



European Council of Civil Engineers

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Dipl.-Ing. Andreas Brandner becomes the President of ECCE



Dipl.-Ing. Andreas Brandner
ECCE President 2021-2024

Dipl.-Ing. Andreas Brandner is the New President of the European Council of Civil Engineers. He took over Presidency of ECCE on 23rd October 2021, during the 73rd ECCE General Meeting, that was held in a virtual environment. Andreas Brandner will serve a three year term for the Period 2021 – 2024. Andreas Brandner had been appointed ECCE Vice President/ President Elect on 23rd October 2018, during the 68th ECCE General Meeting, that was held in London, UK.

PERSONAL PROFILE

Andreas Brandner is a Civil Engineer. He graduated, in 1980, from the University of Innsbruck – Faculty of Civil Engineering and Architecture and was awarded as Dipl.-Ing. (MSc). He has also completed studies on mediation – Mediator for building, international affairs and environmental problems. He speaks German, English, French and Italian.

In the beginning of his career he worked for Ing. Mayreder Kraus und Co, a former big Austrian contractor as leading engineer in design department, and as site engineer on several projects like hydroelectric power plants, waste water disposal, hospitals, etc. From 1986 until now he is the founder and owner of IB-Brandner, Chartered Engineering Consultant for Civil Engineering.

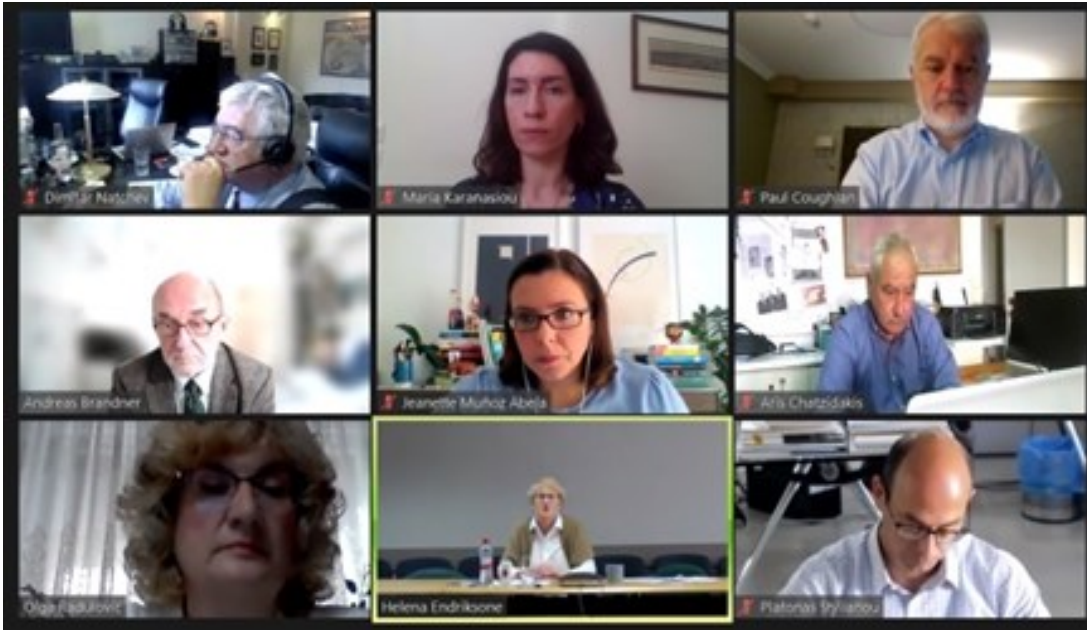
His work focuses mainly on the following:

- Providing consulting engineering services on geotechnics and working on geotechnical and structural engineering projects in the Alpine region.
- Protection of infrastructure against natural hazards – slope slide, rockfall, mass movement, avalanches – national and international projects (India, Middle East, Eastern Europe, Australia)
- Geotechnical projects - Pit linings, special foundations
- Structural engineering – bridges, concrete structures, steel structures, wood structures
- Rehabilitation projects in infrastructure – roads, bridges, retaining walls etc.

He has been actively involved in many engineering bodies both national and international. From 1993 he is member of the Federal Section of Chartered Engineering Consultants in the Austrian Federal Chamber of Architects and Chartered Engineering Consultants and from 2008 he is the Chairman of the Federal Expert Group of Civil Engineering Consultants in the Austrian Federal Chamber of Architects and Chartered Engineering Consultants. From 2018 until 2021 he was the Vice President/ President Elect of the European Council of Civil Engineers (ECCE). He is also member of the following bodies: Chamber of Architects and Civil Engineers of Austria – Section Tyrol, OITAF – International Ropeway Association, ISM – International Society of Micropiles, ON- Austrian Standards Institute – ON-AG 018, ON-K 212, ON-K 026, CEN – European Committee for Standardization – TC 395 Engineering Services, TC242 Ropeways WG 2, WG 7, WG 14, WG 16, FSV – Austrian Association for Research on Road – Rail – Transport, International Society of Soil Mechanics and Geotechnical Engineer ISSMGE – Austrian branch, DFI – Deep Foundation Institute USA and Honorary Consul of the Republic of Cote d' Ivoire.

Additionally, he has participated in a number of International Conferences and is the author of Scientific Papers.

New Executive Board of the European Council of Civil Engineers elected at the 73rd ECCE General Meeting



ECCE Executive Board 2021-2024

From top left: Dimitar Natchev (Member), Maria Karanasiou (Gen. Sec.), Paul Coughlan (Member), Andreas Brandner (President), Jeanette Muñoz Abela (Member), Aris Chatzidakis (Immediate Past President), Olga Radulovic (Member), Helena Endriksone (Vice President/Treasurer), Platonas Stylianou (Vice President/President Elect)

The General Assembly of the European Council of Civil Engineers (ECCE) has elected a new Executive Board at the ECCE Executive Board Elections that took place on 23rd October 2021 at the 73rd ECCE General Meeting that was held in a virtual environment.

The new ECCE Executive Board 2021-2024 will thereafter be composed of the following persons:

Name	Position	Country
Andreas Brandner	President	Austria
Aris Chatzidakis	Immediate Past President	Greece
Platonas Stylianou	Vice President / President Elect	Cyprus
Helena Endriksone	Vice President / Treasurer	Latvia
Paul Coughlan	Executive Board Member	U.K.
Jeanette Muñoz Abela	Executive Board Member	Malta
Olga Radulovic	Executive Board Member	Montenegro
Dimitar Natchev	Executive Board Member	Bulgaria

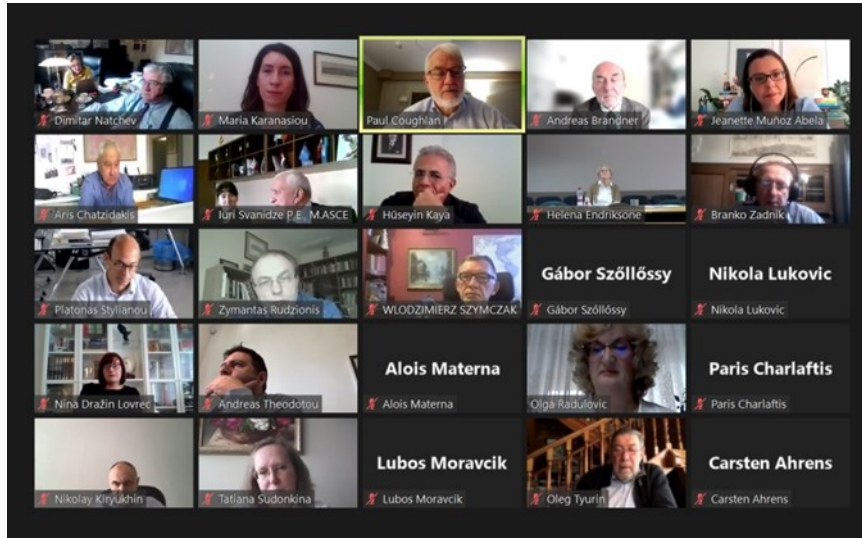
The European Council of Civil Engineers would like to congratulate the new ECCE Executive Board and to wish them a fruitful mandate with great results for the civil engineering profession.



73rd ECCE General Meeting

The 73rd ECCE General Meeting was held on Friday 22nd and Saturday 23rd October 2021, in a virtual environment via Zoom.

The 73rd ECCE General Meeting gathered 40 delegates from the ECCE Full and Associate Members as well as invited guests from its partner organizations.



73rd ECCE General Meeting materials:

- [73 ECCE GAM Agenda](#)
- [73 ECCE GA Agenda presentation](#)
- [ECCE Brief Activity Report June-October 2021](#)
- [ECCE Strategic Plan Survey results presentation](#)
- [New European Bauhaus presentation](#)
- [Construction News presentation](#)

1st Meeting of the new High Level Construction Forum (HLCF)



The first High Level Construction Forum (HLCF) meeting took place to initiate the co-creation process of a transition pathway towards a green, digital and resilient construction ecosystem.

The 1st meeting of the High Level Construction Forum was held virtually on 28th September 2021. About 220 representatives from industry, Member States, European Commission, social partners and other stakeholders joined to exchange on the main priorities and themes of the HLCF. **ECCE participated in the 1st HLCF represented by Andreas Brandner, ECCE Vice President/President Elect at that time.**

Overall, the invitation by the European Commission to join this co-creation process was embraced by stakeholders, highlighting the HLCF as a valuable platform to collaborate on a wide range of topics of relevance to the sector and for identifying the pathway for a green, digital and resilient transition.

Why: Making the green, digital and resilient transitions actionable

- The European Commission has underlined the importance of carrying out a twin transition – i.e., a green **and digital transition** – to bring Europe into the future. This is reflected in two of its main priorities: the European Green Deal¹ and Europe fit for the digital age. With the COVID-19 pandemic and the NextGenerationEU recovery plan, resilience was added as a third key strategic target.
- The updated EU Industrial Strategy confirmed the need to further accelerate the **green and digital transitions and increase the resilience of EU industrial ecosystems**.
- The design and implementation of transition pathways will set out the scale of actions to accompany the industry’s transition towards 2030 and 2050. **Construction was identified by the Commission as one of the priority ecosystems for the transition.**

HLCF’s mission

The proposed mission of the HLCF is to provide **a forum for the construction ecosystem to co-create and implement a roadmap for the transition pathway towards a green, digital and resilient construction ecosystem that contributes to the wider EU goals.**

What: A roadmap towards a green, digital and resilient construction ecosystem

The HLCF is invited to adopt a **mission-oriented approach and develop a roadmap towards a green, digital and resilient construction ecosystem**. The roadmap is expected to provide concrete actions and targets for 2030 and 2050, and identify potential opportunities and barriers. The targets could include:

- reducing the whole life cycle carbon of buildings and infrastructure by at least 60%, supporting EU 2050 climate neutrality objectives and the Renovation Wave;
- accelerating the digitalisation of data across the ecosystem, supporting improved productivity and sustainability performance of the built environment, as well as the emergence of novel services.
- strengthening the resilience of the ecosystem, including its innovation capacity, productivity, overall skills base and the health and wellbeing of those working in it.

The roadmap should **build synergies with other EU policy initiatives** that contribute to a transition for the construction ecosystem. It is expected to **indicate the enabling frameworks at European and Member State level** that would support the transformation of the ecosystem and, where needed, propose new, broadened or deepened frameworks.

The roadmap will contain an action plan that **identifies and develops the main short- to long-term actions that the construction ecosystem might take to accelerate the transition.**

How: A bottom-up approach to foster co-creation

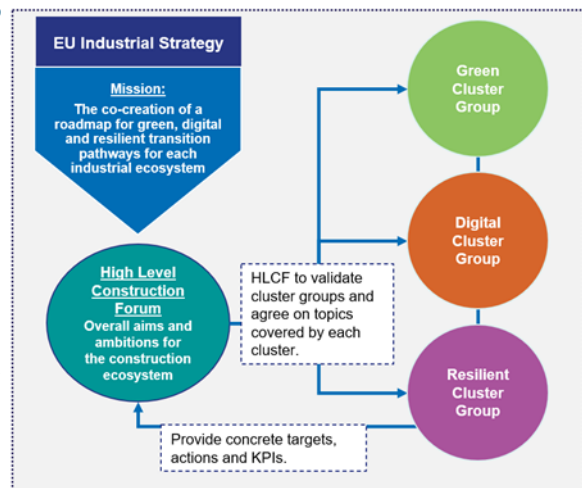
The **construction ecosystem is invited to participate in the HLCF**. The HLCF will convene in plenaries and thematic cluster meetings to define a roadmap for the transition pathway, commit to actions and oversee their implementation. The roadmap should be **co-created in partnership with all actors in the construction ecosystem**.

Steps to be followed:

1. **Define visions, aims, and ambitions** in line with the overall EU targets for 2030/2050.
2. **Identify gaps**, taking stock of progress made and ongoing initiatives; identify opportunities and challenges as well as synergies.
3. **Identify and select the instruments available and needed** to achieve the aims and ambitions (‘intervention options’); and
4. **Create an action plan** – how can we use the intervention options to achieve our ambitions?

New structure for the HLCF

- **Digital Cluster Group:** To enable a digital and innovative construction ecosystem.
- **Green Cluster Group:** To enable a source and energy efficient, decarbonised construction ecosystem.
- **Resilient Cluster Group:** To enable a resilient construction ecosystem (e.g. developing skills, better regulation of the internal market and ensuring international competitiveness).



The 1st meetings of the Cluster Groups of the High Level Construction Forum were held online on the following dates:

- Digital Cluster Group on 19 October 2021 - [1st meeting of the HLCF Digital Cluster Group report](#)
- Resilience Cluster Group on 20 October 2021 - [1st meeting of the HLCF Resilience Cluster Group report](#)
- Green Cluster Group on 22 October 2021 - [1st meeting of the HLCF Green Cluster Group report](#)

26th UN Climate Change Conference of the Parties (COP26)



**UN CLIMATE
CHANGE
CONFERENCE
UK 2021**

IN PARTNERSHIP WITH ITALY

The UK hosted the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow on 31 October – 13 November 2021 to bring together world leaders to commit to urgent global climate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change.

COP26 Goals: What do we need to achieve at COP26?

1. Secure global net zero by mid-century and keep 1.5 degrees within reach

Countries are being asked to come forward with ambitious 2030 emissions reductions targets that align with reaching net zero by the middle of the century.

To deliver on these stretching targets, countries will need to:

- accelerate the phase-out of coal
- curtail deforestation
- speed up the switch to electric vehicles
- encourage investment in renewables.

2. Adapt to protect communities and natural habitats

The climate is already changing and it will continue to change even as we reduce emissions, with devastating effects.

At COP26 we need to work together to enable and encourage countries affected by climate change to:

- protect and restore ecosystems
- build defences, warning systems and resilient infrastructure and agriculture to avoid loss of homes, livelihoods and even lives

3. Mobilise finance

To deliver on our first two goals, developed countries must make good on their promise to mobilise at least \$100bn in climate finance per year by 2020.

International financial institutions must play their part and we need work towards unleashing the trillions in private and public sector finance required to secure global net zero.

4. Work together to deliver

We can only rise to the challenges of the climate crisis by working together.

At COP26 we must:

- finalize the Paris Rulebook (the detailed rules that make the Paris Agreement operational)
- accelerate action to tackle the climate crisis through collaboration between governments, businesses and civil society.

[READ COP26 EXPLAINED](#)



COP26 has concluded on 13th November 2021 in Glasgow with nearly 200 countries agreeing the Glasgow Climate Pact to keep 1.5C alive and finalize the outstanding elements of the Paris Agreement.

Climate negotiators ended two weeks of intense talks on Saturday with consensus on urgently accelerating climate action.

The Glasgow Climate Pact, combined with increased ambition and action from countries, means that 1.5C remains in sight, but it will only be delivered with concerted and immediate global efforts.

The Glasgow Climate Pact will speed up the pace of climate action. All countries agreed to revisit and strengthen their current emissions targets to 2030, known as Nationally Determined Contributions (NDCs), in 2022. This will be combined with a yearly political roundtable to consider a global progress report and a Leaders summit in 2023.

The Paris Rulebook, the guidelines for how the Paris Agreement is delivered, was also completed after six years of discussions. This will allow for the full delivery of the landmark accord, after agreement on a transparency process which will hold countries to account as they deliver on their targets. This includes Article 6, which establishes a robust framework for countries to exchange carbon credits through the UNFCCC.

And for the first time, heeding calls from civil society and countries most vulnerable to climate impacts, the COP agreed action on phasing down fossil fuels.

COP decisions went further than ever before in recognizing and addressing loss and damage from the existing impacts of climate change.

There were also commitments to significantly increase financial support through the Adaptation Fund as developed countries were urged to double their support to developing countries by 2025.

The final COP26 text follows two years of intense diplomacy and campaigning undertaken by the UK Presidency to raise ambition and secure action from almost 200 countries.

Work focused on driving short term reduction of emissions to limit temperature rises to 1.5C, mobilizing both public and private finance, and supporting communities to adapt to climate impacts.

When the UK took on the COP26 mantle, in partnership with Italy, nearly two years ago, only 30% of the world was covered by net zero targets. This figure is now at around 90%. Over the same period, 154 Parties have submitted new national targets, representing 80% of global emissions.

The UK Presidency has also been focused on driving action to deliver emissions reductions. We have seen a huge shift in coal, with many more countries committing to phase out unabated coal power and ending international coal financing.

Alongside this, we have seen a marked commitment to protect precious natural habitats, with 90% of the world's forests covered by a pledge from 130 countries to end deforestation by 2030.

While on the world's roads, the transition to zero emissions vehicles is gathering pace, with some of the largest car manufacturers working together to make all new car sales zero emission by 2040 and by 2035 in leading markets. Countries and cities are following suit with ambitious petrol and diesel car phaseout dates.

Current policies would leave us on a path to a devastating temperature rise. But work done by independent experts Climate Action Tracker shows that with the full implementation of the fresh collective commitments could hold temperature rise to 1.8C.

Even with the action committed both during and before COP26, communities around the world will continue to feel the impact of our changing planet.

