AIRMASTER

36% lower climate impact with Airmasters decentralized ventilation

In Denmark, climate requirements for construction are set out in the Building Regulations (BR18), which introduced new, stricter and differentiated limit values for climate impact on July 1, 2025, with further tightening planned for 2027 and 2029.

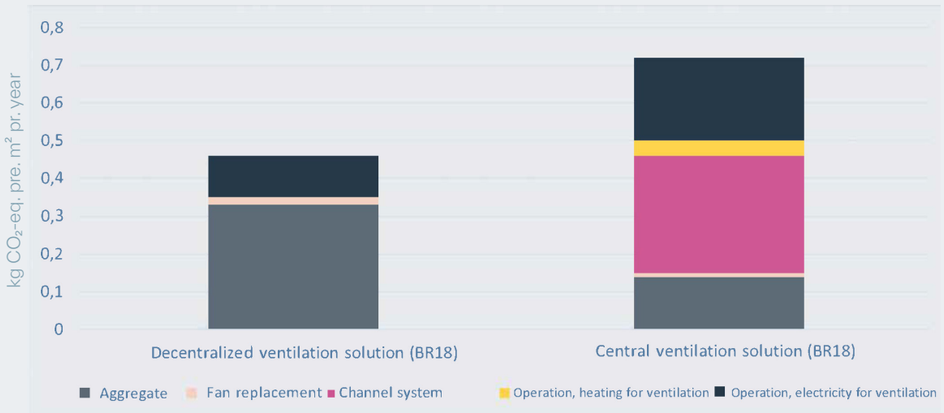
Choosing *energy-efficient* and *climate-friendly* solutions is crucial to reducing climate impact.

The consulting engineering firm Artelia has prepared a memorandum comparing the climate impact of a centralised and a decentralised ventilation solution from Airmaster. The memo is based on a primary school from the 1960s and involves the ventilation of a total of 31 classrooms.

The calculations were performed in LCAbyg, and the climate impact was assessed over a 50-year period using the calculation method in BR18.

According to Artelia's calculations, the climate impact of a decentralized demand-controlled ventilation solution is 0.46 kg CO_2 eq. per m² per year, based on Airmaster's product-specific environmental product declarations (EPD).

By comparison, the climate impact of a corresponding central ventilation solution would be 0.72 kg CO_2 eq. per m² per year. This corresponds to a 36% lower climate impact for the decentralized ventilation solution in this specific example.



Climate impact of different ventilation solutions [LCA of ventilation principles, Artelia, 2025].

The decentralized ventilation solution includes electric reheating surfaces, which is why the category "Operation, electricity for ventilation" covers contributions from both electricity for operating fans and heating surfaces.

The climate impact of ventilation solutions will naturally vary in magnitude from project to project, due to differences in building types, installations, materials, etc. Nevertheless, Artelia's calculations emphasize that there is potential for significant savings to be found in Airmasters' decentralized ventilation solutions.

The relevance is not diminished in light of the fact that the Danish Social and Housing Authority has published guidelines for future climate requirements for construction, which include a tightening of climate requirements for schools and institutions to 0.8 kg CO_2 eq. per m2 per year in 2027 and a corresponding further tightening in 2029.

With the upcoming tightening of climate requirements, there will be a need for a general reduction in the overall climate impact of construction. Here, the analysis shows that Airmasters' decentralized ventilation solution can contribute significantly to reducing the CO_2 footprint, while ensuring a healthy and comfortable indoor climate for students and teachers.

Calculation assumptions in Artelia's memorandum

Included life cycle phases in accordance with applicable building regulations: A1, A2, A3, B4, B6, C3, and C4. Delineation of included building materials in accordance with BR18 Appendix 2, Table 6.

Projection of emission factors for electricity and district heating in accordance with building regulations.

Product-specific environmental product declarations (EPD) used to the greatest extent possible, followed by industry data and generic material data from BR18 where this has not been possible.

Calculation performed in LCAbyg for a consideration period of 50 years with replacement of fans in ventilation systems after 25 years.

Decentralized ventilation solution with 30 AM 1000 and 1 AM 500 units mounted on exterior walls with direct intake and exhaust. All decentralized systems are calculated as equipped with electric reheating surfaces, where energy consumption is included in the operating phase. Central ventilation solution with a unit with distribution ducts installed on the roof.

Central ventilation solution with one unit with distribution ducts on the roof. The unit is considered to be equipped with a water-based reheating surface, where energy consumption is included in the operating phase.
The environmental impact of the heating installation (pipe system) is not included in the calculation.