



Graphical representation of computational fluid dynamics (CFD) results of the water flow glazing unit.

## Water flow glazing - building envelope for the future of daylight and energy efficiency?

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conference #3573

Building industry is still chasing the dream of fully transparent glass facades. Currently available technologies are in clear contradiction to the main purpose of a fully glazed facade: The clear and unobstructed view from the inside into the outside environment. The main reason is the inevitable requirement of solar protection to avoid solar heat gains and consequently high cooling loads in buildings. Solar coatings, tinted glass, switchable windows and classic interior and exterior sun shading devices all have the same general effect: The quality of the views to the outside is reduced. Within the framework of the European research program HORIZON 2020 the project InDeWaG (Industrial Development of Water Flow Glazing Systems) has been funded by the European Union. During the funded period of three and a half years an international consortium incorporating research institutes, industry and designers is developing a new insulation glass unit. In the cavity of this unit a water-glycol mixture is circulating. Due to the spectral properties of water it captures most of the infrared solar radiation: it is transparent to visible wavelengths of the sunlight but opaque to NIR wavelengths. Consequently water flow glazing has the same natural light transmission as conventional glazing whilst reducing the heat transfer towards the interior space. Furthermore, the water circulation allows to use, store or dissipate the energy captured by absorption of the water filled cavity.

InDeWaG technology is a passive radiant surface technology, adoptable to the building envelope as well as to interior walls. Maximum daylight use with appealing glass facades while meeting nearly zero energy building performance at minimum HVAC expense is the main objective of the InDeWaG approach. The contribution gives an overview of the current state of the project and enlightens the future potential of the technology.

Keywords: daylight, energy efficiency, water flow glazing