Think concrete, go precast!

CONCRETE PERSPECTIVES January 2018

Construction sector

Public consultation opened on the review of Construction Products Regulation

BSRIA launches urbanisation megatrends report
The Building Services Research and Information Association (BSRIA) has launched a new report called Megatrends – Urbanisation (registration needed) which claims to look at the major forces that are shaping the 'world in which we live and do business'.

Cement industry welcomes the Plastic Waste Strategy
On 16 January the European Commission issued a Strategy for Plastic Waste. It is a first-ever Europe-wide strategy on plastics and it is a part of the transition towards a more circular economy.

Under the new plans, all plastic packaging on the EU market will be recyclable by 2030, the consumption of single-use plastics will be reduced and the intentional use of microplastics will be restricted. This approach will bring new opportunities for innovation, competitiveness and job creation.

CEMBUREAU, the European Cement Industry welcomed the new strategy and stated *"From an industrial symbiosis perspective, the Plastics Strategy is of interest to the cement industry which fully supports any proposal that aims to protect Europe's resources, be they primary or secondary resources - such as waste."* Co-processing currently play a significant role in avoiding that non-recyclable plastics go to landfill.

The main message of the position paper is *"to ensure that any plastic waste that has a calorific value which can be recovered as a fuel source is not landfilled."*

Press Release – European Commission
Press Release - CEMBUREAU

Industry4Europe delegation meets Commissioner Elżbieta Bieńkowska
Industry4Europe delegation met Commissioner Elżbieta Bieńkowska on 24 January and handed over the joint position paper of 126 industry associations. The

Commissioner was very positive about the work of the coalition and she confirmed her willingness to work with the coalition.

BUSINESSEUROPE Workshop on EU Industrial Strategy

On 26 January, BUSINESSEUROPE organised a workshop with the support of the Bulgarian Presidency on "EU Industrial Strategy: What headline indicators for a long-term vision". Panellists agreed that the main three pillars of the EU's Industrial Strategy should be innovation, digital transformation and sustainability. The representative of the Bulgarian Presidency confirmed that long-term vision is a key according to the Bulgarian Presidency as well, thus businesses need predictability and short-term changes would undermine long-term investments.

Panellist confirmed that industrial transformation and digitalisation hide enormous opportunities and some threat as well, if they are tackled, such as cybercrime.

It was mentioned that the current Industrial Strategy presented by the European Commission in September can be hardly called as a Strategy, indeed the strategic orientation is missing.

National dimension of the future strategy shouldn't be neglected because indeed the key is how to translate it into national actions.

Comments were similarly made that the value chain approach is very important to achieve circular economy and climate change goals.

The second panel tried to find the answer to the question "What headline indicators for a long-term vision". They all agreed that it is a very complex subject and that target or indicators should be picked very carefully. Output, input indicators, intra EU Export, social indicator were all mentioned. They all agreed that whether target or indicator will be chosen, commitment should be built.

The European Parliament adopts Energy Efficiency Directive

On 17 January, European Parliament has voted in favour of reinforcing the Energy Efficiency Directive (adopted text) and the efforts by Rapporteur MEP Miroslav Poche for accelerating the delivery of Energy Union benefits to citizens and businesses after 2020.

The European Parliament adopted its report on the revision of the Energy Efficiency Directive. Namely, MEPs approved the Governance Regulation, the Renewable Energy Directive (RED) and the Energy Efficiency Directive (EED).

As for the Energy Efficiency Directive, the Parliament voted in favour of a binding 35% target for 2030 with a wide support.

Business Europe claims that *"increased ambition level is beyond realistic expectations and economic sense"*. In their press release it stated that *"the 35% target risks impacting negatively the EU Emission Trading System and implies a significant increase of cost for the EU economy and consumers."*

All three directives will be now negotiated in trilogues with the Council and the Commission.

As for the **Energy Performance of Building Directive**, the text of the agreement reached in Trilogue was published. The next step is the plenary vote by the European Commission on 18 April 2018. After the endorsement by all institutions, the text will be published in the Official Journal of the European Union and will become applicable.

