



# European Council of Civil Engineers

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## Lisbon Civil Engineering Summit (CES 2019) 24-28 September 2019, Lisbon, Portugal



In the year in which the Portuguese Engineers Association (OEP - Ordem dos Engenheiros de Portugal) celebrates its 150th Anniversary the Lisbon Civil Engineering Summit 2019 (CES2019) is organized.

For five days, the Portuguese Engineers Association (OEP - Ordem dos Engenheiros de Portugal) will bring engineers from around the world to Lisbon to share knowledge, challenges and projects in Lisbon Civil Engineering Summit 2019 (CES2019) that will be held at LNEC- the National Civil Engineering Laboratory.

This international event aims to discuss, with a global and integrative approach, the main issues that currently affect the community of civil engineers, who seek solutions to new and also old challenges, in which its role will have a major impact, as climate change, food and water security, safety construction and all the other UN Sustainable Development Goals.

These issues can only be achieved with the engineering commitment and innovation, without forgetting the problems that still remains after the global financial crisis, related with engineers' employability.

Simultaneously with the CES2019, Lisbon will also host the World Council of Civil Engineers (WCCE), the European Council of Civil Engineers (ECCE), the European Council of Engineers Chambers (ECEC) and the Engineering Association of Mediterranean Countries (EAMC) General Assemblies.

[CES 2019 General Programme](#)

[CES 2019 Technical Programme](#)

Details about the program, speakers, registration options, accommodation, social program etc. can be found at the CES2019 website <https://www.lisbonces.org/>

# 70th ECCE General Meeting

## 24-25 September 2019, Lisbon, Portugal



ORDEM  
DOS  
ENGENHEIROS



The 70<sup>th</sup> General Meeting of the European Council of Civil Engineers will be held on 24-25 September 2019, in Lisbon, Portugal hosted by the Ordem dos Engenheiros de Portugal (The Portuguese Engineers Association). The 70<sup>th</sup> ECCE General Meeting will be held in parallel with the [Lisbon Civil Engineering Summit 2019 \(CES2019\)](#) that will be organized from 24 to 28 September 2019, at LNEC- the National Civil Engineering Laboratory.

During the five days of the CES2019 engineers from around the world will be gathered in Lisbon to share knowledge, challenges and projects. This international event aims to discuss, with a global and integrative approach, the main issues that currently affect the community of civil engineers, who seek solutions to new and also old challenges, in which its role will have a major impact, as climate change, food and water security, safety construction and all the other UN Sustainable Development Goals.

Simultaneously with the CES2019, Lisbon will also host the World Council of Civil Engineers (WCCE), the European Council of Civil Engineers (ECCE), the European Council of Engineers Chambers (ECEC) and the Engineering Association of Mediterranean Countries (EAMC) General Assemblies.

### [70th ECCE General Meeting draft preliminary Agenda](#)

[REGISTRATION FORM](#) for all activities

### [Discounted Accommodation proposals](#)

Accommodation proposals can be found here <https://www.lisbonces.org/accommodation>.

### [Social Programme](#)

On Saturday 28 September an optional excursion is organized; **Lisbon Bridges, Wine and Beach** including wine tasting, lunch, transport and guided all day.

The cost for this excursion is 50€.

Further information on the social programme can be found at <https://www.lisbonces.org/social-programme>

## 69th ECCE General Meeting

### 30 May - 1 June 2019, Podgorica, Montenegro



**69th ECCE General Meeting participants**

The 69<sup>th</sup> ECCE General Meeting was held from 30 May to 1 June 2019, in Podgorica, Montenegro hosted by the Engineers Chamber of Montenegro (IKCG). The 69<sup>th</sup> ECCE General Meeting was very well attended by delegations from almost all of the ECCE Member organizations and it was chaired by the ECCE President Aris Chatzidakis.

At the beginning of the meeting opening speeches were held by the ECCE President Aris Chatzidakis, the IKCG President Srđan Laković and the Minister of Sustainable Development and Tourism of Montenegro Pavle Radulovic. In his speech, IKCG President Srđan Laković stressed that the Chamber is ready to support its capacity to implement the ECCE tasks, with the aim of advancing the profession in the European context. The Minister of Sustainable Development and Tourism Pavle Radulovic stressed that thanks to such gatherings, the profession is in a position to exchange opinions, experience from practice, to be in the hands of professionals with the most recent achievements in the field of engineering, especially in the field of construction.

50 delegates from 20 countries attended the meeting. Among the distinguished guests were WCCE Past President Emilio Colon, ECEC President Klaus Thurriedl and EAMC Secretary General Nicola Monda.

During the 69<sup>th</sup> ECCE General Meeting, two new Associate Members joined ECCE; Intracom Constructions SA Technical and Steel Constructions, D.T. "INTRAKAT" and the Earthquake Planning & Protection Organization (EPPO) both from Greece were unanimously accepted by the ECCE General Assembly.



**ECCE President Aris Chatzidakis**



**IKCG President Srđan Laković**



**Minister of Sustainable Development and Tourism of Montenegro Pavle Radulovic**

The [minutes of the 68<sup>th</sup> ECCE General Meeting](#), in London were unanimously approved. ECCE President Aris Chatzidakis presented the [ECCE Brief Activity Report October 2018 – May 2019](#) describing briefly the ECCE activities since our last meeting in October 2018 in London. Then, Nikola Lukovic who is delegate of the Engineers Chamber of Montenegro in ECCE addressed a **speech** on the current Position and Role of Chamber of Engineers stressing the importance of strong Engineers Chambers and addressing the regional issues they have been facing.

The financial topics reports were presented by the ECCE Vice President/ Treasurer Dimitar Natchev. He briefly informed the delegates regarding the financial status of ECCE and he also presented the Year End Accounts for 2018 which were unanimously validated by the ECCE General Assembly. Both proposals were validated by the General Assembly. He concluded that ECCE is in good financial standing at the moment.

Then, ExBo Member Platonas Stylianou delivered a presentation on the progress of the [ECCE Position Paper "The need for Structural / Seismic Rehabilitation of Existing Buildings in parallel with Energy Efficiency Improvements"](#). Platonas Stylianou is the coordinator of the working group that elaborates the Position Paper.



**From left to right: ECCE General Secretary Maria Karanasiou, ECCE President Aris Chatzidakis, ECCE Immediate Past President Włodzimierz Szymczak and ECCE Vice President/ President Elect Andreas Brandner**

Next on the Agenda, it was a presentation by the ECCE President regarding the [Construction Industry news](#). ECCE President informed the delegates regarding the latest news of the High Level Tripartite Forum on Construction 2020 and the European Construction Forum to which ECCE participates. Then ECCE Vice President/ President Elect Andreas Brandner reported on the Thematic Group 1 “Stimulating investment in building renovation, infrastructure and innovation” meeting which he attended in December 2018, presenting also the ECCE views that were submitted to the meeting participants. In the same context of Construction news, ExBo Member Paul Couglan delivered a presentation on the [ICE Sustainability Route Map](#) which is part of the Global Engineering Congress Legacy.

Later on, the President of the Ukrainian Council of Civil Engineers (UCCE) Dr. Petro Shyliuk addressed a greeting speech and then the Vice President of the UCCE Nikolay Kiryukhin delivered a [presentation regarding the UCCE](#) and their expected fields of cooperation with ECCE. UCCE is a new ECCE

member that joined us in October 2018 and this was the first time they participated in an ECCE General Meeting.

Then, the document [“Guidelines for the organization of the ECCE General Meetings”](#) was presented by the ECCE General Secretary Maria Karanasiou. The document was ratified by the General Assembly.

ECCE President Aris Chatzidakis informed the General Assembly that the long-standing [ECCE – ASCE Agreement of Cooperation](#) has been renewed and ECCE and ASCE are now at the signing process. He mentioned that activities contemplated under this agreement include:

- Exchange of information regarding the engineering profession in general.
- Encouragement of joint events of all kinds.
- Encouragement of the exchange of students, lecturers, and guests.
- Exchange of information regarding scientific and technical events that are of mutual interest.
- Provide mutual professional advice, especially in all areas of international, technical and scientific matters to the extent provided by each organization to its own members.

Another long term cooperation that will become official is between ECCE and ECEC. The two organizations have been in close cooperation many years now and it has been decided that an Agreement of Cooperation will be signed with the aim to encourage the development of joint (ECCE and ECEC) efforts towards better audibility of Engineers voice in Europe and to raise the visibility of both organizations to the European institutions. ECEC President Klaus Thurriedl confirmed that ECEC is very positive for such Agreement and the next steps will be taken in the following months.

Afterwards, ECCE Vice President/ Treasurer Dimitar Natchev presented on behalf of the Union of Civil Engineers in Bulgaria a [proposal for the amendment of the ECCE Articles of Association](#). It was commonly agreed that the ECCE Articles of Association must be revised but more time is needed in order to thoroughly examine the topic.

Then, ECCE President Aris Chatzidakis informed the General Assembly about the next steps regarding the ECCE book “Notes on the history of civil engineering” which was issued last October. He mentioned that there is a proposal of reprinting the books but a minimum amount of orders is required and encouraged the ECCE Members to submit their orders as soon as possible as the required number was not reached yet. He also informed the General Assembly that his ambition is to produce a series of books with the history of civil engineering in the ECCE Member countries. Material has been already gathered and more is expected by ECCE members. The first draft of the contents of the new book will be presented in our next ECCE General Meeting.



**69th ECCE General Meeting participants**

After that, ECCE Immediate Past President Włodzimierz Szymczak presented a [closing report on the ECCE Initiative 2018 European Year of Civil Engineers](#). The report summarized this important ECCE initiative which came to an end successfully and the idea for organizing a similar initiative in the next years that came from our members was commonly accepted.

Later on, the Portuguese National Delegate Fernando de Almeida Santos presented the proposal on behalf of the Ordem dos Engenheiros to host the 70<sup>th</sup> ECCE General Meeting, in Lisbon, Portugal as part of the Civil Engineering Summit that they are organizing. The Civil Engineering Summit will be held from 24 to 27 September 2019, and the 70<sup>th</sup> ECCE General Meeting will be held on Wednesday 25 September.

Then, it followed a part dedicated to the ECCE partners WCCE, EAMC and ECEC which were given the floor to briefly present news from their organizations. WCCE Past President Emilio Colon delivered a presentation that is

available [here](#). EAMC Secretary General Nicola Monda's presentation is available [here](#) and ECEC President Klaus Thurriedl's presentation is available [here](#).

The final part of the meeting was an open discussion/ brainstorming session where ECCE delegates had the chance to share their ideas for the future of ECCE. During this session, the ECCE Delegate from Malta Jeanette Munoz Abela confirmed that the 71<sup>st</sup> ECCE General Meeting will be hosted in Malta by the Kamra-Tal-Periti and an official letter with suggested dates will be communicated to ECCE soon.

At the end of the meeting ECCE President Aris Chatzidakis officially closed the 69<sup>th</sup> ECCE General Meeting thanking everyone for their participation and addressing special thanks to the Engineers Chamber of Montenegro for this excellent organization and hospitality.

Photographs from the 69<sup>th</sup> ECCE General Meeting can be downloaded from the links below:

[69<sup>th</sup> ECCE General Meeting photographs](#)

*The European Council of Civil Engineers would like to express its gratitude to the Engineers Chamber of Montenegro for the successful organization of the 69<sup>th</sup> ECCE General Meeting and their excellent hospitality.*

## New ECCE Associate Members

The European Council of Civil Engineers has two new Associate Members, the Earthquake Planning & Protection Organization (E.P.P.O) which is a public organization under the aegis of the Ministry of Infrastructure & Transport of Greece and Intrakat, one of the top five construction companies in Greece. Both E.P.P.O. and Intrakat officially joined ECCE during the 69<sup>th</sup> ECCE General Meeting that was held on 30<sup>th</sup> May 2019, in Podgorica, Montenegro after the unanimous approval of the ECCE General Assembly.

### *Earthquake Planning & Protection Organization (E.P.P.O)*



Earthquake Planning and Protection Organization is a Legal Entity of Public Law and operates under the supervision of the Hellenic Ministry of Infrastructure & Transport. E.P.P.O. was founded in 1983 and from that time plans the national policy of earthquake protection and accordingly the confrontation of the seismic danger.

The Organization, according to its founding law 1349/83, is managed by the President and the Administration Board that practices the administration and management as well as by the General Director that leads all the three Sectors of the organization. The Sectors of the Organization are: Seismic Design, Social Seismic Defense, Economic - Administrative.

The aim of E.P.P.O. is supplemented by Permanent Scientific Committees staffed by reputable scientists and experts.

#### **Objective**

E.P.P.O.'s objective is to process and plan the national policy for earthquake protection, as well as to coordinate the scientific resources for the implementation of this policy.

#### **Knowledge of seismic danger**

E.P.P.O. provides valid and prompt information to the Greek State Authorities concerning seismic danger, so that planning and confrontation are rendered possible. To achieve this scope E.P.P.O. assists in:

- The development and modernization of the National Network of Seismographs and Accelerographs
- The composition and activation of the Greek Seismic Hazard Map
- The composition and publication of the Neotectonic Maps of Greece (sc. 1:100000)
- The development of new methodologies of mapping seismic hazard by institutions and /or scientific groups.

#### **Strengthening of seismic capacity of structures**

The earthquake resistant construction of buildings and infrastructure constitutes the major factor for the protection of life and property of the citizens in case of an earthquake. For that reason, E.P.P.O. assigns to relevant scientific committees the enactment of earthquake safety regulations, harmonized with the modern data in the sector of manufacturing of buildings, as well as the processing of special subjects relevant to seismic technology:

- Greek Seismic Code
- Greek Code of Reinforced Concrete
- Preseismic Control of Public Buildings and of Public Welfare institutions.
- Intervention Code of Reinforced Concrete Buildings

- Composition of regulations for the safety of monuments against earthquakes

#### **Planning of preparedness measures**

E.P.P.O. participates in the planning of the State readiness measures so as to ensure prompt mobilization, sufficiency of means and forces, coordination of involved parties, effectiveness and success of actions in case of emergency due to an earthquake. More specifically:

- Composes and updates the Operation Plan "Xenocratis - Earthquakes"
- Composes and publishes Technical Handbooks in relevant subjects.
- Informs the involved parties through regular meetings

#### **Support of applied research**

The support of applied research in Greece in sectors relevant to seismic design and protection is a major concern of E.P.P.O.'s policy. This support aims at the development of knowledge and its exploitation in order to reduce seismic danger. In that direction, E.P.P.O.:

- Announces projects of scientific studies in the sectors of seismic technology, seismotectonics and social seismic defense.
- Assigns studies for scientific projects with subjects relevant to the confrontation of the earthquake consequences in regions that have been affected.
- Participates in scientific projects that are financed entirely or partly by the European Union, etc.

#### **Briefing of citizens**

The active participation of the citizens is prerequisite for the reduction of the seismic danger and the minimization of the destructive consequences of an earthquake. Briefing of citizens is a major priority of E.P.P.O.

E.P.P.O. substantially contributes in the development of seismic consciousness and attitude of citizens.

For this scope, E.P.P.O.:

- organizes seminars for training of teachers
- organizes informative speeches for students
- organizes preparedness drills in schools, offices and governmental buildings
- composes and publishes informative material (booklets, posters, books, CD-ROM, website)
- organizes informative lectures for different target groups (public servants, etc)
- participates in educational projects for volunteers

#### **Confrontation of earthquakes**

The scientific personnel of E.P.P.O. (geologists, engineers) deal with the prompt confrontation of the earthquake's consequences, as well as with other incidents related to the seismic event.

More specifically E.P.P.O.:

- Is activated immediately after the seismic event and collaborates with other involved parties in order to confront the emergency in the affected area
- Publishes and distributes leaflets with instructions for the safety of public in the area that was hit by the earthquake
- Participates in Greek missions to other countries for the provision of assistance.



For more information visit the E.P.P.O website [www.oasp.gr](http://www.oasp.gr)

*Intrakat*



Intrakat is one of the top five construction companies in Greece and it is a member of the [Intracom Holdings Group](#).

With headquarters in Greece and a significant international presence, the Intrakat Group is a leading player in the country's construction sector engaged in infrastructure development, commercial and industrial construction and steel structure manufacturing, as well as telecommunications, renewable energy, environmental management and real estate development projects for the public and private sectors.

A key member of Intracom Holdings, a leading Group of multinational high tech companies, Intrakat undertakes complex large-scale construction projects in Greece and abroad, leveraging a network of highly specialized subsidiaries in Greece, Romania, Poland, Cyprus, Albania and North Macedonia.

Having adopted an aggressive growth strategy based on advanced business models, Intrakat is focusing on EU financed construction projects and public-private partnerships. To sustain its successful track record, the Group plans to further expand into emerging sectors and lucrative markets, taking full advantage of new business opportunities in today's highly demanding and rapidly evolving global arena.

**At a glance**

It is among the five leading construction companies in Greece

It focuses on national and regional public BOT projects, financed by the EU



Subsidiaries  
**7**



Branches  
**5**



Personnel  
**720**

**Activity**



We strive to be among the largest and most reliable construction companies and we will continue to care about the high quality of services offered, investing in technical knowhow and specialization across all sectors of the construction industry, but always with respect for our people and responsibility to the environment and society.

In 2017, Intrakat began systematically recording and monitoring a range of indexes related to corporate responsibility and, thus, its contribution to the 17 Sustainable Development Goals of the United Nations Global Compact.

**Sectors of Activity**



### Sales Distribution

Sales by activity 2018 πρίτητα 2018



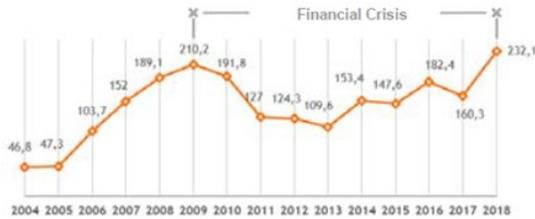
Financial data 2018 2018



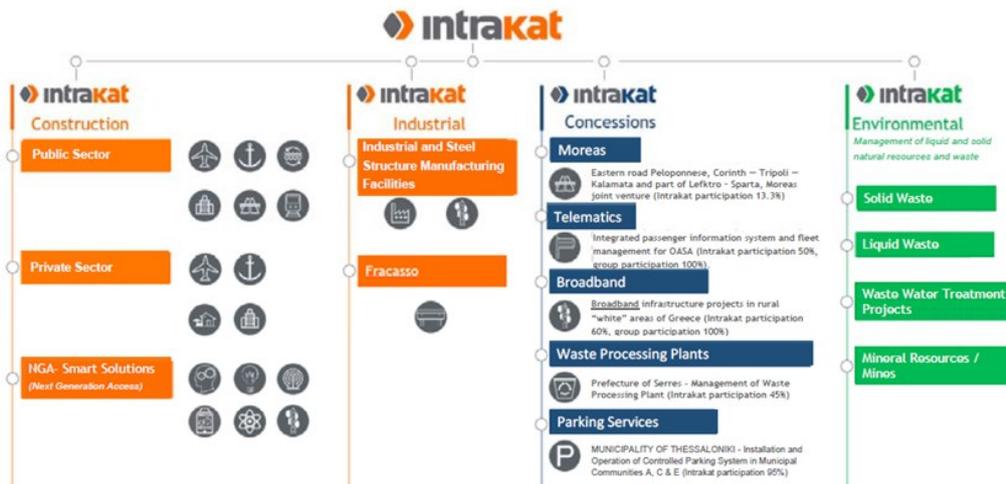
Public vs. Private projects 2018



Turnover 2004 - 2018 2018



### Sectors of Activity after Restructuring



For further information about Intrakat please visit its website <http://www.intrakat.gr/en/>

## ECF manifesto - Construction 2050 - Building tomorrow's Europe today



## “Construction 2050 - Building tomorrow’s Europe today”:

### Construction stakeholders call for a new policy framework

**Brussels, 13 June 2019** - Construction stakeholders believe that the *Construction 2020* initiative should be reinforced in order to fully achieve its ambitions, aimed at supporting the construction sector’s adaptation to key emerging challenges and to promote the sustainable competitiveness of the sector. To this end, major European construction representatives have united, to stress their commitment to the extension of the existing programme in the form of the “**Construction 2050: Building tomorrow’s Europe today**” initiative. This comprehensive framework should be fully embraced by all actors in the construction ecosystem, Member States and European institutions. Building on the results of the current *Construction 2020* initiative, this new framework should be based on the following principles:

- **A specific targeted approach to construction** because the sector is at the crossroads of different value chains and its unique nature requires a unique approach
- **An adaptable policy framework** to address the evolving construction ecosystem and the transformation of the industry
- **A holistic approach towards policy making** in order to implement coherent and balanced policies and legislation
- **A strong partnership between the European institutions, the Member States and construction social partners and stakeholders** to steer the transformation of the sector with the most adequate policies and tools.