Reflecting on the task ahead, COP26 President Alok Sharma said:

"We can now say with credibility that we have kept 1.5 degrees alive. But, its pulse is weak and it will only survive if we keep our promises and translate commitments into rapid action. I am grateful to the UNFCCC for working with us to deliver a successful COP26.

From here, we must now move forward together and deliver on the expectations set out in the Glasgow Climate Pact, and close the vast gap which remains. Because as Prime Minister Mia Mottley told us at the start of this conference, for Barbados and other small island states, 'two degrees is a death sentence'.

It is up to all of us to sustain our lodestar of keeping 1.5 degrees within reach and to continue our efforts to get finance flowing and boost adaptation. After the collective dedication which has delivered the Glasgow Climate Pact, our work here cannot be wasted."

[READ COP26 NEGOTIATIONS EXPLAINED](#)

[READ THE COP26 GLASGOW CLIMATE PACT](#)

Further information on COP26 can be found on the [COP26 website](#).



ICE's Engineering Rebellion, an 18-month project to define the civil engineer of the future



Four significant ICE programmes are converging this autumn to provide real clues as to the look and feel of a civil engineer operating in a future where people and the planet take precedence.

As global leaders descend on Glasgow to discuss how to meaningfully tackle climate change, ICE is taking the opportunity to begin sharing the findings of [Engineering Rebellion](#), an 18-month project to define the civil engineer of the future.

It is a directly relevant opportunity as the climate emergency was one of seven disrupters that emerged as certain to radically transform what society needs from its civil engineers as the project group explored the question, "how should ICE embrace the future civil engineer?"

ICE President's Future Leader (2019/20) Hayley Jackson used the platform of the COP26 Built Environment Pavilion to outline Engineering Rebellion's findings at a debate focused on empowering young people to become the climate-aware built environment professionals of the future.

This debate comes ahead of a formal launch in December to ICE Council and a VIP audience at One Great George Street, where Jackson and others in the project team will explain the thinking that leads them to ultimately conclude that the institution could benefit from focusing as much on the infrastructure team as the individual.

This conclusion builds from the key messages that the biggest challenges the future civil engineer will face are inherently multidisciplinary, that collaborative delivery is not a fad but a necessity, that technological change will only accelerate, and that what people want from infrastructure will continue to become more complex. And these messages are echoed in other ICE programmes converging this autumn.

Creative

Last month, a [debate during the South East Asia leg of the Brunel International Lecture](#) series centred on the need for engineering to become more of a creative profession, and not just a "commodity".

Ali Minhas, ICE country representative for Vietnam and technical director for maritime at RHDHV, spoke of how Vietnam had risen very quickly from one of the poorest countries in the region to a middle-income country, but how this rapid development has come at a cost, and how the impact of infrastructure projects could be seen already in increased flooding, pollution, and traffic.

"How often do we think beyond the application of code and the need to secure the project?" he reflected in explaining why it is for this reason that today's engineering is largely considered as a commodity, and not a creative profession.

His views were echoed by Gandhi Suppiah, chair of ICE Malaysia and head of transportation for SE Asia at TSA Management, who said that the perception that engineering was not creative was putting students off studying the subject.

Kind

Meanwhile, this year's [ICE Awards](#), also held last month, for the first time specifically shone a spotlight on collaborative behaviours through the new Bev Waugh Award, introduced to recognise a leader or individual who quietly broadened the perspective of the team, leads with kindness, values the views of others, and constructively questions the status quo to create a people-centred, 'best for project' culture.

Winner Shaahid Ismail, senior project engineer for Connect Plus Service, was hailed as embodying the spirit of this award and exemplifies how, as someone just 10 years into their career, is bringing new skills to the fore.

Systems-thinking

And the significance of technological change and the complexity of what society wants from infrastructure as a system was not lost at [recent round table debate convened by the Data & Digital Community Advisory Board](#).

There, the debate centred on how the growth in "democratised data" was providing new ways to drive the behaviours of infrastructure users, but also was raising new ethical questions around how data is used.

Rikesh Shah, head of commercial innovation at Transport for London and co-chair of the advisory board, described how the transport operator was able to dynamically control demand during Covid, based on the information it was providing to apps such as Google Maps and Citymapper. This allowed it to relieve pressure by directing customers around before they even got to stations.

It is unquestionably a valuable tool, but also brings a whole new ethical dilemma for infrastructure professionals. It also raises the obvious question that was forefront in the mind throughout Engineering Rebellion: what if the future civil engineer isn't about building at all?

Read the [Engineering Rebellion](#) report.

Author: [Mark Hansford](#), ICE Director of Engineering Knowledge

New European Bauhaus news



New European Bauhaus
beautiful | sustainable | together



New European Bauhaus: kick-starting the transformation

In September, the Commission adopted an official communication on the New European Bauhaus, taking inspiration from six months of conversation with thousands of individuals and organisations across Europe and beyond.

The [Communication](#) sets out the concept of the initiative, as well as several policy actions and funding possibilities to drive it forward.

It also puts down in black and white three key, connected transformations that will guide activities in the months and years ahead:

- transformation of **places on the ground**
- transformation of **the environment that enables innovation**
- transformation of **our perspectives and way of thinking**

But what do these transformations actually mean? Where do the ideas come from? And what is the Commission doing to help make them happen?

This month we spoke to three more members of the [New European Bauhaus high-level roundtable](#): a group of 18 experts, including designers, innovators, activists, and academics who were involved in the co-design of the initiative. Their insights give some context to these transformations and what's needed to make them happen.

Places on the ground

For **Pia Maier Schriever**, an architect and set designer based in Berlin, the New European Bauhaus “brings together a new shared vision and concrete proposals for action to actively shape our common future, in the sense of combining climate protection with culture, art, and architecture”.

Transforming places on the ground means taking inspiration from that shared vision to transform the built environment, and how people live and interact in that environment.

Icelandic-Danish artist **Olafur Eliasson** notes that success will require “a strong focus on community learning, on empathy, and on social engagement as key drivers for collaboration across various fields of expertise. We need to trust these modes of working together, instead of letting short-term decisions, aimed at winning the next election, get the upper hand”.

Thiëmo Heilbron, a Dutch ecologist who specializes in inclusive sustainability and sustainable entrepreneurship education for children, says, “Time is short. We need to tackle multiple problems at the same time. We cannot save climate and nature, whilst forgetting people, and we cannot save people, whilst forgetting to save climate and nature”.



Olafur
Eliasson



Pia Maier
Schriever



Thiëmo
Heilbron

As a starting point, the European Commission is [mobilizing funds](#) to support several pilot projects. This includes a call for proposals to deploy ‘lighthouse demonstrators’ for the New European Bauhaus initiative in the context of the [Horizon Europe missions](#), with the aim of finding innovative solutions and acting as a testbed for future activities.

The **lighthouse demonstrators** will combine the key principles of the New European Bauhaus (sustainability, inclusion, and aesthetics) with a mission-oriented approach (impactful, measurable, targeted). The supported projects will engage with communities and employ architecture, design, and culture to achieve transformational impact.

More: [Support for the transformation of places on the ground](#)

Building an innovation-enabling environment

Success in the New European Bauhaus is also about integrating sustainability, inclusion, and aesthetics in **new solutions and products**. Having an environment that enables that innovation will be key. To do so will also require us to question our perspectives and mind-set.

Thiëmo highlights that “across Europe, there are inspiring, highly motivated and very adequate people who want to make the change necessary for a happy and fair world for all”.

Olafur adds that “we need to enlist the visions of a broad spectrum of creative workers to address the climate crisis and the change of values that is needed for states, corporations, institutions, and individuals to engage in visible and adequate climate action”.

According to Pia, “in order to really turn visions for a sustainable future into reality, a joint interdisciplinary exchange and truly active cooperation of the most diverse disciplines and fields is essential. The next step for this visionary transformation, in my opinion, is the formation of interdisciplinary expert committees that develop concrete recommendations for action on individual topics and fields”.

Recognizing the need to build on the momentum of the first months of the New European Bauhaus initiative, and continue the exchange across disciplines, the Commission is establishing a **New European Bauhaus Lab**. The

Lab will be a space for innovation, to co-create, prototype, and test tools, solutions, and policy actions to facilitate transformation on the ground. If you are interested in joining the Lab, consider applying to [become a partner](#) of the initiative.

On a mission to foster the New European Bauhaus transformation, the **European Institute of Innovation and Technology** is [looking for the most innovative companies](#) driving sustainable and inclusive change for cities, industries, climate, food, wellbeing, and overall quality of life to support their business growth and help them become international game-changers.

The European Commission's Joint Research Centre, in collaboration with the European Laboratory for Structural Assessment (ELSA) Reaction Wall and the Nanobiotechnology Laboratory, is seeking **cross-border proposals** for projects that will experiment, prototype, and demonstrate ideas for the New European Bauhaus. The conjoint initiative aims to foster creativity and innovation in the built environment by establishing a collaborative bridge between academics and research organisations, industry, and SMEs. If you have a project that revolves around smart and sustainable materials, green renovation and inclusive design, you might want to [check-out this opportunity](#).

More: [Support for transforming the enabling environment for innovation](#)

And how should we go about changing our perspectives?

For Olafur, cultural workers and educators can offer knowledge and practices, “to address the climate emergency, to develop narratives and frameworks that can touch people and help inspire us to move toward climate neutral living”.

For Thiëmo, “accessible and inclusive education for all”, is key. “By combining self-development with sustainability and an entrepreneurial mindset, and starting as young as possible, sustainable and inclusive behaviour can become the norm”.

Pia highlights why building a new vision is so important: “Europe needs a common vision, a common ground that makes us feel our great common cultural heritage and our common values more strongly again and also unites us for the future to work together as a common European Union and live together as Europeans in a sustainable world”.

Building the common vision is also about recognizing and taking inspiration from the good examples we already have in Europe.

The Commission is setting up a New European Bauhaus **Knowledge Sharing Platform** under [LIFE](#) (the EU's funding instrument for the environment and climate action) for sharing good and inspiring examples. A hybrid conference [Beautiful, sustainable, together: LIFE in the New European Bauhaus](#) was held on 15-17 November. The event aimed to showcase inspiring projects of behavioural change, urban transformation, and innovative nature-based solutions.

The first **New European Bauhaus Prizes** also celebrate existing achievements and support the younger generation to further develop emerging concepts and ideas. The 2021 edition received more than 2,000 applications from all EU Member States. A [virtual exhibition](#) presents the winning entries and [all the applications received](#) can be explored online as well. Stay tuned for the second edition of the Prizes that will be launched in early 2022.

When it comes to **education**, the Commission is launching several dedicated calls in 2022, including an eTwinning call funded by the Erasmus+ Programme, on the theme of ‘Our future beautiful, sustainable, together: Schools and the New European Bauhaus’.

More: [Support for the diffusion of new meanings](#)



Save the date: Information on available funding

Are you looking for funding to support your beautiful, sustainable, and inclusive project? The next New European Bauhaus info session will give the opportunity to prospective applicants to learn more about the available EU funding possibilities. Don't miss it!

Join the virtual event on **27 January from 14:00 to 16:00** for a quick overview of the available calls, practical info on the application process, and a round of questions and answers. You will find the agenda and practical details [here](#). Event details will also be shared on our [Instagram](#) account.



More than 3000 people followed the presentations of the previous calls! If you missed them, recordings and slides are available for you:

- [29 November 2021 session](#)
- [1 December 2021 session](#)

4th European Engineers Day POSTPONED!



The European Council of Civil Engineers (**ECCE**), the European Council of Engineers Chambers (**ECEC**), and the Federation of European Engineering Associations (**FEANI**) have been carrying out the so called "European Engineers Day" every 3 years.

Unfortunately, we are sorry to inform you that due to the COVID-19 crisis the 4th European Engineers Day that was scheduled for 18 November 2021, in Brussels had to be **postponed** once more.

The new dates for the event will be announced on the website in due time.

More information will be released soon on the [ECCE website](#).

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.

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.

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

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!

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 eally active**,
You are welcome to participate in the discussion forums or to propose position papers to be submitted to Brussels.



- 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):

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 **anual 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 printing and posting the new card.**

Join us now!
Become an ECCE Member (EUCivEng)

Scientific Papers

Post-earthquake Seismic Damage Assessment

Reinforced Concrete Structures

Alper İlki¹, Mustafa Cömert², Cem Demir¹, Ömer Faruk Halıcı³

¹ Istanbul Technical University, Faculty of Civil Engineering, Istanbul

² Istanbul Kültür University, RISE Engineering, Istanbul

³ MEF University, Department of Civil Engineering, Istanbul

Introduction

Many countries in the world have been adversely affected by devastating earthquakes in the recent past; for example, El Centro (1940), Mudurnu (1967), Mexico City (1985), Kobe (1995), Kocaeli (1999), Tohoku (2011), Puebla (2017) and Aegean Sea (2020). These earthquakes caused different levels of damages to the structures and resulted in many casualties and economic losses. Site investigations after such events have shown that the number of buildings requiring post-earthquake damage assessment may be very large. On the other hand, the insufficient number of qualified inspectors makes the execution of damage assessment a great challenge to accomplish on the way of returning back to everyday life. After severe earthquakes, there is a need for a comprehensive and reliable damage assessment method for the rapid re-use of evacuated but not actually critical structures to accommodate survivors, and for realistic identification of damaged structures that may collapse during aftershocks. In this way, unnecessary demolition and reconstruction of structures that are not in a risky situation will be prevented, and it will be possible to contribute to reducing the burden on individuals and the countries' economy after disasters. Considering the number of buildings that need post-earthquake damage assessment, it is also an important requirement that the methodology be implemented quickly.

In the developed damage assessment system, there are 3 different damage assessment methodologies, which are performed in two stages, external and internal inspection (Figure 1). While the external assessment phase is the same in all methods, the internal assessment phase differs according to the damage assessment method procedure that can be selected according to the geometric characteristics of the structures and the magnitude of the disaster. The detailed assessment method can be applied to all building systems, regardless of floor area and building height. The rapid assessment method can be employed for the damage assessment of structures whose Plan Area (PA) is less than 600 m² and the number of stories above the ground level or rigid basement is less than or equal to 10. These geometric boundaries cover the most of the building stock in our country. In cases that are more urgent, damage assessment of buildings that meet the rapid examination application limits can be completed by using the method for crisis situations. Within the scope of this article, after explaining the building damage classes and element damage limits that are common to all methods for reinforced concrete buildings, the Rapid Damage Assessment Method will be explained in detail.

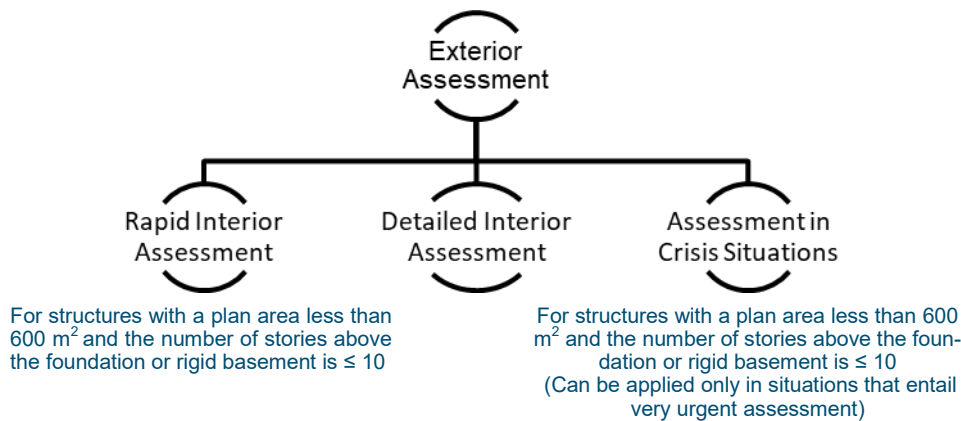


Figure 1. Developed damage assessment system

BUILDING DAMAGE CLASSES

The new damage assessment method assigns one of six damage classes (Figure 2) to the earthquake-damaged buildings. These damage class definitions are also used by the Ministry of Environment, Urbanization and Climate Change (ÇŞB) and Disaster and Emergency Management Presidency (AFAD).

Undamaged building: This damage category corresponds to a condition where there is no earthquake damage in vertical (i.e. columns and shear walls) or horizontal (i.e. beams) loadbearing structural members. However, it needs to be emphasized that, the structure might contain some damages formed before the earthquake action typically due to time and environmental effects (e.g. corrosion, shrinkage, freeze-thaw cracks) or other mechanical effects except earthquake (e.g. excessive vertical load, soil settlement). The building maintains its pre-earthquake performance and capacity.

Slightly damaged building : The vertical and horizontal load-bearing elements of the building's load-bearing system are mostly damaged at a very limited level, which do not require repair or may require simple repairs. Non-load-bearing elements such as infill walls can be damaged and are usually easily repaired. The structure maintains its pre-earthquake capacity and performance to a great extent.

Moderately damaged building : Due to the damage to the structural system of the building, its capacity and performance have decreased in a way that cannot be neglected compared to its pre-earthquake condition. In addition to the damage to the structural system elements, widespread non-load-bearing element damages can also be observed. However, it is technically and economically possible to repair and strengthen the building with a detailed engineering study.

Heavily damaged building : There are structural and non-load-bearing element damages, which can reach advanced levels and are mostly common. The carrier system has significantly lost its horizontal load carrying capacity. Repairing and retrofitting the building is far from economical due to the widespread and extensive interventions that will need to be undertaken. The option to demolish and remake comes to the fore.

Building to be demolished urgently : It is a building in which severe earthquake damage has occurred in the load-bearing elements, collapse in one or more floors, and visible vertical and horizontal displacements in the floors. It poses a danger to life and property safety. Demolition should be done first.

Collapsed building : The structural system has lost its integrity and the building has been completely demolished. The horizontal and vertical load carrying capacity of the carrier system has completely disappeared.

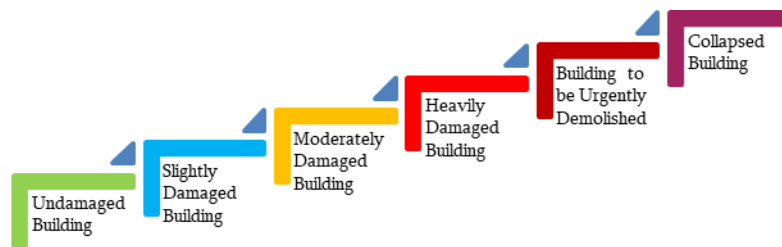


Figure 2. Building damage classes

DAMAGE CLASSES FOR REINFORCED CONCRETE ELEMENTS

Classification of horizontal and vertical structural system elements in reinforced concrete buildings will be made in accordance with the rules and limits specified in this section, depending on the damage levels observed in the elements. Five element damage categories have been defined to be used in the damage assessment method.