Energy Poverty Observatory launched

The European Commission launched the Energy Poverty Observatory where interactive graphs help Member States in their efforts to combat energy poverty. This web portal is the main focal point for the EU Energy Poverty Observatory and includes a wide range of useful resources.

Campus Roskilde[1]**,** Roskilde, Denmark

Campus Roskilde unifies the professional bachelor educations for teachers, kindergarten teachers, social educators, social workers and physiotherapists. Campus Roskilde facilitates more than 50 classrooms, a workshop zone, a multi-purpose hall, a science zone, clinic zone, music & drama zone, conference rooms, auditoriums, library, cafeteria, café, group- and meeting rooms, and study space.

Architects: Henning Larsen Architects
Project: Campus Roskilde
Location: Roskilde, Denmark
Client: University College Sealand
Gross floor area: 20,000 m2
Year of construction: 2010 – 2012
Type of assignment: First prize in international competition
Collaborators: Enemærke & Pedersen, Cowi and Thing & Wainø Landscape Architects
Photography: Peter Jarvad & Kontraframe

[1] Source of article: Henning Larsen Architects

Campus Roskilde Concept

Campus Roskilde stages dialogue and random meetings, and provides the students with a feeling of being part of a manifold university environment beating with one pulse. The random meetings are important in the design, and they create learning spaces for the students both to socialize, but also to share knowledge and experiences.

The learning environment comprises zones for contemplation and concentration as well as zones for communication to meet both the students' and teachers' need for changing between various learning and working methods. The buildings at Campus Roskilde have a clear layout staging the many contact points and the interaction between the different user groups, across departments, faculties, and academic fields.

The campus consists of four square buildings. These have been slightly rotated towards each other in order to screen the area from the highway and create a more intimate and varied space around the campus square.

Daylight

Daylight is a central architectural tool that emphasizes the viewer's experience of being present in the moment at a specific place. Daylight is also a crucial parameter for energy efficiency. All offices and classrooms provide plentiful daylight because they are located along the peripheral zones.

Energy optimisation has been implemented in every aspect of the buildings. Campus Roskilde favours passive and economically-viable sustainable features over the expensive technical installations. Natural ventilation, daylight, and orientation ensure excellent effects for minimal budget. Furthermore, all artificial light fixtures employ daylight and movement sensors, ensuring 350 lux or more in all classrooms and significantly reducing operational costs.

Because the building is very deep, the atrium was created to introduce light to the middle of the building. The design of the atrium contributes to increasing the amount of daylight on the square. By means of high floors and glass in front of teaching rooms and offices, the daylight is allowed far into the various floors of the building.