In order to implement these principles, construction stakeholders have published a common vision for the future of the construction sector. This vision identifies the main challenges for the construction sector and contains concrete proposals.

“**Construction 2050, Building tomorrow’s Europe today**” is available [here](#).

Aris Chatzidakis, ECCE President stated: “*The construction sector needs to develop a new way to conceive more resilient structures, aiming to achieve a competitive sustainable building market. In order to obtain this European objective, a new design methodology is needed, focusing on a multi-performance and life-cycle oriented approach. Sustainable Structural Design (SSD) methodology addresses the possibility to include environmental aspects from the very beginning of the project. Sustainability for existing buildings should include their structural safety and that means that when renovation projects of a certain scale are under taken, structural upgrade should be considered jointly with functional and energy efficiency upgrade.*”

By optimising the way construction works thanks to the development of a new inspiring and relevant policy framework, we will improve the lives of European citizens by providing higher value with fewer natural resources; and higher quality assets for owners and users. **Construction is the solution industry**. Addressing the challenges that the construction sector is facing means addressing the challenges of European citizens.

**The sustainable Europe of tomorrow cannot be achieved without the construction sector. All the actors in the construction process must be involved for the European Union to respond to its main challenges: competitiveness, youth unemployment, digital economy, urban regeneration, energy efficiency and energy poverty, circular economy, affordable housing, climate change, mobility and connected infrastructure etc.**

**As a matter of fact, the construction sector is at the heart of our life: construction enterprises and their workers build the homes we live in, the roads on which we travel and the buildings we work or learn in. European citizens spend over 90% of their time indoors, meaning that our health and well-being strongly depends on how our buildings are built, maintained and renovated.**

**It is within this context that construction stakeholders call upon the European Commission to strengthen the current construction policy setting by creating a new vision for the built environment: “Construction 2050: Building tomorrow’s Europe today”.**

# ECCE President's Interview on The Journal of Engineers Chamber of Montenegro "Pogled"

ARIS CHATZIDAKIS, PREDSEDNIK ECCE-A

**MOST KOJI  
SPAJA  
GRAĐEVINSKE  
INŽENJERE**



Pogled

INTERVIEW ARIS CHATZIDAKIS,  
PRESIDENT OF ECCE

**BRIDGE THAT CONNECTS  
CIVIL ENGINEERS**

The Engineers Chamber of Montenegro, the professional Chamber of civil engineers will be the host of the 69th General Assembly of the ECCE (European Council of Civil Engineers), which will be held from May 30 to June 1, 2019 in Podgorica. On this occasion, we talked with Aris Chatzidakis, ECCE President, who spoke about the activities of the organization, its tasks and future goals, as well as the topics that will mark the upcoming General Assembly of the ECCE.

The organization was founded in 1985 by professional engineers in Europe with the aim of improving the built environment and environmental protection.

"At the European Union level, ECCE aims to promote the highest technical and ethical standards, as well as co-operation with other European organizations in the construction industry. The ECCE also advises and influences individual governments and professional institutions, formulates standards, achieves compatibility of different regulations and formulates standards for the European Code of Conduct for civil engineering profession and disciplinary procedures that apply throughout the European Union. ECCE has formulated guidelines for maintaining and raising standards in education in the area of civil engineering, training and education of professionals, as well as helping to achieve the coherence of euro codes, standards and regulations in the industry," said Aris Chatzidakis, president of ECCE.

When it comes to the 69th General Assembly, which will be held in Podgorica, the ECCE President announced that besides the usual topics (work report, financial report, etc.), among other things, they will deal with themes that will include "ECCE Position Paper" entitled "The role for construction's resilient rehabilitation of existing buildings in parallel with improvement in energy efficiency", the proposal for improvement of the ECCE Statute and the next ECCE edition of the book "Notes on the history of civil engineering".

Februar 2019 No. 27

ECCE President Aris Chatzidakis was honored to be interviewed for the Journal of Engineers Chamber of Montenegro "Pogled". His interview was published in the February 2019/ No.27 Journal. The Journal in its original version can be found [here](#).

Below you can find the interview in English.

**Mr. Chatzidakis, would you be kind to tell us briefly about the activities and organization of ECCE (Committees)?**

The European Council of Civil Engineers (ECCE) was created in 1985 out of the common concern of the professional bodies for Civil Engineers in Europe that the Civil Engineers working together across Europe could offer much more to assist Europe advance the built Environment and protect the natural environment. ECCE has three types of Members; Full, Associate and Individual. ECCE Full Members are the national Professional organizations for Civil Engineers of 23 European countries currently. ECCE Associate membership is open to European NGO's, Contracting and Consulting companies,

relevant associations or organizations and Universities. We currently have five Associate Members. A few years ago ECCE opened the way to individual civil engineers to join our community. We currently have a small number of individual members but we hope that this number will increase.

In terms of our internal organization, the governing body of ECCE is its General Assembly which consists of delegates from each of the ECCE Full Members. The General Assembly elects the ECCE Executive Board which has a leading role in our organization with the support of the General Secretary who is not elected but appointed. In the past we used to have special Standing Committees which were focused in various areas of concern like Environment, Education, Technology, etc. A few years ago a change in our structure was introduced and these Committees were concluded. Instead of permanent Standing Committees we have now shifted to a strategy which is more focused to concrete deliverables like Position Papers and specific projects and in this context working groups or task forces are formed aiming to bring specific outcomes.

Our activities comprise the organization of various Conferences and Workshops on civil engineering topics, events like the "European Engineers' Day" which is a reoccurring initiative in cooperation with ECEC and FEANI, the initiative "2018 European Year of Civil Engineers" which was successfully carried out throughout last year, etc. We have also published a number of books with the most recent being the "Civil Engineering Heritage in Europe", "Footbridges – small is beautiful" and "Notes on the history of Civil Engineering". Last but not least we participate in a number of other European and World organizations and forums aiming to contribute to and to influence the policy makers in our areas of interest.

**Could you tell us about the tasks and goals of ECCE?**

At the European Union level, ECCE aims to promote the highest technical and ethical standards, to provide a source of impartial advice, and promote co-operation with other pan-European organizations in the construction industry. ECCE also advises and influences individual governments and professional institutions, formulates standards and achieves a mutual compatibility of different regulations controlling the profession, and formulates standards for a European Code of Conduct of the Civil Engineering Profession and disciplinary procedures applicable throughout the Union.

ECCE formulates guidelines to maintain and raise standards of civil engineering education, training and professionals' competence, as well as assisting in achieving mutual compatibility of Euro codes, standards and regulations in the related industry and encouraging and improving levels of safety and quality in the industry.

**Since the ECCE's motto is "Bridges connect shores, continents and people ECCE links civil engineers all over Europe", please, could you tell us how ECCE achieves this, as well as how ECCE contributes to the civil engineering competence improvement and experience exchange?**

ECCE in fact is a bridge between civil engineers; first of all, across Europe in its broader geographic and historic sense. It is astonishing to realize how many things we have in common. We share a very strong technical tradition from medieval cathedrals to the industrial revolution. ECCE has succeeded to give a unique voice to civil engineers to European authorities and society. I think that all the events we had in our country members in the occasion of the "2018 European Year of Civil Engineers" was a good example of connecting our members to the same tradition and professional identity. Furthermore, through our participation to international engineers' organizations we make ourselves part of the whole engineering family; we share the global problems and contribute to the better recognition of our role all over the world. I think that based on this strong technical tradition and having the big picture of our world we are better prepared to face the challenges in a rapidly changing global and digital professional environment.

**What is your opinion about ECCE activities so far, and what do you think what should be improved, make better, etc.?**

I think that ECCE has succeeded a lot so far. Remember how few things we knew about each other some years ago. I recall the first guides ECCE elaborated about engineering studies and professional practice all over Europe. How many efforts, through our involvement to the elaboration of mutual recognition Directives of EU, to unify our systems, our ethics and our practice. It is a fact that civil engineers have today a much clearer identity all over Europe than some years ago. This doesn't mean that we are satisfied. We have a lot to do for our geographic expansion to embrace all civil engineering organizations of Europe. It is very important for us to see more countries from the Balkans to join us become our members. And of course make our members more active.

On the other hand, as our professional environment is rapidly changing and traditional liberal professions are in decline, we have to help our members to adjust to the new digital and global professional environment. That is why we are against the attempt of complete deregulation of our profession, proposing an appropriate regulation based on our responsibility for public safety. That is why ECCE has been attending very closely the evolution of the efforts of modernization of the construction sector, taking part in the European Construction Forum and participating in the committees of European Commission for the Sustainable development of Construction Sector.

**Please, could you tell us, how much your Committees and members are involved in ECCE activities all over Europe?**

This is a very crucial question. I must confess that we are not yet satisfied with the involvement of our members in everyday work of ECCE. We have adopted the model of creating ad hoc working groups having to do with the production of a specific position paper or the elaboration of a project. We have already some good results with this model. We have adopted a position paper about "The infrastructure and management of water", a position paper about the "Appropriate regulation for the practice of civil engineering in Europe" and we have printed a small book about the history of civil engineers. All this was done with the work of our members. We have under elaboration a position paper trying to stress the need of structural upgrade of existing buildings besides the energy efficiency upgrade. As this matter is very important to our profession it has drawn the attention of many of our members. We plan also to continue the idea of a series of small books under the general title "Notes on the history of civil engineering", having in mind to present our history in each member country. For this project we need the contribution of each national member. Of course we are open to any suggestion from our members and there is an old tradition in ECCE that good ideas were never disregarded and any contribution was welcome.

**Could you tell us something about cooperation between ECCE and other European and international organizations?**

ECCE is a member to the World Council of Civil Engineers (WCCE), to the Engineering Association of Mediterranean Countries (EAMC), to the European Civil Engineering and Training Association (EUCEET) and to the European Construction Forum (ECF).

ECCE cooperates closely with the European Council of Engineers Chambers (ECEC). It also cooperates with the European Federation of National Engineering Associations (FEANI) and the World Federation of Engineering Organizations (WFEO).

ECCE has signed Agreements of Cooperation with the American Society of Civil Engineers (ASCE), the Japan Society of Civil Engineers (JSCE), the Korean Society of Civil Engineers (KSCE) and the Council of Engineering & Technology (CET) India.

**How ECCE contributes to definition of standards and regulatory rules as well as to their use and improvement within EU?**

As you know construction standards, Codes and regulations are a matter of CEN which is the European Standardization Body. Participation to this is a matter of national representatives. Of course ECCE could contribute when these texts come to public consultation. This has not happened so far. As far as general regulatory rules regarding professional practice are concerned ECCE has already contributed by its position papers and its participation to the ECF and the Commission Committees as a construction industry stakeholder. Furthermore, we have recently visited the EU Commissioner on Natural Disaster matters to put on the table the problem of seismic vulnerability of existing buildings and infrastructure. We have stressed the necessity of prevention actions of structural upgrade to mitigate the existing risk. We were informed that with the recently adopted RescEu program funding of these actions will be possible.

**The 69th General Meeting ECCE will be held from 30<sup>th</sup> of May until 1<sup>st</sup> of June in Podgorica, Montenegro. Please, could you tell us shortly about agenda of this ECCE meeting and the most important topics that will be considered?**

The Agenda for the 69<sup>th</sup> ECCE General Meeting is at an early stage at the moment. What I can tell you now is that on 30<sup>th</sup> May the meeting of the ECCE Executive Board will be held, on 31<sup>st</sup> May we will have the ECCE General Assembly Meeting and on 1<sup>st</sup> June our host the Engineers Chamber of Montenegro is planning a day trip for all ECCE delegates. During the 69<sup>th</sup> ECCE General Meeting apart from the ordinary topics (Activity report, financial reports, etc.) other topics that will be considered include the ECCE Position Paper "The need for Structural / Seismic Rehabilitation of Existing Buildings in parallel with Energy Efficiency Improvements", a proposal for enhancing the ECCE Articles of Association and the next ECCE edition of the book "Notes on the history of civil engineering". As I said, the Agenda is not finalized yet so more topics are expected to be included shortly.

**What are your expectations from 69<sup>th</sup> General Meeting ECCE? Especially, what are your expectations from us as the host?**

I am sure we will have a successful general meeting. It is well planned and organized and I am sure that we will enjoy a very warm hospitality from our friends in Montenegro. It will be an opportunity to learn more about our profession in Montenegro and of course see a part of your beautiful country. As for me, as I come from a mountainous area in the island of Crete, I am sure that I will feel like being home.

**What are the future steps in ECCE development, what are the plans for improvement to be better, stronger, more efficient etc.?**

I think that we need to discuss, maybe in our next General Assembly, a strategic plan for ECCE so that our future steps will come out as a result of our common wisdom and commitment. Anyhow I think that we must continue efforts on making our common identity more clear all over Europe, having a stronger presence as lobbying team in Brussels, building closer relations with other international engineering organizations, helping our national members to adjust to the rapidly changing professional environment.

**Please, would you like to emphasize something particular what we have not consider during this interview?**

I think that the Balkan region has a lot of infrastructure projects of common European interest to undertake in the coming years. ECCE could play a key role in this by contributing in collaboration with our national members to events and seminars concerning the regulatory framework, construction standards, lobbying in Brussels or other kind of support and assistance that our members may propose.

It was a real pleasure to talk with you and I would like to thank you for your time and your help.

## Be an ECCE Member (EUCivEng)

### ECCE Individual Membership



#### The European Civil Engineer

The profession of the Civil Engineering is mostly performed where the construction is being made, in Europe or in any part of the world.

Today, within the European Union, construction companies have activities in many countries, so civil engineers have to move to foreign countries and to work all over Europe.

To allow this professional movement EU published a Directive on Professional Mobility, to facilitate the recognition of Civil Engineers across Europe.

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Nevertheless the Directive considers under this title, professionals with quite different academic or professional backgrounds, what can lead to unclear situations for society.

The EU Directive on Mobility proposes the creation of a European Database of Civil Engineers, interconnected through national organizations.

ECCE appeared in 1985 to promote the quality of Civil Engineering with a professional recognition where academic/professional quality is guaranteed by the national organizations.

ECCE as representative of those organizations, and to promote quality in professional recognition, is opening its membership to individual members, allowing for their image recognition as European Civil Engineers.

**Join ECCE, be a EUCivEng!**

#### ECCE goals:

- To present in Brussels the views of the European civil engineers.  
(ECCE participates in the High Level Tripartite Forum for Construction in EU)
- To establish international contacts with other associations.  
(ASCE, JSCE, KSCE, ECCREDI, Mediterranean countries, etc.)
- To promote the relevant professional information across Europe  
(Publication of e-journal, books, reports, etc.)
- To organize Conferences across Europe about Civil Engineering  
(See the conferences presentations in ECCE website)

### What do I get as an ECCE Individual Member?

- **If you just want to be an ECCE member**, you will receive:  
The e-journal and all relevant information from EU Commission
- **If you want to come to our meetings**, you will get:  
Participation in 2 International conferences per year;  
Participation in 2 General assemblies per year;  
Participation in Brussels Engineers Day each 3 years;  
To be in contact with civil engineers across Europe (EU and nonEU).
- **But if you want to be really active**,  
You are welcome to participate in the discussion forums or to propose position papers to be submitted to Brussels.



### May I become an Individual ECCE Member?

Yes, although ECCE is an association of national organizations, individual civil engineers may also be Individual Associate Members, with access to all the information and discussion forums, but they may not vote in ECCE General Assemblies.

Being an ECCE individual member you will have the reference EuCivEng.

### And you get also the ECCE membership card !

- The ECCE card identifies you, through your national organization, as a Professional of Civil Engineering in your country and a **EUCivEng** in ECCE.
- It is expected that in the future the card will allow an automatic civil engineering identification across Europe, according to the EU Mobility Directive, when national organizations implement their database of Civil Engineers.

### How can I become an ECCE Individual Member?

Please send to ECCE headquarters ([ecce\\_sps@otenet.gr](mailto:ecce_sps@otenet.gr)):

1. [Registration Form](#)
2. Document from your ECCE National Organization as a proof that you are member of it
3. [Excel sheet with your information](#)
4. Photograph
5. [Excel sheet with your name and address](#)

After receiving the notification of acceptance of your application from the ECCE General Secretary, you will be asked to proceed to the **Payment of the Subscription Fee** according to the **Payment Details** that follow.

### What are the Payment Details?

- To be an ECCE individual member there is an **annual fee of 20 euros**.
- If you are **older than 65 you pay only once 30 euros** and you become member with unlimited validity.
- You can pay in packages of 3 years (60 euros) or 5 years (100 euros), **plus 8 euros, with each package, for mail and printing of a new card.**

The payment should be sent by bank transfer to:

#### National Westminster Bank plc, Charing Cross Branch

**BIC** NWBK GB 2L  
**IBAN** GB28 NWBK 6072 1408 5260 60  
**Bank Address:** National Westminster Bank plc, PO Box 113, Cavell House, 2A Charing Cross Road, LONDONWC2H 0PD  
**Account Name:** European Council of Civil Engineers  
**Account Number:** 550/00/08526060  
**Sort Code:** 60-40-05

**Please ensure that your payment includes your name as a reference.**

After payment send a copy of the bank transfer to [ecce\\_sps@otenet.gr](mailto:ecce_sps@otenet.gr) and you will become ECCE member and you will receive the membership card.

## ECCE participates in the Thematic Group 1 meeting 14 December 2018, Brussels, Belgium



ECCE has been participating in the Thematic Group 1 “Stimulating investment in building renovation, infrastructure and innovation” since its establishment. The latest Thematic Group 1 meeting was held on 14<sup>th</sup> December 2018, in Brussels and ECCE was represented in this meeting by its Vice President/ President Elect Andreas Brandner.

The meeting was divided into three main parts:

Part 1: Improving affordability and quality of sustainable renovation

Part 2: Digitalisation and innovation

Part 3: The state of transport infrastructure maintenance and

possible levers for improvement

During the meeting, ECCE Vice President/ President Elect Andreas Brandner promoted ECCE's ideas regarding the seismic and energy upgrading of buildings as well as the lack of infrastructure maintenance in Europe and the importance of it.

The main conclusions of the meeting are the following:

Overall, the interest of stakeholders was noted in taking part in a wider initiative on the built environment.

**Part 1:** In terms of part one, successful renovation - improving affordability, sustainability and profitability - seems to be built on acceptance, innovation and quality. It requires a holistic and balanced policy approach and inclusion of all actors at all levels along the value chain. Moreover, it was noted that affordability was a novelty in this working group, but very much welcomed and a proposal was made for a business model to measure all benefits of renovation beyond energy efficiency.

**Part 2:** In part two, a key outcome was that there is a substantial scope and need for exchange on innovation policies relevant for construction, which also requires a balanced policy approach reflecting upon all aspects. Finally, more emphasis should be put on the diffusion of policies and research, since uptake seems to be lacking while plenty of innovations are out there to potentially help the sector to be more effective.

**Part 3:** For the last part, it was noted that successful transport infrastructure maintenance requires anticipation (fit for purpose, climate change, etc.), political prioritisation and cooperation amongst actors (academia, industry and public). Moreover, business models for asset management such as resilience return of investment and performance-based contracting, were noted for being effective in improving infrastructure resilience and maintenance.

[Minutes and materials of the TG1 meeting](#)

## ECCE participates in the 10<sup>th</sup> edition of the conference “Polish Infrastructure & Construction” 20 February 2019, Warsaw, Poland



**ECCE Immediate Past President Włodzimierz Szymczak**

The 10<sup>th</sup> anniversary edition of the unique Polish Infrastructure and Construction conference was held by Executive Club on February 20, 2019 at The Westin hotel in Warsaw. The event has enjoyed great interest among industry experts for many years. The highlight of the day-long conference was the official “Infrastructure and Construction Diamonds” awards gala, honoring the most outstanding entities in the industry.

