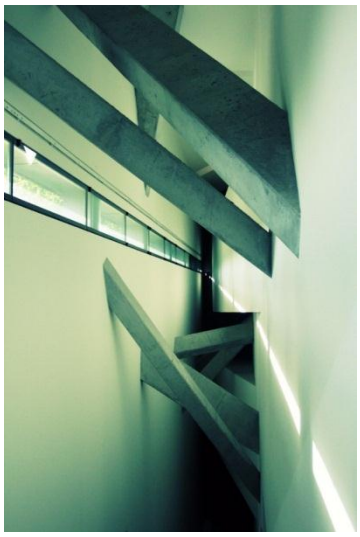
Dear reader,

CommON*Energy* started a few years back, in 2013, and will now close in about 6 months. This is the perfect moment to send an update on what happened and what is to come. I take this opportunity to invite you to join the project final conference, held in Brussels September 7, together with the *Sustainable Building Challenge*, rewarding best cases of retrofitted shopping centres. 23 partners representing various industry stakeholders, as well as research and academia from ten European countries gathered to develop concept and technologies to make EU retail buildings better and smarter. This will be the perfect occasion to meet them and discuss further the impact on EU policies.
More than 25 innovative technologies were developed and installed in demo cases. Performances assessment and validation are running. We are currently developing flyers presenting the key technologies, they will shortly be available on our website. This activity is part of a process to train practitioners on the technologies. We are organising a first training session in Italy March 29, If you are able to support the organisation of one in your country and/or willing to get one, contact us!
And to raise awareness on shopping centres' sustainability, we are also organising campaigns onsite: If you are a shopping centre manager or owner and interested in having the project and what it means to retrofit shopping centres presented to your visitors, with interactive and fun sessions, you can also reach out to us.
Kind regards,
Roberto Lollini, EURAC, project coordinator

On the spotlight

[Conference] "Cost-competitive deep renovation of shopping centres: technologies and drivers for EU policies", September 7, Brussels

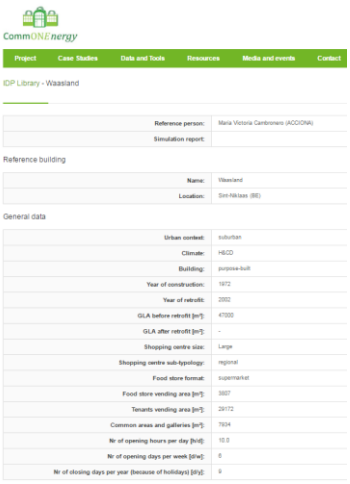
CommON*Energy* will end with positive results to look back at: a clearer picture on retail buildings in EU, their features, inefficiencies and inclusion in EU policies; innovative technologies developed, implemented and tested improving comfort, reducing costs and energy consumption; useful sustainability and economical tools, addressing the retail sector needs and much more! Best practices of recently retrofitted shopping centres will be awarded during the *Sustainable Building Challenge* ceremony. The event will close with a cocktail gathering retailers, architects, researchers, policy-makers and the industry to discuss in a relaxed atmosphere and discover the demo cases and technologies in a photo exhibition. More information - Registration
Training sessions are offered in the morning: book a session to dig into the continuous commissioning software; energy demand scenarios tool; environmental and social impact assessment tool; Integrated Design Process library and more.



[Sustainable Building Challenge] Send your applications by end of April!

The competition is still open: participants shall fill in the Project Datasheet, which includes basic information on the building and the CommON*Energy* Performance Card (6 KPIs), and submit a Sustainability Assessment Report. Support in preparing the requested information can be requested. The Jury will evaluate the applications, identify the Top 10 and award a winner for each category (Iper and Super). All shortlisted projects will be presented September 7 in Brussels. The two winners will also be presented at the high-level event WSBE17 Hong Kong, June 5-7. A publication presenting the best cases will finally be prepared and disseminated in Europe to showcase good practices. More