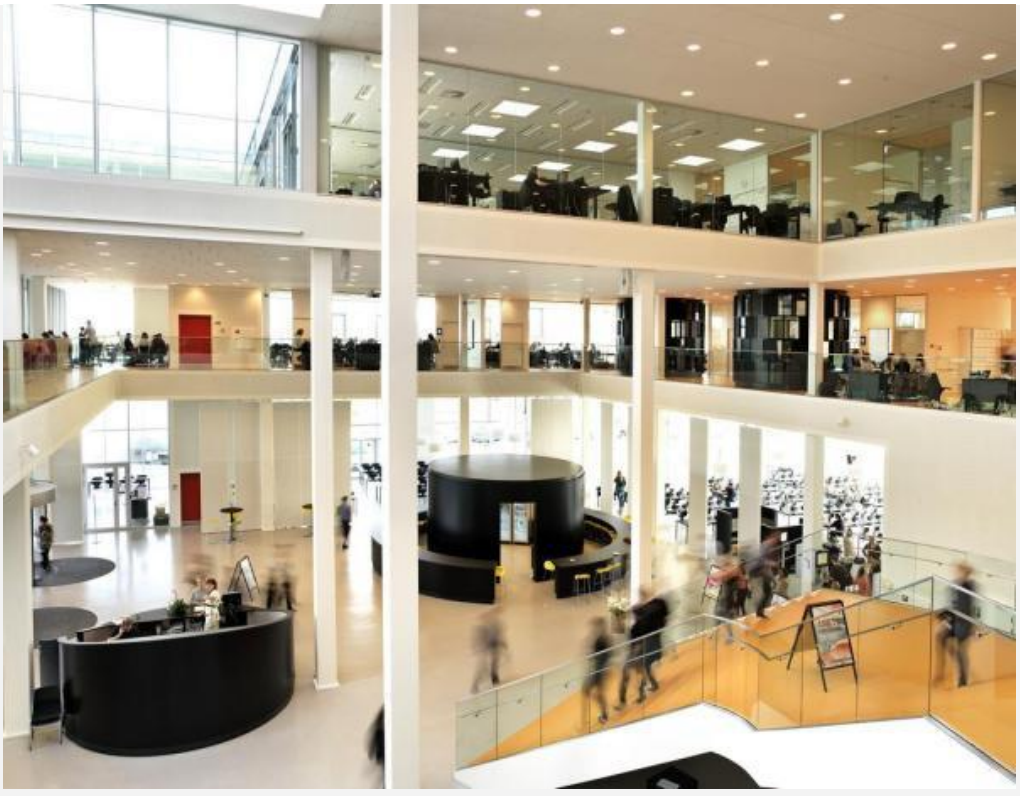


Image Courtesy © Peter Jarvad

Radiance helped determine optimal orientation and position of academic functions in relation to sunlight. The local climate is analyzed to extract daylight patterns and typical factors in the local weather system. In response, first level classrooms have a depth of 6,5 meters and second level rooms have a depth of 9 meters in order to attain optimal daylight conditions. The height of the ground floor is increased to maximize deep penetration of natural light.

The building complex is designed as 4 separate buildings linked together to create one school. The buildings' core is held in place by two facades. Towards the South, East, and West a local yellow brick façade is the buildings acoustic barrier toward the highway. Furthermore, windows are placed in the façade to allow optimum daylight into classrooms and meeting spaces. A structural glazing façade towards the North opens the building towards the surrounding university and allows the softer Northern light into the building. Acoustic gypsum and glass walls are used extensively throughout the interior of the building, creating a visually open and acoustically comfortable environment. The ground floor is covered in polished concrete and the upper levels have coloured linoleum floors.

Indoor climate

A key element in the sustainable design of Campus Roskilde is the use of thermal mass. The concrete structure combined with the south-facing, heavy facade, this results in a building with a substantial thermal mass. It has been important to use a material with this substantial thermal mass, to prevent overheating and thus reduce the need for additional cooling and heating. Furthermore, the building is very deep, instead of wide, which gives it a smaller facade-area, which is also a contributing factor in being more energy efficient.

Another focus point as to sustainability is ventilation. Campus Roskilde applies a well-known ventilation concept. The general ventilation concept is based on mechanical ventilation in most of the building, supplemented with natural ventilation in the atrium. According to studies of a highly exposed teaching room to the south, among others, the ventilation concept ensures an optimal indoor air quality with very few hours above the tolerance values. The studies also show that the temperature in the teaching room only exceeds 25 °C in eight hours a year during school hours and never exceeds 26 °C. This is much better than normal. All rooms feature needs-based ventilation, which minimises operation and thus energy consumption. The building is also fitted with high-efficiency ventilation systems featuring rotating exchangers as far as possible. This makes the heat stay inside the building when needed. When extra heating is needed the Campus is heated with district heating.

Inclusive design

Campus Roskilde promotes inclusiveness through the concept “many brains, one pulse”. This means that through the accumulation of many different study programs in one location, and a design that facilitates random meetings between people, the community members are unified as one. Because of the openness and brightness of the campus it promotes the communication among students from the same, or different, study-programmes.

The profession specific education-programmes is characterised by varying teaching methods. Therefore, flexible rooms have been incorporated in the campus. These are susceptible to alterations and can embrace the diverse needs which may arise during the weeks and years. This means that Campus Roskilde has spaces for brainstorming, mass meetings, project groups, space for contemplation, space for development physically and creatively and space for group teachings in varying sizes etc. Roskilde Campus reflects present conditions, and is a place known for being a humane house adapted to the humane educations. The rooms reflect the different professions and their different needs.