ECCE Immediate Past President Włodzimierz Szymczak was invited as a Special Guest to this Conference representing ECCE.

He was moderator to the second discussion panel of the Conference that focused on new challenges for road infrastructure.

ECCE Immediate Past President Włodzimierz Szymczak delivered also a speech that discussed the challenges faced by the construction industry. He listed 17 strategic goals for sustainable development, 7 of which directly concern civil engineers. Among the global challenges he mentioned: dynamic population growth, unstoppable expansion of cities, climate change, degradation of the natural environment, excessive exploitation of natural resources, and digitalization.

Further information regarding the event can be found [here](#).

## ECCE participates in the 2<sup>nd</sup> Stakeholder Workshop for the SMEs 21 February 2019, Brussels, Belgium



The 2<sup>nd</sup> stakeholder workshop – “Development of possible EU actions to support the internationalization of SMEs from the European Construction Sector in Third markets” was held on 21<sup>st</sup> February, in Brussels.

ECCE Vice President/ President Elect Andreas Brandner participated in the 2nd Stakeholder Workshop representing ECCE.

The 2<sup>nd</sup> stakeholder workshop focused on the development of potential EU-measures to address gaps in public support for SME internationalisation in the construction sector. The workshop was structured around a round table with stakeholders from the business community, evidence collected by the consultants VVA Group and the findings of the first stakeholder workshop held in November 2018.

The first session of the workshop summarised the specific challenges to internationalisation for the construction sector (e.g. lack of knowledge about third markets, difficulties in access to funding, etc.). It was agreed that four broad types of needs could be met through EU-level action: raising awareness, pooling existing resources, coordinating and directing stakeholders, and scaling up existing initiatives at other levels.

These contributions paved the way to the **second session**, which identified specific EU interventions that could add value to construction SMEs. While there was a consensus on the need to improve existing instruments, rather than designing new interventions, the role of intermediaries, such as cluster organisations, was also seen as pivotal. These intermediaries, supported by digital tools where appropriate, would be able to collect, analyse, filter and share information about project opportunities and third country markets with businesses organisations.

The minutes of the workshop can be found [here](#).

## ECCE participates in the World Construction Forum 2019 8-11 April 2019, Ljubljana, Slovenia



From 8 to 11 April 2019 engineers from all over the world gathered in Ljubljana for the World Construction Forum 2019, which was organized by the Slovenian Chamber of Engineers and Faculty of Civil and geodetic Engineering of University of Ljubljana in partnership with World Federation of Engineering Organisations (WFEO) and under patronage of UNESCO and his excellency, Mr Borut Pahor, the president of the Republic of Slovenia.

In two days, 700 participants from 51 countries from five continents visited World Construction Forum, attending 109 lectures and listening to four keynote lectures at the forum opening, given by prof. Peter Fajfar from Slovenia, prof. Antonia Moropoulou from Greece, prof. Jinxiu Yan from China and dr. Mark Coleman from Great Britain. All lectures were greeted with great response from attendees, gathered in Cankarjev dom, where WCF 2019 took place.

ECCE was one of the co-organizers of the WCF2019.

ECCE President Aris Chatzidakis attended the WCF2019 as ECCE representative. He participated as a speaker with the presentation “[Structural Sustainability for existing Infrastructure and buildings](#)” and he also chaired and co-chaired some of the sessions.

ECCE Vice President/ Treasurer Dimitar Natchev also attended the WCF2019 on behalf of ECCE. He together with Maria Stefanova delivered a keynote speech on “[Digitization of the Construction Industry. Engineering Organiza-](#)

[tions in Support of European Initiatives, BIM Standardization and Accelerating BIM Adoption.”](#)

The forum adopted the “2019 Ljubljana Declaration on Buildings and Infrastructure Resilience - Contributing to the 2030 Agenda for Sustainable Development Goals” which can be found [here](#).

The forum concluded with a Gala Dinner, where Slovenian Chamber of Engineers presented awards for innovation on the field of construction.

All lectures of the WCF2019 can be found [here](#).



## ECCE participates in the 17<sup>th</sup> ECEC General Assembly 11 April 2019, Ljubljana, Slovenia



The 17<sup>th</sup> General Assembly Meeting of the European Council of Engineers Chambers was held at the City Hotel in Ljubljana, on 11 April 2019, 14.00 – 18.00 hosted by the Slovenian Chamber of Engineers and its President dipl.ing.grad C. Remec.

ECCE was invited to participate to the GAM and was represented by the **ECCE President Aris Chatzidakis**, the **ECCE Vice President/ President Elect Andreas Brandner** and the **ECCE Vice President/ Treasurer Dimitar Natchev** who represented also Bulgaria.

The topics of the meeting were:

- ECEC Activities 2019 - Klaus Thürriedl, President
- ECEC SG`Report - Hansjörg Letzner, Secretary General
- Finances`Report - Gábor Szöllösy, Treasurer

During the GAM ECEC President Thürriedl awarded Dragoslav Šumarac (Serbia) for his activity as ECEC Vice President.

ECCE Vice President/ Treasurer Dimitar Natchev had the opportunity to meet with the President of the Chamber of Authorized Architects and Engineers of North Macedonia Mile Dimitrovski who promised to attend the next ECCE General Meeting and eventually apply for the Chamber to join ECCE as Full Member.



## ECCE participates in the 13<sup>th</sup> international conference “Modern Building Materials, Structures and Techniques”

16-17 May 2019, Vilnius, Lithuania



The 13<sup>th</sup> international scientific conference “Modern Building Materials, Structures and Techniques” (MBMST 2019) was successfully held on 16-17 of May 2019 in Vilnius, Lithuania. The conference could be called traditional because it is organized since 1991 (recently – every 3 years).

The conference is one of the biggest civil engineering scientific events in Baltic region countries.

This year the conference was organized by the Faculty of Civil Engineering of Vilnius Gediminas technical university (VGTU) together with national and international partners:

International Association for Bridge and Structural Engineering (Lithuanian group), European Council of Civil Engineers, Lithuanian Association of Civil Engineers, Lithuanian Academy of Sciences, Association of European Civil Engineering Faculties, and European Civil Engineering Education and Training Association.

ExBo Member Helena Endriksone represented ECCE in this Conference addressing a speech on ECCE's behalf.



**ExBo Member Helena Endriksone and President of the Lithuanian Association of Civil Engineers Vincentas Stragys**



**ExBo Member Helena Endriksone addresses a speech on behalf of ECCE**

More than 200 scientists from 17 different countries took part in the recent conference. Totally 147 oral and poster presentations were delivered during the event. The majority of foreign participants came from Poland, Latvia, Czech Republic and Germany.

The scope of the conference covered almost all fields of civil engineering. The major topics were the traditional ones: modern building materials and their production technologies; investigation and design of reinforced concrete, steel, glass, timber and composite structures; innovative calculation techniques for bridges; geotechnics; new building technologies and management; building information modelling; etc. All submitted and peer reviewed conference proceedings will be published online within the next few months. The proceedings will be also sent to Clarivate Analytics and Scopus for possible indexing in scientific databases.

## ECCE participates in the EAMC ExBo meeting

18 May 2019, Nicosia, Cyprus

**ECCE President Aris Chatzidakis** participated in the ExBo meeting of the Engineering Association of Mediterranean Countries. He is an EAMC ExBo Member representing ECCE.

The meeting took place on 18 May, in Nicosia, Cyprus hosted by the Technical Chamber of Cyprus.

The agenda of the meeting included the financial status of EAMC were the main point was that many members have not paid their Fees. This was maybe normal as many of the founding members are nor really active and do not participate to EAMC activities.



EAMC Executive Board

So the real problem is how to make EAMC more attractive to its members, find new ideas for its actions, oriented mainly to its specific character that is its geographical limits.

Technical committees should be more independent and to this direction a new president for the Environment committee was appointed.

Aris Chatzidakis has proposed to create a new working group with the general title "sustainability of common architectural heritage in Mediterranean countries." This working group should try, by contributions from each member country, to produce a small booklet on common heritage monuments, showing how many common things exist in the basic

cultural traditions of Mediterranean zone. Aris Chatzidakis was named responsible for this working group.

Other items discussed during the meeting were the participation of EAMC in the Lisbon engineering meeting and in the elections of WFEO.

## ECCE participates in the 2019 European Steel Design Awards Jury 18 June 2019, Brussels, Belgium



ESDA International Jury

ECCE President Aris Chatzidakis was kindly invited by the European Convention for Constructional Steelwork (ECCS) to participate in the Jury for the 2019 European Steel Design Awards (ESDA). Aris Chatzidakis participated for the first time in the Jury for the ESDA in 2018 and he was honored to be invited again.

The International Jury took place on 18<sup>th</sup> June 2019, in Brussels, preceded by a nice dinner the evening before for all the Jury members.

The European Steel Design Awards are given by the European Convention for Constructional Steelwork (ECCS) every two years to encourage the creative and outstanding use of steel in architecture. The awards are dedicated to the owners, the architects, the engineers, the general contractors and the steelwork contractors.

On 18<sup>th</sup> June 2019, the ESDA Professional and International Jury selected the European Steel Design Awards of Merit and Excellence among the finalists, which were chosen from the initial nominees, out of 28 projects submitted in total.

The Professional and International Jury counted with:

**Lasse Kilvaer**, Norway, Chairman of AC4 Architectural Awards Committee and Chairman of the Jury Meeting;

**Vincent de Ville de Goyet**, Belgium, Engineer, Design office Greisch;

**Philippe Samyn**, Belgium, Architect, Samyn and Partners;

**Georg Pendl**, Austria, President ACE, Architects' Council for Europe;

**Aris Chatzidakis**, Greece, President of the European Council for Civil Engineers;

**Véronique Dehan**, Belgium, Secretary General ECCS.

The Press Release including the finalists for the 2019 European Steel Design Awards can be found [here](#).



## ECCE President meeting with ASCE President Robin Kemper

### 25 June 2019, Chania, Crete Island, Greece



**ASCE President Robin Kemper and ECCE President Aris Chatzidakis**

ECCE President Aris Chatzidakis met with the President of the American Society of Civil Engineers Robin Kemper, on Tuesday 25<sup>th</sup> June, in Chania, Greece. ASCE President participated in the 2<sup>nd</sup> International Conference on Natural Hazards & Infrastructure which was held from 23-26 June 2019, in Chania, Crete Island, Greece as a lecturer. In this occasion ECCE President Aris Chatzidakis and ASCE President Robin Kemper had the chance to meet in person. A first contact was made between the Presidents who had a friendly discussion exchanging some ideas about the potential fields of cooperation between ASCE and ECCE. Both Kemper and Chatzidakis agreed that the recently renewed Agree-

ment of Cooperation between ASCE and ECCE should come to life. They agreed that a more official meeting will be also arranged in the future when an appropriate occasion comes up.

## News from ECCE Members

### Bulgaria

#### *The Experience of Visegrad group and Bulgaria*

##### FORUM EDA 2019

10<sup>th</sup> European Scientific Conference On Conditions and Processes on Investment, Planning, Build - Up and Development of Building Industry, 2020+ VISEGRAD+ was held on May 15-16, 2019 in Sofia, Bulgaria, under auspice of Petya Avramova, Minister of Ministry of Regional Development and Public Works of Republic of Bulgaria.



From left to right: **MSc Eng. Dimitar Natchev, ECCE Vice president, UCEB President; MSc Eng Valentin Yovev, Deputy Minister of Regional Development and Public Works of Bulgaria, Prof. Dipl.-Ing. Dr. Vladimír Benko, President of Slovak Chamber of Civil Engineers, eng. Maria Stefanova, Secretary CEID, Sofia, MSc Eng. Gábor Szöllóssy, Chief adviser to the president of the Hungarian Chamber of Engineers**

The forum was co-organized by European Academy of Architecture, European Center for Strategic Research and European Cooperation, Prague Czech Republic with Director arch. Zdravko Rusev.

The conference was held in the premises of Embassy of the Czech Republic and Embassy of the Slovak Republic in Sofia, Bulgaria.

Formal guests of the forum were the Ambassadors of the Slovak Republic, of the Czech Republic, of the Hungary and Ambassador of the Republic of Poland to the Republic of Bulgaria, as well as high-level government and civil society representatives: Deputy Minister of Regional Development and Public Works of Bulgaria, Rector of the Technical University of Kosice, Slovak Republic, Rector of the University of Architecture, Civil Engineering and Geodesy, [Republic of Bulgaria](#), Rector of the Academy of the Ministry of Interior, Republic of Bulgaria, Rector of the VTU "Todor Kableshkov", Republic of Bulgaria.

Architects and engineers, members of Chamber of architects in Bulgaria, Union of Civil Engineers in Bulgaria (UCEB), Academy of the Ministry of Interior of the Republic of Bulgaria and other professional associations participated in the Forum.

Valentin Yovev, Deputy Minister of Regional Development and Public Works of Bulgaria opened the

forum: „Digitization of the construction sector in Bulgaria is needed in order to be possible the Bulgarian companies to meet the requirements of the global digital economy and to change the attitudes of foreign direct investors. Delaying the necessary actions would lead to significant economic imbalances and loss of competitiveness.”

*"We need a new digital design and construction culture. Closer collaboration between all professions across the construction sector is essential - industry organizations, professional engineering associations and chambers, the companies of the design and construction industries, academics and business should make common efforts and take actions to create the conditions for implementation of new digital technologies in the construction sector in our country"* pointed out the Deputy Minister Yovev. He stressed also that development of a National Strategy for the digitization of the construction sector and a National Action plan with specific measures in this field, should be an important priority of the government.

The Forum was held as a panel discussion with four Panels:

Key speakers/presentations:

**Panel I. State strategical planning, ICT**

**Vision and Development Strategy Slovak Republic 2030**

Ing. Kvetoslav Kmec, Vice Prime Minister Office for Investment and Information

**Regional policy in Poland up to 2030**

Małgorzata Urbańska, Chief expert in Department for Development Strategy, Regional Policy Unit

**Regional Development Strategy Czech Republic 2021+**

Mgr. Štěpán Nosekq Ministry of Regional Development of the Czech Republic

**State and challenges of spatial planning in the Czech Republic**

Ing. arch. Josef Morkus, Ph.D., Ministry of Regional Development of the Czech Republic

**Panel II. Cities and Regional Strategical Planning**

**Hradec Králové Region: "SMART" - not just a current trend**

Mgr. Ivana Kudrnáčová, Head of Department of the regional development grants and subsidies, Hradec Králové Region

**Vision Sofia: Long term development strategy for Sofia and the region**

Kaloyan Karamitov, Vision Sofia, Municipality of Capital City Sofia

**Hradec Králové – Smart City project realisation**

PhDr. Karel Vít, Ph.D., Head of Department of the City development, Hradec Králové Czech Republic

**Montana 2020+**

Tichomir Antonov, Vice Mayor, City of Montana, Republik of Bulgaria

**Business incubator and startup ecosystem in Hradec Králové region**

Ing. Ondřej Zezulák

**Panel III. European Chambers of Architects, Enginners and Builders**

**Bussines Information Systems**

**Support for the implementation of the electronization in construction sector - in Europe and Slovakia**

**Prof. Dipl.-Ing. Dr. Vladimír Benko**, President of Slovak Chamber of Civil Engineers delivered a presentation dedicated to the greatest challenge for construction engineers - digitalization of the construction sector. Current state of the implementation of Building Information Modeling (BIM) and BIM's role in the digital transformation of the construction sector were presented. Eng. Vladimír Benko focused on the role and opportunities of the Slovak Chamber of Civil Engineers in supporting the authorized civil engineers in implementation of BIM in practice.

**The Proposal of the Professional Organizations in Hungary for Conditions and Processes on Investment, Planning, Build - up and Development of Building Industry**

MSc Eng. MSc Econ. Gábor Szöllőssy, Chief adviser to the president of the Hungarian Chamber of Engineers  
The Hungarian Chamber of Engineers in collaboration to all professional organizations of the construction industry based ont he request of the Government of Hungary submitted a proposal for the process of investment in public procurement in Hungary. The presentation focused on the activities of the Hungarian Chamber of Engineers on this issue.

**Chamber of architects in Bulgaria - Continuing education of architects in digitalisation challenge context**

arch. Nikolay Barovsky, Vice-president of SC of the Chamber of Architects in Bulgaria

**Railway Infrastructure Modernizing Experiences in Slovak Republic in the Context of European Union Policy**

Ing. Slavomír Podmanický, Ing. Peter Hvizdoš, Ing. Roman Ličko, Reming Consult a.s.

**Design process. Construction Management. Maintenance and management of existing and new projects**

Eng. Manyo Manev, BIAS M EOOD, Bulgaria

Basic procedures, legal bases, participants and their actions in the construction - investment process. Analysis of interconnections between parties and differentiation of responsibilities - authority, commitment, supervision. Deficiencies and potential risks in the processes of design, construction and management of investment projects. Opportunities for optimization of the processes and more clear determination of responsibilities.

#### **Panel IV. Quality Management, University Education and Training, Research and Strategy Planning 2020+**

##### **Interdisciplinarity at the Technical University of Kosice and a next frontier role of artificial intelligence methods in the digitalization and automatization of adaptive engineering structures**

prof. Ing. Stanislav Kmet', CSc., Rector Technical University of Kosice Slovak Republic

##### **Perspectives for the development of Todor Kableschkov university of transport**

Prof. Dr., Eng Daniela Todorova, Rector of VTU "Todor Kableschkov" Republic of Bulgaria

##### **Preparation of Construction Industry Engineers for Industry 4.0**

Prof. Dr., Civ. Eng. Stoyo Todorovq, Vice-rector of UACEG Republic of Bulgaria

##### **The practical training – basic share of the fire safety and civil protection engineers' education**

Assos.prof. Dr.Eng. Ivan Todorov, Academy of the Ministry of Interior, Republic of Bulgaria

##### **Challenges during the education of the Fire Safety and Civil Protection**

Prof. Dr.Eng. Georgi Botev, Academy of the Ministry of Interior, Republic of Bulgaria

The presentations were followed by interesting discussions.

The Forum EDA 2019 was a valuable event with successful exchange of Visegrad group experience and best practices on Processes on Investment, Planning, Build - Up and Development of Building Industry.

More at: <https://www.uceb.eu/index.php/ha/>



#### **National Earthquake Engineering Centre opens in Sofia**

On May 21, 2019 a **NATIONAL EARTHQUAKE ENGINEERING CENTER (NEEC)** opened in Sofia, Bulgaria. It was established within the structure of the University of Architecture, Civil Engineering and Geodesy (UACEG) with the financial support of the Ministry of Education and Science.

Deputy Minister of Regional Development and Public Works, Eng. Valentin Yovev, at the opening of the National Earthquake Engineering Center, he said: *"The Ministry of Regional Development and Public Works has approved a Methodology for analysis, assessment and mapping of seismic risk in the country and has the task to carry out a mapping of this seismic risk."* At the end of the process, the participants in the investment process in the design and execution of the construction will have specialized geospatial information.

*"Seismic risk is something that can be managed by people and is important for the live of people,"* said Eng. Yovev.

The leadership of the University and NEEC were congratulated by Eng. Dimitar Natchev, Vice President of the European Council of Civil Engineers (ECCE): *"We have been expecting this for long time. The neighbouring countries have developed much more in this direction, some of them hit by the earthquakes in their countries. Congratulations for the initiative and we expect the Center to be successful. I appeal to the state representative, for financial support because the National Earthquake Engineering Center will work for the benefit of the state and its citizens."*

The National Earthquake Engineering Center (NEEC) will follow its' Mission to become Nationally Recognized Institute that builds competence in the field of Research, Design, Practical orientated Expertise and Education and works for progressive reduction of the seismic risk in Bulgaria.

Among its' objectives are: To develop, expand and update the national knowledge and practical experience in the

field of seismic engineering thus helping in all segments of the Bulgarian construction sector as Building construction, Industrial construction, Communication and Transport infrastructure, Energy sector, Seismic monitoring and Protection of Cultural Heritage.

