



Osramhuset (The Osram Building)

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Addition of layer of glass on internal walls covering also the windows

Windows

What is the solution?

In order to improve the energy efficiency of the protected façade of the building, a single layer of glass was installed on the inside of the existing façade. The glass goes from floor to ceiling. Below and above the existing windows, insulation is added to improve the U-value of the walls (in this specific case 50 + 25 mm insulation is added to the wall). The vertical cross section shows the details of the specific solution. The solution is a medium impact solution. It preserves the façade of the building from the outside but involves significant changes on the inside. From the outside the change is not readily visible. In this specific case LED-lights were added between the new layer of glass and the original windows. The building is used as a culture center and the lights act as a way to emphasize the façade in different ways by altering the colors – this can be utilized depending on the events taking place inside.

Why does the solution work?

The extra layer of glass makes the solution vapor tight from the inside, i.e. warm moist air cannot get to the colder surfaces of the original façade. This, of course, means that connections in the inside glass layer must be sealed with great care. The inside layer of glass goes from floor to ceiling avoiding any complex joints between wall and window, i.e. insulation is added to the inside of the wall and the glass covers the insulation as well as the original window areas. As such, the solution is compatible with the specific case concerning

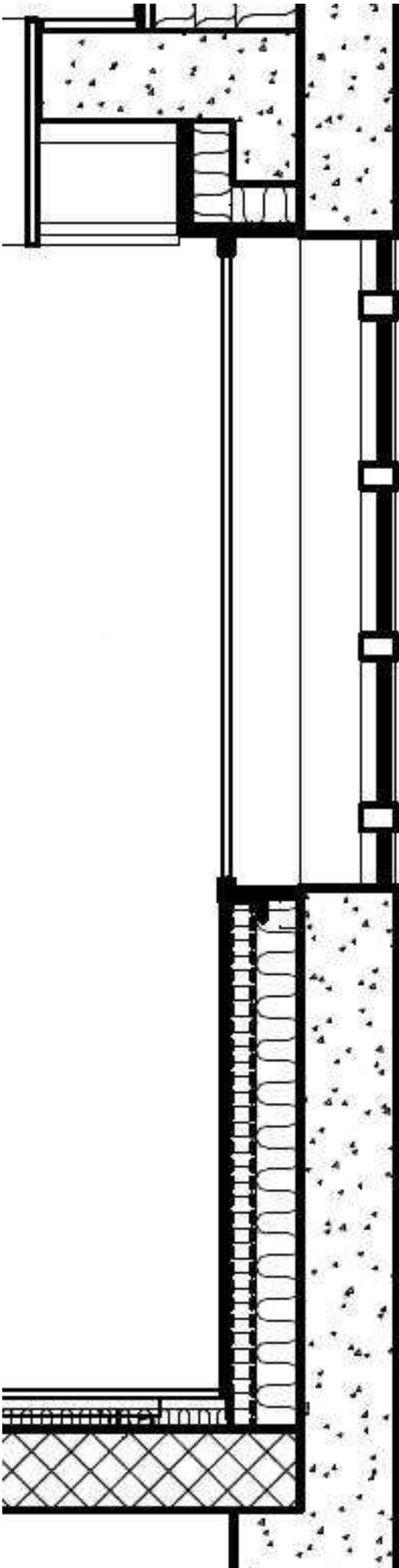
conservation, has a high level of moisture safety and reduces heating requirements significantly. An added benefit is the improvement of the indoor climate since the solution significantly reduces draft and cold surfaces for the users.

Pros and cons of the solution:

The pros of the solution are that the intervention is conservation compatible, has a high level of moisture safety (but requires professional workmanship), significantly reduces heating consumption, and improves indoor climate. The cons are: the intervention cannot be used for operable windows, may not be sound from a building physics point-of-view in hot climates, and significantly alters the inside of the building.

Available pictures or publications of the solution:

Vertical section, © Wissenberg A/S

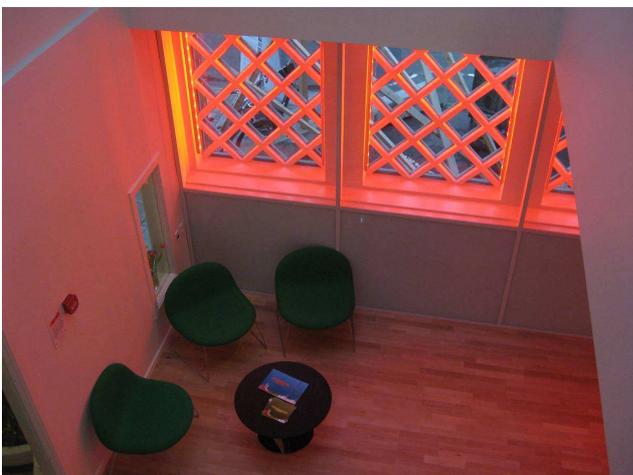




Hallway showing the floor-to-ceiling glazing layer. The green light is LED-lights that can change colour to change the expression of the facade, © Wissenberg A/S



Close-up of the solution, © Wissenberg A/S



Seating area, © Wissenberg A/S



LED light in the renovated facade, ©
Wissenberg A/S



Floor-to-ceiling layer of glazing, ©
Wissenberg A/S



Seating area - different perspective, ©
Wissenberg A/S

	Existing window	Refurbished window
Type	Single window	Single window + glass layer
Glazing – Inner		
Glazing - Outer		
Shading/shutters		
U _{window}	5.9	1.2
U _{glazing}		
U _{frame}		
g-value	0.86	0.50
Air tightness		
Installation year	1953	2009

Basic energy properties of the window before and after renovation, © Wissenberg A/S

Link to best practice example (Hiberatlas):

www.hiberatlas.com/en/osramhuset-the-osram-building--2-16.html