



LC-EEB-01-2019

Integration of energy smart materials in non-residential buildings

Switch2Save

Lightweight switchable smart solutions for energy saving large windows and glass facades

Architectural Design Competition

Terms and Conditions

October 2022

Disclaimer: The contents of this report reflect only the author's view and the Agency and the Commission are not responsible for any use that may be made of the information it contains.



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1. Competition Brief

Glass forms an integral part in the field of architecture. Its' clarity and aesthetic nature are unmatched. With its many forms, types and applications, glass can enhance the architectural value of a building. With the use of glass in architecture having remarkably increased over the last few decades, large glass facades and roofs are now a major design element in commercial office buildings, airport terminals, train stations, shopping centres etc.

As a material, glass presents many advantages with the main functions of glass components being allowing daylight into buildings and ensuring a visual connection with the exterior. Compared to opaque materials, glass is associated with increased heat gains and losses. Therefore, glazing selection plays a key role in determining a building's overall thermal performance: In modern buildings, up to more than 60% of energy transfer through the building envelope is related to glazing components. With careful consideration of the orientation and the use of exterior shading, the integration of large transparent façade and roof elements can become an integral part of an energy saving strategy.

CHALLENGE:

When an energy saving strategy is absent, glass facades can lead to excess solar radiation gains and losses: Over a full year, total energy consumption of modern buildings with large glass facades and roofs is up to 100% higher compared to buildings with small windows. At the same time, window blinds used to control solar radiation into buildings, compromise interior daylight conditions and block the view to the exterior. As an answer to these challenges, high performance glazing can contribute to the insulation of a building and deliver energy savings, while ensuring comfort conditions for users.

OPPORTUNITY:

Switch2Save project proposes advanced, low-weight solutions suitable for direct integration to windows and glass facades for the control of radiation energy transfer, without any impact on the building structure, while enhancing occupants' comfort.

The Switch2Save Architectural Design Competition aims to collect design concepts of non- residential buildings (new or renovation projects), featuring glass facades, roofs, or large window to wall areas, in any climatic context. We invite participants to present a design concept in which there is an optimum exploitation of the Switch2Save EC/TC smart functionalities, supported by a clear energy saving concept towards meeting the EU energy saving targets for buildings, while considering occupants' comfort and wellbeing. In addition, the successful aesthetic integration of the IGUs will be evaluated, as well as the replication potential of the design approach.

BUILDING USE AND SITE SELECTION:

The S2S architectural design competition focuses on non-residential uses. There is no other restriction regarding the size, location or use of the proposed building concept. Project designs can be set within any hypothetical site of any size, in either a city or countryside location anywhere in Europe and in any climate.

2. Terms and Conditions

2.1. Definitions

| | |
|--------------|---|
| Team leader | The team leader is a participant in the Switch2Save architectural design competition that coordinates a team of other participants. |
| Participants | The participants are all those professionals and students that take part in the competition. |
| Organisers | The organisers are the Switch2Save partners that are in charge of organising and running the competition. |

2.2. Participation rules

- The Switch2Save Architectural Design Competition is an open competition format developed in one phase.
- The competition is free of charge and no financial contribution is requested from participants.
- Eligible participants are young architects (<10 years since graduation) /students and/or multi-disciplinary teams (including building physicists, engineers) led by young architects/ architectural students enrolled in an academic programme (bachelor, master etc.) from an accredited educational institution.
- There is a limit of 3 members per team, with the leader being a young architect/ architectural student.
- Teams consisted by only one member can participate, in which case it has to be a young architect/ architectural student.
- The team leader and his/her team should propose an innovative design concept of a non- residential building (new or renovation project), featuring glass facades, roofs, or large window to wall areas, in any climatic context, featuring an optimum exploitation of the Switch2Save EC/TC smart functionalities. The design should be supported by a clear energy saving concept towards meeting the EU energy saving targets for buildings, while considering occupants' comfort and wellbeing. The successful aesthetic integration of the IGUs will also be evaluated, as well as the replication potential of the design approach. There is no other restriction regarding the size, location or use of the proposed building concept.
- The team leader is the main responsible person for guaranteeing the compliance of all members with the competition rules presented in this document.
- The team leader is responsible for the submission of the deliverables in time.
- The competition is open to all nationalities. However, the team members should be based in an EU or an [Associated Country](#).
- The team leader will be the main communication point between the organisers and the respective team members. Upon registration, the team leader will be given a unique identification number, which will be used at any communication with the organisers.
- The team leader is the designated person for receiving the prize(s) if he/she are nominated by the jury. The team leader can then distribute the prize(s) as he/she sees fit amongst the team members. The travel costs for maximum 3 team members of each awardee will be covered.
- Participants should accept the current Terms and Conditions upon registration by agreeing with the "Declaration of Authorship and acceptance of competition regulations".

2.3. Deliverables

The deliverables requested by the participants in the Switch2Save architectural competition are the following both for young professionals and students:

- Brief description (see Competition Brief Template)
- One infographic (presenting the proposed design in response to the competition brief)
- Other visual material merged in one pdf file (maximum size 30MB).
- All deliverables should contain the necessary information in English.