Accessibility

Accessibility was a minimum requirement for the building. All areas of the building are accessible by wheelchair and all service areas are located directly near the circulation. This means that stairs and lifts are situated close to one another, which makes it easy to navigate at the campus for people in wheelchairs. Furthermore, the ramps next to the additional staircases make all rooms wheelchair accessible. These features embrace diversity.

Most students walk or ride a bike to Campus Roskilde. Therefore, the arrival to the institution is on the terms of the pedestrians and cyclists. Their convenience is highly prioritised with wide bike lanes and less space for car traffic.

An extraordinary cantilever marks the entrance of Campus Roskilde and makes it easily visible, and easy to find. This covered plaza at the entrance of Campus Roskilde consists of a 22m x 24m cantilever, estimated to be the largest cantilever constructed in Denmark. This cantilever shapes a protected central node for student interaction and leisure.

Picture: Source

The plaza leads directly to an open indoor/outdoor workshop with level accessibility for all. The workshop is connected to numerous apertures in the north façade, extracting learning activities and exhibitions into the outdoor environment.

Social design

At the north side of the building the pavement encourages recreation and activities. In their spare time the students can socialise in this area through play and movement. The difference in level is adapted with stairs and the natural sloping of the ground is integrated as easy access for the disabled. Furthermore, parking for disabled and space for drop off is provided in front of the building.

In Campus Roskilde the aesthetics and the functional is unified. To create a comfortable learning and teaching environment the acoustics, lighting, and ventilation of the buildings are highly prioritized.

User specific design

Firstly, daylight is a central theme for Henning Larsen Architects. It influences their senses and puts focus on life and the present moment. Campus Roskilde is designed as an instrument that reflects daylight and allows the architecture to provide a brilliant frame work for education. The electric lights and ventilation system are needs-based with automatic controls that takes the students' and teachers' needs into consideration. Furthermore, the facade is built to decrease fluctuations in temperature, in order to make it more comfortable for the users.

In a campus with such diverse programme special acoustic initiatives has been made in order to create spaces for quiet activities and spaces for noisy activities, such as sports. Each room is acoustically adapted to the current activity. For example, the atrium is designed with an acoustic that takes multi-purpose activities into account and in the auditoriums the acoustics are adapted to speak without echo. Additionally, the south façade is designed as sound insulation to decrease the traffic noise from the highway.

Campus Roskilde promotes an innovative technology known as CTS. CTS measures prices of electricity suppliers and can consequently direct which type of energy supply is used throughout the day. CTS simultaneously measures the expected annual consumption of electricity for Campus Roskilde, thereby minimizing district heating and mediating heavy traffic on the power grid. The vision for Campus Roskilde is to clarify socially conscious design, elucidating sustainability for users, external stakeholders and the Roskilde municipality.

Community impact

Since Campus Roskilde is an educational institution it has specific benefits to the surrounding local community and the internal campus community.

The new and bigger campus also welcomes more students, which invite more student activity to campus. Furthermore, the nice study areas, and many possibilities for doing school work, will also result in the students spending more time on campus. Ultimately it will result in young newcomers to the area, because of the large education facilities. This means that Trekroner and Roskilde will become more attractive to students, and ultimately the area will benefit from the accumulation of young people.

The design focuses on the meeting between students from different study programmes, which creates a tighter community.

Firstly, there are the obvious, tangible features of the building. This includes the fact that Campus Roskilde consists of four square buildings – slightly rotated towards each other to screen from the highway and create a more intimate, varied space around the campus square. This protective shield benefits Roskilde University as well as the neighbouring dorms in regards to the noise level from the highway.

Secondly, the entire design of the campus has been focused on the well-being of the students. Due to the shielding form the highway a new meeting place is created between the urban quarter of Trekroner and the green areas around Roskilde University. Under the overhang of the main building, a roofed square opens up to the rest of the campus area and create life and a sense of community among the students.

cantilever shapes a protected central node for student interaction and leisure. The plaza leads directly to an open indoor/outdoor workshop with level accessibility for all. The workshop is connected to numerous apertures in the north façade, extracting learning activities and exhibitions into the outdoor environment.