O Type Damage Category: Vertical and horizontal structural elements *that do not* have any damage caused by earthquake effects, regardless of damages such as corrosion and shrinkage cracks, are defined as *Type O Damaged Elements*.

Type A Damaged Category: Vertical and horizontal structural elements with at least one crack, which are formed as a result of earthquake effects and whose width is not larger than 0.5 mm, are defined as *Type A Damaged Element*. This classification is made regardless of whether the cracks considered are due to bending or shearing (Figure 3a).

Type B Damaged Category: Vertical and horizontal structural elements with at least one crack between 0.5 mm and 3 mm in width, which are formed as a result of earthquake effects, or in which crushing is observed in the cover concrete are defined as *Type B Damaged Elements* (Figure 3b).

Type C Damaged Category: Vertical and horizontal structural elements with at least one crack with a width greater than 3 mm, which are formed as a result of earthquake effects, or in which cover spalling is observed, are defined as *Type C Damaged Elements*. The structural elements showing buckling of reinforcement that do not significantly deviate from its alignment are also considered in this damage category (Fig. 3c).

D Type Damaged Category: Vertical and horizontal load-bearing elements that have significant longitudinal reinforcement buckling, crushing of core concrete, and stirrup rupture as well as significant residual deformations as a result of earthquake effects are defined as *Type D Damaged Elements* (Figure 3d).

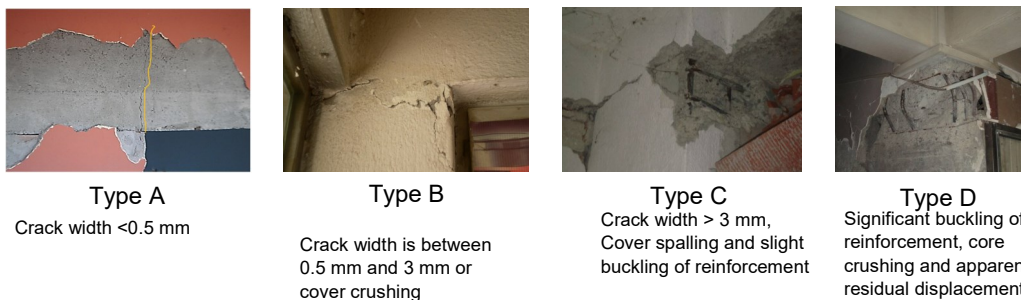


Figure 3. Member damage limits

RAPID DAMAGE ASSESSMENT METHODOLOGY

Exterior Assessment

In this step, observations and measurements are made regarding the general condition of the building for which damage assessment is carried out. The external assessment is completed by applying the procedures in (a), (b) and (c) below for the structure.

(a) Inspection regarding the general condition of the building: If the building has completely collapsed, the damage class of the building will be determined as Collapsed Building. If the building has a partial collapse (Figure 4a) or collapses in one or more floors, the damage class of the building will be determined as Building to be Urgently Demolished and the damage assessment process will be terminated.

(b) Investigation regarding residual displacement between floors: If the residual horizontal displacement measured at any floor in the building is greater than 0.01 of the floor height, the damage class of the building is determined as Heavy Damage and the damage assessment is terminated. If the residual displacement measured at any floor is greater than 0.03 of the floor height, the building is classified as a Building to be Urgently Demolished and the damage assessment is terminated. Figure 4b shows a building that has undergone major residual displacement.

(c) Inspection of different settlements in the foundation: If the structure has a rigid rotation greater than 2° due to different settlements in the foundation, the damage class of the structure is determined as Heavy Damage and the damage assessment is terminated. If the rotation due to different settlements is greater than 4°, the building damage class is determined as Building to be Urgently Demolished. Figure 4c shows a building that leans significantly as a result of rigid rotations in the foundation.



Figure 4. Damaged structures: (a) partial collapse; (b) large residual displacement; (c) rigid rotation

If the damage class of the building is not determined as Collapsed Building, Heavily Damaged or Building to be Urgently Demolished, and there are no obvious structural or non-structural damages that would make it dangerous to enter the building, the damage assessment is continued with the Interior Assessment.

Interior Assessment

In this step, the Building Damage Class is determined as Undamaged, Slightly Damaged, Moderately Damaged, Heavily Damaged or Building to be Urgently Demolished by classifying the horizontal and vertical load-bearing elements in the building, taking into account the element damage classes. If there is at least one vertical load-bearing element with "Type D" damage class, the damage class for the building will be determined as Heavily Damaged. However, buildings will be classified as Building to be Urgently Demolished depending on the number of damaged elements of "Type D". If there is no "Type D" damaged vertical load-bearing element in the building, the building damage class will be determined by examining the most damaged floor of the building.

The Rapid Damage Assessment can be used for damage assessment of buildings with a plan area of less than 600 m² and the number of floors above rigid basement or foundation is less than or equal to 10. In this method, the building damage class is determined by numerically determining the vertical and horizontal structural elements, taking into account the element damage classes. The number limits for vertical and horizontal load-bearing elements with a certain damage class will be calculated based on the plan area (PA) of the building under investigation. If the number of "Type D" damaged vertical elements on the most damaged floor of the building is greater than PA/40, the building will be classified as "Building to be Urgently Demolished".

In Table 1, the damage range corresponding to the damage in the structural system elements will be determined for both vertical and horizontal elements, and the Building Damage Class will be determined by intersecting these ranges. In Table 1, the terms A, B, C and D indicate the number of damaged load-bearing elements of type A, B, C and D damage class. The rapid damage detection algorithm for reinforced concrete structures is shown schematically in Figure 5.

Table 1. Limits of rapid damage detection method

Determination of Building Damage Category		Vertical Structural Members			
		B < PA/100 and C+D=0	B ≥ PA/100 or 1 ≤ C < PA/200 and D=0	PA/200 ≤ C < PA/75 and D=0	C ≥ PA/75 or D ≥ 1
Horizontal Structural Members	C+D = 0	SLIGHTLY DAMAGED	MODERATELY DAMAGED	MODERATELY DAMAGED	HEAVILY DAMAGED
	1 ≤ C+D < PA/50	MODERATELY DAMAGED	MODERATELY DAMAGED	HEAVILY DAMAGED	HEAVILY DAMAGED
	PA/50 ≤ C+D < PA/20	MODERATELY DAMAGED	HEAVILY DAMAGED	HEAVILY DAMAGED	HEAVILY DAMAGED
	C+D ≥ PA/20	HEAVILY DAMAGED	HEAVILY DAMAGED	HEAVILY DAMAGED	HEAVILY DAMAGED

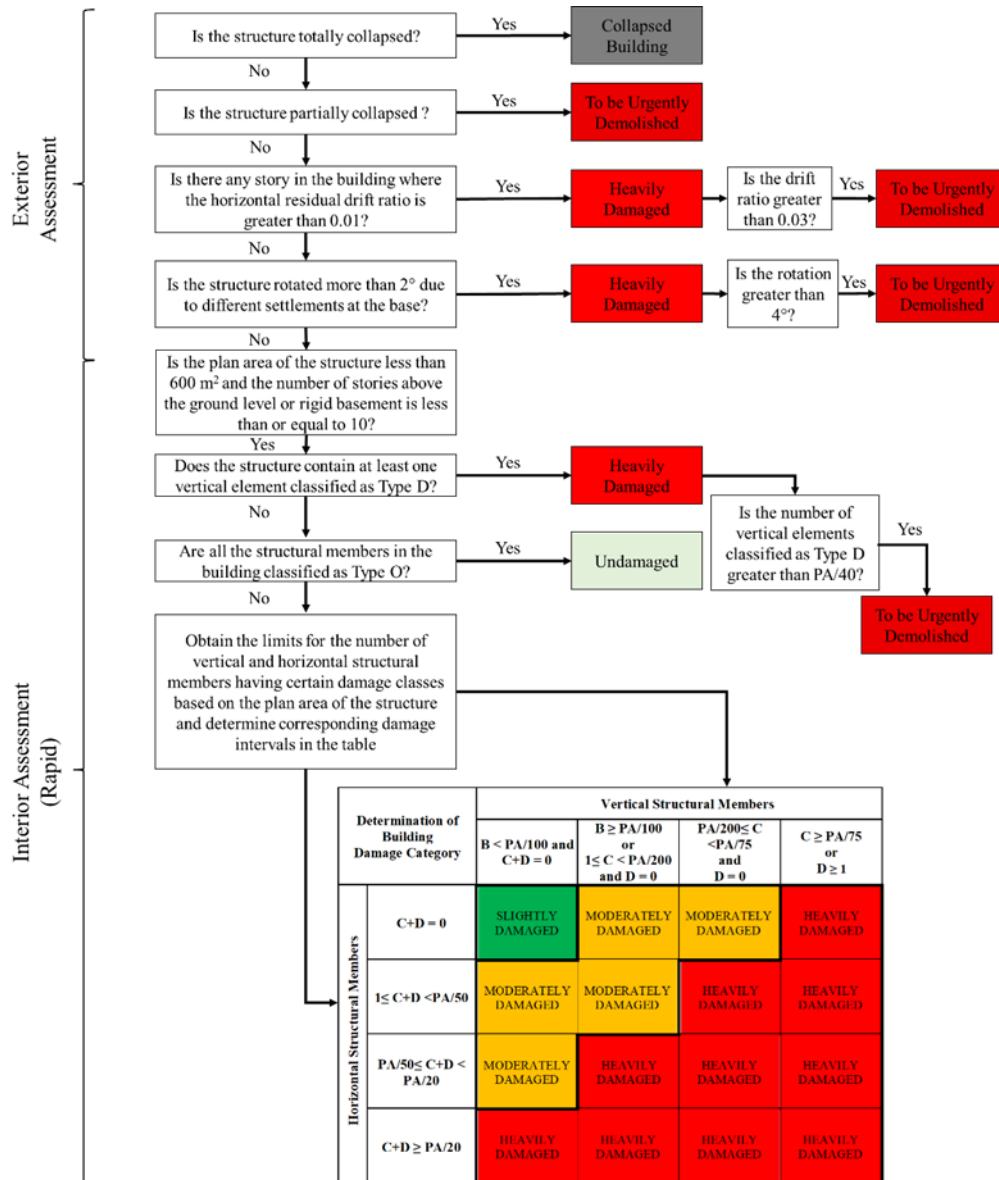


Figure 5. Rapid damage detection algorithm for reinforced concrete structures

CONCLUSION

In order to develop the presented method, contemporary experimental findings in the literature and many advanced structural modeling and analysis results were used. The “Slightly Damaged” limit for buildings was determined by taking into account the decrease in the earthquake performance of the earthquake-damaged buildings, and the “Heavily Damaged” limit was obtained by comparing the total intervention costs required for the earthquake damaged buildings to be put back into service with the costs required for the reconstruction of the buildings. Thus, a damage detection method has been introduced that takes into account the economic feasibility as well as mechanical criteria. The most important innovation in the developed method is the rapid damage detection algorithm, which can be applied in a large part of our building stock. In this method, the damaged structural elements will be determined in number regardless of their cross-sectional area, and the damage limits for the building will be obtained based on the building plan area. The fact that only the structural elements damaged by the earthquake will be examined in the rapid method makes a great contribution to the practical application of the method. In this way, it will be possible to examine more buildings more quickly without measuring the vertical load-bearing element dimensions in cases where time is very precious after the disaster. Another innovation in the version of the presented damage assessment algorithm is that the damages that may occur in the horizontal bearing elements of the structures are also included in the damage detection algorithm. In the new method, the building damage level in reinforced concrete structures is determined by taking into account the interaction of damage to be detected in vertical and horizontal load-bearing elements. Since the basic principles in the developed method are similar to the previous version of the method, previous trainings and field experiences have not lost their meaning, and the said knowledge and experience will be used more effectively, faster and with less errors in the presented method. As a result, it is expected that the new damage assessment algorithm, which has a scientific infrastructure, developed based on analytical and experimental studies and field observations, will both accelerate damage assessment studies significantly and allow more objective and standard damage assessments.

Acknowledgements

This text is a brief summary of the report prepared as a result of the “Development of Post-earthquake Damage

Determination Method and Preparation of Training Modules Project” conducted for the Catastrophe Insurance Pool (DASK). The findings reached at the end of the project are included in the book titled “Advances in Assessment and Modeling of Earthquake Loss” edited by Sinan Akkar, Alper İlki, Çağlar Göksu and Mustafa Erdik and published by Springer Publishing in 2020, “The Modified Post-earthquake Damage Assessment Methodology”. for TCIP (TCIP-DAM-2020)” section. Thanks to TCIP, which allowed us to take part in such a project, and the project consultants (in alphabetical order by surname) who made valuable contributions during the execution of the project with their suggestions. Erdem Canbay (Middle East Technical University), Prof. Dr. Bilge Doran (Yıldız Technical University) and Prof. Dr. Kutay Orakçal (Bogazici University).

News from ECCE Members



Bulgaria



European Council
of
Civil Engineers



REPUBLIC OF BULGARIA
Minister of Regional Development and Public Works



European Council
of Engineers Chambers



Building Engineering Forum

20-21 October 2021, Sofia, Bulgaria

International Conference on Earthquake Engineering

Building Engineering Forum

International Conference on Earthquake Engineering
20 – 21 October 2021, Sofia, Bulgaria

under the auspices
of Ministry of Regional Development and Public Works of Bulgaria

The motto:
Turning seismic hazard awareness into risk mitigation.
Seismic risk reduction through integrated design

Building Engineering Forum BEF2021, organized by the [Union of Civil Engineers in Bulgaria](#) and the [Chamber of Engineers in the Investment design, region Sofia \(KIIP, regional branch Sofia-city\)](#) was successfully held as virtual event in Sofia, Bulgaria on October 20-21. [European Council of Civil Engineers \(ECCE\)](#) and [European Council of Engineers Chambers \(ECEC\)](#) were partners of the Conference. [Joint Research Centre \(JRC\)](#) of the European Commission, [Municipality of Sofia](#) and [University of Architecture, Civil Engineering and Geodesy \(UACEG\)](#) – National Center for Seismic Engineering (NCSE) were also partners of the Conference.



The earthquake danger and the higher seismic activity on the Balkans predetermines the need of exchange of experience, knowledge, ideas, results of research and practical experience, related to the seismic construction and seismic risk reduction.

The responsibility of civil engineers to reduce seismic risk is enormous. There is a need to make joint efforts, with the support of the state and with political will, to be able to reduce the seismic risk, the damage from earthquakes and to ensure the funds needed for reconstruction work. Reducing seismic risk requires the exchange of knowledge, ideas, practical experience.

The earthquake danger and recent seismic activity, the responsibility of civil engineers to reduce seismic risk, the evolution of Eurocode 8, the retrofit of buildings aiming at improved energy and seismic performance, pre-earthquake vulnerability assessment, the anti-seismic design in strengthening and reconstruction of cultural heritage buildings, all these topics were at the Focus of the Conference.

INTERNATIONAL ADVISORY BOARD



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CONFERENCE PANELS

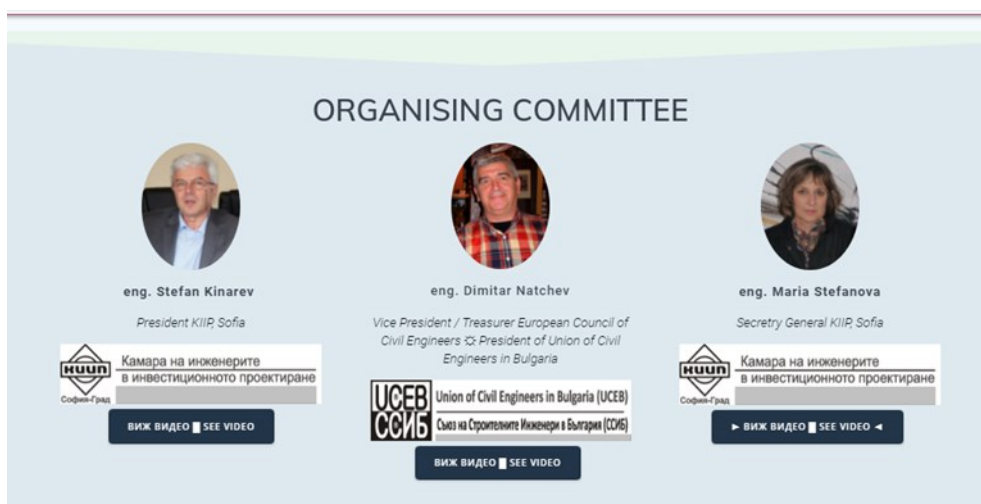
Panel 1: *Seismic risk reduction through proper design with Eurocode 8. Expected regulatory changes.* Chairman: Assoc. Prof. Dr. Eng. Tzvetan Georgiev, UASEG

Panel 2: *Integrated techniques for the seismic strengthening and energy efficiency of existing buildings.* Chairman: Aris Chatzidakis, ECCE President

Panel 3: *Anti-seismic design in strengthening, reconstruction and renovation of buildings declared as cultural built heritage / immovable cultural values.* Chairman: Prof. Dr. Marina Traykova, UASEG

PANEL DISCUSSION

During the Forum was held a Panel Discussion with Bulgarian participants. Topic: *Legislative frameworks for application of integrated techniques in reconstruction and renovation of the building stock and of the buildings declared as cultural built heritage / immovable cultural values*
Moderator: CEng. Dimitar NATCHEV, ECCE Vice President



ORGANISING COMMITTEE

The organizers and participants in the forum work on a voluntary basis or are in employment relations with institutions. No registration fee is due for participation in the forum.

Thanks to the efforts and enthusiasm of all participants, the Forum BEF 2021, International Conference on Earthquake Engineering was held with great success.