It was announced that the start-up activities of NEEC are: Establishment of the Center and its' internal regulations, Team building by engaging experienced, motivated and trained teaching and research staff, Launching of mobile laboratory by buying state-of-the-art in-situ experimental equipment and engaging experienced and well qualified experts, and last but not least - promotion of the NEEC to all Stakeholders.

More at: <https://www.uceb.eu/index.php/ha/>



Deputy Minister of Regional Development and Public Works - Valentin Yovev, Chief Architect of Sofia - arch. Zdravkov, Rector of UACEG prof. Markov



Dimitar Nachev, Vice President of the European Council of Civil Engineers (ECCE)



## Cyprus

### FIDIC Module 4: Contract Management and Administration



CYACE in cooperation with FIDIC (International Federation of Consulting Engineers), proudly organized the seminar FIDIC Module 4: Contract Management and Administration, on 11<sup>th</sup> and 12<sup>th</sup> of April 2019 with great success.

The seminar was held in the Educational and Cultural Centre of the Scientific and Technical Chamber of Cyprus in Nicosia.

The training course provided the necessary knowledge for professionals such as Government Ministries and Agencies, Private Sector Employers, Consulting Engineers, Civil Engineers, Contractors, Quantity Surveyors, Architects, Legal Advisers, all involved with the implementation and management of Works Contracts.

The tutors of this course were Mr. Robert Werth, FIDIC accredited international Trainer and Adjudicator and Mr. Husni Madi, an affiliated member and accredited trainer of FIDIC and chair of FIDIC Task Group 15 "FIDIC's Golden Principles". Both gentlemen have had extensive experience and worldwide involvement with management of projects and related dispute resolution and D.A.B.

The purpose of this practical training course was to ensure that FIDIC contracts are managed and administered

correctly by understanding the full contract cycle from contract award, conditions of contract, start-up, the pre-commencement meetings, performance security, daily diaries, the programme, financial control, ongoing supervision, taking over the works, suspension and termination and dispute resolution.

This course, explained and illustrated the use of the FIDIC Conditions of Contract for Construction ("Red Book") and the FIDIC Conditions of Contract for Plant and Design Build ("Yellow Book").

The course was designed to help the participants gain confidence in working with these documents whether representing Employers, Consultants or Contractors.



**6<sup>th</sup> International Conference in Construction Safety & Health**

**Vision Zero: Invest in Prevention → Plan Ahead**



Cyprus Association of Civil Engineers organized the sixth International Construction Safety and Health Conference and Exhibition on «Vision Zero: Invest in Prevention → Plan ahead» on the 10th and 11th of May 2019 at Filoxenia Conference Centre, Nicosia, Cyprus.

The Conference was held in co-organisation with the German Institute for Social Security and Accident Prevention in Construction Sector (BG BAU) and the support of the International Social Security Association, Construction Sector (ISSA C) and the Cyprus Scientific and Technical Chamber. The Minister of Labour, Welfare and Social Insurance (MLSI) of

Cyprus set the Conference under her auspices and addressed it.

Moreover, the Department of Labour Inspection of the MLSI of Cyprus supported it.

The aim of the conference was to present innovative practical solutions for the implementation of the seven Golden Rules of the Global Campaign to achieve "Zero Accidents and Diseases" in Construction Projects, with particular emphasis on the practical application of the principles of prevention, and promotion of the benefits of businesses and professionals from investing in prevention. The conference was attended by distinguished professors and other scientists, as well as distinguished health and safety professionals from several Central European countries and the United States, including the President of the ISSA C Organisation.

The Conference was addressed to Civil Engineers, Architects, Construction Safety and Health Coordinators, Mechanical Engineers, Electrical Engineers and other engineering disciplines, Safety and Health Officers, Prevention Consultants, involved in the design and execution stage of construction projects, contractors and other professionals who were interested to learn about health and safety issues in construction projects and the latest developments on these issues.

The participants actively participated in the Workshops and had the opportunity for hands-on experience for Virtual Reality Training. The results of the Workshops were posted on the website of the Congress.

During the exhibition, which was held at the Congress, modern equipment for safe use and performance of work at a height as well as system implementation management of safety and health were presented.



## New Building Facilities

### Polytechnic School of the University of Cyprus

#### Introduction

The design of the new Building Installations, was the result of a National Architectural Contest, which took place in 2010. There were eighteen (18) participations, from many European Groups.

The 1<sup>st</sup> award was granted to the proposal of the following Group of Architects:

- Chrysanthos H. Chrysanthou & Partners (Cyprus),
- Heracles Papachristou architects (Cyprus)
- Anast. M. Kotsiopoulos & Associate architects (Greece).

The design team prepared the implementation plans and has undertaken the supervision of project construction.

The commencement date of the project was on 20<sup>th</sup> of January 2016, with 40 months duration. The Revised Date of Completion is by the end of 2019, with a total expense of approximately EUR 55.000.000.

#### The main idea of the proposal

Nowadays, the organization of new universities has been differentiated in relation with the prevailing view of the 60s. In the case of the Athalassa campus, there is a connective tissue which is used as a

backbone of the overall campus, playing the role of the so-called belvedere, a central pedestrian area on which the morphologically autonomous building units of the University are depended.

The Polytechnic School, has a hybrid character: it consists of three units of study, that is, Departments housed in standardized wards and a central zone which mainly contains shared functions and the administration of the School. In this sense, the complex of the Polytechnic School, with a total surface area of about 35,000 m<sup>2</sup>, is a miniature campus, which fits into a larger one.



#### Wards

The Polytechnic School houses three Departments, with a view for future expansion:

1. Civil Engineering and Environmental Engineering
2. Mechanical Engineering and Construction, and
3. Electrical and Computer Engineering

Also, the Polytechnic school contains of a series of research centers, which already have an important international support.

#### The central public space

The central zone includes semi-outdoor pedestrian area from the belvedere to the large ramp in the south part of the central zone. In the same zone at a lower level, the main pedestrian area connects all the Sections with a roofed public space.

The school's administrative areas and car parking areas are also housed in this space. The key feature of the central zone is a single "bark" that controls the microclimate of the area in a natural way.



#### Materials

The complex consists of basic materials, such as visible, treated or not, concrete, steel, glass in different types and transparency levels (from clear glass to U-glass), lining plate walls, floors and other elements.

#### Static system, electromechanical installations and energy issues

The entire complex is supported by a reinforced concrete frame and, in some building units, with a mixed concrete system and a metal bearing structure. The underpinning plates are mounted on piles. The air conditioning system is connected to the central system of the university. From an energy point of view, the majority of the buildings are on Energy category A and are subject to Category A+.

## ***Paralimni Marina***

### ***A High Standard Project***



The Ministry of Energy, Commerce and Industry, on the basis of the National Naval Development Strategy, promotes the creation of a Single Maritime Navigation Zone from Deryneia to Kato Pyrgos, through the development of marinas.

The main objective of this strategy is to enrich the tourism and increase the flow of quality tourism to Cyprus, as well as the extension of the tourist season, which will contribute to the growth of the national and local economy. Based on the above strategy, in June 2015, the Ministry of Energy, Commerce and Industry published a tender for the granting of lease and licensing of National land (terrestrial and marine) to a Strategic Investor, for the development of the Paralimni Marina.

In addition, the plan also required construction of the necessary facilities for the smooth operation of the marina. Following the above, in May 2017, the tender was awarded to PMV Maritime Holdings Ltd by the Ministry of Energy, Commerce and Industry and in January 2018, the relevant contract was signed.

Based on the above, the main purpose of the proposed project, is the creation of a high standard marina, with safe and easy access and navigation by yachts, combined with high-quality facilities and services to attract visitors in the area throughout the year.

The natural bay, also known as the "Luma Bay", was defined as the ideal location for the development of the Paralimni Marina and is harmoniously placed between a 13.000m<sup>2</sup> area to the west, which has been preserved as a natural park (public green area) and the Perneria graphical fishing shelter to the south.

Paralimni Marina does not compete with the other marina developments. On the contrary, it strengthens the developing network of luxury maritime destinations in Cyprus and it significantly contributes to the accessibility in the beautiful coastline of Protaras.

The main design features of the Paralimni Marina project include the following:

- 300 mooring berths
- Marina & Yacht Club building (including 24 guest suites)
- 6 Residential Buildings (119 apartments), including commercial and other ancillary uses (such as 2 coffee-shops, 4 restaurants, etc.)
- Customs and Port Authority Building / Fuel Refueling
- 4 villas
- Platform / Podium
- Coastal pedestrian area
- Seaside Park (public green area)
- Parking (427 underground and 108 ground positions, Total 535 parking spaces)



The basic port infrastructure projects required for development of the marina, include the following:

- Formation of terrestrial space (~ 6.200 sq.m.)
- Construction of a new outdoor breakwater to protect the Marina (~ 40.384 sq. Meters) and the fishing shelter.
- Reconstruction of the entrance of the fishing shelter,
- Create a new access channel
- Construction of a floating dock
- Construction of a dock for customs facilities and port, as well as a refueling area

## Estonia

### About unique buildings in Estonia

#### Construction of the Tallinn song festival tribune, its life cycles and renovation



**Author: Professor emeritus Karl Öiger.**

The Estonian song festival tradition started in 1869 when the first song festival was held in Tartu. Throughout the year's song festivals have united the Estonian people and carried the meaning of fighting for freedom (Estonians sang themselves free from the Soviet occupation – the Singing Revolution). There have been various song festival tribunes built around Estonia, most of them are smaller and simpler wooden structures. In this article, I would like to analyse the construction peculiarities of the Tallinn song festival tribune, which acoustic screen (roof) is still unique in the world.

When Karl Burman's wooden tribune built on the green meadow in 1923 started to show signs of rot and collapse, an architectural design competition for the new song festival tribune was announced in 1957. From amongst the 13 designs that entered the competition, the design by a renowned architect **Alar Kotli**, which resembled the current tribune, was declared the winner. The initial solution for the construction, which consisted of a hanging saddle roof with arches made of reinforced concrete, was suggested by prof. Heinrich Laul. After that more precise theoretical considerations and estimations were made. However, the department for building structures still decided to check all the results and ideas against a detailed model (Photo 1). This **model of the acoustic screen was made in 1958...1959**. The 1:25 scale model (academic assistant A. Sumbak) was made of the materials initially suggested and about 3 m long; two arches made of reinforced concrete, between them a network of stressed high-strength steel wires.



Photo 1

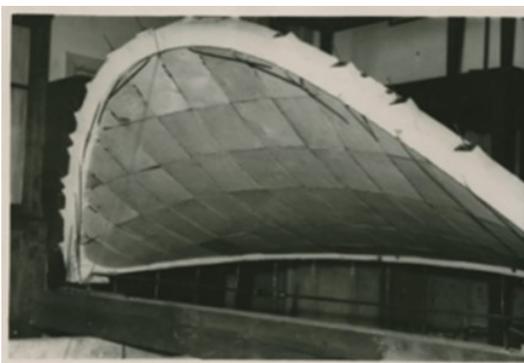


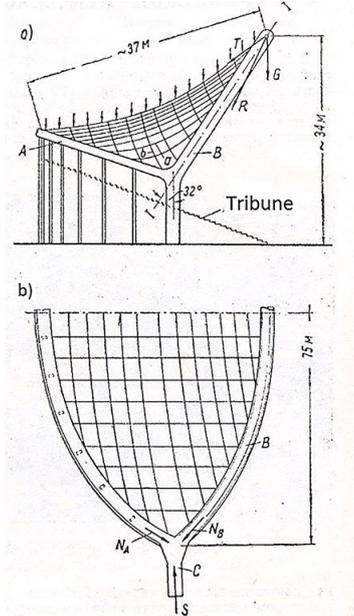
Photo 2

A special additional load was applied along the front arch to imitate its dead load, which obviously was not applied on the Kotli's cardboard model. Testing the model indicated our ideas had been correct, thus we had created a solid ground for initiating the constructional design of the song festival tribune. However, **there was nothing similar to the song festival tribune to be found anywhere**. Although there had been different hanging roofs made around the world, all of them were wholly supported by the wall construction. **But here the front arch was hanging freely**. Therefore, preparing the model also meant creating the constructional design for the tribune and the complex defining of its main parameters. This model, as prof. H. Laul said "with some exaggeration, was a prototype for the song festival tribune". It must also be said that **this model was later used by an acoustic prof. H. Oruvee**, who in his tests made sure that the acoustics of the tribune were good for everybody (Photo 2). Consequently, the acoustic screen of the song festival tribune did not need additional adjustments.

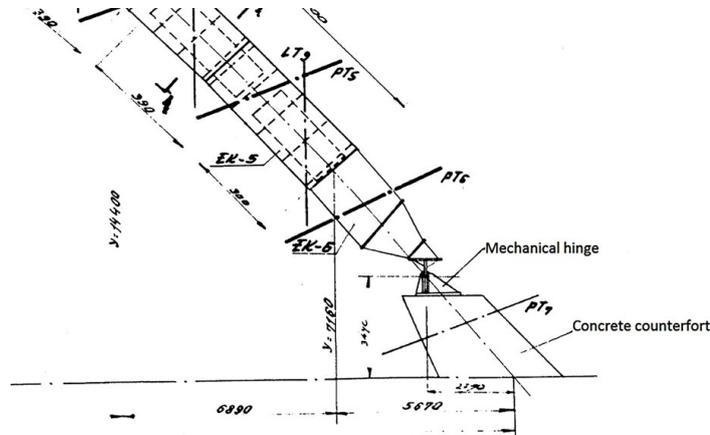
Based on the previously described tests and calculations, the **design documents for the song festival tribune were compiled in the State Design Bureau Eesti Projekt (1957-58)**. The author of the constructional part was E. Paalmann, the chief engineer K. Tallo. **The building was finished in 1960. Upon building the screen, measurements were taken under the supervision of H. Laul.**

The screen of the song festival tribune is **75 m in length and 35 in width** (see the scheme in Drawing 1). Now to the description of its structure. The contour of the screen consists of two planar arches which are asymmetrical towards the x-axis of the screen. The back arch, which cross section is **2.0 x 1.5 m** is inclined at an angle of 19° to the horizon, supported by vertical columns and made of monolithic reinforced concrete. The front arch B is only

supported at the heel of the arch, it has no intermediate supports and is inclined at an angle of 58° to the horizon. This arch is made of a steel tube with a diameter of 2.0 m and a thickness of 14 mm. To achieve the necessary weight of the front arch (to resist to the forces of carrying cables under the action of wind and snow loads), it is partly filled with reinforced cement mortar, strength M150 (Drawings 2 and 3). The arches are supported by counter-forts with the height of 10 m that transfer the arches' both vertical and horizontal forces to the foundation and the rigid sand stone layer.



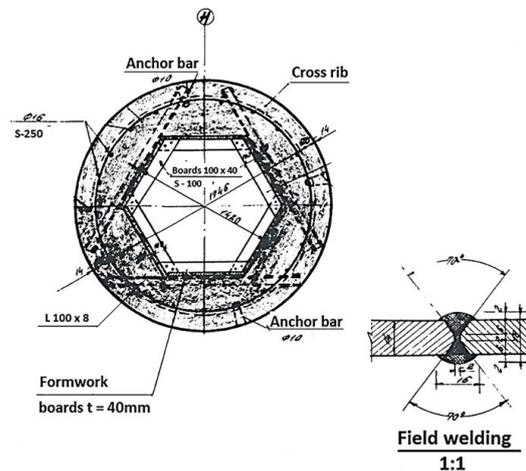
Drawing 1



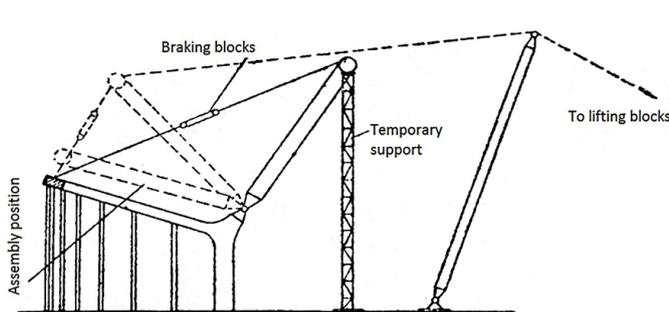
Drawing 2

The front arch was assembled on top of the back arch and then hoisted to the final position where it rested on temporary supports (see Drawings 2 and 4). After installing the front arch, its steel tube was welded a cylindrical extension (link to the counter-fort), which helped to make the bottom part of the arch rigid (Drawing 5). Now it has been sealed in concrete and it visually creates a uniform counter-fort.

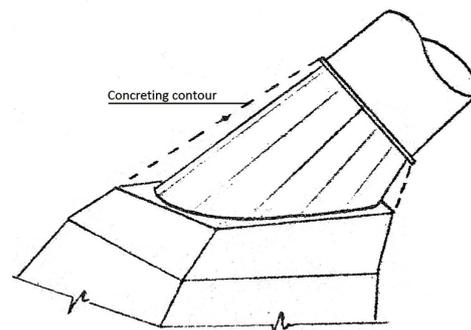
Between the arches, there is a pre-



Drawing 3 Cross-section of front arch



Drawing 4



Drawing 5

stressed cable system installed (Drawing 1): a – carrying, concave cables that resist the roof's load and transfer it to the contour; b – stretching cables, convex, guaranteeing the rigidity of the roof-screen. The average distance between the cables is 3.5 m. Both carrying and stretching cables are of high-strength wires in bundles, which are covered with a smooth-surfaced spiral and airtight cover. The diameter of all cables is 38 mm. The wires inside the external cover are in oil (Drawing 6).



Drawing 6

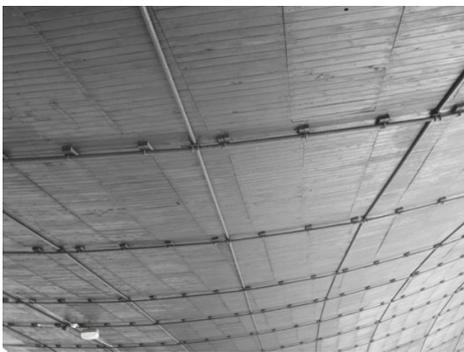
The shape of 19 carrying cables is approximately parabolic. The length of carrying cables is 11-36 m. 12 stretching cables are symmetrical, almost hyperbolic. The length of those cables is 27-76 m.

In order to rigidify the roof, the cables had to be pre-stressed. That was done after the back contour arch had been finished and the front arch had been installed. According to calculations, the necessary pre-stressing force was 25 tons (this was defined so that upon loading the roof, 20 % of the pressure of the stretching cables on the carrying cables should remain).

The pre-stressing of the whole system could be compared with **tuning a piano**. An additional problem is in the fact that if one cable is stressed then due to the deformations in contours, forces in all other cables change too. The process of pre-stressing was accomplished by fastening the nuts at the ends of the cables. A nut spanner with a relatively long shoulder and the strength of several men was used. Although there were thrust-bearings installed under the nuts, still there was a need to apply a great force to reach the needed pre-stress force of the cable. Since this is a rather complex mechanical task, **a special calculation program for the order of stressing the cables could be compiled**. The stressing forces were measured with the help of a special comparator. Finally a required result was reached. After the building was handed over for exploitation in 1960, the **geometry of the screen and the forces in the cables were checked in 1961, and again after an additional regulation in 1962 and 1963**. In 1961 it appeared that in about a year there had been **certain changes in the inner forces**. That could be explained with the somewhat uneven distribution of the rigidity of the contour arches. Even after regulation, the distribution of the inner forces of the cables tended to adopt the equilibrium common to the construction. **At the same time, the process of regulating the tension force of certain cables could not be finished**. However, the necessary pre-stressed forces were still guaranteed.

The screen consists of ribbed wooden panels with a width of 0.8 m (see Drawing 7c) and length of the distance between the carrying cables (the lower and upper boarding in the direction of the carrying cables and the carrying beams installed in the direction of stretching cables) that are resting on the carrying cables. The wooden panels have been covered with bitumen covering and the whole roof has been covered with another layer of 19 mm diagonally placed and nailed boards and sheet roofing.

