

HVAC Team

Jätkäsaari Harbour Administration Building

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Content

Current situation

Recommended plan

Heating

- Low-cost version

- High-cost version

Ventilation

- Low-cost version

- High-cost version

Electricity

Current situation

- Built in 1929, renovated in 1979
- Problems
 - Poor ventilation system
 - Cold in winter
 - Building structure cannot be changed much
 - Cracks in the ceiling
 - Holes and gaps between floor and walls
 - Windows need to be renovated

Recommended plan

- Renovate windows
- Replace radiators to modern ones
- Install extra radiators with new pipeline
- Attach spectrally selective glazing coverings to windows
- Replace natural ventilation system to mechanical ventilation system

Heating

Low-cost version

- Install thermostatic radiator valves on existing radiators
 - Increase energy efficiency
 - Prevent excess usage of heat



Heating

High-cost version

- Replace current heat distribution system
- Change one-pipe system to two-pipe system with thermostatic radiator valve
 - Better heat distribution



Ventilation

Low-cost version

- Clean ventilation ducts and flaps for better air movement
- Remove basement ventilation fan
- Place rooftop fan in the end of the shaft.

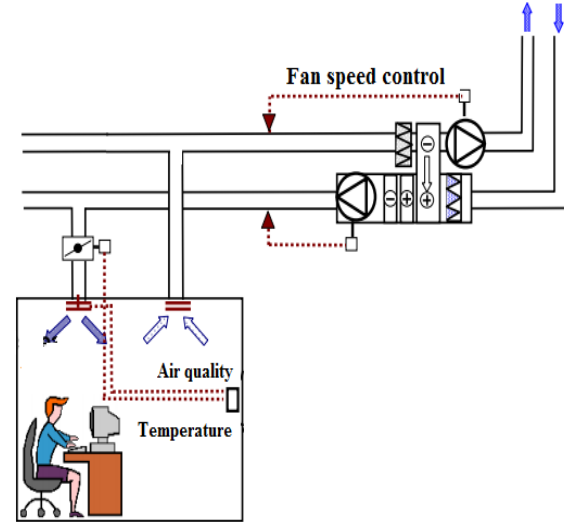


Ventilation flap filled with dust

Ventilation

High-cost version

- Install modern and more efficient ventilation system
- Variable Air Volume Ventilation (VAV) could be chosen
 - Higher energy efficiency
 - Works based on CO₂ sensor (placed in the rooms)

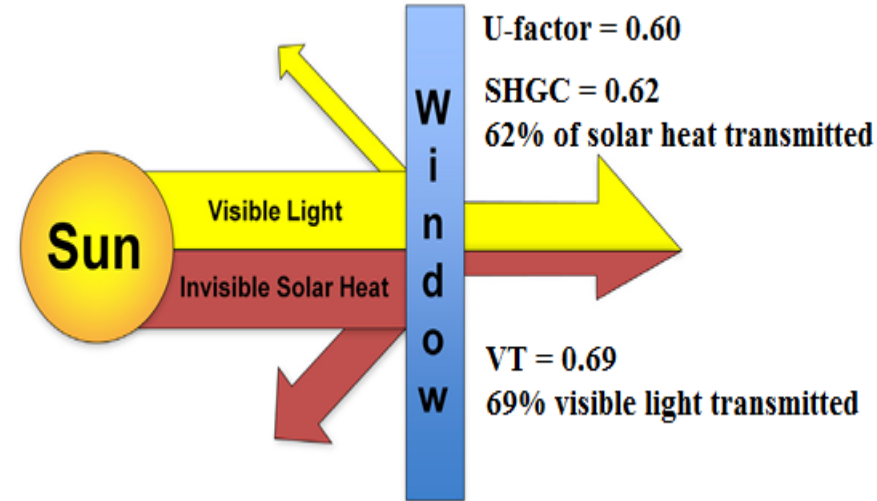


Demand controlled ventilation system
(DVC)

Ventilation

Renovating windows

- Improve thermal transmittance
- Airtight
- Spectrally selective glazing
 - admits more sunlight
 - prevents transmission of solar heat energy
 - controls unwanted increase in



Energy transmission through double-glazed windows

Electricity

- Electrical system has been changed in the recent years.
- There are still old electrical wires that need to be replaced for safety.



Electrical switchboard