At the opening of the online Forum with the Welcome greeting message by Violeta Komitova, Minister of Regional Development and Public Works of the Republic of Bulgaria, she said: "I congratulate the organizers of this forum - the Union of Civil Engineers in Bulgaria, and the Chamber of Engineers in Investment Design, district Sofia-City, and their partners the European Council of Civil Engineers (ECCE) and the European Council of Chambers of Engineers (ECEC). I am extremely glad that this forum is organized in Bulgaria, and I am convinced that it will become clear that in terms of seismic safety, Bulgaria is part of the European earthquake engineering society since long time ago thanks to the efforts, knowledges and skills of all of you".



The Conference promoted international cooperation among engineers and other professionals in the broad field of earthquake engineering. It was an opportunity to be shared knowledge, ideas, results of research and practical experience.

Lecturers from Greece, JRC, Croatia, Turkey, Portugal, Nord Macedonia and of course from Bulgaria presented very informative, comprehensive and valuable presentations on the topics of the three Conference Panels. / visit the Forum WEB-site <http://www.bef2021.uceb.eu> to see the CV of the Lecturers and the Presentations (PPT and video records).

The conference was held with great interest, with over 500 registered participants – more than 30 % of participants were engineers from European countries, thanks to the kind cooperation of ECCE Members Organisations in announcing and inviting the civil engineers of their Chambers, to take part in the Conference. Most of the participants expressed their satisfaction with the excellent presentations.

Finally, we are very sorry, that due to the COVID restrictions the Forum was held not in live, as a side ECCE GAM event.

We wish health and success in your activities in favor of Civil Engineers.

Visit:

www.bef2021.uceb.eu

<https://www.uceb.eu>



Virtual Forum in Sofia on November 3-4, 2021



Virtual Forum for Real Estate, Investment, Construction and Innovation was held in Bulgaria, Sofia on November 3-4. Over 33,000 visitors listened and attended the forum online with over 150 speakers - the leaders of the industry in Bulgaria. The Forum was held with the strategic partnership of the Chamber of Builders, National Real Estate Association, the Union of Architects, Union of Civil Engineers in Bulgaria, National Association of Construction Contractors and many others.

Over 150 experts participated, as speakers. Among the speakers were the most prominent investors, architects, builders, financiers and analysts, designers, innovators, scientists, public figures and representatives of the executive and municipal authorities in Bulgaria. The Forum became a virtual meeting of the participants in the construction business in Bulgaria.

An online **Virtual working meeting of the UCEB partners** was held within the Forum, which was attended by over 2300+ participants.

Topic: The digitalization of the construction sector - new services and regulations.

Moderator: Dimitar Natchev, UCEB President, ECCE Vice-President

Participants in the Virtual working meeting of the UCEB partners:
 Eng. Dimitar Nachev, Chairman of the Union of Civil Engineers in Bulgaria;

Eng. Stefan Kinarev, Chairman of the Chamber of Engineers in Investment Design, Sofia-City Regional;
 Eng. Petar Kopralev, Vice President of the Bulgarian Chamber of Commerce, San Francisco, California;
 Eng. Maria Stefanova, Secretary of the Chamber of Engineers in Investment Design, Sofia-City Regional;
 Eng. Blagovest Kirilov, Member of the XLVI National Assembly, Chairman of the Management Board of the Bulgarian Association of Software and External Services Sectors;
 Assoc. Prof. Dr. Arch. Boyan Georgiev, UACEG - Faculty of Architecture, Department of Architecture Technology, Center for International Affairs and Mobility;
 Eng. Nikolay Stankov, Chairman of the Management Board of the Chamber of Builders in Bulgaria, term 2016-2018;

14:40
 УСЕВ
 ССИБ

Работна среща на партньорска организация Съюз на строителните Инженери в България (ССИБ):
 Дигитализация на строителния сектор



3-4 НОЕМВРИ 2021
 FORUMREAL

СРЯДА, 3 ноември 2021, 14.40 часа



Работна среща - Съюз на строителните инженери в България

During the meeting, the participants focused on the following topics:

- What are the necessary elements for successful digitalization of the construction sector?
- The digital transformation of the EU economy – top priority;
- The benefits of digitalization of the construction sector;
- Digital databases;
- Policies to implement standards in support of digitalisation of the sector;
- Unified information system for spatial planning, investment design and construction permits;
- Strategy for digital transformation of the construction sector - Ministry of Regional Development and Public Works;
- Radical proposals for changes in the legislation in the investment process, which would facilitate the digitization;
- Is it necessary to increase the qualification and retraining of the workforce in connection with the digitalization of the sector?

See a video record in Bulgarian

<https://www.forum-real.com/fr2021-ssib.php>



During the second day November 4 of the Forum Real in the hall "Business and Innovations" a panel discussion on Digitalization took place: **The impact of building energy efficiency on property prices?**

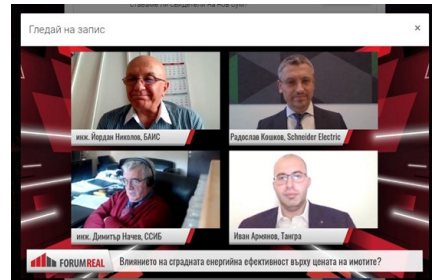
Despite the fact that the panel took place at the end of the day - 15.00, the interest in this topic was very high and more than 2560 people took part in it virtually.

Dimitar Natchev, UCEB President took part in this panel discussion.

At the beginning of the meeting, some of the points in the Long-Term National Strategy to support the renovation of the national building stock of residential and non-residential buildings until 2050 were discussed. One of the goals of the strategy is 45% of the building stock to be renovated until 2050. Of these 45% to have 60% renovation of residential buildings and 17% of non-residential.

One of the problems of the program is that there is no commitment to financial resources. It relies mainly on public resources, which are extremely insufficient. The lack of information about the real state of the building stock is also a major problem.

Emphasis was also placed on operating costs or what will happen after the commissioning of the building. This is



part of the program, which is not precisely and clearly affected, and needs to be optimized. At this stage, the effectiveness of energy efficiency measures is determined by research, which leads to subjectivity. Currently, there is no system for objective assessment of the real savings that an energy renovation of the building will provide.

During the discussion the issue of the main activities for achieving EE and living comfort was considered. First of all, there are energy saving measures, which are on the one hand measures for the construction of the building and measures for building installations. These measures must go hand in hand and one must not exclude the other. There are measures for the utilization of energy from renewable sources and passive measures for the location of the building, the percentage of glazing and more. It is important when we talk about the EE of a building to look at it in a global and complex way. Every one element is important. From architecture, insulation and facades to interior systems.

New technologies and digital solutions in the field of EE were also discussed:

- *New materials and systems for thermal insulation and air tightness.*
- *New technologies for building installations for heating and domestic hot water.*
- *Solar technologies as an additional source of energy.*
- *Green roofs.*
- *Existence of a unified information system on spatial planning, information design and construction permits.*
- *Establishment of digital building diaries, which will provide information about energy consumption in real time.*

The meeting ended with the conclusion that more awareness of investors and consumers about the renovation is needed. It is impossible without the expansion of sources of funding - private capital. There must be sustainability of energy supplies to ensure relatively cheap and affordable electricity. In terms of heating, we must look for local sources and be close and in harmony with nature. It is necessary to have connectivity of the components and all information systems from which we can gather information about the state of the building stock. If policy change does not begin now, our goals will not be achieved.

See a video record in Bulgarian

<https://www.forum-real.com/fr2021-energiina-efektivnost.php>



Cyprus

Cyprus Association of Civil Engineers (CYACE)

The reasons why the Cyprus Association of Civil Engineers was established

A brief historical reference to the formation of our Association, and to the reasons for its establishment, were provided alongside the invitation to the first General Assembly of the Cyprus Association of Civil Engineers (CYACE) held on 11 December 1993.

The Founding Assembly of the CYACE was held on 12 December 1992, with official registration of the 48 founding member Association taking place on 23 September 1993. The CYACE's establishment was deemed necessary due to the continuous downgrading and marginalisation of the profession in both the private and the public sector.

The establishment of the Technical Chamber of Cyprus (ETEK) gave rise to the foundation of an independent organisation, which would exclusively represent Civil Engineers.

Main Objectives

The Association's main objectives are:

- To inform the public about the role of a Civil Engineer through press conferences, press releases and participation in public debates on industry-related matters.
- To protect all acquired rights covered by Legislation.
- To set up a working team of Civil Engineers, from all branches of the industry, who will identify and analyse problems faced by fellow Engineers with a view to resolving them through the Cyprus Technical Chamber or other responsible body.
- To train fellow Engineers by means of organised seminars, educational trips etc.
- To be represented in or to participate in any committees, relating to the Civil Engineering profession.

- To develop a database, outlining qualifications, speciality and experience of Civil Engineers, purely for professional purposes.
- To organise social events in order for engineers to meet other engineers and to improve relationships within the profession.
- To obtain Civil Engineering studies for government projects directly from Cypriot engineers.
- To offer guidance and assistance to newly-qualified Civil Engineers, enabling them to settle more easily into the profession.
- To support employees of Civil Engineering firms where the role of a Civil Engineer is disgraced or degraded by the employer or others in the firm.

The aims and objectives of the CYACE are set out in more detail in the Association's Articles of Association.

Cyprus Association of Civil Engineers (CYACE), one of the parties that constitute the Cyprus Council of Civil Engineers (CCCE), following the Cyprus Republic's guidelines for reducing the spread of Covid-19 virus, has continued to provide seminars and educational programmes online using the Zoom platform.

Educational and Research Centre of CYACE - Seminar

The Educational and Research Centre of CYACE, organized with great success and full participation the following seminar, which were authorized by Human Resource Development Authority of Cyprus.

Assessment of Existing Condition and Upgrading of Structures by Masonry Buildings

Title: Assessment of Existing Condition and Upgrading of Structures by Masonry Buildings

Dates: 7th and 8th of July 2021

Location: Cyprus Scientific and Technical Chamber (ETEK)

Trainer: Dr. Constantinos Spyarakos

The aim of the Educational Program was to provide the participants with the necessary knowledge for the elaboration of studies concerning the assessment of the existing situation and the selection of the appropriate intervention methods for the repair and possible reinforcement of the structures. This took place in accordance with the principles of engineering, the current Eurocode 8, the regulation under development for assessment and structural interventions in masonry, as well as the plan for the new revised Eurocode 8.

Through examples of practice, both traditional practices and modern-new methodologies were established, while emphasis was placed on the treatment of constructions that are characterized as monuments.



Picture 1: Seminar day



Picture 2: Seminar Day – lecture

Announcements

CYACE'S 29th Elective General Assembly, 29th of January 2022

The 29th Elective General Assembly of the Cyprus Association of Civil Engineers (CYACE) will be held on the 29th of January 2022, in Lemon Park Venue, in Cyprus.

Events

Presentation for the Results of EarthMasonry

On Thursday, 29th of July 2021, the teleconference for the presentation of the results of the research project "EarthMasonry", with the theme "Development of an environmentally friendly earth-building system" was held with great success. The research project "EarthMasonry" aimed to further improve Compressed Earth Blocks (CEBs) and to develop an environmentally friendly earth masonry system that will be composed of CEBs, which will be fabricated using locally sourced materials. Project Partners were Gigantas Antaios Touvlopiio Ltd, Between the Lines Ltd and the University of Cyprus.

The teleconference was held under the auspices of the Cyprus Association of Civil Engineers. The President of CYACE, Andreas Theodotou addressed a short greeting to the participants, emphasizing that in the context of its social contribution, CYACE supported and will continue to support scientific research, which promotes innovation and the use of raw materials of local origin.



Picture 3: EarthMasonry Presentation



Picture 4: EarthMasonry Presentation

Intervention of CYACE’s President on a TV Channel

On the occasion of the strong Earthquake in Crete, the President of the Cyprus Association of Civil Engineers, Andreas Theodotou stated in the show Alpha Information that old buildings in Cyprus are over sixty years old, while several of them have been built "hastily" and with cheap materials after the Turkish invasion and without supervision.



Picture 5: Intervention of CYACE's President on a TV Channel

"We do not have the mentality to maintain communal buildings here in Cyprus and possibly some private residences. And that is why we recommend the establishment of the regular building inspection certificate. That is, every few years an engineer does an inspection of the building.", Mr. Theodotou said.

Mr. Theodotou stated that a relevant proposal has already been submitted to Parliament and states that first a visual inspection will be carried out by the competent engineer with a simple tour of the building, detection of cracks or oxidized reinforcement.

Cyprus Construction Awards by BOUSSIAS

On Tuesday, 26th of October 2021, Cyprus Construction Awards took place at Lemon Park, in Nicosia. The event was held under the auspices of the Cyprus Association of Civil Engineers. The President of CYACE, Andreas Theodotou, as member of the Voting Panel, addressed a short greeting to the audience for the importance of the establishment of such institutions in the construction industry, as they promote the noble rivalry and advance the efforts that stood out through the competition.



Picture 6: President of CYACE



Picture 7: President of CYACE awards Nomination

Conference «Engineering interventions: The role and work of Civil Engineers in the Restoration of Traditional Buildings and Monuments», 8-9 October 2021

On 8th and 9th of October, the Cyprus Association of Civil Engineers and the Cyprus Scientific and Technical Chamber co-organized the Conference titled «Engineering interventions: The role and work of Civil Engineers in the Restoration of Traditional Buildings and Monuments».

The aim of the Conference objectives was the holistic approach of the role of civil engineers in the restoration of traditional buildings and monuments: from the stage of selection of intervention materials to the assessment of their hazards and seismic behavior, with the aim of effective restoration and protection. Emphasis was placed on the presentation of specific examples that highlight the technical problems and dilemmas by the engineer in the category of projects.

- The President of CYACE, Andreas Theodotou addressed a short greeting to the participants, emphasizing the

importance of the holistic approach of the role of civil engineers in the restoration of traditional buildings and monuments.

- ECCE Ex-President, Aris Chatzidakis was invited to participate in the Conference as one of the keynote speakers. At the opening of the conference, he delivered a presentation on «The role of structural engineers in the restoration of traditional buildings and monuments», as well as a presentation on «Stone Bridged – some Interesting Monuments of Crete», during on of the session of the Conference.
- ECCE Vice President, Platonas Stylianou also delivered a presentation on «Pathology, Vulnerability and Adequacy Assessment of Monuments and Traditional Buildings».

Following up the Conference, on Sunday, 10th of October, a technical visiting took place at the old town of Famagusta (Othello Castle, Church of Saint Nicola, Church of Saint Anna etc), where the participants had the opportunity to be informed and receive value information regarding the monuments from Mrs. Anna Marangou, Archaeologist and Art Historian.



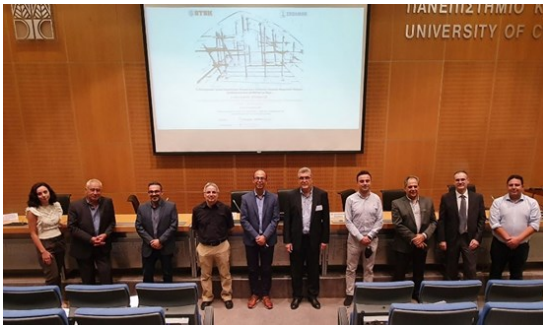
Picture 8: President of CYACE, Andreas Theodotou



Picture 9: ECCE Ex-President, Aris Chatzidakis



Picture 10: ECCE Vice President, Platonas Stylianou



Picture 11: Speakers of the Conference



Picture 12: Technical visiting tour

IDEAL HOUSE 2021

On the 22nd-24th of October 2021, the IDEAL HOUSE 2021 took place in Nicosia. The IDEAL HOUSE 2021 was the only specialized exhibition in the field of construction industry, equipment and decoration. The exhibition brought together industries and companies in the industry, presenting innovative and new technologies related to housing, offering options and solutions for products and services in building materials, furniture, decoration, air conditioning, energy saving, electrical equipment and the purchase of a new home. The IDEAL HOUSE aimed to further consolidate its reputation as a very successful exhibition in its industry and to attract as many exhibitors as possible and at the same time visitors. The event was held under the auspices of the Cyprus Association of Civil Engineers. The visitors had the opportunity to meet our Organization and discuss topics related with buildings, materials and renovations.



Picture 13: CYACE's kiosk to the IDEAL HOUSE 2021

Building Engineering Forum – International Conference on Earthquake Engineering, 20-21 October 2021, Sofia, Bulgaria, Hybrid Conference

The event was organized by the Union of Civil Engineers in Bulgaria and the Chamber of Engineers in the Investment design, region Sofia (KIIP, regional branch Sofia-city). European Council of Civil Engineers (ECCE) and European Council of Engineers Chambers (ECEC) were partners of the Conference. The members of these organizations were invited to take part in the event and their national members was part of the audience. Forum Objectives: <https://www.bef2021.uceb.eu/#target> and Forum Presentations: <https://www.bef2021.uceb.eu/index.php/download/> Bulgaria is a country of high seismic risk. The earthquake danger and the higher seismic activity on the Balkans predetermines the common problems, faced by the civil and earthquake engineers in the region and the need of exchange of experience, knowledge, ideas, results of research and practical experience, related to the seismic construction and seismic risk reduction.



Picture 14: Platonas Stylianou - Presentation

On behalf of ECCE and CYACE, Platonas Stylianou presented «The need for assessment and seismic strengthening of existing buildings in parallel with energy efficiency Improvements – a case study from Cyprus.»

Presentation: https://www.uceb.eu//DATA/B%D0%95F2021/LESS/02_04_Platonas%20Stylianou.pdf
 Video: https://www.uceb.eu//DATA/B%D0%95F2021/LESS/02_04.mp4

3rd Conference in Design and Building, IMH

On Thursday, 11th of November 2021, the 3rd Conference in Design and Building took place by IMH, in Hilton Nicosia, with the support of CYACE. The President of SPOLMIK, Andreas Theodotou participated to the Roundtable Discussion titled "The challenges of the modern Contractor".






Picture 15: President of SPOLMIK, Andreas Theodotou participated to the Roundtable Discussion titled "The challenges of the modern Contractor".