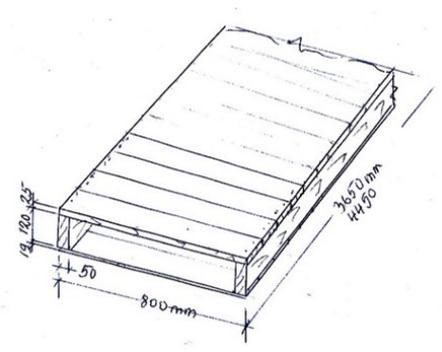
The wooden panels have been fastened to the carrying cables with the means of steel clips. Since the stretching cables are on top of carrying cables, blocks as thick as the stretching cables used in order to have the panels rest on the carrying cables (photos in Drawings 7a and b). These panels have been **covered with a layer of bitumen sheets and a diagonal (joining) boarding and zinc sheet roofing**.



Drawing 7a



Drawing 7b



Drawing 7c

**During the inspections carried out in 2011-2014, it was found that there were significant signs of rotting on the wooden panels** (photo in Drawing 8). The bottom parts of the boarding had been fixed or replaced before, and now questions concerning the condition of the carrying and stretching cables arose. The factory guarantee of the cables had been 20 years, but the building itself was already 56 years old.



Drawing 8



Drawing 9

The exterior of the cables had significant signs of corrosion. **In spring 2016 one carrying cable from the part of the building facing the sea was taken out** (photo in Drawing 9) and replaced with a new one. The aim of this action was to open the old cable and see the condition of its inside – whether the inner high-strength wires of bar steel were still in oil or they had been significantly damaged.

Upon opening the cables, it appeared that the **corrosion damages were still only on the surface**

and the inner part of high-strength wires of bar steel was still in oily environment (photos in Drawing 10 and Drawing 11). The connecting anchors were in a good condition as well. It was not possible to say whether this condition could be general, but on a visual inspection no signs of sections in a worse condition were noted. Therefore, it was concluded that these cables **could be effective for another 20-25 years**, this decision was made considering the fact that according to the project documents and the standard there was a **significant load-bearing reserve**.

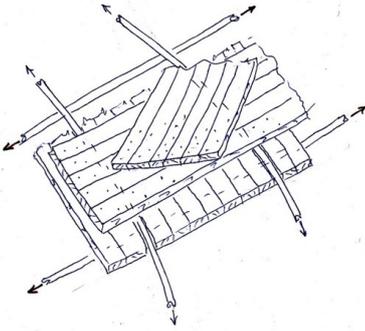


Drawing 10



Drawing 11

In 2016 it was decided (administration of the Song festival grounds and Tallinn City Council) to replace the wooden panels that had rot damages with a new roof construction. K. Õiger suggested using the same threefold wooden shell made of crosslaminated -nailed timber as used in the (roof) construction of the acoustic screen of the Tartu song festival tribune (Drawing 12). At the same time, there was a concern related to the fact that the mesh size of the pre-stressed cable network of the acoustic screen of the Tartu song festival tribune was 1.5 x 1.5 m, but in Tallinn it was from 3 x 3 to 3 x 4 m. To make sure the load bearing capacity of the shell roof with such local opening was meeting the requirements, it was reasonable to conduct load tests with a model made of the boards of the real thickness and with the real openings (mesh size) (Drawing 13). The results were positive both in terms of load bearing and deformations (data in the respective report and in Kadi-Liis Minn's Master's thesis "The Testing of Tallinn Song Festival Tribune's Crosslaminated -nailed Timber Roofing at Static Loading", 2018). The shell is fastened with clips at the nodes of the cable network. The construction was also tested in a reversed position – from the bottom to the top – to make sure it has enough load bearing capacity in the event of the wind pressure acting upwards.



Drawing 12



Drawing 13

The described construction is smoother if looked from below, it helps avoid making panels with a great difference in length, and it should also reflect sound better.

The process of replacing the roof construction started in 2018. There was a lot of trouble with it. The boards had to be bent in the direction of width and then the bent board had to be placed into the cut of the previous board (the sound festival tribune's acoustic screen is of the shape of mixed curvature hyperbolic paraboloid). I was worried whether and how it all would succeed. However, the constructor's project manager calmed me down and said we would make it. The first lower 40 mm boards were installed by the manager of a contracting company Aruna Ehitus and the project managers themselves to see how it was going to work out. I was also worried about the extraordinarily bad weather conditions – rain in autumn and great snowfalls in January. The loads of the roof increased more than expected. All had to be recalculated. You must admit that hanging constructions are the most difficult to be calculated.

The cables had to be cleaned until shiny and covered with an anti-corrosion coating. The wooden shell has been fastened to the cables with clips so that wind would not lift it. It will proudly last for the next 50 years. However, the cables should be checked again in 20-25 years. We drilled samples from the steel arch and did not find anything dangerous there. In the end we still discovered that the reinforced concrete surface of the back arch was spalling and the reinforcements near the surface were corroded. We had to remove corrosion and replace the missing reinforced concrete. This all postponed the finishing of the renovation works.

In the beginning I did not like that people talked about an "song arch". Now I think that everything else depends on the behaviour of front arch. Thorough renovation works of the song festival tribune started in September 2018 and were finished in April 2019. From the 4th to the 7th of June 2019 the Song (and Dance) Celebration is held as we celebrate 150 years from the first song festival in Estonia. At the reopening of the song festival tribune, conductors said that they felt as if the acoustic features of the acoustic screen were even better now. The acoustics are better because the surface of the acoustic screen is smooth – previously it absorbed the sound. Everything should be okay with the tribune for the next three decades. The lower boarding of the screen also looks better now since it has been nailed using a million zinc-coated nails. It is the shell that increases the surface's rigidity. I have always said that old construction is like an old person, some bones can be replaced but regular maintenance is still needed.

Why the technical solutions of the song festival tribune were innovative in its time?

All great hanging roofs where a prestressed cable network has been hung between contour arches where arches were wholly supported by the wall construction. In the case of the Tallinn song festival tribune, the stressing force for each cable has to be 25-30 tons. Rest of the construction (contour) had to receive those forces. If half of the contour is hanging in the air, then the weight of hanging part of the contour must balance those forces. Therefore, each linear meter of the hanging front arch had to weigh 5 tons., so the steel arch is partly filled with concrete. All that had to be calculated. At that time nonlinear calculations were done manually. Differential equations were made and solved with double integrals. To see how it all would function in real life, a 1:25 model was built in a laboratory. Professor Laul has said that the whole design process was accompanied by model tests.

Now with the new wooden shell we made new calculations. We used modern calculation programs and spent the whole winter overcoming several challenges. The wooden shell functions with cables and this is an unusually complex construction.



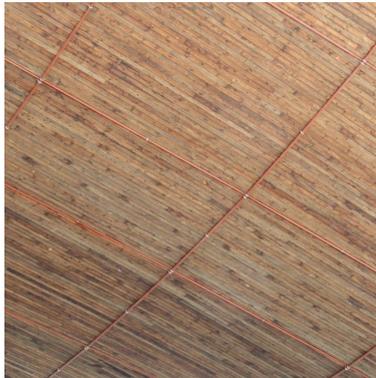
Drawing 14a



Drawing 14b Dismantling of the old roof construction of the song festival tribune's acoustic screen



Drawing 15 The building of the new roof construction of the song festival tribune's acoustic screen



Drawing 16 Bottom view



Drawing 17 Renovated song festival tribune



Drawing 18 Song Festival 2019 (Photo: Tiina Oja)

Used sources:

Valdek Kulbach, Cable Structures, Design and Static Analysis, Estonian Academy Publishers, Tallinn, 2007.

## Georgia

### Georgian Society of Civil Engineers (GSCE)



The President of Georgian Society of Civil Engineers Mr. Iuri Svanidze was awarded by the title "Honorable Builders of Georgia" and was awarded with diploma and medal for the significant contribution, high professionalism and fruitful activity in Georgia's construction field.



With the joint work of the Georgian Society of Civil Engineers (GSCE) and Sector Economy and Economic Policy Committee of the Parliament of Georgia was made a decision and it was created a "Scientific Advisory Council for Architecture and Construction" at the Committee where professional representatives of our society are involved .

The Georgian Society of Civil Engineers conducts negotiations with the country's largest state agency, Municipal Development Fund, on signing a mutual partnership agreement in the future. The state agency implements the financing of the largest projects in Georgia.

### A New Kobi-Gudauri Cable Way is Now Open



Kobi-Gudauri linking cableway covers over 7 km and is to serve 2800 passengers an hour. Considering that, the location of the route is on the northern slope enables skiers to enjoy skiing until the late spring. Implementation of one of the most complicated projects from engineering standpoint, took one year. Three cableways constructed with the 111 gondolas to connect with Gudauri cableway systems from Kobi by means of the stations.

Along with the tourist objectives, Kobi-Gudauri new cableway will provide the local population with the possibility of conveying in a safe manner in case of either heavy snowfall or avalanche hazards and resolve the issues conditioned because

of closing of the road on this particular section that occurs quite often in Kazbegi Region.

The cableway will promote development of tourist infrastructure in the region that will increase employment opportunities for local residents.

Approximately 81-million-GEL project financed by the Government of Georgia, implemented by Georgian and French Companies ("Peri" and "Poma") as per the order by Municipal Development Fund of Georgia. Difficult engineering works – including stretching of the cables executed under the direct supervision of foreign specialists.

There were 300 people employed and operating up to 60 units of heavy machinery for the cableway construction.



## Latvia

### Investment in Energy Efficiency of Buildings

Along other competitions like *Building of the Year* and *Grand Construction Prize*, the Latvian Association of Civil Engineers (LACE) organised a competition for the *2019 Most Energy Efficient Building* in Latvia. The award ceremony took place on 20 June in Riga.

#### Mitigating climate change

This competition is organised by the Ministry of Economics, LACE together with *Būvīnženieris* magazine, and the Ministry of Regional Development and Environmental Protection to promote resource-efficient construction methods and widespread use of best practices for mitigating climate change. Restoration of existing buildings can be financed from European funds. New builds, public and manufacturing buildings may also participate in the competition.

This year, 27 buildings entered the competition – twice as many as the year before. A jury consisting of 40 professionals assessed 13 competitors in person and chose the winner using parameters such as energy consumption, construction and micro-climate quality, investment efficiency, and project sustainability. LACE was represented by the following jury members: Helēna Endriksone, Deputy Chair of the Board, and Antra Ērgle, Editor-in-chief of *Būvīnženieris* magazine and the Chair of the Jury. The winners received awards not only from the jury, but also from organisers and supporters. The public outreach activities of this competition engaged with more than 50,000 people.

#### Appreciation of achievements

During the closing event, we also celebrated an anniversary – ten years have passed since the energy efficiency programme for tower blocks was launched in Latvia. Ralfs Nemiro, the Minister of Economics, awarded Certificates of Appreciation to its initiators and most active drivers.

The public was very enthusiastic about meeting Inese Bērziņa, head of the *Dzīvo siltāk!* programme of the Ministry of Economics, the initiator of the energy efficiency movement in Latvia and an organiser of the competition for energy efficient buildings since the day of its inception.

According to data, 802 tower blocks have been renovated in Latvia during these ten years with total investment from European funds reaching EUR 92.28 million. The most active renovators come from Liepāja, where 114 buildings have already been renovated. By improving the energy efficiency of buildings, average energy savings amount to 45%, at the same time increasing the overall comfort, longevity and value of these structures.

LACE is extremely happy with the achieved results and will continue to promote best practices for builders and owners to use energy efficient solutions as much as possible.

Photos from the 2019 Most energy efficient building in Latvia competition.



The building at Institūta iela 10, Sigulda, received a prize as the most energy efficient restored tower block in 2019.



Buildings in Valmiera, at Mālu iela 1 and Ķieģeļu iela 8 received a prize as the most energy efficient newly built tower blocks last year.



Most energy-efficient public building: Arena of Liepāja Olympic Centre.



Participants of the closing ceremony are happy with this year's achievements.



Inese Bērziņa (from the left), the “mother” of energy efficiency in Latvia, together with supporters Anda Lagzdīņa, Helēna Endriksone, a representative of LACE, Signe Kajaka, project manager of restoration projects, and Mārīte Šperberga, Member of the LACE Board



Some organisers of the competition: Helēna Endriksone, Deputy Chair of the LACE Board (from the left), Ilze Prūse, Director of the Climate Change Department of the Ministry of Regional Development and Environment Protection, and Ralfs Nemiro, the Minister of Economics.



Andris Čuda, the Director of Jūrmalas Mežaparki (in the centre) received a Certificate of Appreciation for the most energy efficient manufacturing building from Antra Ērgle, the Chair of the Jury, as well as a special prize from the Ministry of Economics, which was awarded by Dzintars Kauliņš, Director of Renewables and Energy Efficiency Department.



Rūta Bite, a representative of the building in Sigulda, at Institūta iela 1, received the public choice award – a special bench from Normunds Miško, the Director of Saint Gobain Latvia. The winner was selected by online viewers.

## Malta

### ***A New Building and Construction Regulatory Framework for Malta***

Since 2007, the Kamra tal-Periti (Chamber of Architects and Civil Engineers, Malta) has been calling for an overhaul of the regulations that govern the construction industry in the Maltese Islands. The Kamra had proposed that “The establishment of a ‘Construction Platform’ would provide a clearer reference point for developers, design professionals and the general public. Continual training and professional development, the certification of tradesmen and the licensing and classification of service providers will help ensure that construction practice improves.” (*The Urban Challenge – Our Quality of Life and the Built Environment, Kamra tal-Periti (2007, p. 50)*).

Ever since, the Kamra has emphasised the need to separate planning and development permitting issues from those related to building standards and regulations, not just at inception stage, but right through to end-of-life considerations. In so doing, it has repeatedly called for the introduction of a comprehensive and contemporary suite of performance-based building and construction regulations, and a central Authority which has the potential to make a significant contribution towards a better quality in our built environment.

At the end of 2018, the Ministry for Transport, Infrastructure and Capital Projects made the first step towards this vision through the proposed establishment of a Building and Construction Authority. Through the White Paper introducing this Authority, the Government also endorsed that the Kamra’s proposal for the consolidation of the various fragmented pieces of legislation, bodies and departments regulating the industry under one legislative and administrative umbrella. This would ensure higher standards in the industry, as well as its sustainability, and bring it in line with modern practice and standards.

Over the past two years, the Kamra, together with appointed specialists in respective fields, has worked on *A Modern Building and Construction Regulation Framework*, published in May 2019, highlighting the deficiencies of the current practices and regulations. These include the following:

1. Article 1638 of the Malta Civil Code places the responsibility for structural stability jointly on the perit (Maltese term for the architect and civil engineer, embodied within the same professional person) and the contractor. However, whereas the perit is academically trained, carries a professional warrant and is subject to a Code of Professional Conduct, the contractor is not regulated at all. The absence of a registration/licencing system means that anyone with some equipment can carry out such works, without any basic training, technical knowledge, or insurance cover. The document proposes the urgent need for registration and classification of contractors, which should be based on competences and qualifications as well as considerations relating to their workforce, their equipment and capacity.
2. Mechanical and Electrical Engineers are often not involved in small to medium scale projects and are very often engaged after the main structural works have been finalised. This causes conflicts which may also impact the structural aspects of the design as well as the overall performance of the finished building.
3. A Project Supervisor is required to be appointed under the Occupational Health and Safety regulations, although the law also permits the developer to take on such role, as long as he or she deems themselves to be “competent” in this regard.
4. The site manager required to be appointed under the Avoidance of Damage to Third Party Regulations is also not required to have any specific competences. Yet the primary role of the site manager is to ensure that the construction method statement drawn up by the perit is adhered to. The law permits the developer, be it a seasoned developer or a private individual, to take on the role of site manager, when it is evident that such person may not possess the necessary skills to carry the responsibilities imposed by such role.

This situation is unacceptable, and the industry cannot move forward sustainably until such glaring deficiencies are properly addressed.

The regulations in force today are obsolete and based on the limited typologies and materials available at the time of their coming into force. The industry has evolved, yet our regulations have not been updated to reflect today's realities, resulting not only in buildings which may not be of acceptable quality, but also rendering the construction process itself rife with risks to the health and safety of all those involved.

The Kamra tal-Periti has taken a pro-active role in ensuring that this industry not only performs well financially, but also, and more importantly, in terms of the quality of projects produced. It is therefore proposing a comprehensive document that outlines a regulatory framework addressing the professionals' responsibilities as well as the contractors', and the building processes and their implementation, thereby setting a benchmark for the performance of a building and its components. The document is intended to provide a comprehensive basis for taking this crucial step forward. It includes a thorough review of the current situation, analyses the problems, and provides solutions which are also informed by research on systems which have been tried and tested in other countries. These proposals also seek to support the profession and the industry by formalising standards which, in general, reflect best practice approaches already adhered to by the profession despite them not being prescribed.

Jeanette M Muñoz Abela

PhD (Lond.), MSc (Lond.), DIC, BE&A (Hons) (Melit.) perit

Kamra Tal-Periti, Malta

International Relations Civil Engineering

## Turkey



**10th INTERNATIONAL CONCRETE CONGRESS** held in BURSA, TURKEY at 02-04 May 2019.

Concrete is the most widely-used building material in the World. Turkey is the country with the highest production rate among European countries with an annual production of over 100 million cubic meters of ready-mixed concrete.

The Chamber of Civil Engineers attributes equal importance to quality and quantity in concrete production. The Concrete Congress has been held since 1989 on up-to-date topics in concrete technology. This Congress aimed to address the recent developments in concrete technology and well known academicians and experts was be delivered keynote lectures, presenting the state-of-art in their field of research.

The Concrete Congress was be jointly organized this time by the Istanbul and Bursa Branches of the Chamber of Civil Engineers in the city of Bursa. The Congress provided a great opportunity to get together the civil engineering community to share recent advances and cutting edge developments. We invited all researchers, academicians, engineers, experts, students and practitioners from around the world to meet at this event.

The opening speeches of the meeting were made by TCCE Chairman Cemal Gökçe, TCCE' s İstanbul Branch President Nusret Suna, TCCE' s Bursa Branch President Mehmet Albayrak, Cyprus TCCE President Gürkan Yağcıoğlu, Chairman of the Organizing Committee. Prof. Dr. Hulusi Özkul, Prof. Dr. Mustafa Tokyay, Prof. Dr. Sınan Erdoğan, Chairman of the Congress Scientific Committee Prof. Dr. Mehmet Ali Taşdemir, Bursa Deputy Atilla Ödünç, Bursa Metropolitan Mayor Alınur Aktas.

### Prediction of Splitting Tensile Strength of Recycled Aggregate Concrete

**Hasan Yıldırım**

Department of Civil Engineering, Boğaziçi University, Istanbul, Turkey

Tel: +90 212 359 46 91

E-mail: hasan.yildirim@boun.edu.tr

**Turan Özturan**

Department of Civil Engineering, Boğaziçi University, Istanbul, Turkey

Tel: +90 212 359 64 50

E-mail: ozturan@boun.edu.tr

### ABSTRACT

In this paper, compressive strength and splitting tensile strength of four different sustainable concrete series were investigated and compared in terms of the efficiency of different recycled aggregates. To produce the sustainable concrete mixtures, two different recycled aggregates were used as coarse aggregates in full replacement, by volume, of crushed limestone. Recycled aggregates were utilized as plain and surface treated by direct slurry with ground granulated blast furnace slag. Treating recycled aggregates improved the compressive strength and splitting tensile strength of recycled aggregate concrete series with increased statistical reliability. Besides, the experimentally obtained splitting tensile strength values were compared with those calculated by using the estimating models given in different codes: TS500, EN 1992-1-1, ACI 363R-92, CSA A23.3-04 and NZS 3101-1. In addition, a new model for splitting tensile strength was derived based on compressive strength for all concrete series. The models proposed by ACI 363R-92 and EN 1992-1-1 were in good agreement with the experimental results for control concrete produced with crushed stone coarse aggregates, while it was NZS 3101-1 and TS500 having the com-

pliance with the test results for concrete series produced with recycled concrete and brick aggregates, respectively.

