



## IESVic Seminar

- DATE:** Thursday, April 11, 2019
- TIME:** 11:30 am -12:30 pm
- LOCATION:** Engineering Computer Science Bldg. [ECS] Room 660
- SPEAKER:** **Roel Loonen**  
Assistant Professor, Dept. of the Built Environment  
Eindhoven University of Technology, Netherlands
- TITLE:** *Solar building skins: towards energy-positive buildings with improved indoor comfort*

**Abstract:** The integration of renewable energy technologies in the built environment is steadily transitioning from a possibility to a necessity. Many new materials, components and systems are currently under development. In particular, the integration of such technologies in building facades offers a lot of potential, but cost-benefit ratios can be challenging, and architectural integration requires special attention. In particular, promising prospects have been identified for façade systems that can adjust their behavior in response to ever-changing climatic conditions (e.g. weather, seasons) and variable comfort requirements. Both experimental and simulation-based research & development is needed to bring novel façade technologies from initial idea to successful product. This presentation will highlight the latest findings and lessons learned from two of such R&D projects in the Netherlands, covering: (i) a dynamic thermal insulation system for passive heating and nocturnal cooling, and (ii) a façade-integrated transparent concentrating PV system for electricity production and solar shading.

**Biography:** Roel Loonen is an Assistant Professor at the Department of the Built Environment, Eindhoven University of Technology, the Netherlands. His research and teaching focus on the development and application of modeling and simulation strategies to provide decision support for designing buildings that combine high indoor quality with low or no impact on the environment. Roel collaborates with SMEs in various R&D projects, aspiring to accelerate the process of bringing innovative building envelope technologies and renewable energy systems to the market. Many of his projects deal with the advancement of adaptive facades and building-integrated renewable energy technologies, for example through development, validation and application of new building performance simulation models. <https://research.tue.nl/en/persons/roel-cgm-loonen>