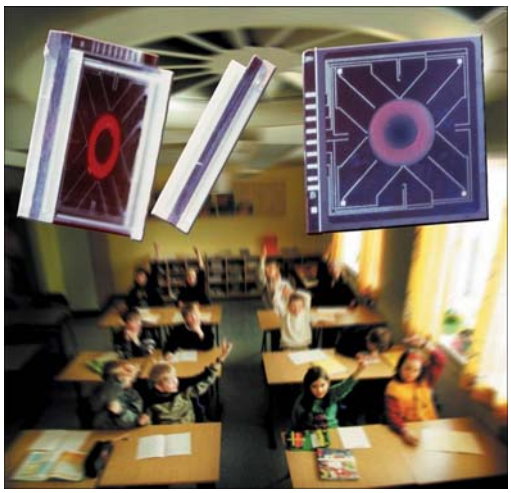
reDuCeVentilation

Reduced energy use in Educational buildings with robust Demand Controlled Ventilation



Several studies have shown that the energy use due to ventilation of classrooms can be reduced with 50 to 60 % with well designed demand controlled ventilation (DCV) compared with constant air volume (CAV), presupposed traditional classroom based education. However, the use of the school areas has changed radically the last decade, and the energy saving potential in modern schools needs to be reanalyzed. In addition, technology advances with sensors, communication and control systems open up new opportunities for more robust and energy efficient DCV-systems. Furthermore, the decision makers will probably not aim to utilize the potential to reduce energy use with demand controlled ventilation if they do not have sufficient knowledge about the energy saving potential. This project aims to develope and disseminate more accurate knowledge about the energy saving potential with DCV in educational buildings and produce tools for simplified documentation of DCV-systems according to the Norwegian building regulations. The tools will give input data for design, management and maintenance and thereby reduce the risk for unnecessary increase in energy use and running costs throughout the operational life of the DCV-system. This project focus on educational buildings, but the results will be applicable for other type of buildings. This will be further investigated in The Research Centre on Zero Emission Buildings – ZEB.

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Milestones		2009				2010				2011				2012			
			2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Reviews of ventilation rates, occupancy, DCV and energy use, DCV system solution and sensor technology		x	x	x	x	x										
2	Field studies – use of modern schools			x	x	x	x										
3	Simulation tool – DCV energy saving							x	x	x	x	x	x				
4	Simulation tool validation										x	x					
5	Evaluate optimal control parameters and localization									x	x	x	x				
6	Guidelines – Design, Management and Maintenance of robust DCV												x	x	x		
7	Guidelines/tool – Decision Makers													x	x		
8	Dissemination of results													x	x	x	x