Sustainability

Campus Roskilde is characterised by a significant green profile where the displaced buildings will help to optimise the energy consumption and make the campus adaptable to possible extensions in the future.

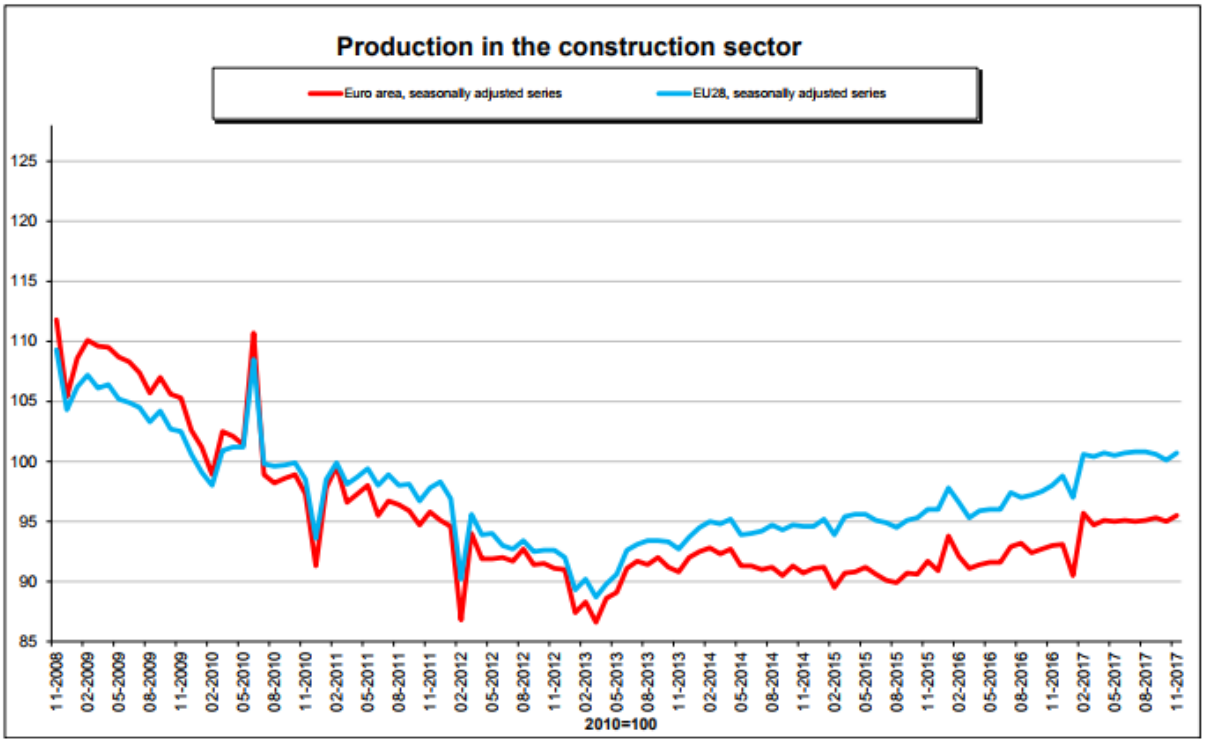
Sustainability is crucial to Henning Larsen Architects and is implemented early in the design process. The ambition for Campus Roskilde was to meet the standards of Danish building regulations BR08, corresponding to approximately 52 kWh/m^2/year. This objective is met solely by means of energy-reducing and optimising measures – Roskilde Campus consumes approx. 48,7 kWh/m^2/year. Furthermore, optimum indoor environment for guests, employees, and students is created.

Campus Roskilde is flexible and future-proofed solutions for installations, constructions and security. In connection to this Henning Larsen Architects created a building with robustness, a long lifespan, and operational reliability. Throughout the entire process there was a focus on CO^2-reduction in the construction and operation of the institution.

Facade design

Roskilde Campus facade provides a high degree of insulation for reduced heating requirements and CO^2 emissions. The south facade is brick with 275mm thermal insulation and 3-ply energy-efficient windows and primarily features deep windows that provide shade in the building and reduce traffic. Thermal analysis supports 200mm insulation in the concrete slab and 275mm insulation in the facade. This contributes to reduce fluctuations in temperature. This means that the facade makes the building less susceptible to fluctuations induced by heavy student population and direct sunlight. The north facade is a glass curtain wall with low heat loss of approximately 0.7 W/m^2K.