Press Releases

In an effort to contribute to the society and on matters that are of high importance for Civil Engineers, the Cyprus Association of Civil Engineers has published the following press releases:

Date	Title	Pictures
<p>28th of September 2021</p>	<p>Announcement of the Cyprus Association of Civil Engineers regarding the strong earthquake which occurred at the Greek island of Crete. CYACE highlights the importance of Regulating a Certificate in Building Controls and the subsidy of the Earthquake Upgrade / Reconstruction to the buildings.</p>	
<p>20th of September 2021</p>	<p>Cyprus Association of Civil Engineers sent a Letter to Ministry of Transport, Communications & Works to suggest the Design and Build Method instead of the chosen method (based on the cheapest price) to build the Central Offices of the Department of Land and Surveys in Nicosia.</p>	

Date	Title	Pictures
26 th of October 2021	Cyprus Association of Civil Engineers congratulates Mr. Platonas Stylianou for the Election as Vice President (2021-2024) and President (2024-2027) of ECCE	
9 th of November 2021	Executive Board of Cyprus Association of Civil Engineers meets the Deputy Ministry of Research, Innovation and Digital Policy to discuss topics of mutual interest and the possibility of future collaboration	
30 th of November 2021	Executive Board of Cyprus Association of Civil Engineers meets the New General Manager of the Human Resource Development Authority of Cyprus (HRDA) to discuss topics of mutual interest and the possibility of further development of the Educational and Research Centre of CYACE	

Press Release: Cypriot Civil Engineer to the Executive Board of the European Council of Civil Engineers (ECCE) - CYACE congrats Platonas Stylianou

Press Release

Cypriot Civil Engineer to the Executive Board of the European Council of Civil Engineers (ECCE)

CYACE congrats Platonas Stylianou

It is a great honour for Platonas Stylianou and for Cyprus Association of Civil Engineer to be elected as Vice President (2021 – 2024) and as President (2024 – 2027) of the Executive Board of the European Council of Civil Engineers (ECCE). Platonas Stylianou is supporting CYACE for more than 20 years, being also President of CYACE in the past. The election of Mr. Stylianou is important for all the Cypriot Civil Engineers and the country of Cyprus.

The General Assembly of the European Council of Civil Engineers (ECCE) has elected a new Executive Board at the ECCE Executive Board Elections that took place on the 23rd of October 2021 at the 73rd ECCE General Meeting that was held in a virtual environment. The election of Mr. Stylianou is a special honour for CYACE and it is an important step for Civil Engineer History in Cyprus and Europe. It is the first time in CYACE's history that a Cypriot Civil Engineer was elected in such a prestigious position in a European Union of Engineers.

With his non-candidate election, the multidimensional contribution of Mr. Stylianou to the recent history of ECCE, has been recognized. Since among other things, Mr. Stylianou is the Coordinator of ECCE's Strategic Plan for the future years of the organization (2022-2030), the ECCE Position Paper of «The Need for Integrating Structural/Seismic Upgrade of Existing Buildings with Energy Efficiency Improvements» and also the 3S Approach (Safe, Sound and Sustainable) which was approved as the ECCE's moto for 2020.

Through several years of experience as a Civil Engineer, Mr. Stylianou advocates in the best way the values and ideals of the industry which he serves, and transmits knowledge to young Engineers through lectures and seminars.

The Cyprus Association of Civil Engineers stands next to colleague Platonas with the aim to advance the Profession of Civil Engineer in our country and Europe.



Picture 16: Platonas Stylianou, Vice President (2021 – 2024) & President (2024 – 2027) of the Executive Board of the European Council of Civil Engineers (ECCE)

7th International Construction Safety and Health Conference and Exhibition of Equipment and Services

Successful Conference

7th International Construction Safety and Health Conference and Exhibition of Equipment and Services

A step further to create a prevention culture to achieve Vision Zero Mission Possible!

The 7th International Conference on Safety and Health in Construction entitled "Evolution or Revolution? The future is now! → Mission Possible!" was held on 5 and 6 November 2021 at the Hilton Nicosia, in Cyprus, under the auspices of the Minister of Labour, Welfare and Social Insurance of Cyprus with great success and participation.

The Conference was organized by the Cyprus Association of Civil Engineers (CYACE) with Co-Organizers the International Social Security Association for the Construction Sector (ISSA-C) and the German Social Accident Insurance Institution for the Building Trade (BG BAU) and was supported by the Scientific and Technical Chamber of Cyprus (ETEK), the Department of Labour Inspection (DLI) and the International Safety and Health Construction Coordinators Organization (ISHCCO).

Construction Safety and Health is a priority for CYACE and this Conference aimed to the awareness and train of Engineers on Construction Safety and Health and Vision Zero Strategy as well as a to strengthening the communication between members of CYACE and especially the young engineers.

Despite the unprecedented and special conditions that our society is experiencing due to the pandemic COVID-19 and the uncertainty for tomorrow, the intention and the goal of the organizers was for holding the Conference to take place with physical presence, was achieved!

The Conference was part of the activities under the Global Vision Zero campaign of the ISSA Organization, which is supported by many other International Organizations and in which CYACE, ETEK and DLI are official partners. In addition, the "Vision Zero" prevention approach has been adopted by the European Commission through the new European Strategic Framework for Safety and Health at Work 2021-2027.

The Conference, which was actively attended by distinguished academics, professionals and scientists in the field of safety and health from Cyprus, Europe, Japan and the USA, aimed at highlighting and presenting innovative practical solutions to achieve the Vision Zero.

The opening of the Conference - on behalf of the Minister of Labour, Welfare and Social Insurance - was announced by the Director General of the Ministry Andreas Zachariadis, while speeches were addressed by the President of ETEK Constantinos Constanti, the President of ISHCCO, Reinhard Obermaier and the President of CYACE, Andreas Theodotou.

The panel of the speakers of the Conference included distinguished professors and other experts on occupational safety and health from Cyprus, Europe, Japan and United States of America.

While the construction industry faces unique challenges from the global pandemic, the introduction of digitalization is an important milestone for safety and health, as it will offer modernization and smarter solutions for safer working conditions, savings, better quality and less impact on the environment, with the ultimate aim of zero accidents.

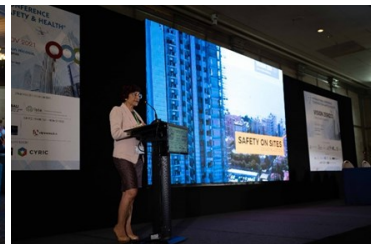
During the first day of the Conference, the topics «Covid-19 and Lessons Learned in the German Construction Industry», «Vision Zero - Experience», «Experience of the Project Players» and «Safety and Health integrated in BIM and other Practical Tools» were presented by twelve speakers.

During the second day of the Conference, the topics «Innovative Solutions», and «Digitalization in Construction» including the results of Practical Demonstration with Drone for occupational safety on construction sites were presented by six Speakers. Moreover, the participants had the opportunity to participate actively in the three parallel Workshops of the Conference: «Leadership commitment, using leading indicators», «How the pandemic changed the construction sector», «New ways in digitalization». The Conference ended with the presentation of the Results of the Workshops and a final discussion.

In parallel, during the two days of the Conference, an exhibition of specialized work equipment, innovative products and practical solutions as well as services related to construction safety and health took place.



Picture 17: 7th International Construction Safety and Health Conference



Picture 18: Mrs. Evangelitsa Tsooulofta, Organizer – Coordinator and 1st Vice-President of Cyprus Civil Engineers Association (CYACE)



Picture 19: Mr. Andreas Zachariades, Permanent Secretary of Ministry of Labour, Welfare and Social Insurance Cyprus, on behalf of Minister of Labour, Welfare and Social Insurance Cyprus



Picture 20: Mr. Constantinos Constanti, President of Cyprus Scientific and Technical Chamber (ETEK)



Picture 21: Dr. Reinhard Obermaier, President of ISHCCO



Picture 22: Mr. Andreas Theodotou, Organizer and President of Cyprus Association of Civil Engineers (CYACE)



Malta's Chamber of Architects and Civil Engineers, officially designated *Kamra tal-Periti* held a landmark conference for members of the profession and other interested stakeholders on Friday 19th November. Entitled *'The Renewal Agenda'* the conference was held to mark the process of renewal of the profession and also to present and give an overview of the recent changes in the legislation regulating the profession. The event was well attended, with up to 300 persons present and was addressed by a distinguished line-up of keynote speakers including the Minister for Infrastructure, Transport and Capital Projects, Dr. Ian Borg, the Opposition spokesman on Projects, the Built Environment and the profession, Perit Anthony Bezzina, the President of the *Kamra*, Perit Andre Pizzuto and the Dean of the Faculty of the Built Environment, Professor Perit Alex Torpiano, amongst others.

Perit Anthony Bezzina, the President of the *Kamra*, Perit Andre Pizzuto and the Dean of the Faculty of the Built Environment, Professor Perit Alex Torpiano, amongst others.

Following a brief introduction by *Kamra* Secretary *Perit* Dr. Amber Wismayer, who was hosting the event, Minister Dr. Ian Borg, the Minister responsible for *Works*, whose portfolio includes the responsibility for the regulation of the profession, gave a speech outlining the importance of the new *Periti Act* and the process followed which led to the long awaited amendments to the legislation and thanked all involved for their work and cooperation in bringing the process to a much awaited and long needed conclusion. He concluded by announcing that his Ministry was holding talks with the *Kamra* to allocate funds to establish a new digital platform to manage and carry out the necessary procedures for the *Kamra* to carry out its functions and pledged his commitment to continue support the *Kamra* and the profession.



Opposition spokesman *Perit* Anthony Bezzina spoke about the changing and ever more complex nature of the construction industry and the emergence of new technology, specializations and practices which in turn led to the need for changes in the way things were done and how the profession was regulated in order to achieve better standards. He remarked that strengthening the role of the *Kamra* was of paramount importance to raise the level of service and remarked that owing to its legal status and increased obligations, it can no longer function on a solely voluntary basis.

The current *Past President* of the *Kamra* Perit Simone Vella Lenicker gave an overview of the main motivations leading up to the overhaul of the *Periti Act*. She explained that the main driver behind these changes was the *Kamra* itself which began a process of modernization way back in 2007, when it was realised that there was an urgent need to update the Act in order to bring it in line with the SIM and the PQD directives, and moreover to render it more adequate to the ever more complex requirements of the 21st century. She outlined the struggles which the *Kamra* faced in bringing about this much needed change and recognized the efforts by the current minister to ensure the enactment of the new law the process leading to which had spanned no less than fourteen years and four successive Government legislatures.

Kamra President *Perit* Andre Pizzuto revealed the *Kamra's* new brand identity reflected in the new logo and explained the significance of the three pillars of sustainability, stating that the need for renewal of the profession and



the construction industry together with upgrading of the built environment in Malta had long been the focus of *the Kamra*. He welcomed the fact that political figures were finally recognising the need to address the concerns that were adversely affecting the built environment and people's quality of life and emphasised the urgent need for a comprehensive upheaval and renewal of the entire construction industry with new building and construction regulations and proper protection of the environment.

President Pizzuto then gave a comprehensive presentation on the new *Periti Act*, emphasising the need for the profession to renew and update itself, focus on achieving more quality in the built environment and ensuring a higher standard of professional services by all practitioners. He outlined the main changes made to the legislation and explained the salient points of the most significant amendments which included the introduction of mandatory professional indemnity insurance, the introduction of the *Certificate to Practice* and the new set up and procedures for the *Board of Professional Conduct*. Whilst stating that the new Legislation was expected to come into force by the end of the current year he also explained that a number of particular clauses would be brought into effect at later dates in order to allow for the drafting of the subsidiary legislation which was essential for them to function as envisaged and also to allow for necessary adjustments to take place.

Former *Kamra President* and *Dean* of the Faculty of the Built Environment Professor Perit Alex Torpiano outlined the significant changes that had been made some years previously in the University of Malta's academic course which led to the conferment of the qualifications required to obtain a *Warrant* as a *Perit*. He explained that the course was now more in line with the general practice adopted by most Universities with EU Member States and had led to several essential adjustments being made in the legislation governing the profession.

Director for *Policy Development and Programme Implementation* within the Ministry for Infrastructure, Transport and Capital Project – Dr. Lucienne Meilak made reference to a number of provisions in the former legislation that had been perceived by the EU Commission to be discriminatory towards foreign professionals originating from other EU Member states and this had given rise to a number of *Infringement Procedures*. She explained that these issues had been addressed with the amendments and modified provisions in the in the new *Periti Act* and following the EU Commission's review of the new legislation, it was expected that the infringement procedures would be withdrawn.

Council Member Dr. Perit Jeanette Abela Munoz outlined the process and requirements leading to the obtaining of a warrant to practice and gave a comprehensive overview of how the new legislation shifted the focus of requirements from a minimum number of hours of practice to a system based on consolidation of knowledge and skills over a minimum one-year mentored training period. She explained that candidates would be expected to demonstrate proficiency in core subjects deemed necessary for admission into the official lists of either *Perit Arkitett* or *Perit Inginier Civili*. She noted that the core subjects for Architects were defined by the EU's mutual recognition Directive whilst those for Civil Engineers were based on core subjects adopted in other European states and by international engineering bodies, thereby facilitating mobility for professionals. In conclusion, she pointed out that under the new legislation, warrants would be conferred following demonstration of adequate standards and skills in both written and oral examinations.

The conference came to an end following a question and answer time during which a panel made up of the main speakers at the event accepted queries from the floor.




Portugal



ORDEM
DOS
ENGENHEIROS

Civil Engineers

Lead by members - Portuguese Institution of Civil Engineers continues to visit regional areas

The Colégio Nacional de Engenharia Civil [Portuguese Institution of Civil Engineers] has spread out its activities throughout its mandate, focusing on the scope and relevance of its visits on the close monitoring of its members and on the quality of engineering practices in the country.

A full understanding of how engineering is practiced is required in order to provide a complete picture of the needs and actions taken by a National Institution in relation to the criteria it has in place.

These initiatives have already taken place in the 3 mainland Portugal regions centred on the cities of Lisbon, Coimbra and Porto, and on the 12th of November the Institution met in the Autonomous Region of the Azores, in São

Miguel.

These visiting initiatives are formalized with regional bodies, and show the engineers' concern with the country as a whole as well as their search for understanding the relationship between national and regional bodies.

The meeting agenda included discussions around career and engineering status and conditions, the "Best Young Internship 2021" prize awards, as well as other initiatives for the 85th Anniversary Ceremony for the Portuguese Society of Engineers.

In order to understand the innovation and growth in opportunities for new construction techniques, the Azores regional delegation organized a visit to the port of Ponta Delgada, on the island of São Miguel.

The works related to the "Re-profiling of Port -10(ZH), Refurbishment of the Port Embankment and Improvement of the Technical Networks and Port Basin Dredging" are examples of good practice and complex technical executions that demonstrate the high standards and performance of the Portuguese construction industry.

The work of the Society of Engineers is based on this type of practical and tangible exchange that does not exclude island regions, and which ensures that the pulse of Civil Engineering in Portugal is closely monitored.



Slovenia

IZS Strategic Forum - Outstanding response to the 25th anniversary of the Slovenian Chamber of Engineers



Photo: IZS strategic forum, round table Digital Transformation, from left: Igor E. Bergant, Mark Boris Andrižanič, Blaž Strle, Nemanja Malbašić, Rok Cajzek

On 23rd November 2021, on the occasion of its 25th anniversary, the Chamber of Engineers of Slovenia (IZS) brought together more than 1,200 authorized and supervising engineers who followed development-oriented discussions of high representatives of the economy, political life and the fields of green transition, digital transformation and security and health. At the end of the strategic forum, which took place with international participation at the Representation of the European Commission in Slovenia, IZS President Črtomir Remec expressed a high level of confidence in Slovenia's development orientation, breakthrough ideas in all areas of engineering, broad involvement of chamber members in growing infrastructure, energy and housing projects, and especially welcomed the networking and interest of young people in the profession of engineer. The strategic forum is available to view at www.izs25.si.

The Strategic Forum was held under the honorary patronage of the President of the Republic of Slovenia **Borut Pahor**, who in his address emphasized the role and importance of engineers for the development of our society and country. With their vision, innovative solutions and dedication, our engineers create the environment and conditions for the work of the community and are present in all parts of our lives. Currently, the biggest challenge is climate change, which is also being intensively studied by engineers around the world, the President concluded.

The introductory greetings were also given to the engineers by the Minister of the Environment and Spatial Planning, **Mag. Andrej Vizjak**, who pointed out the public powers of the Chamber as an exceptional instrument for directing the quality and culture of construction in Slovenia. Minister Vizjak also emphasized the responsibility of

certified engineers in performing their profession and the joint responsibility for the protection of the environment and space. The Chamber of Engineers of Slovenia cooperates well with the Ministry of the Environment and Spatial Planning, also in the areas of drafting legislation and regulations. Good wishes and congratulations were also joined by the Head of the European Commission Representation in Slovenia, **dr. Jernej Jug Jerša**, who highlighted the role of engineers in promoting social and technological development, and **Rudolf Kolbe**, President of the Austrian Chamber of Architects and Engineers, who emphasized the role of the IZS during the establishment of the European Council of Engineers Chambers.

Program framework of the IZS strategic forum

Green passage or green transition?

At the round table on the green transition, experts exchanged views on the state of the green transition, government policies and engineering visions and solutions. They agreed that it was a long process that would take at least a few more decades. **Bogdan Barbič**, Director of HESS, pointed out the importance of approaching carbon neutrality as soon as possible and considering the energy mix of the future. This will be established temporarily, by increasing the volume of renewable energy sources. Sustainable mobility, which was discussed by dr. **Tadej Smogavec**, Head of Sustainable Mobility Development at Petrol. He emphasized the guidelines of the European Union, which outlined the transition to electric mobility and allocated correspondingly high subsidies. Thus, we can expect a remarkable boom not only in private but also in public transport. Government guidelines, legislation and programs for the green transition were presented by the State Secretary at the Ministry of the Environment and Spatial Planning, dr. **Metka Gorišek**, who pointed out the importance of broad participation of all stakeholders. Achieving the goals will only be possible by working together. The thesis was also confirmed by **Marko Umberger**, an energy efficiency consultant who pointed out the critical importance of the energy efficiency of buildings, which are the largest single energy consumers in Europe. Modern solutions for energy renovation of buildings thus enable savings of up to fifty percent. Energy can also come from waste sources, which was pointed out by a certified engineer dr. **Bojan Pahor** and pointed out the relatively untapped potential of such energy production in Slovenia and the importance of proper planning of energy policies.