**Keywords:** Recycled aggregate concrete; Compressive strength; Splitting tensile strength; Codes; Estimating models.

### Introduction

In recent years, with rapid industrialization and urbanization, huge amounts of construction and demolition waste are generated especially in developing countries. The disposal of these wastes cause the environmental and land fill problems (Marinkovic et al., 2010; Poon et al., 2004). Therefore, recycling and reuse of construction and demolition waste have crucial importance for the environmental protection and effective utilization of natural resources. From this point of view, the application of recycled aggregates provides alternative material sources to reduce the dependence of the construction industry on natural aggregates which explains the focus on the recycled aggregate concrete in the past decades (Hu et al., 2013; Mueller et al., 2008; Ann et al., 2008). Although the reuse of demolished concrete waste as recycled aggregate is environmentally beneficial, cement mortar adhered to the recycled aggregate particles yields some severe problems of increased porosity and water absorption with decreased strength capacity in recycled aggregate concrete. Therefore, in literature, to improve the quality of recycled aggregates and the performance of recycled aggregate concrete, the three principal technical methods are highlighted: removal of residual cement mortars, coating of recycled aggregates and modification of concrete mixing method (Tam et al., 2005; Tam et al., 2007a; Kong et al., 2010; Nagataki et al., 2004; Kou et al., 2010; Tsujino et al., 2007). In this study, the third one was preferred to get surface treated recycled brick and concrete aggregates with the slurry of ground granulated blast furnace slag.

### Experimental Study

#### Materials

CEM I 42.5R portland cement with the specific gravity of  $3.14 \text{ g/cm}^3$  and specific surfaces of  $3490 \text{ cm}^2/\text{g}$  was used for the production of concrete series. The ground granulated blast furnace slag (GGBFS) with specific gravity of  $2.95 \text{ g/cm}^3$  and specific surface of  $5253 \text{ cm}^2/\text{g}$  was utilized as cement replacement material in concrete production and as filler material for recycled aggregate treatment. Natural sand and crushed sand (0-4 mm) with specific gravities of  $2.65$  and  $2.70 \text{ g/cm}^3$ , respectively, were used as fine aggregates as well as crushed stone (CSt) as coarse aggregates (4-16mm) in concrete production. Recycled brick aggregates (RBA) and recycled concrete aggregates (RCA) from a demolished-building-rubble were also used as total replacement of crushed stone coarse aggregates. A naphthalene sulfonated formaldehyde superplasticizer, Rheobuid-1000, was used to provide the required workability of fresh concrete.

#### Tests and Measurements on Aggregates

RBA and RCA were sieved into 4-8mm and 8-16mm size fractions to be used for replacing the CSt coarse aggregates No-I and No-II, respectively, as seen in Figure 1. Unit weight, specific gravity and water absorption values of aggregates were determined according to ASTM C29 and ASTM C127, respectively, as well as the flakiness index (FI, %) of the coarse aggregates with reference to BS EN 933-3. Since the recycled aggregates used in this study were obtained and reproduced under special conditions, it is important to determine the flakiness index, which is a geometric property, for each one. Because, as the flakiness index of the aggregates increases, the workability of the concrete decreases, the water requirement and the amount of entrapped air increase and consequently the strength of the concrete is adversely affected. In this respect, it is recommended that the flakiness index shall not exceed 40% for crushed rock or crushed gravel so that any aggregate can be used in concrete production (BS 882). The aggregate crushing values (ACV,%) of CSt, RBA and RCA were also identified in compliance with BS 812-110 to investigate the correlation of ACV with both unit weight of aggregates and compressive strength of the concrete series. For a cohesive and homogenous concrete production, optimum grain size distribution of aggregates was designated with respect to TS 802.



**Figure 1.** The separated aggregates into two groups: (a) CSt, (b) RBA, (c) RCA.

#### Concrete Mix Design

Control concrete mixture (CSt) was produced using  $321.4 \text{ kg/m}^3$  portland cement,  $128.6 \text{ kg/m}^3$  GGBFS,  $85.05 \text{ kg/m}^3$  and  $693.25 \text{ kg/m}^3$  natural and crushed sand, respectively,  $476.61 \text{ kg/m}^3$  No-I and No-II crushed stone each and  $212.14 \text{ kg/m}^3$  water at a w/c of 0.50. The control concrete was designed to have a compressive strength of 40-50 MPa. Four recycled aggregate concrete mixtures were produced by replacing both the No-I and No-II crushed stone coarse aggregates in the control concrete by recycled aggregates, which were utilized as plain (RBA, RCA) and surface treated (TRBA, TRCA) by direct slurry with GGBFS, on volume basis as given in Table 1. Thus, changes in the amount of ingredients were eliminated to investigate the performance of the recycled aggregates in the same mix proportions regarding the density and mechanical properties of the concrete. Sufficient amount of superplasticizer was added to get a slump of  $18 \pm 2 \text{ cm}$ .

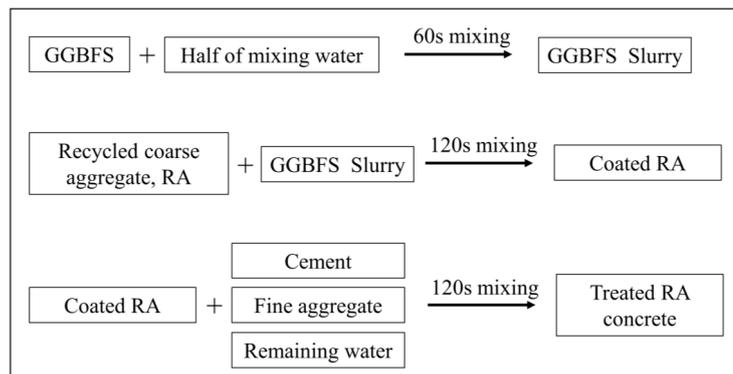
**Table 1.** The mix proportions used in the experiments (kg/m<sup>3</sup>)

Concrete Series	Coarse Aggregates (kg/m <sup>3</sup> )						SP <sup>a</sup>	
	CSt		RCA		RBA		(%)	(kg/m <sup>3</sup> )
	No-I	No-II	No-I	No-II	No-I	No-II		
CSt	476.61	476.61	-	-	-	-	0.85	3.825
RCA	-	-	423.65	428.95	-	-	0.65	2.925
TRCA	-	-	423.65	428.95	-	-	0.65	2.925
RBA	-	-	-	-	370.7	367.17	0.65	2.925
TRBA	-	-	-	-	370.7	367.17	0.65	2.925

<sup>a</sup> Superplasticizer

**Casting and Curing of Concrete Specimens**

A special procedure was applied for concrete casting to minimize the slump loss owing to the high water absorption of the recycled aggregates. For this purpose, recycled aggregates were first submerged in water for 24 hours to be saturated and then kept on large scale sieves for 1 hour to be surface dried before mixing. Concrete series of CSt, RBA and RCA were cast in reference to ASTM C192, however, a specific procedure was conducted for casting TRBA and TRCA as illustrated in Figure 2 with reference to the previous studies (Shayan and Xu, 2003; Tam and Tam, (2007b, 2008); Li et al., 2009). The slump and unit weight of fresh concrete were measured with regard to ASTM C143 and ASTM C138, respectively. Twelve cylinder specimens of 100x200 mm size were cast for the compression and splitting tests in accordance with ASTM C39 and ASTM C496, respectively. Specimens kept in a laboratory environment for 24 hours were then demolded and stored in the curing pool at a temperature of 20±2°C for 28 days till testing.



**Figure 2.** Direct slurry method for production of treated recycled aggregate concrete.

**Test Results and Evaluation**

**Properties of Aggregates**

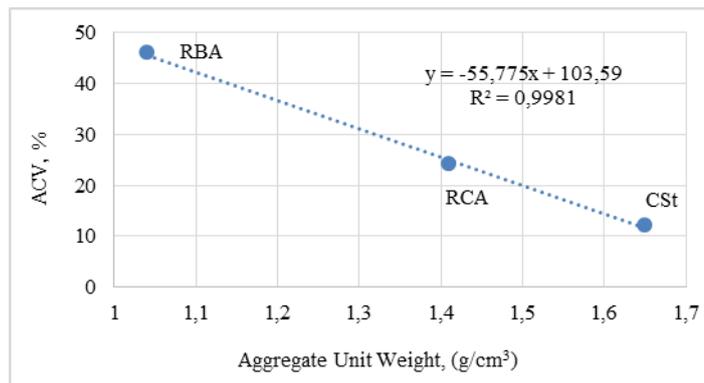
Physical and mechanical properties of coarse aggregates are presented in Table 2. RBA is the least dense of all the aggregates followed by RCA and CSt. Water absorption capacities of RBA and RCA are significantly higher than CSt (averagely 20 and 8 times higher, respectively). These trends are consistent with the literature (Butler et al., 2013; Yang et al., 2011), and may be explained by the presence of adhered mortar on recycled concrete aggregates and porous structure of recycled brick aggregates. Besides, water absorption of aggregates in the size range of 8-16 mm are lower than that of the aggregates in 4-8 mm size. The coarser part of the aggregate may be expected to be denser with less and mostly closed pores resulting in decreased absorption while breaking the aggregate into small pieces damaging the aggregate itself and making it vulnerable to water absorption.

In terms of flakiness index, it is quite possible to say that aggregates are suitable for concrete production in regard to BS 882 because FI values of aggregates are much lower than 40%.

The ACV results of this study fall within a similar range to those presented in the literature (Eguchi et al., 2007; Abdulla, 2015). Besides, there was a negative correlation with high coefficient of determination (R<sup>2</sup>=0.9981) between unit weight of aggregates and aggregate crushing values as seen in Figure 3. The increase in ACV indicates that the material is mechanically more flawed meaning that CSt is the most advantageous aggregate while RBA is the most disadvantageous one.

**Table 2.** Properties of coarse aggregates.

Properties	RBA		RCA		CSt	
	4-8	8-16	4-8	8-16	4-8	8-16
Unit Weight, (kg/m <sup>3</sup> )	1040	1030	1370	1440	1650	1650
Specific Gravity (SSD)	2.10	2.08	2.40	2.43	2.70	2.70
Water Absorption, %	13.50	11.54	6.65	3.04	0.65	0.54
Flakiness Index, %	6.08		11.68		16.38	
ACV, %	39.87		24.09		12.08	

**Fig. 3.** Relation between aggregate unit weight and ACV.

#### Fresh Concrete Properties

Concrete mixes were cast by using a superplasticizer at required dosage for achieving a slump of 18±2 cm. Concrete mixes were workable and cohesive and segregation was not observed. When RCA and RBA totally replaced the CSt, unit weight of concrete series decreased from 2410 kg/m<sup>3</sup> to 2260 kg/m<sup>3</sup> and 2120 kg/m<sup>3</sup>, respectively. There was no change in fresh unit weight of TRBA and TRCA due to the change in concrete production process. Replacing the crushed stone coarse aggregate fully with recycled aggregates reduced the density up to 12% of the concretes whereas compressive strength values conformed to the limitation for structural use.

#### Hardened Concrete Properties

Compressive strength of concrete series decreased from 45.51 MPa for control concrete (CSt) and varied between 33.91 and 27.61 MPa for the recycled aggregate concrete series due to the higher porosity and lower strength of the recycled aggregates as shown in Figure 4. Among the recycled aggregate concretes, higher compressive strength was obtained with TRCA followed by RCA, TRBA and RBA having the performance of 75, 69, 66 and 61% of CSt, respectively. Similarly, splitting tensile strength of concrete series decreased from 3.85 MPa for control concrete (CSt) and varied between 3.11 and 2.59 MPa for the recycled aggregate concrete series as seen in Figure 5. Higher splitting tensile strength was also obtained with TRCA followed by RCA, TRBA and RBA having the performance of 81, 78, 72 and 67% of CSt, respectively. As a measure of statistical reliability, coefficient of variation (CoV) is a meaningful index of variability because it accounts for the mean as well as the standard deviation. In this respect, while CoV values of the concrete series RCA and RBA were 10.10 and 8.50 for compressive strength and 10.36 and 8.24 for splitting tensile strength, they decreased to 8.68 and 6.47 for compressive strength and 7.24 and 7.32 for splitting tensile strength for the concrete series of TRCA and TRBA, respectively. The lower the CoV, the higher the statistical reliability. Besides, the correlation of compressive strength ( $F_c$ ) of concrete series with crushing values of the aggregates (ACV) was negative while it was positive with unit weight of concrete series as presented in Figure 6 and Figure 7 and 8, respectively. All had sufficiently high coefficient of determination values ( $R^2$ ). However, in case of the relation between compressive strength and unit weight of concrete series, the coefficient of determination for the group of concrete series with treated recycled aggregates ( $R^2=0.9588$ ) was slightly higher than that for the group of concrete series with untreated recycled aggregates ( $R^2=0.9380$ ). These positive effects due to the treating recycled aggregates by GGBFS slurry can be explained by the binding and strengthening properties of C-S-H gel formations from hydration and/or pozzolanic reaction emerged in microcracks and matrix voids in the body of aggregates and old transition zone. Similar improvements in mechanical properties of concrete produced with recycled aggregates were also observed by Li et al., 2009 and Katz, 2004 when recycled aggregates were coated with pozzolanic powder (fly-ash, silica fume and blast furnace slag).

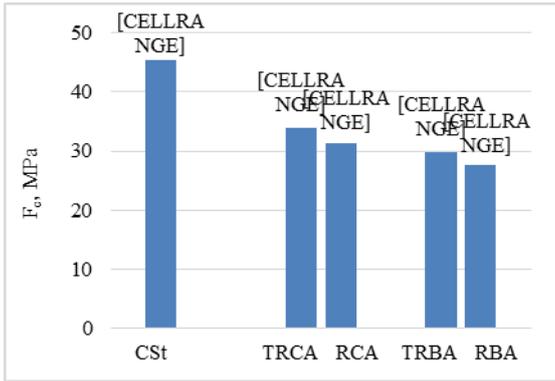


Fig. 4. Compressive strength of concrete series.

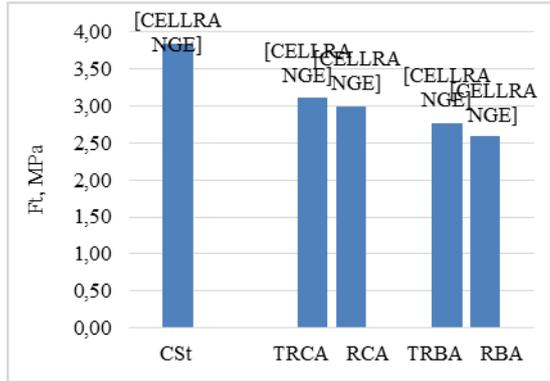


Fig. 5. Splitting Tens. Str. of concrete series.

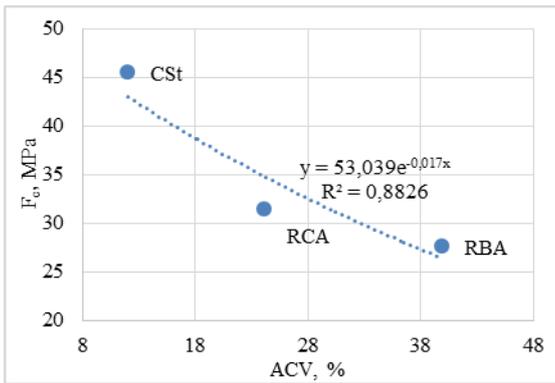


Fig. 6. Fc vs ACV.

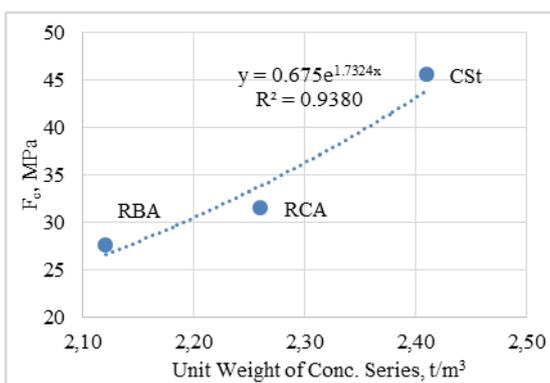


Fig. 7. Fc vs unit weight of concrete series.

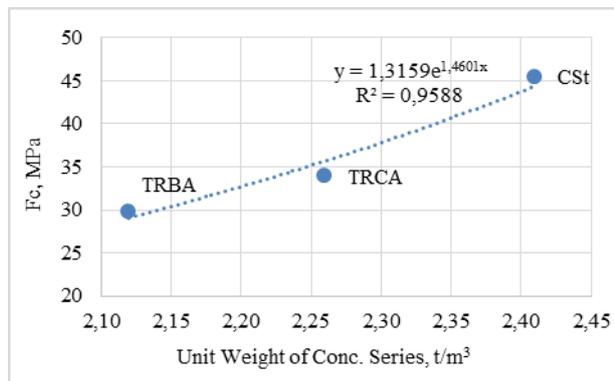


Fig. 8. Fc vs unit weight of concrete series.

One of the main objectives of this study is to predict the relationship between the splitting tensile strength and compressive strength of the concrete series and to compare the estimating equations obtained from the experimental results with the prediction models given in Turkish Code TS500, ACI 363R-92, EN 1992-1-1, CSA A23.3-04 and NZS 3101-1. Different models for estimating the splitting tensile strength of concrete based on the compressive strength recommended by the specified standards are shown in Table 3 as well as the estimating equations constructed regarding to the test results by using the simple regression analysis based on the least squares method as given in Table 4. Because the coefficient of determination values ( $R^2$ ) of estimating equations are sufficiently high, statistical parameters of measured splitting tensile strength values of concrete series shown in Table 5 can be used to represent the proposed models of present work to compare with the models given by the relevant standards. As seen in Table 5, the mean splitting tensile strength values of ACI 363R-92 and EN 1992-1-1 are close to the experimental mean for the control concrete (CSt) with the values of 3.98 MPa, 3.73 MPa and 3.85 MPa, respectively. However, the CoV of ACI 363R-92 is lower than that of EN 1992-1-1 and the measured splitting tensile strength values indicating that the level of dispersion around the mean for the model proposed by ACI 363R-92 is the lowest in case of control concrete. The models of TS 500 and NZS 3101-1, on the other hand, underestimate the splitting tensile strength with the values of 3.54 and 3.64 MPa, respectively, while CSA A23.3-04 overestimates with the splitting tensile strength of 4.52 MPa. For the concrete series produced with recycled concrete aggregates the mean splitting tensile strength values of NZS 3101-1 are very close to the experimental means with slight overestimations of 1.10 and 0.45% for RCA and TRCA, respectively. However, for both RCA and TRCA, the CoV of NZS 3101-1 is lower than that of the measured splitting tensile strength values indicating that it is more likely to get precise estimation around the mean by the model of NZS 3101-1 compared to the proposed model. On the other hand, the models of ACI 363R-92 and CSA A23.3-04 highly overestimate the splitting tensile strength with an amount of 10.47 and 25.44% for RCA and 9.75 and 24.63% for TRCA, respectively, while TS 500 and EN 1992-1-1

underestimate the splitting tensile strength with an amount of 1.70 and 8.92% for RCA and 2.34 and 7.19% for TRCA. For the concrete series produced with recycled brick aggregates, the mean splitting tensile strength values of TS 500 are close to the experimental means with slight overestimations of 5.59 and 2.99% for RBA and TRBA, respectively. However, for both RBA and TRBA, the CoV of TS 500 is lower than that of the measured splitting tensile strength values indicating that the model of TS 500 gives an opportunity to have more precise estimation around the mean compared to the proposed model. On the other hand, the models of ACI 363R-92, CSA A23.3-04 and NZS 3101-1 highly overestimate the splitting tensile strength with an amount of 18.66, 34.75 and 8.61% for RBA and 15.75, 31.44 and 5.94% for TRBA, respectively, while EN 1992-1-1 underestimates the splitting tensile strength with an amount of 7.78% for RBA and 6.89% for TRBA.

**Table 3.** Estimating models of the different codes for splitting tensile strength.

Codes	Estimating Models	Units
TS500	$f_{ct,sp} = 0.525\sqrt{f_{ck}}$	$f_{ct,sp}$ : (MPa) $f_{ck}$ : (MPa)
ACI 363R-92	$f_{ct,sp} = 0.59\sqrt{f_{cm}}$	$f_{ct,sp}$ : (MPa) $f_{cm}$ : (MPa)
EN 1992-1-1	$f_{ct,sp} = 1/3(f_{cm} - 8)^{2/3}$	$f_{ct,sp}$ : (MPa) $f_{cm}$ : (MPa)
CSA A23.3-04	$f_{ct,sp} = 0.67\sqrt{f'_c}$	$f_{ct,sp}$ : (MPa) $f'_c$ : (MPa)
NZS 3101-1	$f_{ct,sp} = 0.54\sqrt{f'_c}$	$f_{ct,sp}$ : (MPa) $f'_c$ : (MPa)

$f'_c, f_{ck}$ : Characteristic compressive strength at 28 days.  $f_{cm}$ : Mean compressive strength at 28 days.  
 $f_{ct,sp}$ : Indirect tensile strength of concrete at 28 days.

