EBC Annex 74, 2018 - 2021
Competition & Living Lab Platform

EBC Webinar: The Science and Communication of Energy-Efficient Indoor Environments

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https://annex74.iea-ebc.org
University teams **design, build and operate 20 full-scale, all-electric experimental solar homes within each competition edition.**
Working Environment

Resources
- EC project: Solar Decathlon Europe – Analysis of Results
- Impact from building related IEA Annexes / Tasks
- International Solar Decathlon Community

EBC Annex 74

A - Science & Technology
B - Competitions & Living Labs
C - Communication

Improving & Stimulating Events
- Science & Technology Report (A)
- Impact & Performance Report (B1)
- After Competition & Living Labs Scenario Report (B2)
- Linking Competition & Science
- Living Labs Networking

Knowledge Platform

Audience
- Educational Institutions
- Public Bodies
- Industry & Professionals
- Scientific Community
- Energy Policy Makers

Participating Countries
Belgium, China, Germany, The Netherlands, Spain, Switzerland, United States

Observers
Hungary, Morocco, United Arab Emirates, Colombia
# Building Energy Competition & Living Lab Knowledge Platform - Documentation

**Building Energy Competition & Living Lab Knowledge Platform**

- **Search...**
- **organization**  
- **contest/scoring**  
- **teams**

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<td>Plateau Team Universidad de Aalea</td>
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- [https://building-competition.org/](https://building-competition.org/)
The PV system sizing reflects the boundaries set by each competition rules with the latest competition in Europe more reflecting market realistic conditions. No monitoring on the system, but on then hose level.
Linking SDE & Building Science

- Collecting monitoring data and information including key strategies identified
- Create a set of “topical papers” linking the major topics of the competitions to research and IEA Annexes/Tasks
- Create a set of templates to more consequently collect building information and generate KPIs
- Providing tools for teams: circularity index, comfort
- Design performance research contests to investigate real system operation versus simulations
  - Building Grid Interaction / Energy Flexibility
  - PV Performance Ratio
  - Thermal Performance testing (co-heating test)
  - etc.
Lessons Learned

- While SD projects are relevant showcases, they can create more impact in architectural practice when addressing real site context.

- **Space economy and space sharing** demonstrate major messages to achieve affordable, climate-neutral housing.

- The construction sector profits from examples of **circular design** to reduce waste and increase resource efficiency.

- Showcases are good but **more performance research** is needed to address the operation phase and reduce the performance gap.

- Connected research work may follow a competition through a **network of living labs**.
Solar Decathlon Europe 21 will be the first event stimulated by the work of Annex 74. It will be held in June 22 in Wuppertal, Germany: www.sde21.eu
There have been 18 editions of SD so far, with its general and particular objectives (education, professional training, social awareness, innovation, sustainability, energy efficiency,...)

What has been the real impact of SD?

To what extent have the objectives pursued with SD been met?

In order to improve the performance of SD in different areas, we must be able to measure them.

How do we assess them?

How do we improve them?
The worldwide survey (15-30’ long survey to different stakeholders – 391 Answers) plus analysis of another 3 more surveys in US, Europe, and worldwide

- 100% of students believe that they have enhance their employability, and
- 100% of Sponsors would hire SD Decathletes
Impact & Performance

The interviews
- 15 open in depth interviews to Sponsors (professionals & industry)
- 10 in depth interviews to SD Organizers worldwide (in progress)
- 60 semi-structured interviews to students and faculties

To identify key drivers for successful competitions and linked events
To assess subjective SD impacts and how to improve SD and linked events

The factsheets
- 195 factsheets and info about Post Competition and Living Labs
- 15 (from 18) factsheets about Organization of SD competitions and linked events and about their outreach.

To identify impacts and outreach from competitions and linked events
To learn about the objectives, strategies, and management and how they impacted in the outreach and SD performance

The variables, performance indicators, and KPIs
To assess real impacts & performance of SD competitions and linked events
Lessons Learned

- SD has a very high potential to promote both research & innovative education strategies for students through comprehensive and transversal education fostered by universities, the competition itself, and opportunities offered by the post-competition usage of houses.

- SD improve technical and professional skills for the next generation of energy efficient and sustainable committed architects and engineers and their employability.

- SD and linked events demonstrate a very high outreach with adequate strategies, and it became a key driver to foster education and awareness of children, citizens, professionals, students, in more sustainable and energy efficient buildings and cities.
The **knowledge platform** provides a series of information on:

- Competition organization
- Competition results
- Competition houses
- Monitoring data
- Educational Material: Tools, Topical Papers, etc.
- Living Lab Facts

It adds to the portal [www.solardecathlon.gov](http://www.solardecathlon.gov)

**Annex 74 reports** will be made available in 2021 via the EBC portal.

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