Protective glazing: a thermodynamic review of the last 30 years, successes, failures and conclusions for future projects.

Dr. Hans-Jürgen Daams, Hajuveda Heritage and Michael Robrecht, iXtronics GmbH, Germany

Since more than 30 years protective glazing is used for preventive conservation of old and valuable stained glas paintings in the windows of our churches. The main objective is to avoid the formation of condensation water, since it was proven to have a negative influence onto the durabilitiy of the stained glas. However there are many influencing factors, such as thermal insulation ability, coatings and absorption ability of the protective glazing, gap distances, size of the ventilation surfaces, heat discharge into the walls and irons, air flow behaviour of the air in the air gap, ventilation by outside and/or inside air, thermodynamic properties of the air in the church, outside and in the air gap and more. Many investigations have been done in real churches, models and by numerical analysis. However for some reason the recommendations for the layout of protective glazing do not always work. This paper tries to make a review of international literature over the last 30 years with emphasis onto the thermodynamics of the air behaviour in the gap and how it is influenced. It also tries to isolate those factors with major effect for the stained glas protection.

Extract of literature sources

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