Digital transformation in the economy and public administration

Minister of Digital Transformation Mag. **Mark Boris Andrijanič** confirmed the government's determination for Slovenia's progress on the digital economy and society index. He also expressed the priority that Slovenia would become one of the five most digitized countries in Europe by the end of the decade, expecting major progress in the field of digitalisation of public administration, health care, education and, of course, the economy. The director of BE-Terna, **Blaž Strle**, also agreed with the high assessment of the potential, emphasizing the quality of IT studies in Slovenia and the propensity for robotics in companies. **Nemanja Malbašič** from SRC pointed out important breakthrough solutions in the field of e-government, which are coming into regular use and will be further developed in the future. Dr. **Rok Cajzek**, GIC gradnje, estimated that the construction industry could increase the volume of investments in digitalization, especially due to the exceptional development potential. The dean of the Faculty of Civil Engineering and Geodesy, prof. dr. **Violeta Bokan Bosiljkov**, who presented the advantages and practices of using BIM technology in construction design. The practical aspect of using BIM technology was confirmed by **Pavle Hevka**, General Manager of 2TDK. Discussants agreed that digitalisation is a long-term process that saves time, resources and, above all, can increase efficiency and support development-oriented goals.

The role of engineers in ensuring safety and health

Ensuring security is one of the fundamental priorities of every country, so society should pay due attention to these issues. Thus, during the recent earthquakes in Croatia, the professional competence and readiness of civil protection and engineers in response to natural disasters was demonstrated. **Andrej Pogačnik**, President of the Main Section of Civil Engineers of the IZS, commented on the state of the building stock in Slovenia, pointing out the need for adequate earthquake protection and energy renovation of buildings. The critical role of engineers became apparent again at the outbreak of the epidemic, when the importance of providing ventilation, fire safety and energy efficiency of lighting in public buildings came to the fore. He also spoke about construction practices. **Samo Peter Medved**, Deputy Mayor of the Municipality of Maribor, who emphasized the revitalization of construction after 2018 in the second largest Slovenian municipality and beyond. He assessed that the energy certificate of the building was not enough, and a database on seismic safety of individual buildings would be needed. In addition to earthquake safety, awareness and investment in fire safety are also required, with reliable and rapid hazard detection being key. **Igor Kulašič** from Siemens emphasized the importance of an appropriate and timely response to fire, connectivity and automation of security systems. An important aspect of ensuring health and well-being is also energy efficiency, as many indoor lighting systems have not yet been optimized, which again opens up opportunities for improvement, said **Uroš Kruljc** from Intra Lighting. **Mitja Lenassi**, President of the IZS Main Section of Mechanical Engineers, reminded that we spend more than 70% of our time indoors, so air quality is critical, as are ventilation systems, which became especially important during the epidemic. **Franci Pliberšek**, director of MIK Celje, also agreed with this, talking about the role and value of advanced technology in ensuring indoor air quality. Authorized engineers, who are organized into six main sections in the Chamber of Engineers of Slovenia and respond to the challenges of modern society in the fields of construction, mechanical engineering, electrical engineering, geodesy, mining and geotechnology, technologies, fire safety, transport engineering and others, also expressed their satisfaction with the strategic forum.

Source: <https://www.izs.si/>

Pelješac bridge - Design and construction

Marjan Pipenbaher

Pipenbaher Consulting Engineers, Slovenska Bistrica, Slovenia

Ponting Consulting Engineers, Maribor, Slovenia

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The 2404 m long Pelješac Bridge ranks among the most demanding bridges in the world in terms of both the technological complexity of construction and the complexity of the design. The bridge is located in an area of extremely high seismic activity, exposed to strong and gusty north and south winds. It is designed as a multi-span extradosed bridge with a semi-integral hybrid structure with five 285 m long central spans. Once built, the bridge will rank among the 5 largest and most attractive European bridges built in the early 21st century.

Introduction

A solid road link between all parts of Croatian territory will be established upon completion of the Pelješac-Mainland Bridge. The Dubrovnik-Neretva County will be linked with the Croatian territory, which will greatly contribute to the development of Dubrovnik, Pelješac Peninsula, and the entire Southern-most County of Croatia. The bridge is located in a highly sensitive and by Natura 2000 protected area of Mali Ston Bay which hosts the largest oyster cultivation facilities in the Adriatic Sea. The distance over the obstacle amounts to approximately 2140 m at the sea level. The total length of the bridge between the abutment axes is 2404 m, while the bridge length with abutments amounts to 2440 m. The sea depth varies between 7.0 and 28.0 m (figure 1).

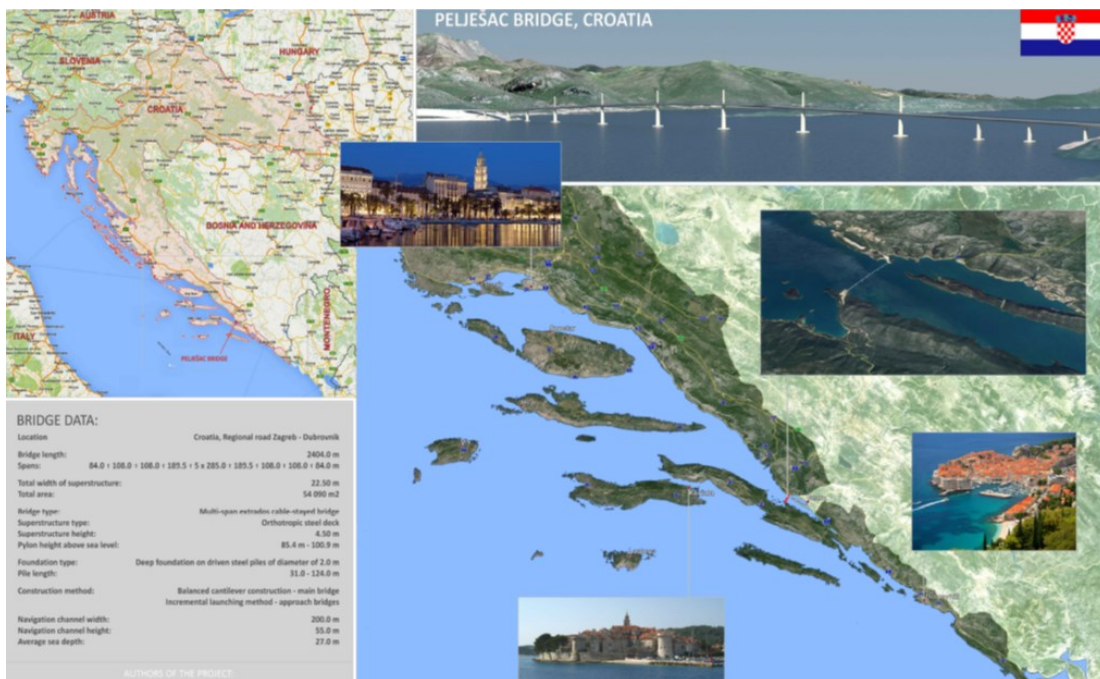


Figure 1. Location of the bridge

General bridge data:

Client: HRVATSKE CESTE d.o.o., Zagreb, Croatia

Designer: Design Joint venture:

Pipenbaher Consulting Engineers, Slovenia / www.pipenbaher-consulting.com

Ponting Consulting Engineers, Slovenia / www.ponting.si

Faculty of Civil Engineering, Zagreb, Croatia

Main designer: Marjan PIPENBAHER, MSCE

Contractor: CRBC - China Road and Bridge Corporation, China

The bridge is located in a highly sensitive and protected area of Mali Ston Bay. The bay is 21 km long and has a maximum breadth of 2.2 km (figure 2). The entire area is also protected by Natura 2000 - comprehensive ecological network of areas designated by the European Union member states.



Figure 2. Location of the bridge with area protected by Natura 2000

The bay hosts the largest oyster cultivation facilities in the Adriatic Sea.

Main characteristics of bridge location

The bridge is located in a zone of a very high seismic activity, with the design acceleration of soil at the bedrock level of $a_g = 0.34 \text{ g}$ and importance factor for no-collapse requirement $\gamma_I = 1.60$ according to Croatian national standard HRN EN 1998-1:2011/NA (figure 3).

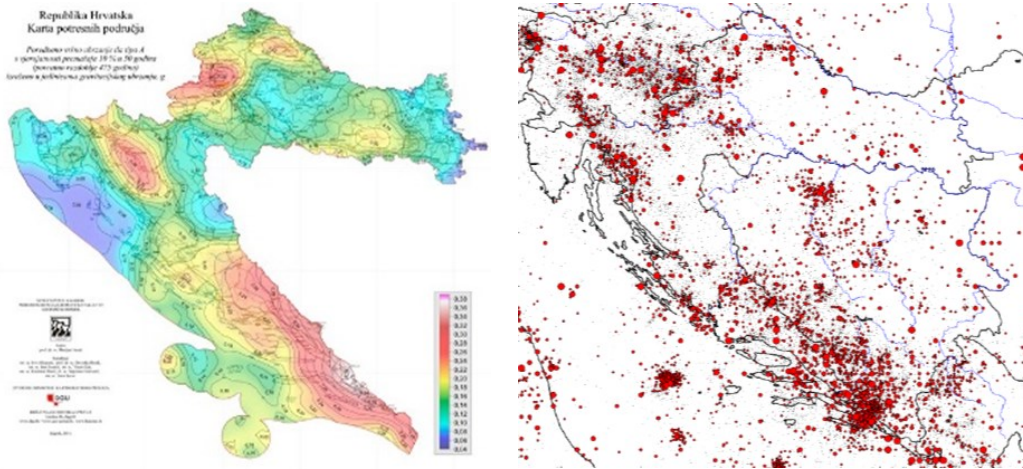


Figure 3. Map of seismic areas and earthquake epicentres (Croatian Earthquake Catalogue, 2011)

The bridge location is also influenced by strong winds with reference wind velocities up to 40 m/s. The thickness of soil formations above the limestone rock varies along the bridge from 30 to 100 m. These formations are mostly made of silty clay with occasional higher proportion of silty or gravely fractions. Clay layers up to the depth of 40 - 50 m from the seabed are soft to very firm in consistency. Clay layers in the depth more than 50 m are older formations. They are stiff to very stiff in consistency, locally cemented or with limestone concretions, slightly over-consolidated, and with porosity of less than 50%. The weathered rock zone at the west side is situated at the depth of about 38 m under the seabed while toward the mainland the rock was found at the depths of about 75-102 m (figure 4).

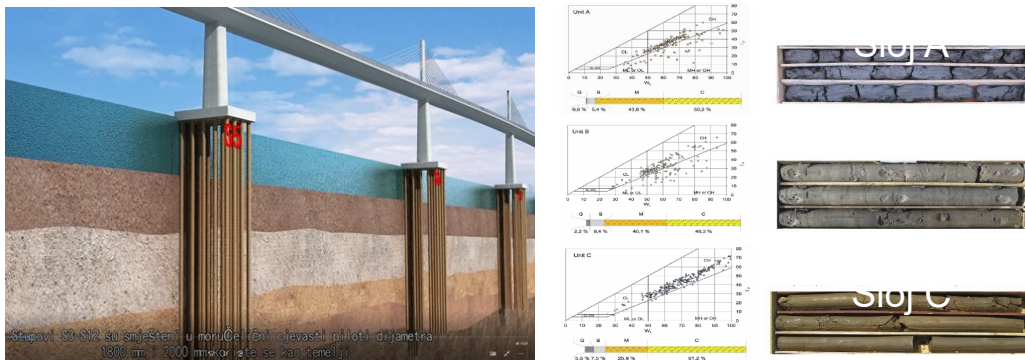


Figure 4. General presentation of the foundations and Characteristics of foundation soils

Bridge alignment and cross section

The traffic surface on the bridge is formed of two carriageways. Each carriageway consists of the 3.5 m wide traffic lane, 2.5 m wide stopping lane, and two marginal strips of 0.50 m. The carriageways are separated with median strip bounded with safety barriers. Also wind barrier is foreseen on the bridge, which will enable the use of the bridge in severe weather conditions, and traffic restrictions in case of strong and gusty winds will be reduced to minimum. The width of the carriageways with median strip is 18.50 m and the total bridge width, together with inspection paths and wind barriers amounts to 22.50 m (figure 5).

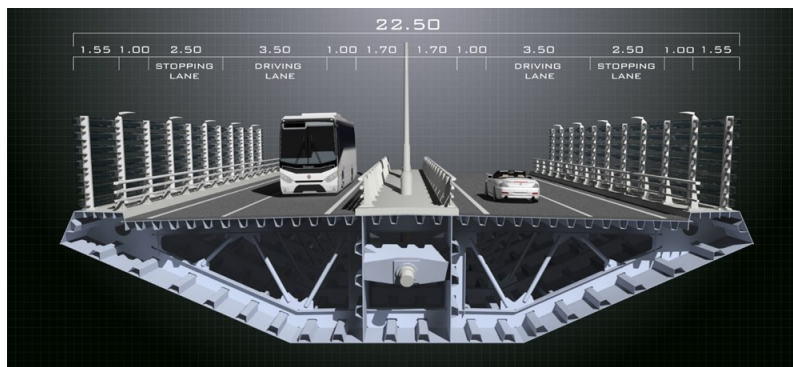


Figure 5. Bridge superstructure with traffic lanes

Horizontally the bridge starts and ends with the radius of 450 m followed by the transition curve of the length of 75 m. The main part of the bridge is in a straight line. Vertical alignment starts and ends with concave of the radius of 8000 m while the central part of the bridge is in convex radius of 11000 m.

In between the structure is practically in constant slope of 2.98%. For the superstructure, roof shaped cross slope of 2.5% was adopted on the straight part of the bridge and at the parts in curvature the cross-slope changes to single side slope of maximum 5.8% at the abutment U1. Cross slope on the inspection paths and median strip is 2.5%. Outer steel safety barrier of the class H3W3 and inner steel safety barrier of the class H2W1 are foreseen on the bridge. The bridge will be illuminated with ambient, road, navigation and signal lighting.

Architectural and structural concept of the bridge

The comprehensive optimization method was used in the development of structural and architectural concept for this bridge. It was necessary to find the optimal ratio between the number of supports, the lengths of the spans and the choice of materials.

The bridge has been designed as extradosed single plane cable-stayed bridge with six 40.0 m high centrally placed pylons and five 285 m main openings. The integral hybrid superstructure ensures seismic stability of the bridge without installation of large bearings and seismic dampers. Bearings are planned only at the approach parts of the bridge – at abutments and piers 2-4 and 11-13.

Bridge piers, situated in the sea are founded on driven steel piles of 1800 and 2000 mm in diameter. The piles are 36 - 124 m long. At the sea level the piles are restrained to the concrete pile caps. Pile caps of the piers S3, S4, S11 and S12 are 4.5 m thick with dimensions of 17.0 x 17.0 m and pile caps of the pylon piers S5 – S10 are 5.0 m thick with dimensions of 23.0 x 29.0 m.

The foundation of the piers on the approach parts of the bridge is realized with a group of 9 piles. Due to high seismic loads, the piles are designed as composite (steel pipes 1800 - 2000 mm in diameter, 40 mm thick, filled with concrete) with an additional 5.0 - 7.0 m long concrete socket under the steel tubes, made in a compact rock. The foundation of supports S5 - S10 is realized with 18 (20) driven steel piles with a diameter of 2000 mm, wall thickness of 40 mm and in upper 40 m filled with concrete.

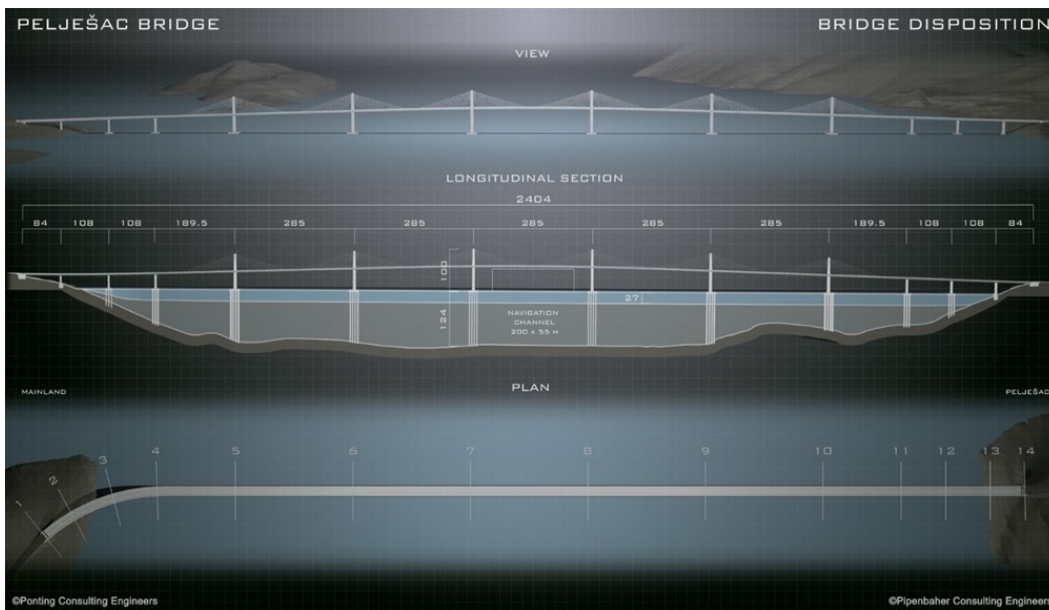


Figure 6. Bridge views, longitudinal section and plan view

The superstructure is a three-cell steel box girder of the height of 4.5 m with orthotropic deck and span arrangement: $84.0 + 2 \times 108.0 + 189.5 + 5 \times 285.0 + 189.5 + 2 \times 108.0 + 84.0 = 2404$ m (figure 6). The minimum required navigation clearance, harmonized with Bosnia and Herzegovina is 200 x 55 m.

