources, historic buildings always beat new buildings



ENERGY CONSERVATION MEASURES IN HISTORIC BUILDINGS

Does it matter?

From the owners' perspective
a reduced energy bill
obviously does matter.

Given the same investment, a
reduction in energy costs of
25 – 30% resulting from a
switch to non-fossil energy
supply is enough to offset the
potential savings from energy
conservation measures – and
the historic building can be
left intact.





ENERGY
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Thank you