2.4. Timeline

- 20 October 2022: Competition launch
- 31 January 2023: Deadline for registrations
- 28 February 2023: Deadline for questions
- 31 March 2023: Deadline for submissions
- 16 May 2022: Announcement of winners

2.5. Evaluation criteria

All submissions will be judged anonymously and anonymity will be maintained until the jury has reached a final decision. The submissions which comply with all the terms and conditions will be judged on the basis of the following evaluation criteria:

1. Design concept: Innovative aspects of the IGU's building integration
2. Energy Savings: How the design maximises the energy saving potential of the IGUs/ overall energy saving concept
3. Exploitation of Switch2Save EC/TC smart functionalities & Replicability of the approach: How the design approach can be replicated or up-scaled in other contexts
4. User comfort: How the design concept addresses users' comfort in overall and how user comfort is enhanced by the IGUs

2.6. Jury

The Jury will be made up of a minimum of six (6) persons including the Chairperson. The Jury decision is final with no appeals accepted.

Each member of the Jury will agree to a non-disclosure agreement and declaration of no interest as a condition of acceptance. Every member shall be duty-bound to abstain from sitting on the Jury or to attend any meeting in which s/he may have a conflict of interest.

Jury members:

- Dr. Matthias Fahland- Fraunhofer FEP
- Prof. Maria Founti- School of Mechanical Engineering, National Technical University of Athens
- Arch. Sara Van Rompaey- E2ARC
- Chromogenics AB
- Dr. Hans Svärd- FASADGLAS BÄCKLIN AB
- Dr. John Fahlteich- KETMarket, Switch2Save External Advisory Board member

2.7. Prizes

2 awardees will be nominated to receive the following prizes:

1st prize:

1000 EUR + one demo kit of a fully functional energy smart EC/TC window + Invitation to present the winning project in a prize ceremony that will take place during the final project conference in Athens (travel expenses covered) + Offer of internship at NTUA HMCS+ Publication at EU wide channels

2nd prize:

500 EUR + one demo kit of a fully functional energy smart EC/TC window + Invitation to present the winning project during prize ceremony (travel expenses covered) + Offer of internship at NTUA HMCS+ Publication at EU wide channels.

To show our appreciation, all the participants will receive a digital participation certificate.

2.8. Notification of results

- The 2 awardees will be announced after all team leaders receive a notification by the competition organisers. The Jury decision is final with no appeals accepted.
- Any requests for feedback can be submitted within one month after the results are announced
- The competition participants cannot release their designs for publication to any third parties until after the results have been officially announced.
- Switch2Save project reserves the right to use material from the submissions in promotional activities, including social media channels. Illustrations of designs either separately or combined with other designs may be used without notice and without any reimbursement.
- Following the announcement of the 2 awardees, anonymity is lifted. The competition winners will be announced and the members of the 2 winning teams will be credited. The information shared will be taken from the Declaration of Authorship form, so any details included there should be accurate.

2.9. Ineligibility and disqualification

The submission will be disqualified and excluded from participating in the competition:

- If participants disclose their identity, and/or attempt to influence a member of the jury in his/her decision
- If a submission has identifying elements that could identify its authorship (e.g logos, text, images)
- If the submission is placed after the deadline
- If the submission disregards any mandatory requirement of the competition brief
- If the team leader is participating in more than one team in the competition

Ineligible for the competition:

- Participants that were directly or indirectly involved in developing the competition documents, insofar as their participation would rule out a fair and true competition.
- All the jury members and their near relatives (spouse, civil partner, relatives or direct in-laws), as well as all persons who have a direct relationship of professional dependency with them.

2.10. Copyright and Data Privacy

- The copyright of the competition entries remains the property of the authors. Participants however authorise the organisers to use their name and any visual material included in the submission deliverables, for communication and promotion purposes strictly within the framework of the Switch2Save project.
- Organisers will keep in file any submitted material until the conclusion of the Switch2Save project.
- Participants under no circumstance can take any action against the organisers for claims relating to the conducting, judging, running of the competition.

2.11. Responsibility

- The organisers cannot be held responsible in case of force majeure or any other event beyond the scope of their capacity that might force to cancel, modify, prolong or shorten the timeline of the competition.

2.12. Registration and Contact

- For more information about the competition and the registration process interested parties are requested to visit the Switch2Save website. For any questions about the competition please contact the organisers at: competition@switch2save.eu

3. Submission Brief Template

Switch2Save Architectural Design Competition

Submission Brief - Template

Submission registration number: [xxx]

Please provide input to the following questions. Your answers will be the basis for the evaluation of your submission by the competition jury.

1. Design Concept & Level of innovation

Please, elaborate on your design concept. Provide a short description of your idea behind your design and in particular with respect to the glazed areas. Considering the specifications of the EC/TC IGUs, make reference to any parameters relevant to the integration of the EC/TC Insulating Glass Units, like aesthetic integration, dimensions of the IGUs, innovative aspects or challenges faced, or any other parameter that led to the proposed design as a response to the competition brief. [max 800 words]

2. Energy Saving Concept

Describe how your project addresses the need for energy efficiency (in view of the EU energy targets), and how the design maximizes the energy saving potential of EC/TC Insulating Glass Units (e.g external shading, orientation, optimisation of window-to-wall ratio). [max 800 words]

3. Exploitation of Switch2Save EC/TC (and their smart functionalities*) & replicability of the approach

Explain also how your approach in integrating the EC/TC Insulating Glass Units with their smart functionalities can be replicated or up-scaled in other contexts (e.g. with respect to different building scales, uses, materials and technologies selection)

[max 800 words]

4. User comfort

Describe how your project is considering the users' comfort in overall, and how you see this being enhanced by the EC/TC IGUs (e.g., thermal and visual comfort, user controls etc.). [max 500 words]

**Smart functionalities: IGUs with controllable g-value through the integration of passive dynamical or active dynamic systems. EC/TC IGUs enable the combination of multiple types of passive and/or active energy smart technologies to one Insulating Glass Unit, maximising thus the energy saving potential.*