Nonlinear static and dynamic analyses of the bridge

The Pelješac Bridge, due to the demanding characteristics of its location ranks between the most demanding bridges, not only in terms of technological complexity of construction, but also, in terms of complexity of the design. In the phase of searching for the optimal structural design of the bridge, numerous and extensive preliminary static and dynamic analyses were performed. The main loads that significantly affected the structural design of the bridge were earthquake and wind. After the completion of the preliminary analyses and the optimization phase, detailed analyses were performed.

Due to the fact that the bridge is founded on very long and slender piles penetrating through the layers of soft soil it was not sufficient to use a simple linear stiffness-impedance matrix to represent the foundation characteristics.

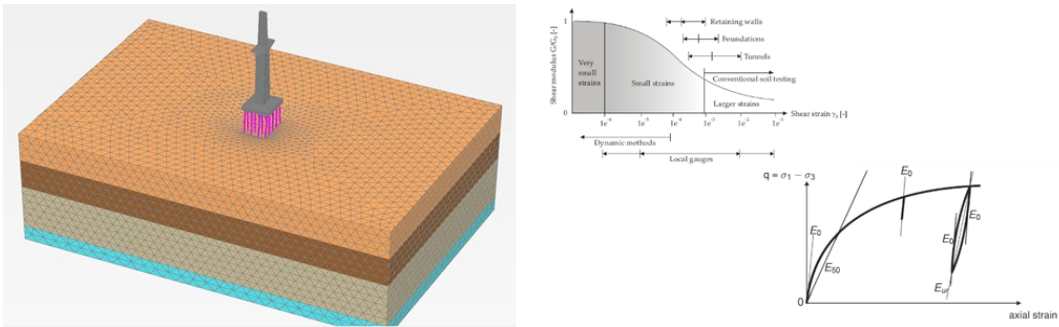


Figure 7. 3D FE-Model of typical support with surrounding soil

It was necessary to develop a fully coupled analytical model of the entire system - including the superstructure, pylons, stay cables, piers, pile caps and piles with non-linear soil springs. To be able reliably derive non-linear inelastic soil springs and to validate the soil foundation model used in the coupled bridge response analysis, a 3D soil structure analysis was created. The analysis was performed on the HSS-Hardening Soil with small-strain stiffness geotechnical model (figure 7).

Complete global analyses of the bridge were performed parallel with two different software packages, RM-BRIDGE / Bentley and SOFISTIK. Both models were modelled with the same accuracy considering all the loads and construction stages. Comprehensive Time history analyses were performed based on the results of seismological study made by the Geology department of the Faculty of Science, University of Zagreb (72 numerically generated accelerograms for magnitudes 6.0 - 7.5 and epicentre distances of 5.0, 10.0, 25.0, 50.0, 100.0, 150.0 km in the depth of 10 km).

With CFD (Computational Fluid Dynamic) analyses, the optimization of the cross section of the superstructure and the wind fence was performed (figure 8).

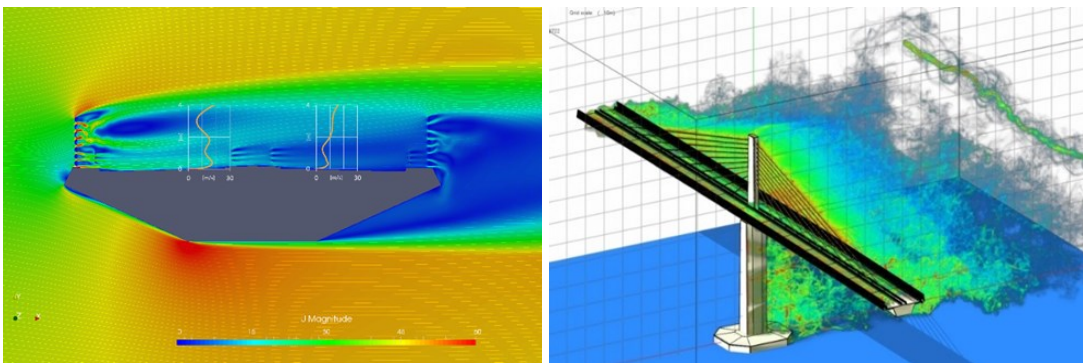


Figure 8. CFD Analyses

The aerodynamic characteristics of the bridge were tested also in the wind tunnel by Force Technology, Copenhagen, Denmark. In first stage, section model tests were performed but later also full bridge model tests were performed (figure 9).

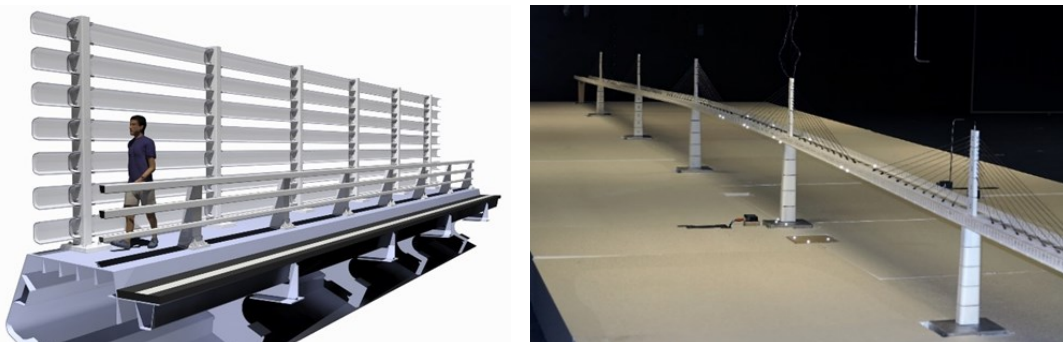


Figure 9. Concept of wind barrier and Full bridge model test, scale 1:150

Monitoring during construction and in service

For the Pelješac Bridge permanent monitoring of the conditions of the structure was foreseen. During construction and in service the structural behavior of the bridge, weather conditions, seismic activity and durability is monitored "in time" from one central position.

Construction of the bridge

Manufacture, transport, driving and testing of steel piles

The foundation on driven steel piles provides the necessary bearing capacity of the foundations, and at the same

time it was the optimal solution both from the ecological point of view and from the execution point of view. For bridge foundation 146 piles were driven on 10 supports on the sea.

All 31000 tons of steel piles were made in China and transported to the site by boats. The length of the piles with wall thickness of 40 – 60 mm ranged from 36 m to 130.6 m and the share of the piles longer than 100 m exceeded 70%. The 130.6 m long test pile set a record as the longest prefabricated steel pile in the world (figure 10).



Figure 10. Manufacturing of the piles

According to the load transfer, there are two different types of the piles. The piles under the pylons S5 – S9 transfer the load by shaft friction and toe bearing capacity. These piles are only partially - in upper 40 m filled with concrete, while the rest of the pile remains hollow - filled with soil. The second group of piles transmits loads (both compressive and tensile forces) through the elongated concrete tip of the pile, socket. These piles are completely filled with concrete, and in addition, concrete sockets are made under the steel tubes, which are embedded in compact rock. This method is used for shorter piles on the approach parts of the bridge where the layers of compact clay are not thick enough to ensure overtaking of tensile loads.

Driving of the piles was performed with hydraulic hammer IHC 800 with kinetic energy of 800 kJ (figure 11).

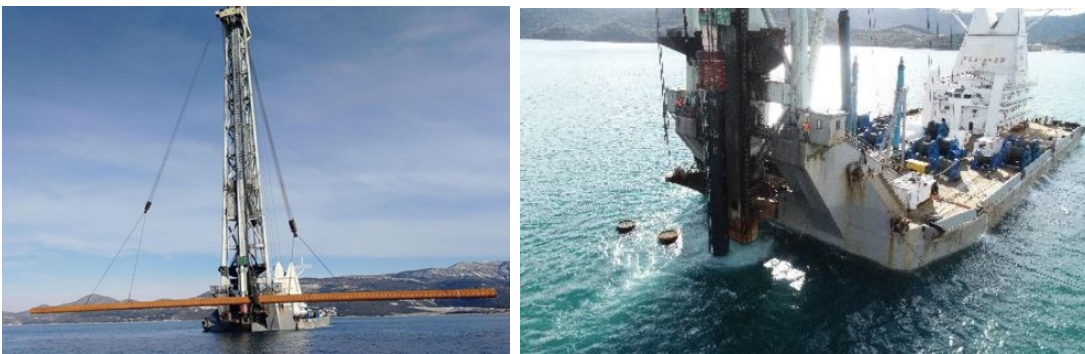


Figure 11. Driving of up to 130.6 m long piles

Dynamic monitoring of the driving was performed according to ASTM D4945-08 (Standard Test Method for High Strain Dynamic Testing of Deep Foundation). For each pile, at the end of driving and after re-driving, a shaft and tip bearing capacity analysis was performed with the CAPWAP - Case Pile Wave Analysis Program (figure 12).

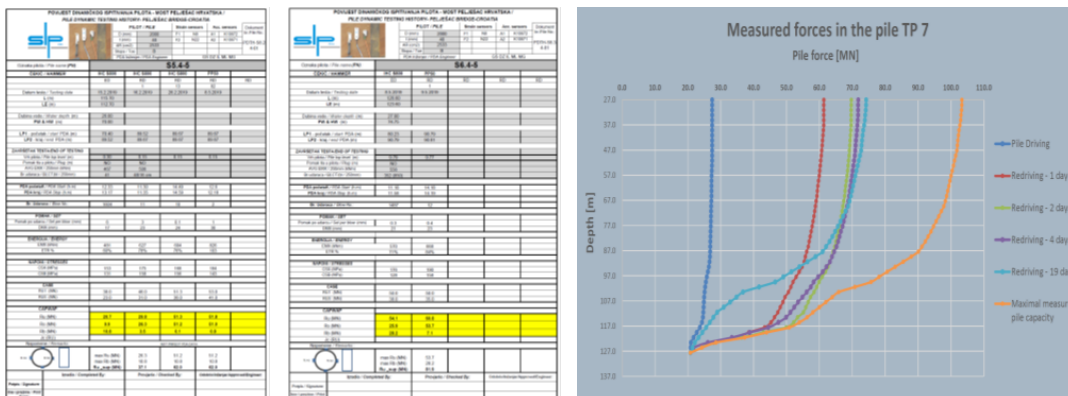


Figure 12. Pile bearing capacity control

Construction of pile caps

Pile caps in the sea were constructed in several phases (figure 13).



Figure 13. Construction of pile caps

First phase was the preparation and assembly of the formwork. The formwork consisted of prefabricated concrete formwork panels on which side steel formwork panels were mounted. The assembled formwork was hydraulically lowered to the design height, and the space between the piles and the bottom formwork slab was casted under water with sealing concrete. Water was then pumped out of the formwork. The concrete casting was carried out in three layers of the height of app. 1.5 m. The piles and the reinforcement of the pile caps are additionally protected against corrosion by cathodic protection.

Construction of piers, base segments and pylons

The piers of the pylons and the piers of the approach parts of the bridge are made of self-compact concrete (SCC) C50/60, and the pylons are made of SCC C70/85. Piers and pylons were made using self-climbing formwork. Vertical reinforcement with bars up to 40 mm in diameter was extended by couplers (figure 14).

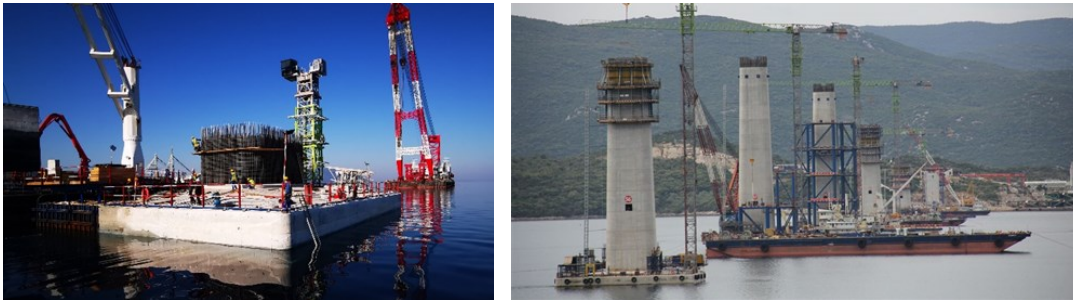


Figure 14. Execution of the piers

At the contact between the piers and the pylons, part of the superstructure is made of concrete – the superstructure is elastically restrained by piers and pylons. The base segment is prestressed with tendons, providing additional load-bearing capacity and compression state in the contact area of the steel and concrete part of superstructure (figure 15). On each pylon steel anchors – pylon links for Stay Cable anchorage are installed.



Figure 15. Construction of base segment

Manufacture of steel superstructure segments

34700 tons of steel and more than 450 km of butt and fillet welds were required for the construction of a 2404 m long steel superstructure.



Figure 16. Production of steel segments in production plants in China

All 165 segments with a length of 12 to 56 m were manufactured in two production plants in China, namely ZPMC in Nantong and CRBBG in Shaanx (figure 16). Each of the subcontractors produced half of the segments and were also in charge of the assembly and execution of all welds on the construction site.

Installation of steel segments and stay cables

The segments of the steel carriageway structure are divided into several sections; the base segments, which are partly connected to the concrete base segment, the segments of the approach parts of the bridge over the terrain and above the sea, the segments with stay cables and connecting segments. A different installation method was required for each type of segments (figure 17).

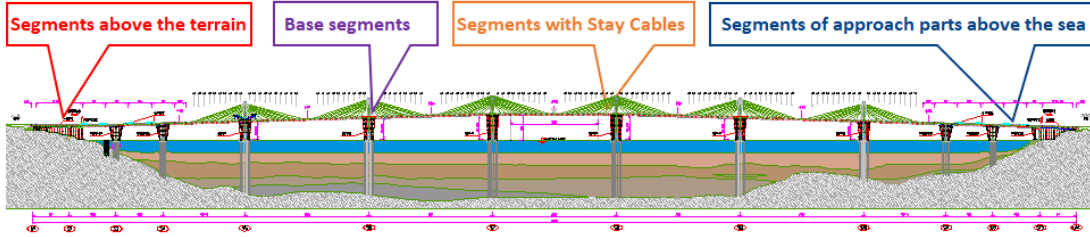


Figure 17. Segments of steel superstructure

Segments of the approach spans above the terrain were lifted on a fixed steel scaffolding by a floating crane with a capacity of 1000 t. Each segment was afterwards launched towards the abutment to the final by 3-directional jacks and welded to the previous segment. The segments of the approach parts above sea are 36 to 56 m long and were installed by a floating crane. Segments SS3, SS4, SS11, and SS12, positioned above the piers were installed directly on top of the piers and the auxiliary tubular scaffolds on both sides of the piers. The segments R203, R3, R11 and R12, which are positioned in the middle of the spans, were mounted to the segments above the piers by means of temporary suspension beams (figure 18).

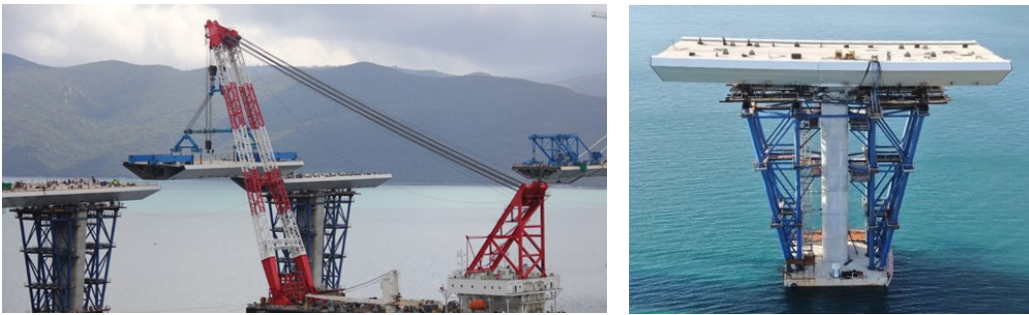


Figure 18. Installation of large segments on approach spans

Segments with stay cables in main part of the bridge were installed using balanced cantilever construction method (figure 19).



Figure 19. Installation of large segments on approach spans

The length of the first pair of segments is 11.4 m (mass 220 t), and the other 9 pairs of segments are 12 m long and have a maximum mass of 192 t. The segments were floated by barge directly to the assembly position. This was followed by lifting of the segments with formwork travellers mounted on the previously installed segments and the precise positioning of the new segments before welding. After the welding was completed, the installation and tensioning of the stay cables followed (figure 20).



Figure 20. Balanced cantilever construction

At the end of the assembly of individual sections of superstructure, the installation of connecting segments followed. There are seven connecting segments on the bridge, five of them, connecting individual cantilevers in the main part of the bridge are 18.6 m long and two of them, connecting approach parts of the bridge with the main part are 29.7 m long. All connecting segments were 10 cm longer on both sides. Cutting to the final measure was performed on the barge immediately before assembly, depending on the temperature of the structure and the geometry of the parts of already assembled structure.

Specifics of execution – welding and geometry control

Welding of the superstructure was one of the most demanding production processes in the construction of the bridge. The highest quality of welds was required (EXC4), which requires experienced certified welders. All necessary NDT testing of performed welds were also carried out on a regular basis.

In order for the superstructure to have the necessary final geometry, the segments had to be made considering required camber values already in the production plants. The camber values for individual segments were determined based on the complex computational analyses in which all construction stages were taken into account (figure 21).

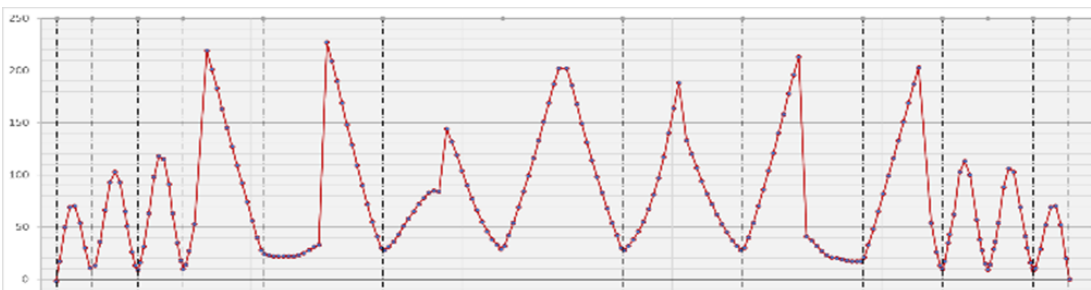


Figure 21. Required camber values of steel superstructure

During the complete period of steel superstructure assembly, a geodetic control and monitoring of the actual positions of installed segments were carried out and compared with the calculated positions. The current deviations from the target bridge alignment are local and do not exceed 40 mm.