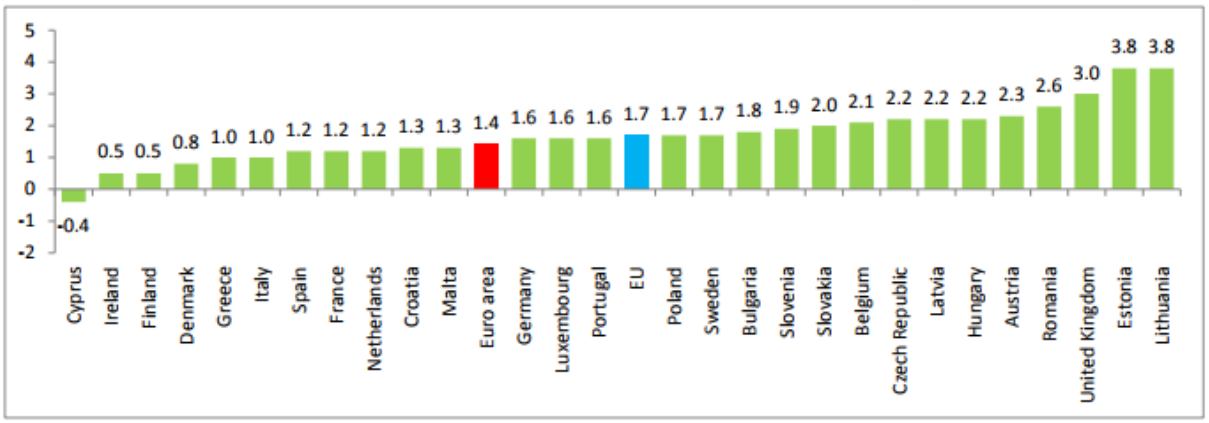
Further reduction of energy consumption is possible by installing solar panels and photovoltaics, which the campus is designed to support. Installation of $100m^2$ of solar panels and $1200m^2$ of photovoltaics is encouraged. If Roskilde Campus installs the suggested solar panels and photovoltaics, electricity consumption would be provided for all basic infrastructural operations, rendering the building energy-neutral.



Graph 1- Production in Construction **(red - Euro Area, blue - EU28)**

In November 2017 compared with October 2017, seasonally adjusted production in the construction sector increased by 0.5% in the euro area (EA19) and by 0.6% in the EU28, according to first estimates from Eurostat,the statistical office of the European Union.

Among Member States for which data are available, the highest increases in production in construction were recorded in Poland (+3.2%), Slovenia (+2.2%) and the Netherlands (+1.8%). Decreases were observed in Hungary (-1.5%) and France (-0.6%).



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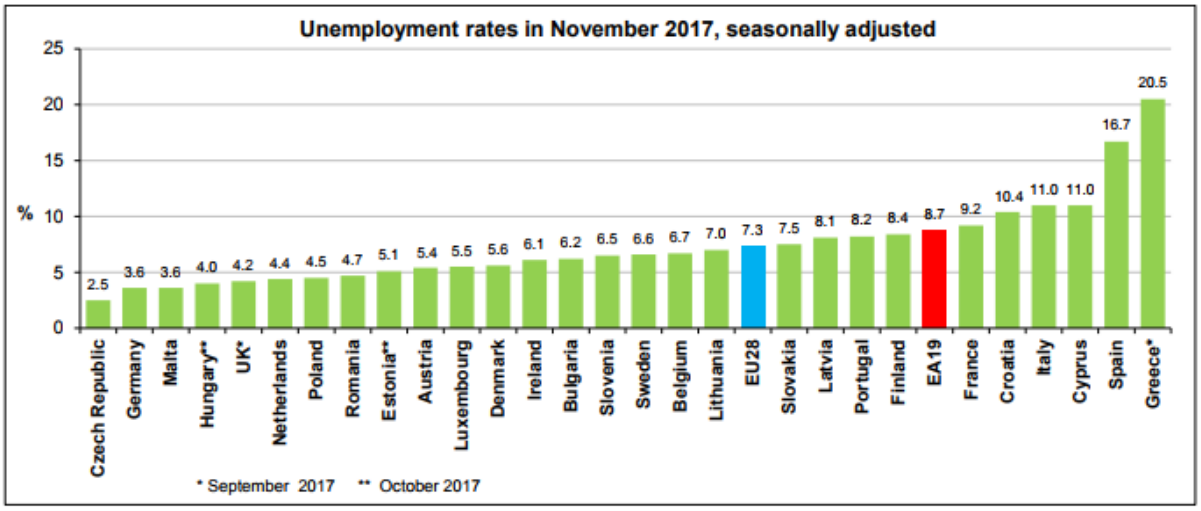
Graph 2 – Annual inflation rates **(%) in December 2017, in ascending order**