**Table 4.** Estimating equations for splitting tensile strength constructed regarding the test results.

Concrete Series	Estimating Equations	Units
CSt	$f_{ct,sp} = 0.5579\sqrt{f_{cm}} + 0.0889, R^2 = 0.8697$	$f_{ct,sp}$ : (MPa) $f_{cm}$ : (MPa)
RCA	$f_{ct,sp} = 1.0153\sqrt{f_{cm}} - 2.6940, R^2 = 0.8601$	
TRCA	$f_{ct,sp} = 0.9558\sqrt{f_{cm}} - 2.4203, R^2 = 0.9626$	
RBA	$f_{ct,sp} = 0.9974\sqrt{f_{cm}} - 2.6102, R^2 = 0.8035$	
TRBA	$f_{ct,sp} = 1.2676\sqrt{f_{cm}} - 4.1172, R^2 = 0.8547$	

$f_{ct,sp}$ : Indirect tensile strength of concrete at 28 days.  $f_{cm}$ : Mean compressive strength at 28 days.

**Table 5.** Experimental and predicted results of splitting tensile strength.

Concrete Series	Statistical Parameters	Splitting Tensile Strength (MPa)					
		Measured	Calculated				
			TS500	ACI 363R-92	EN 1992-1-1	CSA A23.3-04	NZS 3101-1
CSt	Min	3.61	3.33	3.75	3.38	4.25	3.43
	Max	4.15	3.75	4.21	4.09	4.78	3.86
	Mean (x)	3.85	3.54	3.98	3.73	4.52	3.64
	SD (σ)	0.17	0.15	0.17	0.26	0.19	0.16
	SE (σ/√n)	0.05	0.04	0.05	0.07	0.06	0.04
	CoV (σ/x)%	4.47	4.27	4.27	6.90	4.27	4.27
	X <sub>calculated</sub> -X <sub>measured</sub>		-0.31	0.13	-0.12	0.67	-0.21
	% change		-8.07	3.31	-3.08	17.32	-5.45

Concrete Series	Statistical Parameters	Splitting Tensile Strength (MPa)					
		Measured	Calculated				
			TS500	ACI 363R-92	EN 1992-1-1	CSA A23.3-04	NZS 3101-1
RCA	Min	2.54	2.64	2.97	2.23	3.37	2.71
	Max	3.61	3.20	3.59	3.15	4.08	3.29
	Mean (x)	2.99	2.94	3.30	2.72	3.75	3.02
	SD ( $\sigma$ )	0.31	0.15	0.17	0.25	0.19	0.15
	SE ( $\sigma/\sqrt{n}$ )	0.09	0.04	0.05	0.07	0.05	0.04
	CoV ( $\sigma/x$ )%	10.36	5.05	5.05	9.05	5.05	5.05
	$X_{\text{calculated}} - X_{\text{measured}}$		-0.05	0.31	-0.27	0.76	0.03
	% change		-1.70	10.47	-8.92	25.44	1.10
TRCA	Min	2.76	2.88	3.24	2.62	3.67	2.96
	Max	3.51	3.23	3.63	3.22	4.13	3.33
	Mean (x)	3.11	3.04	3.41	2.89	3.88	3.12
	SD ( $\sigma$ )	0.23	0.12	0.14	0.20	0.15	0.12
	SE ( $\sigma/\sqrt{n}$ )	0.06	0.03	0.04	0.06	0.04	0.03
	CoV ( $\sigma/x$ )%	7.24	4.00	4.00	7.00	4.00	4.00
	$X_{\text{calculated}} - X_{\text{measured}}$		-0.07	0.30	-0.22	0.77	0.01
	% change		-2.34	9.75	-7.19	24.63	0.45
RBA	Min	2.15	2.59	2.91	2.15	3.31	2.66
	Max	2.91	2.96	3.33	2.76	3.78	3.04
	Mean (x)	2.59	2.74	3.08	2.39	3.50	2.82
	SD ( $\sigma$ )	0.21	0.10	0.11	0.17	0.13	0.10
	SE ( $\sigma/\sqrt{n}$ )	0.06	0.03	0.03	0.05	0.04	0.03
	CoV ( $\sigma/x$ )%	8.24	3.68	3.68	6.96	3.68	3.68
	$X_{\text{calculated}} - X_{\text{measured}}$		0.15	0.48	-0.20	0.90	0.22
	% change		5.59	18.66	-7.78	34.75	8.61
TRBA	Min	2.39	2.74	3.08	2.40	3.50	2.82
	Max	3.02	3.00	3.37	2.82	3.83	3.08
	Mean (x)	2.77	2.85	3.21	2.58	3.64	2.93
	SD ( $\sigma$ )	0.20	0.08	0.09	0.13	0.10	0.08
	SE ( $\sigma/\sqrt{n}$ )	0.06	0.02	0.03	0.04	0.03	0.02
	CoV ( $\sigma/x$ )%	7.32	2.72	2.72	4.98	2.72	2.72
	$X_{\text{calculated}} - X_{\text{measured}}$		0.08	0.44	-0.19	0.87	0.16
	% change		2.99	15.75	-6.89	31.44	5.94

SD= Standard Deviation; SE= Standard Error; CoV= Coefficient of Variation

### Conclusion

Recycled concretes produced with recycled coarse aggregates were cohesive and workable and didn't show segregation when fresh. Replacing the crushed stone coarse aggregate fully with recycled aggregates reduced the unit weight of fresh concretes up to 12%. The use of recycled aggregates as total substitute of crushed stone coarse aggregate resulted in decrease in the mechanical properties tested in this study. The ranking of compressive strength and splitting tensile strength of the concrete series from highest to lowest complied with the decreasing order of aggregate crushing values. Treating the recycled aggregates improved the mechanical properties of concrete investigated in this study with increasing statistical reliability regardless of the change in unit weight. On the other hand, the results for the relation between the splitting tensile strength and compressive strength of the concrete series demonstrated that the models proposed by ACI 363R-92 and EN 1992-1-1 were in good agreement with the relationship obtained from the experimental results for control concrete (CST), while there was an underestimation both for the models of TS 500 and NZS 3101-1 and an overestimation for the model of CSA A23.3-04. For RCA and TRCA concrete series, NZS 3101-1 estimation for the splitting tensile strength was close to actual test results. However, the expressions of ACI 363R-92 and CSA A23.3-04 gave considerable overestimations while relatively lower underestimations obtained by the models of TS 500 and EN 1992-1-1. The expression recommended by TS 500 was in good agreement with the relationship obtained from the experimental results for RBA and TRBA concrete series. However, there was a considerable overestimation for ACI 363R-92 and CSA A23.3-04 prediction models and a relatively lower overestimation for NZS 3101-1, while the expression of EN 1992-1-1 gave an underestimation for the splitting tensile strength.

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## United Kingdom

### 7 ICE members named in WES Top 50 Women in Engineering

Seven ICE members have made it into this year's Top 50 Women in Engineering list, which is compiled by the Women's Engineering Society. The list follows International Women in Engineering Day on 23 June 2019.

The seven ICE members in the Top 50 list represented major engineering firms from AECOM to WSP. The theme of this year's list highlighted current and former apprentices. ICE 's focus in the coming year will be to encourage more females to undertake civil engineering apprenticeships.

"Despite apprenticeships being in the vanguard of the government's upskilling programme, the 1.9% female uptake of apprenticeships across the sector is unacceptable and must be engaged with and resolved quickly," said ICE Director of Membership Seán Harris.

Activities promoting the role of women in engineering took place all over the world for the sixth annual INWED, with ICE members playing their part.

"Women's Engineering Society reports 11% of engineers are female with just under 5% of those female engineers professionally registered," said ICE's Seán Harris.

"ICE has worked hard to improve the level of female engineers joining the profession and institution and currently records 14% of total membership as female. Encouragingly, the percentage of female engineers on ICE training agreements stands at 21.3% which reflects an increasing proportion of female registrants, and is in line with the percentage currently entering UK universities.

"Perhaps the most encouraging statistic is a doubling of female members between: 2008-2018; we must ensure that it doesn't take a further decade to see such growth."

Harris said that the ICE continues to engage in a raft of equality and diversity initiatives, including the Royal Academy of Engineering Progression Framework.

"The Institution collaborates with InterEngineering, WISE, SEMTA and continues to fully commit to International Women in Engineering Day with activities and celebration by our 94,000 ICE members based in 146 countries around the world," he said.

More: <https://www.ice.org.uk/news-and-insight/latest-ice-news/ice-members-named-in-wes-top-50-2019>

### Benefits, not cost, should be key focus of major infrastructure projects

More focus should be placed on the benefits of major infrastructure projects and less on cost, a report by the Institution of Civil Engineers has said.

The report, published today, looks at how the built environment sector can reduce the gap between cost estimates and outcomes for major infrastructure projects.

ICE's investigation into infrastructure forecasting shows, globally, that it's incredibly difficult to forecast time and cost for major projects due to there being many unforeseen issues that can arise during delivery.

Despite these uncertainties, the ultimate measure of success continues to be initial cost forecasts.

The Institution recommended that the success measures for projects should shift from an over-focus on costs towards whole-life benefit. The survey data illustrates support from the general public for such a move.

Miles Ashley, Chair of the report's steering group, said:

"Infrastructure is a vital part of society, with major assets helping to stimulate economic growth, improve health and

well-being of the population and protect communities from the effects of extreme weather and climate change. "We cannot continue to dismiss from the conversation these important benefits. Industry and government need to work smarter, find ways to reduce the disparity between forecasts and outcomes, but also to change the narrative and ensure the wider public, the end users, are also aware of the whole-life benefits these incredible infrastructure projects are bringing to them."

More: <https://www.ice.org.uk/news-and-insight/latest-ice-news/benefits-not-cost-focus-of-projects>

#### Engineering route map launched to deliver UN SDGs

ICE has launched a Sustainability Route Map, outlining a three-year plan for the global engineering community to better engage with the United Nations Sustainable Development Goals (SDGs) and demonstrate the impact of engineering projects.

To tackle each of the route map's three key areas for action, ICE has set up working groups to deliver progress by 2021.

The Measuring, Monitoring and Reporting working group will evaluate current methods and provide a framework that allows engineers to consistently measure and report on the SDG impact of their infrastructure projects or programmes.

The Systems Approach working group will help engineers to adopt a collaborative, outcome-based system for delivering infrastructure, shifting away from self-contained single projects.

The Global Knowledge Sharing working group will bring UK and international professional engineering bodies together to increase SDG knowledge through education and continuing professional development (CPD).

The three areas of focus were established following the work of the Global Engineering Congress (GEC), which ICE hosted in October 2018. GEC brought together thousands of engineers from over 80 countries across the world to determine how to make the delivery of the SDGs a reality.

Davide Stronati, Chair of the ICE Sustainability Leadership Team and member of the GEC Legacy Strategic Steering Group, said: "Engineers are ideally placed to answer the many challenges the world faces, and GEC was a unique opportunity for the worldwide engineering community to turn words into action towards the UN sustainable development goals.

"Based on the wealth of knowledge, innovation and ideas that were shared at GEC, ICE has developed a sustainability route map to transform the way engineers engage with the SDGs.

"Over the next three years, our dedicated working groups will increase SDG knowledge throughout the profession and establish a way for infrastructure projects to align effectively and make a measurable impact against the SDGs."

More: <https://www.ice.org.uk/news-and-insight/latest-ice-news/engineering-route-map-launched>

#### New Exhibition launches at ICE HQ

'Don't Feed the Fatberg' is a challenge issued to the UK public as ICE launches a new exhibition on water engineering on World Water Day (Friday 22 March 2019).

ICE research has found that nearly 40% of UK adults remain unaware of fatbergs - major sewer blockages caused by build-up of non-biodegradable matter, such as wet wipes, and congealed fats - with significant percentages of people flushing fatberg-causing items down the loo or sink.

Following the success of ICE's previous exhibition 'Invisible Superheroes', the new exhibition 'Water: From Source to Tap' continues with the theme of civil engineers as the unsung heroes who transform people's lives.

Real-life engineers, past and present, have been reimagined as their cartoon superhero alter-egos, fighting fatbergs and flooding, and saving lives through the provision of clean water and sanitation.

The main installations include Sir Joseph Bazalgette's Captain Sanitation character built of Lego bricks and a giant Fatberg Monster sculpture.

The exhibits celebrate Bazalgette's 200th birthday this year and his pioneering work in creating the London sewer system, while also highlighting the modern-day challenge of fatbergs.

Martyn Harvie, a principal civil engineer who appears in ICE's exhibition as Drainage Dyno, said:

"By revealing the secrets beneath the sewers, ICE hopes to warn people 'Don't Feed the Fatberg' and raise awareness of all the behind-the-scenes work that civil engineers do to manage our precious water resources.

"The public can play their part by binning rather than flushing items such as wet wipes. Oils and fats should be binned, or recycled where possible, rather than poured down the drain."

## News from ECCE Partners

### American Society of Civil Engineers (ASCE)



#### ASCE updates CE body of knowledge

Becoming an effective civil engineer takes formal education, mentoring and self-development.

That's what ASCE's new third edition of the "Civil Engineering Body of Knowledge" outlines. Exec-

utive Director Tom Smith explains its importance in his latest Working for You post to ASCE News.

Civil engineers are entrusted with protecting the public health, safety and welfare - a tremendous responsibility that requires unique knowledge, skills and attitudes in a continuously changing profession and world. Communities of the future will depend on creative and innovative thinkers to engineer the best solutions.

To aid students, early-career civil engineers, educators and mentors to succeed in their roles, ASCE has published its third edition of the "Civil Engineering Body of Knowledge" (CEBOK). "CEBOK3" is the foundational document that defines the technical and professional learning outcomes necessary to enter civil engineering professional practice. The newly released document, prepared by the Civil Engineering Body of Knowledge 3 Task Committee, describes how formal education, the mentored experience and self-development lead to becoming an effective civil engineer.

Presented at the 2019 Education Summit, the "CEBOK3" can be accessed through the ASCE Library. Practitioners should be on the lookout for a session at the ASCE 2019 Convention in October that will highlight key aspects of

the "CEBOK3," including mentoring and self-development.

The Civil Engineering Body of Knowledge helps guide the Society as we seek to provide members – from students to life members – with the education, training and resources they need to be successful and engineer a better tomorrow.

By [Thomas Smith III](#)

[Download a PDF copy of the new third Body of Knowledge](#)

## Japan Society of Civil Engineers (JSCE)



You can access the latest JSCE International Activities Center Newsletter published on July 1, 2019 at the link here [IAC News No.81, July 2019](#).

## Korean Society of Civil Engineers (KSCE)



You can access the KSCE International Newsletter at the link here [KSCE International Newsletter](#).

## World Federation of Engineering Organizations (WFEO)



You can access the WFEO Flash Info #29 – June 2019 at the link here [WFEO Flash Info #29 – June 2019](#).

## World Council of Civil Engineers (WCCE)



### UPADI - WCCE Partnership Agreement

On the occasion of UPADI's 70<sup>th</sup> Anniversary General Assembly Meeting held in Asunción, Paraguay, WCCE and UPADI have signed a Partnership Agreement that will enforce both organizations' efforts to enhance its member organizations' contributions to the accomplishment of UN's Sustainable Development Goals. The signing ceremony took place in the premises of the Centro Paraguayo de Ingenieros in Asunción on July 25<sup>th</sup>. In order to follow-up



this Partnership Agreement both organizations have granted each other Observer member status in the other organization. UPADI has confirmed its participation to WCCE's 14<sup>th</sup> General Assembly with a delegation to be headed by its current President, María Teresa Pino.

### WCCE, soundly represented in WFE0's new Water Working Group



WFE0's Water Working Group - WGoW will encompass all WFE0's water engineering initiatives and its relations with UN's bodies and agencies, mainly with UN-Water and UNESCO, within the scope of the engineering's contribution to UN's Sustainable Development Goals. Water Working Group's undertaking will comprise the 2019-2021 three year period. During these period, three monographs will be scheduled regarding the following topics:

1. **Managing droughts and floods: Best practices and engineering contribution.** Summer 2019, with delivery anticipated at WEC2019. [Table of Contents](#)
2. **Achieving SDG 6 (Water goals): Contribution from engineering.** Summer 2020
3. **Adaptation to climate change: water and engineering contribution.** Summer 2021

WFE0's Water Working Group was approved by WFE0's Executive Council in the meeting held last October in London on the occasion of ICE's Global Engineering Congress. WFE0's Water Working Group was proposed jointly by Spain's Instituto de la Ingeniería de España and Portugal's Ordem dos Engenheiros. WCCE's Past President Tomás Sancho was appointed chair to this group and Teodoro Estrela, current WCCE's Standing Committee Chair on Water, deputy chair. On such grounds, WCCE cordially encourages you the participation of your organization and your contributions to its activity. Members' participation and contributions to this first report are needed. To contribute, fulfill the following survey below at your earliest convenience sending it by mail to [tsancho@fyseq.com](mailto:tsancho@fyseq.com) with carboncopy to [teodoro.estrela@chj.es](mailto:teodoro.estrela@chj.es) and [eduardo@ingenieria-civil.org](mailto:eduardo@ingenieria-civil.org).

#### Survey

[Managing Floods and Droughts: Best practices and Engineering Contribution - Survey form in English language](#)

## European Council of Engineers Chambers (ECEC)



European Council  
of Engineers Chambers

#### ECEC Manifesto on European Elections 2019

On the occasion of the European Elections 2019 the ECEC has prepared a manifesto focused on three main topics: The ECEC calls on the European Parliament 1) to profess to the necessity of adequate professional regulations for engineers regarding level of qualification, professional conduct, responsibility and CPD, 2) to further enhance fair procurement procedures for engineering services based on quality instead of price competition and 3) to fully support the approach that the use of BIM in public procurement procedures needs to comply

with basic requirements such as guaranteeing an "open BIM" as the most essential criterion to keep the market open for SME.

The backgrounds of these appeals are further explained in several ECEC papers that can be accessed from the Manifesto.

The Manifesto is also a tool for ECEC member organisations to communicate focus ECEC interests to national EP candidates.

[Download Manifesto](#)

## European Civil Engineering Education and Training (EUCEET) Association



### 12th General Assembly of the EUCEET Association

The 12th General Assembly of the EUCEET Association will take place on **Friday, 4th October 2019** kindly hosted by **École des Ponts ParisTech**.

École des Ponts ParisTech main campus is based at Champs-sur-Marne, on the Cité Descartes campus which is the largest higher education and research hub in eastern Paris.

**Access: 30 minutes from Paris centre by train.**

(<http://www.enpc.fr/en/getting-school>)

**Tentative schedule:**

Time	Activity	Venue
<b>Thursday October 3rd, 2019</b>		
15:00 -15:30	Welcome by Marie-Christine BERT (Director of International Relations ENPC)	Carnot building / Perronet room
15:30 – 16:00	Visit of "Construire le courbe" structure (Dr. Cyril DOUTHE - Assoc. Prof. ENPC)	Coriolis building/ hall Freyssinet
16:15- 16:45 (by groups)	Visit of the library historical collection (Guillaume SAQUET - Deputy manager of the library historical collection ENPC)	Carnot building /la Source
<b>Friday October 4th, 2019</b>		
9:30 -12:00	EUCEET General Assembly	Carnot building/ Perronet room

## European Construction Industry Federation (FIEC)



### New FIEC Director General

From 1<sup>st</sup> July 2019, the Director General of FIEC is Mr. Domenico Campogrande successor of Mr. Ulrich Paetzold. Domenico Campogrande has a Degree and Master in Economics and he has been working at FIEC since 1994. His previous experience includes the following positions : Account manager in the IT sector; Responsible for Economic, Legal and Social affairs in FIEC, Director Social Commission until July 2019.

