

Intelligent functional glazing with self-cleaning properties to improve the energy efficiency of the built environment

Fact Sheet

Project Information

IntelGlazing

Grant agreement ID: 679891

Status

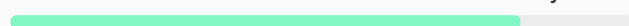
Ongoing project

Start date

1 March 2016

End date


31 May 2022



Funded under
H2020-EU.1.1.

Overall budget
€ 1 762 823

EU contribution
€ 1 762 823

Hosted by
UNIVERSITY COLLEGE LONDON
 United Kingdom

Objective

The latest forecast by the International Energy Agency predicts that the CO₂ emissions from the built environment will reach 15.2Gt in 2050, double their 2007 levels. Buildings consume 40% of the primary energy in developed countries with heating and cooling alone accounting for 63% of the energy spent indoors. These trends are on an ascending trajectory - e.g. the average energy demand for air-conditioning has been growing by ~17% per year in the EU. Counterbalancing actions are urgently required to reverse them.

The objective of this proposal is to develop intelligent window insulation technologies from sustainable materials. The developed technologies will adjust the amount of radiation escaping or entering a window depending upon the ambient environmental conditions and will be capable of delivering unprecedented reductions to the energy

needed for regulating the temperature in commercial and residential buildings. Recognising the distinct requirements between newly built and existing infrastructure, two parallel concepts will be developed: i) A new class of intelligent glazing for new window installations, and, ii) a flexible, intelligent, polymer film to retrofit existing window installations. Both solutions will be enhanced with unique self-cleaning properties, bringing about additional economic benefits through a substantial reduction in maintenance costs.

Overall, we aim to develop intelligent glazing technologies that combine: i) power savings of $>250 \text{ W/m}^2$ of glazing capable of delivering $>25\%$ of energy savings and efficiency improvements $>50\%$ compared with existing static solutions; ii) visible transparency of $>60\%$ to comply with the EU standards for windows ,and, iii) self-cleaning properties that introduce a cost balance.

A number of technological breakthroughs are required to satisfy such ambitious targets which are delivered in this project by the seamless integration of nanotechnology engineering, novel photonics and advanced material synthesis.

Field of science

/natural sciences/chemical sciences/polymer science

/engineering and technology/materials engineering/coating and films

/social sciences/other social sciences/social sciences interdisciplinary/sustainable development

/natural sciences/chemical sciences/inorganic chemistry/inorganic compounds

Programme(s)

Topic(s)

Call for proposal

ERC-2015-STG

Funding Scheme

ERC-STG - Starting Grant

Host institution




UNIVERSITY COLLEGE LONDON

Address

Activity type

EU contribution

Gower Street
WC1E 6BT London
 United Kingdom

Higher or Secondary
Education Establishments

€ 1 762 823

[Contact the organisation](#) 

Beneficiaries (1)



UNIVERSITY COLLEGE LONDON

 United Kingdom

EU contribution

€ 1 762 823

Address

**Gower Street
WC1E 6BT London**

[Contact the organisation](#) 

Activity type

**Higher or Secondary
Education Establishments**

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