Euro area annual inflation was 1.4% in December 2017, while the European Union annual inflation was 1.7%.

The lowest annual rates were registered in Cyprus (-0.4%), Ireland and Finland (both 0.5%) and Denmark (0.8%). The highest annual rates were recorded in Lithuania and Estonia (both 3.8%) and the United Kingdom (3.0%).



Graph 3: Unemployment rate

The euro area (EA19) seasonally-adjusted unemployment rate was 8.7% in November 2017. This is the lowest rate recorded in the euro area since January 2009. The EU28 unemployment rate was 7.3% in November 2017, which is the lowest rate recorded in the EU28 since October 2008.

Among the Member States, the lowest unemployment rates in November 2017 were recorded in the Czech Republic (2.5%), Malta and Germany (both 3.6%). The highest unemployment rates were observed in Greece (20.5% in September 2017) and Spain (16.7%).

Graph 4: How is the EU progressing towards the circular economy?

Figures show that the recycling rates for packaging waste have increased in the EU, from 62% to 66% between 2008 and 2015. For plastic packaging, the average recycling rate in the EU is significantly lower, at 40%, even though there have been improvements in recent years.

In the new Eurostat website section on Circular Economy you can discover, for instance that the circular economy sectors created around EUR 141 billion of value added in 2014, which represents an increase of 6.1% compared to 2012.

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Agenda

FEBRUARY

2 February 2018
NEPSI Council
Brussels, Belgium

7-8 February 2018
Innovation in Industrial Carbon Capture Conference 2018
Liège, Belgium

7-8 February 2018
CEN/TC 104/SC 1/TG 20
Paris, France

13 February 2018
CPE/TG CPR implementation
Brussels, Belgium

19 February 2018
BIBM Directors meeting
Ulm, Germany

20-21 February 2018
European Circular Economy Stakeholder Conference
Brussels, Belgium

20- 22 February 2018
BetonTage conference
Ulm, Germany

22 February 2018
CWA on Smart CE-marking
Brussels, Belgium

22-23 February 2018
Industry Days
Brussels, Belgium

23 February 2018
Concrete Initiative internal workshop sustainability
Brussels, Belgium

23 February 2018
Concrete Initiative AhG
Brussels, Belgium

27 February 2018
ECP Board
Brussels, Belgium

MARCH

6 March 2018
BIBM Board meeting
Brussels, Belgium

14 March 2018
CEN/TC 229/WG 1
Brussels, Belgium

15 March 2018
BIBM Environment Commission
Brussels, Belgium

16 March 2018
Water engineering group
Brussels, Belgium

22 March 2018
EMA meeting (fire)
Brussels, Belgium

27 March 2018
CPE CPR WG
Brussels, Belgium

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FIEC's January Newsletter is available at this link.

To read the Newsletter of CEMBUREAU, please follow this link. You can also subscribe directly following this link http://www.cembureau.eu/newsletter/subscriptions.

To read the Quarterly Newsletter of The Concrete Initiative, please follow this link.

List of Acronyms:
CPE - Construction Product Europe
CSC – Concrete Sustainability Council
DG GROW - Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
ECP - European Concrete Platform
EMA – European Masonry Alliance
IPHA – International Pre-stressed Hollowcore Association
TF – Task Force