### Construction industry remains on right track

**FIEC reports a 3.5% growth in activity in the overall EU construction industry in 2018 and forecasts a 2.2% growth in 2019.**

"Although the situation continues to vary from one country to the other, the overall picture is currently positive, with activity in new housebuilding even booming in several countries." said FIEC President Kjetil Tønning, presenting construction's annual statistics. "In 2018, overall construction output in the EU amounted to €1,427 billion, which represents 9.0% of EU GDP. This is an encouraging increase of 3.5% compared to 2017." reported Tønning.

- According to FIEC's statistics, developments in the EU show the following results overall: Behind the overall figure for the EU, there are still disparities between Member States, but only a minority of countries experienced a drop in the construction activity. Others, like Italy (+1.5%), Portugal (+3.5%) and Spain (+5.9%) are recovering, but these increases in activity are measured against historically low baselines.
- The main driving forces in 2018 were the new housebuilding (+4.0%) and civil engineering (+4.7%) segments. Recovery in the latter segment is a sign that the investment policy launched under the Juncker Commission is starting to have an impact, although this is certainly not the only driver.
- Renovation and maintenance (R&M) activity remained stable throughout the crisis, thus having an important cushioning effect for the entire construction sector. This trend is now slowing down, as new construction is taking the lead again. But still, in the aftermath of the 2008 economic crisis, R&M represents a bigger share of

the overall construction activity, compared to new housebuilding (i.e. 25.8% against 22.7%).

- The level of employment in the construction industry increased again in 2018 (+1.8%). Altogether, construction provides jobs for 14.8 million people – working in more than 3.3 million companies – which represents 6.4% of Europe's total employment. Against this backdrop, in several countries, the shortage in skilled labour is already seen as an obstacle for the sector's future growth.

Tonning recalled *"We advocate that there cannot be growth without investment. We therefore welcome the positive outcomes of the Investment Plan for Europe in terms of boosting both public and private investment and we support very much the continuation of such investment policy during the next EU's financial programming period (2021-2027) via the InvestEU programme!"*

## EU News

### David Sassoli elected President of the European Parliament



MEPs elected David Sassoli as President of the European Parliament on Wednesday 3<sup>rd</sup> July 2019, having won 345 out of 667 valid votes in the second round.

David Sassoli was born in Florence on 30 May 1956. As an Italian MEP since 2009, he was re-elected on a Partito Democratico list in Central Italy in May 2019 for a third term. He will lead Parliament until January 2022.

In a brief address to the European Parliament in Strasbourg immediately after the vote, President Sassoli thanked the 9th legislature MEPs for their confidence in him. He then said: "In these months, too many people have fuelled divisions and conflicts that we thought were a sad reminder of our history. Instead, the citizens have shown that they still believe in this extraordinary path, the only one capable of providing answers to the global challenges before us".

"We must have the strength to relaunch our integration process, changing our Union so to be able to respond more strongly to the needs of our citizens and give real answers to their concerns, to their increasingly widespread sense of loss."

Mr Sassoli also underlined the priorities that the Parliament will have to pursue in the coming years. "We are immersed in momentous transformations: youth unemployment, migration, climate change, the digital revolution, the new world balance, just to name a few, which need new ideas and courage".

A full version of the President's address is available [here](#).

### Parliament elects Ursula von der Leyen as first female Commission President



**With 383 votes in favour, the European Parliament elected Ursula von der Leyen President of the next European Commission in a secret ballot on 16 July.**

She is set to take office on 1 November 2019 for a five-year term. There were 733 votes cast, one of which was not valid. 383 members voted in favour, 327 against, and 22 abstained.

Parliament currently comprises 747 MEPs as per the official notifications received by member state authorities, so the threshold needed to be elected was 374 votes, i.e. more than 50% of its component members. President Sassoli formally announced the requisite number before the results were revealed in plenary. The vote was held by secret paper ballot.

EP President David Sassoli said:

"On behalf of Parliament, I congratulate you on your election as

President of the European Commission.

Now begins a very important phase for the European institutions; we will have to prepare for the hearings of the Commissioners-designate, which, as you know, will be very thorough on the part of the members of this Parliament.

We expect that the issues you spoke about today in front of the plenary chamber will also be examined in depth and followed up by the members of your college during the hearings in the competent Parliament committees.

The next few years will be very important for the future of the European Union and we can only tackle them successfully if there is close and full cooperation between the institutions."

#### Next steps

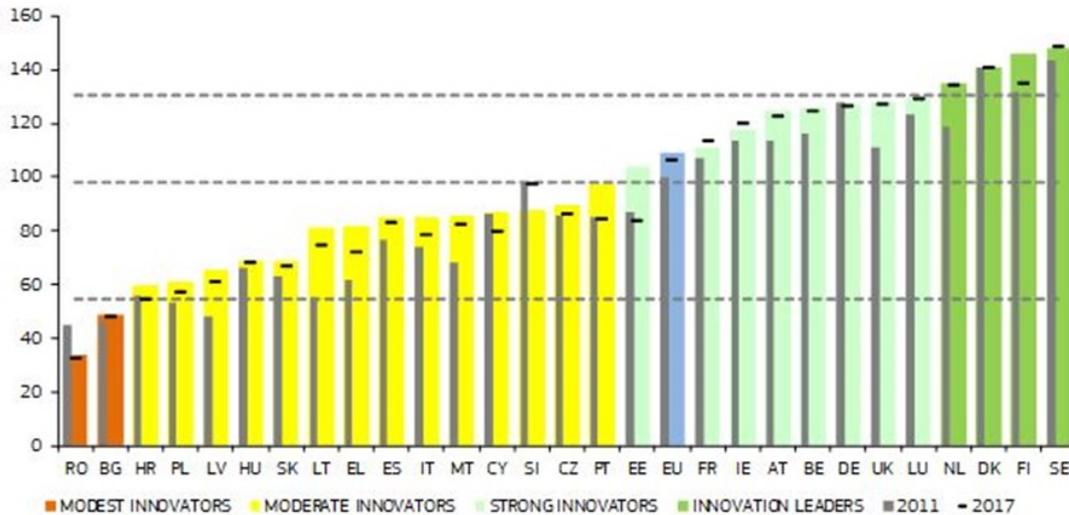
The Commission President-elect will now send official letters to the member states' heads of state or government inviting them to propose their candidates for members of the Commission. Hearings of the nominees in Parliament's competent committees are scheduled to take place from 30 September to 8 October. The full college of Commissioners then needs to be elected by Parliament, most likely in its 21-24 October session. More information [here](#).

## 2019 Innovation Scoreboards: The innovation performance of the EU and its regions is increasing

Brussels, 17 June 2019

Europe needs to deepen its innovation capability to compete on global markets and maintain and improve the European way of life, as called for by the European Council as recently as June 2018 and March 2019. That is why the Juncker Commission has set [a new level of ambition](#) for the EU and its Member States and regions, and [proposed Horizon Europe](#), the most ambitious research and innovation programme ever. This will keep the EU at the forefront of global research and innovation.

The European Commission's 2019 [European Innovation Scoreboard](#) and [Regional Innovation Scoreboard](#) published today show that the EU's innovation performance has been improving for four years in a row. For the first time ever, Europe's innovation outperforms that of the United States. However, the EU continues to lose some ground to Japan and South Korea, and China is catching up fast. The data complements the Commission's recent [country-specific recommendations \(CSRs\)](#) in the framework of the European Semester, which highlight the role of research and innovation and include recommendations to enhance productivity growth and competitiveness.



*European Innovation Scoreboard country ranking. Coloured columns show innovation performance in 2018, horizontal hyphens show performance in 2017, and grey columns show performance in 2011, all relative to the EU average in 2011.*

Elżbieta **Bieńkowska**, Commissioner for Internal Market, Industry, Entrepreneurship and SMEs, said: "The Commission's Innovation Scoreboard is about best practices and measuring success. It helps Member States, regions and the EU as a whole to learn from each other and identify in which areas policy reforms are needed to boost Europe's innovation leadership."

Carlos **Moedas**, Commissioner for Research, Science and Innovation, added: "Innovation equals future jobs and growth. I am happy to see general progress in the EU. Yet, to stay ahead in the global race, both the EU and our Member States need to continue investing and developing the right policies for innovation to flourish."

Commissioner for Regional Policy **Corina Crețu** added: "The EU's Cohesion policy funds are a main driver for innovation and sustainable development. Start-ups and small enterprises help create new business models in the digital or green sector. However, innovation hubs can also grow in countries with less strong economies, and these findings help us support innovation in regional ecosystems, including in less developed regions."

### The 2019 European Innovation Scoreboard: key findings

Based on their scores, EU countries fall into four performance groups: innovation leaders, strong innovators, moderate innovators and modest innovators. **Sweden** is the 2019 EU innovation leader, followed by Finland, Denmark and the Netherlands. The United Kingdom and Luxembourg dropped from the top rank of innovation leader status to the strong innovators group, while Estonia joins the strong innovators group for the first time.

On average, **the innovation performance of the EU has increased by 8.8%** since 2011. Since 2011, the innovation performance increased in 25 EU countries. Performance has increased the most in Lithuania, Greece, Latvia, Malta, the United Kingdom, Estonia, and the Netherlands, and decreased the most in Romania and Slovenia.

**At the global level, the EU has surpassed the United States.** The EU's performance lead over Brazil, India, Russia, and South Africa remains considerable. However, China is catching up three times as fast as the EU's innovation performance is growing. Relative to Japan and South Korea, the EU has been losing ground.

In selected areas of innovation, the best performing EU countries are: **Denmark** – human resources and innovation-friendly environment; **Luxembourg** – attractive research systems; **France** – finance and support; **Germany** – firm investment; **Portugal** – SME innovators; **Austria** – linkages; **Malta** – intellectual assets; **Ireland** – employment impacts and sales impacts.

### The 2019 Regional Innovation Scoreboard: key findings

The 2019 Scoreboard is accompanied by the Regional Innovation Scoreboard. It provides a comparative assessment of performance of innovation systems across 238 regions of 23 EU Member States, while Cyprus, Estonia, Latvia, Luxembourg, and Malta are included at the country level. In addition, the Regional Innovation Scoreboard also covers regions from Norway, Serbia, and Switzerland.

The most innovative regions in the EU are Helsinki-Uusimaa, Finland followed by Stockholm, Sweden and

Hovedstaden, Denmark. For 159 regions, performance has increased in the nine-year observation period. This year's Regional Innovation Scoreboard demonstrates a strong convergence in regional performance with decreasing performance differences between regions.

#### Background

About two-thirds of Europe's economic growth over the last decades has been driven by innovation. Each euro invested by the programme can potentially generate a return of up to €11 of GDP over 25 years. Investments in research and innovations are expected to generate up to 100,000 new jobs in research and innovation activities between 2021 and 2027.

The data of the European Innovation Scoreboard and Regional Innovation Scoreboard help Member States, regions and the EU as a whole to assess areas on which they perform well and the ones on which they need policy reforms to better promote innovation. In addition, in the framework of analysis of the [European Semester](#), the Commission presented recently the [2019 country-specific recommendations \(CSRs\)](#) that give economic policy guidance to all EU Member States for the next 12 to 18 months. [Research and innovation featured prominently](#) in this year's Country Specific Recommendations.

### July infringements package - Commission moves against Member States for not respecting EU Energy rules

In its July package of infringement decisions, the European Commission has this week referred Belgium to the EU Court for [failing to comply with EU rules on electricity and gas markets](#) and [Italy for failure to transpose EU rules on protection against radiation](#). These decisions follow an insufficient response from the Member State authorities to letters of formal notice and reasoned opinions on the same questions.

In separate cases, the Commission has also decided on two **reasoned opinions** to Member States. (This is the second stage in the infringement process.) The Commission has sent reasoned opinions to **Austria, Germany, Slovakia, Spain, Sweden**, and the **United Kingdom** requesting the correct transposition of EU energy efficiency rules ([Energy Efficiency Directive](#), [Directive 2012/27/EU](#)) into national law and its proper implementation. The Member States concerned now have two months to respond to the arguments put forward by the Commission. Otherwise, the Commission may decide to bring the matter before the Court of Justice of the EU.

**In the second case, the Commission has called on ROMANIA to remove barriers to exports of natural gas.** This second reasoned opinion to Romania concerns the failure to eliminate restrictions on trade in natural gas between Member States as required under EU rules for the internal market in natural gas (Articles 35 and 36 of the Treaty on the Functioning of the European Union, [TFEU](#); [Directive 2009/73/EC](#)). Following a previous reasoned opinion, in [July 2014](#), Romania amended its laws. However, after the new rules, the Commission found that an obligation to sell natural gas with priority on the Romanian market is maintained and, consequently, this violates EU law.

These Member States now have two months to respond to the arguments put forward by the Commission, otherwise, the Commission may decide to bring the matter before the Court of Justice of the EU.

The Commission also sent letters of formal notice to eight Member States (Denmark, Estonia, Greece, Hungary, Italy, Malta, Poland, and Slovakia) for failing to fully transpose the requirements on indirect land use change linked to sustainable biofuel production, under the biofuels directive ([Directive \(EU\) 2015/1513](#)), and to Malta on the reporting of energy-efficient buildings under the Energy Performance of Buildings Directive ([Directive 2010/31/EU](#)).

## Open Public Consultations

Through public consultations you can express your views on the scope, priorities and added value of EU action for new initiatives, or evaluations of existing policies and laws.

DRAFT ACT: OPEN

[CO2 emissions from heavy-duty vehicles – reporting requirements for manufacturers](#)

Topic: Climate action

Type of act: Implementing regulation

Feedback period: 25 July 2019 - 22 August 2019

DRAFT ACT: OPEN

[EU emissions trading system – adjusting the auction process for 2021-30](#)

Topic: Climate action

Type of act: Delegated regulation

Feedback period: 09 July 2019 - 06 August 2019

PUBLIC CONSULTATION: OPEN

[Industrial emissions - evaluating the EU rules](#)

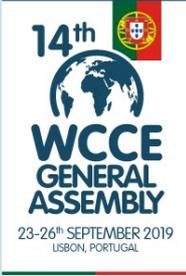
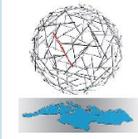
Topic: Environment

Type of act: Staff working document

Consultation period: 27 May 2019 - 04 September 2019

## Upcoming events

Date	Event	Place
01-06.09.2019	<p>17<sup>th</sup> European Conference on Soil Mechanics and Geotechnical Engineering</p>  <p><a href="http://www.ecsmge-2019.com/">http://www.ecsmge-2019.com/</a></p>	Reykjavik, ICELAND
03-05.09.2019	<p>Japan Society of Civil Engineers Annual Meeting</p>  <p><b>JSCE</b> <i>Japan Society of Civil Engineers</i></p> <p>"Challenges of Civil Engineering in Addressing Extreme Threats of Natural Disasters -Towards Resilient Society-" Int'l RTM Theme: Effectiveness of Developing Quality Infrastructure-Issues and Approaches</p> <p><a href="http://www.jsce-int.org/event/annual">http://www.jsce-int.org/event/annual</a></p>	Kagawa University Saiwai-cho Campus, JAPAN
16-20.09.2019	<p>SEFI 2019 Annual Conference</p>  <p>SEFI Annual Conference 16 - 20 September 2019 BUDAPEST   HUNGARY</p> <p>COMPLEXITY IS THE NEW NORMALITY</p> <p><a href="https://www.sefi.be/activities/events/annual-conference/">https://www.sefi.be/activities/events/annual-conference/</a></p>	Budapest, HUNGARY
24-28.09.2019	<p>Lisbon Civil Engineering Summit 2019</p>  <p>2019 <b>LISBON CES</b> CIVIL ENGINEERING SUMMIT 24 - 28 SEPTEMBER 2019, LISBOA, PORTUGAL</p> <p><a href="https://www.lisbonces.org/">https://www.lisbonces.org/</a></p>	Lisbon, PORTUGAL

Date	Event	Place
25.09.2019	70 <sup>th</sup> ECCE General Meeting  <a href="http://www.ecceengineers.eu/news/2019/70_ecce_meeting.php?id=41">http://www.ecceengineers.eu/news/2019/70_ecce_meeting.php?id=41</a>	Lisbon, PORTUGAL
26.09.2019	14 <sup>th</sup> WCCE General Assembly  <a href="https://www.wcce.biz/index.php/13-news/latest-news/349-14thwcce">https://www.wcce.biz/index.php/13-news/latest-news/349-14thwcce</a>	Lisbon, PORTUGAL
27.09.2019	ECEC General Assembly  European Council of Engineers Chambers	Lisbon, PORTUGAL
27.09.2019	EAMC General Assembly  <b>Engineering Association of Mediterranean Countries</b>	Lisbon, PORTUGAL
04.10.2019	12 <sup>th</sup> EUCEET Association General Assembly  <b>EUCEET Association</b> European Civil Engineering Education and Training	Paris, FRANCE
07-11.10.2019	Ecocity World Summit 2019  <b>ECOCITY</b> WORLD SUMMIT 2019 VANCOUVER • CANADA OCTOBER 7 - 11 <a href="http://ecocity2019.com/">http://ecocity2019.com/</a>	Vancouver, CANADA
10-13.10.2019	American Society of Civil Engineers, ASCE Convention 2019  <b>ASCE Convention</b> Miami, Florida   October 10–13, 2019 <i>Engineering &gt; Innovating &gt; Leading</i> <a href="https://www.asceconvention.org/">https://www.asceconvention.org/</a>	Miami, Florida, USA

Date	Event	Place
16-18.10.2019	Korean Society of Civil Engineers 2019 Convention  <b>KOREAN SOCIETY OF CIVIL ENGINEERS</b> <a href="http://eng.ksce.or.kr/activities/act02.asp?idx=26&amp;page=1&amp;sfield=&amp;qtxt=&amp;byy=&amp;gbns=2&amp;ctop=MN0336&amp;htop=MN0323&amp;ptop=MN0323&amp;smm=&amp;btype=&amp;bqbn=R">http://eng.ksce.or.kr/activities/act02.asp?idx=26&amp;page=1&amp;sfield=&amp;qtxt=&amp;byy=&amp;gbns=2&amp;ctop=MN0336&amp;htop=MN0323&amp;ptop=MN0323&amp;smm=&amp;btype=&amp;bqbn=R</a>	Pyeongchang Alpensia, Pyeongchang, Gangwon-do, KOREA
20-23.11.2019	 <p style="text-align: center;"><b>10th AECEF Symposium</b></p> <p style="text-align: center;"><b>"Cooperation between Universities and Industry in the Education and Employment of Civil Engineers: Current Expectations, Future Challenges"</b></p> <p style="text-align: center;">Wroclaw University of Science and Technology</p> <p style="text-align: center;">Poland, 20-23 November 2019</p> <a href="http://aecef2019.pwr.edu.pl/">http://aecef2019.pwr.edu.pl/</a>	Wroclaw, POLAND
09-11.06.2020	WBSE Conference "BEYOND 2020"  <a href="https://beyond2020.se/">https://beyond2020.se/</a>	Gothenburg, SWEDEN



**The European Council of Civil Engineers wishes you  
happy and relaxed summer holidays!**



**European Council  
of  
Civil Engineers**

### **European Council of Civil Engineers**

Secretariat:

P.O. Box 136 41, NTUA Patission  
Street Complex, (28th October) &  
Stournari Street, 10682 Athens, Greece

Tel.: +30 210 9238170

Fax: +30 210 9235959

E-mail: [ecce\\_sps@otenet.gr](mailto:ecce_sps@otenet.gr)

Web: [www.ecceengineers.eu](http://www.ecceengineers.eu)

**“Civil Engineers at the Heart of Society  
Building Life Quality and a Sustainable  
Environment”**

The European Council of Civil Engineers (ECCE) was created in 1985 out of the common concern of the professional bodies for Civil Engineers in Europe that the Civil Engineers working together across Europe could offer much more to assist Europe advance its built Environment and protect the natural environment.

At the European Union level, ECCE aims to promote the highest technical and ethical standards, to provide a source of impartial advice, and promote co-operation with other pan-European organizations in the construction industry. ECCE also advises and influences individual governments and professional institutions, formulates standards and achieves a mutual compatibility of different regulations controlling the profession, and formulates standards for a European Code of Conduct of the Civil Engineering Profession and disciplinary procedures applicable throughout the Union.