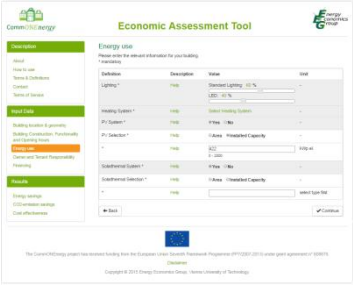
Tools



Integrated Design Process library (IDP)

This user-friendly tool provides designers, owners and managers relevant information to start a shopping centre retrofitting process. It collects information about shopping centres' archetypes and specific technology features, as well as climate, social and urban contexts connected to the reduction of energy needs and increase of energy efficiency. Building energy simulation models are used to identify the most suitable and economical solution-set for a shopping centre retrofitting and to estimate the relative energy savings, to ensure an effective investment, while effectively exploit local natural sources and infrastructures.

To contribute and feed the library with your data, contact us.

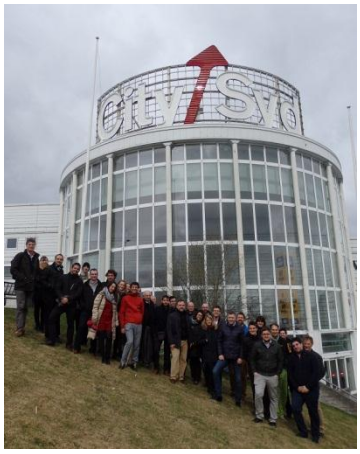


Economic Assessment Tool

The economic assessment tool allows estimating the energy saving potential and economic benefits of retrofitting shopping centres in the EU and Norway. The tool targets managers and owners and provides quick information on the energy consumption and options to reduce energy demand, CO_2-emissions, environmental impacts and provides an economic assessment of the investments.

Demo cases updates

"Mercado del Val" in Spain reopened in November 2016. Comfort was improved for shop-owners and visitors with a multifunctional climate-adaptative façade including an optimised glass system and venetian blinds, as well as automatic openable windows, whose control strategies were specifically defined. Geothermal heat pumps are meeting the demand for heating as well as cold and hot water, while roof skylights coupled with façade openings provide natural ventilation. A modern energy management and monitoring system (iBEMS) allows controlling technologies and taking decisions to reduce energy consumption. A brochure by IEA EBC Annex 62 presents the ventilative cooling strategy.



City Syd in Norway is a suburban shopping centre on the outskirts of Trondheim. Works on the roof started in November 2016, with light tubes and a dome in the Jens Hoff shop being installed. The automated skylight openings for enhanced stack ventilation (Natural ventilation with automatic shading and monitoring systems (Air Handling Unit in the common area)) were previously installed. The first commissioning phase for the Climate Modular Adaptative façade and the GRL luminaires were done. Lighting installations are the next step (rectangular skylights in the main area). A modern energy management and monitoring system (iBEMS) allows an optimal control of all technologies, taking appropriate decisions to reduce energy consumptions. An article by SINTEF puts the spotlight on this demo case.

In Modena (Italy), the COOP supermarket was part of a project requalifying the neighbourhood, both from a social and functional point of view. Innovative solutions include integrated solutions for HVAC and refrigeration; artificial lighting to simulate daylight, thermo-reflective paint applied on the flat roof to reduce thermal loads of the building, a natural lighting system using the passage of solar tubes through the rooms of the first floor to the roof and insulation of the structure to summer irradiation and winter heat loss. An integrated management system (IBEMS), gathers information and feedback for the systems. Energy modelling in dynamic regime highlighted the possibility of results intervening in minimum building envelope measures, thanks to thermal insulation and the use of double-glazing for new window frames. This article includes photos and a 3D visit.

In addition, the technologies and solutions were implemented in another Italian centre. In Grosseto, two charging stations for electric vehicles are connected to a photovoltaic system installed on the roof. These stations are part of an innovative and experimental charging system using the energy supplied by photovoltaic panels and stores it in a 48kWh battery storage system that powers the charging stations. More information in this article, and photos. Booklets were produced to explain the project in a simple way and quiz the knowledge of shopping centre's visitors; they are available in Italian, Spanish and Norwegian.

Publications

iBEMS (intelligent Building Management System)
Architecture: an integrated-control-system leverages the information and synergies among each systems (HVAC, lighting, refrigeration, energy use, etc.), as well as for building correlated services (parking, RES harvesting and local energy production, etc.), allowing facility managers to control energy generation, consumption and energy exchange with the grid. ICT platform: shopping centres include various sub-systems communicating with each other to increase performance. This report analyses a potential ICT system for shopping centres to ease that process and make the iBEMS work properly by communicating with the sub-systems.

Heat recovery solutions and scenarios
Shopping centres are highly-energy-demanding buildings, due to lighting, refrigeration and HVAC systems consumption. The report presents the main heat recovery strategies, including an analysis of the potential of wasted and unrecovered energy, and the improvement of control strategies to enhance system performances and interactions.

Daylight strategies and prototypes of combined daylight system
The reports analyse daylight exploitation in historic market halls, as well as multi-storey galleries and shops, describing the typologies and inefficiencies, strategies and implemented solutions for the project case studies. The second report also evaluates the combined effect of daylight and artificial lighting, as installed in Norway.

Systemic solution-sets for shopping centre renovation
The project developed a set of technologies and solutions to improve shopping centres' indoor environmental quality and reduce energy consumption. These technologies can perform better when installed in 'sets': 10-20 combined energy solution-sets (combining passive and efficient active measures, utility equipment and energy-generation technologies) were thus defined for demo case and reference buildings. The measures were integrated looking for and exploiting synergies between HVAC, lighting, refrigeration, energy use and building-correlated services.

Ventilative cooling
Meant as the use of natural or mechanical ventilation strategies to cool indoor spaces reducing energy consumption of cooling systems while maintaining thermal comfort. The report focuses on three scenarios (modular climate-adaptative multifunctional façade, atrium skylights to enhance stack effect ventilation, and venti-light-tube), referring to the Spanish and Norwegian case studies.

Interactions among shopping mall and energy grids
This report presents smart grid concepts and scenarios and the performed experimental campaign. In the future, by reducing energy needs, shopping centres could become energy-hubs in demand response and RES-integrated local smart grids, including other buildings from the same district.

Other reports...
...include strategies for the integration of daylight and artificial lighting system, with the visual, emotional and energy effects of a new lighting concept as well as defining and introducing the Building Integrated Electric Mobility system. A series of sensors, meters and other instruments can be installed to characterise the building energy performances during the heating and cooling seasons. A report introduces the software for continuous commissioning, a useful instrument to show buildings' real energy performance in a holistic way. Enhanced concepts for thermal zone optimisation within food stores, analysing their effect in terms of energy savings, thermal comfort and costs, as well as the interaction of refrigerated display cabinets with HVAC systems, thanks to simulations, are presented. Additional reports study vegetation integration, thermal and acoustic components, integrative modelling environment and standardisation, exploring EU building codes, analysing potential legislative and normative barriers per technology and providing solutions to overcome them. All other reports are available in this section.

While waiting for the technology-specific flyers…

EURAC and EPTA presented late 2016 the improved efficiency in refrigeration plants based on natural refrigerant in a webinar organised by EbE-CA2 and the ECTP. The recording is available, as well as a brochure focusing on HVAC and lighting (more specifically on CO_2-gas use for refrigeration systems). Other projects are also presented, allowing digging into the topic.

Where to meet the partners

- April 4-6: meet Nilar at the Battery Show and EV Tech Expo Europe, in Stuttgart
- April 19-21: meet UniUD, EURAC and Nilar at the 1st International Conference on Sustainable Energy and Resource Use in Food Chains, in Old Windsor.
- April 24-28: meet Nilar at the Hannover Messe, in Germany.
- April 26-27: meet Ayuntamiento De Valladolid at the Smart Cities Conference in London.
- May 9-12: meet Nilar at Elfack, in Gothenburg.
- May 10-11: meet Sunplugged at Energy Harvesting Europe in Berlin.
- May 31-June2: meet Nilar and Sunplugged at ees Europe / InterSolar Europe in Munich.
- May 29-June 3: meet SINTEF, TU Wien and BPIE at the eceee Summer Study in Hyères.
- September 13-14: meet EURAC and SINTEF at the AIVC Conference in Nottingham.

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