Figure 22. Pelješac bridge during construction

Currently, final works are being carried out on the construction site of the bridge, namely the installation of expansion joints, the installation of wind and safety barriers and asphaltting.



Figure 23. Pelješac bridge, September 2021

The construction of the bridge is expected to be completed at the end of year 2021, and traffic on it will start after the completion of works on the access roads in the summer of year 2022.



Izmir Earthquake Symposium was Completed



Izmir Earthquake Symposium, organized by TMMOB Chamber of Civil Engineers İzmir Branch in the first year of the "30 October 2020 Aegean Sea (Sasam) Earthquake", was held on 26-27 October 2021.

In the Symposium held at Tepekule Congress Center; 23 presentations were made by the experts of the subject such as; "Evaluation of the Samos Earthquake in terms of Geotechnical Earthquake Engineering", "Evaluation of the Samos Earthquake in terms of Structural-Earthquake Engineering", "Assessment of Competence and Professional Responsibilities after the Samos Earthquake," "Earthquake Risk Assessments and Structural Interventions", "Disaster Risk and Earthquake Insurance", " In the sessions titled "Urban Transformation" and "Building Inspection System".

In the opening session, TCCE President of the Board Taner Yüzgeç, said that; although it is not known, when an earthquake will occur and what percentage of the earthquake will occur in which time period, but it is known its location, magnitude and most importantly, how the soil and water will behave together with ground movements. He

also stated that the knowledge of how the activated ground and water affect the structures, which soil type is more dangerous and what causes it are the knowledge that human beings have for centuries.



Photo: Taner Yüzgeç
TCCE President of the Board

TCCE President of the Board Taner Yüzgeç emphasized the following in his speech:

“The zoning techniques that need to be done considering the ground, and how the structures that sit on which ground and what kind of foundations will behave are also clear. The flexibility and rigidity of the building elements can be calculated and must be used within a certain system. It is also within our knowledge that the building elements can be robust under any conditions. A problematic structure and a problem-free structure can be distinguished from each other, and risky structures can be strengthened. Complex urbanization, which is shaped according to economic and social developments in parallel with production conditions, can be made healthy, safe and respectful to nature and the environment by using planning methods. It is also known what processes must be passed in order for a secure structure to emerge, and what political will, administrative and technical practices must be for this.

The 1999 Marmara earthquake is considered a milestone as Turkey's shocking confrontation with the earthquake reality. Since this date, it has become apparent that the earthquake is a phenomenon that should be considered before, not after. Since then, almost every institution has offered ideas and suggestions about what should be done and what kind of measures should be taken for a safe and healthy life and construction, and even these have been combined into master plans, strategies and action plans, but the path taken for 22 years has unfortunately not been achieved. It has not gone beyond the path that society/institutions can take on their own. Many issues are similar, from zoning amnesty, assembly areas, risk maps, urban planning, zoning policies, seismic and geological surveys to new technological developments, the use of new materials, legal problems, legislation infrastructure, education to competence.



Aspects of Construction Industry in Ukraine

(History, Current State, Vision)

Prof. Ivan Nazarenko, *President of the Academy of Construction of Ukraine*

Dr. Petro Shyliuk, *President of Ukrainian Council of Civil Engineers, President of the Construction Chamber of Ukraine*

Introduction

The article presents the first stage of the introduction to the Ukrainian construction sector to our colleagues from the European engineering family. Furthermore, in the nearest future we plan to publish the brochure, which will be a wider version of the text below. Our third step – the development of our idea – is to publish a book with a comprehensive description of the construction history of our country and the present state of the industry.

Since humans have appeared on Earth, they have been performing various kinds of activities showing their need to create conditions for improving their way of life. A reasonable mental image of construction of the primary structures for protection and living has emerged. In other words, humans demonstrated elements of intellection as the elements of training, cognitive design and construction methods, views and approaches. The emergence and development of the construction industry in Ukraine can be divided into the following periods: pre-Christian – Trypillia culture; Kievan Rus; Cossack Hetmanate; the Russian Empire; Soviet; independent Ukraine. The division into periods reveals the essence of the development of methods of construction process management and reflects certain differences inherent in a particular period. This is attributable to the fact that the collapse or merger of states leads to the change of the system and the formation of new state institutions, which in turn significantly affect architecture and construction in general. Based on this, the article provides a brief historical outline of construction, its current state and directions of development of the construction industry.

Historical Outline of Construction in Ukraine

Each historical period formed certain lines of construction development, determined the retrospective, logic and regularities of this dominant branch of any state.

We can conceptualize the architecture before the formation of the Ancient Rus state only from the scanty data of chronicles of later periods and archaeological excavations because no buildings of that time have survived (Fig.1)



Fig.1: Cucuteni–Trypillia culture, Residential building in the Ancient Aratta-Ukraine museum.

With the formation of the state of Kievan Rus, large settlements and cities have emerged, which contributed to the development of construction skills and the growth of professional constructors (Fig.2).

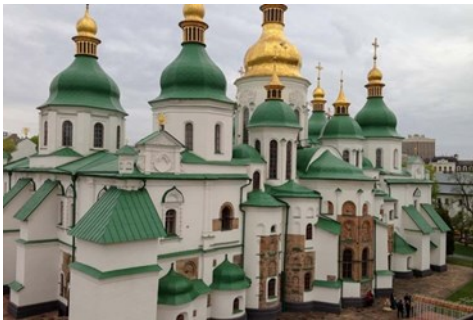


Fig.2: Saint Sophia Cathedral in Kyiv



Fig.3: The residence in the village of Kachanivka, Ichnia district, Chernihiv region

During the Cossack Hetmanate, the most valued technics in the architectural and construction business were the creative methods of folk artists, the defining feature of which was the organic relationship of functional requirements due to certain architectural and design solutions. The fragments of purposeful and reasonable elements of education and design have manifested. From the end of the XVIII century master plans were developed, brick buildings were built exclusively in the style of Classicism (Fig.3)

Over time, rational ideas for the use of building materials and structures, free choice of style and the use of national characteristics and traditions have become firmly established in the construction. Brick, reinforced concrete, new forms of steel structures in bridges and public buildings became widely introduced. A significant event of the 20's in the XX century was the construction of the administrative building of the State Industry on the central square of Kharkiv (Fig.4).



Fig.4: Kharkiv. State Industry House

Ukraine's design organizations were working to improve housing construction technologies. The new system allowed constructing buildings of any shape - rectangular, round, wavy, angular. One of the best examples of buildings in the form of large arrays of curved shapes is the National Palace of Arts "Ukraina" in Kyiv (Fig.5)



Fig.5: National Palace of Arts "Ukraina"



Fig.6: Olimpiyskyi National Sports Complex

A unique technological feature of the Olimpiyskyi National Sports Complex in Kiev is its cable roofing system – the membrane roof over the bleachers is held by 80 pairs of radial cables (Fig.6).

The Current State of the Construction Industry

Currently, the construction industry is developing rapidly and is undergoing many changes in this regard. This applies primarily to the industry-related education, science, construction technology. The basis of the methodological design of the scientific work of the State Enterprise "State Research Institute of Building Constructions" (SE SRIBC) is the principle of the complex decision of scientific and technical problems of the complex engineering system (Fig.7).



Fig.7: Comprehensive methodological approach of the SE SRIBC to solving scientific problems

Comprehensive promotion of reliability of a complex system includes: Acoustic comfort, Ground basis, Groundwork, Energy performance, Insulating cladding, Superstructure.

A specifics of contemporary building complex of Ukraine implies a need for practical and mobile application of innovative technical solutions, which determines the special role of scientific substantiation in assessing the reliability and safety of construction sites. Verification of the safety requirements of innovative technical solutions in Ukraine is performed using a mechanism of scientific and technical support. Transformation of the Chernobyl Shelter into an environmentally friendly New Safe Confinement and ensuring the safety of operation of existing NPPs in Ukraine (Fig.8).



Fig.8: Scientific support for the design and construction of the New Safe Confinement at the Chernobyl nuclear power plant

Vision of the Construction Industry.



Fig.9: Residential building of the modernized APVS K-134 series with ventilated facade cladding system

variable height. The use of technology's flexibility makes it possible to produce a wide range of structures on the same technological line, fully automated and the first in Ukraine, on a by-order basis. Thanks to the use of replaceable boards of forms with magnetic fastening the re-equipment does not require significant time and capital investment (when changing the design and nomenclature of products), which ensures implementing computer production control and provides a reduction in metal content (Fig.9)

The following main construction technologies are currently popular in the real estate market of Ukraine: monolithic wireframe technology; construction of panel buildings; brick construction; construction of block houses. All these technologies are different and have a number of advantages and disadvantages. However, the general trend of the construction industry is the improvement of flexibility of the manufacturer to satisfy the needs of the customer and, at the same time, the possibility of using precast concrete products in the construction of houses with informal planning in the shortest possible time and with guaranteed high quality. Such innovations are implemented by JSC "DBK-4", one of the largest house-building plants in Ukraine and a part of the Corporation "DBK-Zhytlobud", which specializes in the construction of residential buildings using the latest technologies. New technologies allow the implementation of various constructive solutions for industrial apartment houses with the application of new constructive systems. A modular construction system is being developed. Elements of BIM technologies are effectively introduced at the stages of design, calculations and organization of production of the necessary products and structures. The use of various structural systems enables constructing one or more floors without internal walls in residential buildings with a typical layout for the location of objects for different purposes, as well as to obtain floors with

Summary

The widespread implementation of BIM technologies at all stages of the life cycle of the object from design to determining the specific energy per square meter of area and determining the period of reasonable and efficient operation is the main feature of future houses and structures. There are already definite, real results, and very soon there will be the presence of a single intellectual and engineering unit of the building based on artificial intelligence, which will be part of the city center for monitoring and management of real estate. Thus, the buildings of the future will appear not only as constructional but to a larger extent industrial intelligent system, which will automatically control and provide strength, reliability, comfort, durability and will meet the principles of a healthy lifestyle.

News from ECCE Partners

American Society of Civil Engineers (ASCE)



Truax installed as ASCE 2022 president



ASCE installed Dennis D. Truax, P.E., DEE, D.WRE, F.NSPE, F.ASCE, as its 2022 president during the annual business meeting, Oct. 7, as part of the ASCE 2021 Convention.

In truth though, Truax has been hard at work for a while, supporting his fellow presidential officers and planning for the future.

“Though you’re president for one year, the tasks at hand require more than 12 months of effort,” said Truax. “So I started work pretty much from the moment I was made president-elect. Obviously, the duties and responsibilities as president ramp up. But the support of programs that are ongoing or started by 2021 President Jean-Louis Briaud, the ones that I’m launching, the ones that 2022 President-Elect Maria Lehman has an interest in – they’re all things that we three will work as a team to do.”

Truax accepted the presidential gavel from outgoing president Jean-Louis Briaud, Ph.D., P.E., D.GE, Dist.M.ASCE, in a virtual ceremony.

Truax recently retired as the James T. White endowed chair, department head, and professor of civil and environmental engineering at Mississippi State University, and the director of the Mississippi Transportation Research Institute, to serve ASCE full-time. He was introduced to the ASCE membership during the ceremony by his daughters Courtney and Kelly.

“ASCE’s done an excellent job of developing member value and member resources and member community,” Truax said. “What I want to focus on in the coming year is member engagement.”

The ceremony also marked the induction of Maria Lehman, P.E., ENV SP, F.ASCE, into the role of 2022 president-elect. It marks her fifth stint on the ASCE Board of Direction.

She was joined in taking the oath of service by new board members Daniel F. Becker, M.ASCE, technical region director; Kenneth R. Mika, P.E., M.ASCE, Region 3 director; Findlay G. Edwards, Ph.D., P.E., D.WRE, BCEE, F.ASCE, Region 4 director; Lawrence M. Magura, P.E., D.WRE(Ret.), F.ASCE, Region 8 director; and Lou C. Aurigemma, P.E., F.ASCE, treasurer.

Truax set the tone for the year in his presidential acceptance speech: one of servant leadership and collaboration. “I see individuals in this profession who need help, and ASCE is ready to provide that help,” Truax said. “This is about all of us. Every member of ASCE has an obligation professionally to be apostles, if you want to think of it that way.

“It could be advancing their education, it could be advancing their management skills, it could be helping them answer ethical questions, it could be helping them to see a vision for tomorrow that is different from anything they’ve envisioned so far. It’s about helping each civil engineer to be part of a solution that we so desperately need in moving toward the future.

“That’s what makes me excited about this opportunity.”

Author
Ben Walpole
Aff.M.ASCE

Assessing the reliability of aging structures

Infrastructure plays a crucial role in our society, supporting our communities; and as such, there are expectations for an acceptable level of safety. But structures do degrade over time due to various factors, including environmental conditions and loads (e.g. wind and traffic). ASCE’s 2021 Infrastructure Report Card reported that of the 617,000 bridges across the U.S., 42% have served for at least 50 years currently, and 7.5% (46,154) are structurally deficient with poor condition. Structures need to be evaluated regularly to ensure they can fulfill their service requirements.

Researchers Cao Wang, Ph.D., M.ASCE; Michael Beer, Dr.Eng., M.ASCE; and Bilal M. Ayyub, Ph.D., P.E., Dist.M.ASCE, present an overview on the assessment approaches for structural time-dependent reliability. Their study “Time-Dependent Reliability of Aging Structures: Overview of Assessment Methods” in the ASCE-ASME *Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering* discusses four aspects of assessment management that are widely applied today, including structural service life, maintenance reliability

assessment, single structure reliability methods, and structural reliability. This state-of-the-art review discusses the necessity of performing ongoing reliability assessments on aging structures due to the time-variation of both the structural resistance and the external load process. The full paper is available in the ASCE Library at <https://doi.org/10.1061/AJRUA6.0001176>

Abstract

Reliability assessment of engineered structures is a powerful and useful concept to estimate the structural capacity of withstanding hazardous events during their service lives. Taking into account the time variation of both structural resistance and the external load processes, the structural safety level is dependent on the duration of service period of interest, due to the accumulation of hazards by exposure in time. This paper presents an overview on the nonempirical assessment methods for time-dependent reliability of deteriorating structures. Generally, these methods can be classified into two types, namely simulation-based and analytical methods. The former is usually brute, and is especially suitable for solving high-dimensional reliability problems. Conversely, analytical solutions may improve the calculation efficiency significantly, and offer insights into the reliability problem that otherwise could be difficult to achieve through Monte Carlo simulation. Both the simulation-based and analytical methods will be reviewed in this paper. Furthermore, the application of time-dependent reliability methods in practical engineering is discussed. Recommendations for future research efforts are also presented.

Read the full paper in the ASCE Library: <https://doi.org/10.1061/AJRUA6.0001176>

Author

Leslie Connelly, Aff.M.ASCE

Japan Society of Civil Engineers (JSCE)



Japan's Infrastructure Grades 2020 & Introduction of Maintenance Technologies



SCE Infrastructure Integrity Diagnosis Subcommittee released "Japan's Infrastructure Grades 2020 & Introduction of Maintenance Technologies".

Introduction

Civil engineering has greatly contributed to the formation of the national land and infrastructure of Japan, and to Japan's development. However, aging of the structures in the infrastructure has become a major problem. In the future it is anticipated that aging of the structures will proceed rapidly, and repairs and renewal will increase. It goes without saying that the structures and infrastructures support society and economic development, and plays an important role in maintaining the sustainability of our lifestyles. In order to maintain the quality of our lifestyle safely and securely with limited resources and finance, it is necessary that the public understands the importance of aging infrastructures' maintenance and renewal. Securing the necessary budget and personnel for this purpose is of vital importance for the sustainability in Japan. Considering the importance of infrastructures, the Japan Society of Civil Engineers (JSCE) decided to evaluate the grades of Japan's infrastructures as a third-party organization, and in May 2016 published "Report on Infrastructures' grades". The 2016 Infrastructures' grade was applied only to bridges and tunnels for roads, where the inspection and diagnosis had been systematized in advance of the other infrastructures. Thereafter, rivers, sewage, ports, waterworks, and railways were evaluated, and the grades of their infrastructures

were published. This brochure summarizes these reports on the infrastructures' grades published in 2020. Also, it introduces the latest inspection, repair, and strengthening technologies in Japan. We hope that this brochure will contribute towards the awareness of Japan's infrastructure grades and help to provide the information on Japan's civil engineering technology that maintains infrastructures. Infrastructure Integrity Diagnosis Subcommittee Japan Society of Civil Engineers

Please download the report from the following link.

["Japan's Infrastructure Grades 2020 & Introduction of Maintenance Technologies"](#)

You can access the latest JSCE International Activities Center Newsletter of December 2021 at the link here [IAC News No.110, December 1 2021](#)

Korean Society of Civil Engineers (KSCE)



KSCE Journal of Civil Engineering



The KSCE Journal of Civil Engineering is a technical monthly journal of the Korean Society of Civil Engineers. The journal reports original study results (both academic and practical) on past practices and present information in all civil engineering fields.

The journal publishes original papers within the broad field of civil engineering, which includes, but are not limited to, the following: coastal and harbor engineering, construction management, environmental engineering, geotechnical engineering, highway engineering, hydraulic engineering, information technology, nuclear power engineering, railroad engineering, structural engineering, surveying and geo-spatial engineering, transportation engineering, tunnel engineering, and water resources and hydrologic engineering. Both theoretical and practice-oriented papers, including case studies and reviews, are encouraged.

[Read the Volume 25, issue 12, December 2021](#)

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

World Federation of Engineering Organizations (WFEO)



Dear members, associates, supporters, friends and partners of WFEO,

Here is the latest WFEO newsletter, in which you can see that our member organizations and partners are working collectively with their consistent support to the advancement of better engineering practice for delivering the SDGs.

During the 212th session of the UNESCO Executive Board from 6 to 20 October 2021, **the associate status of WFEO as NGO partner of UNESCO has been renewed for 8 years until 2029**, with favorable advice given by the Director General. WFEO has always been a close partner of UNESCO in engineering, regularly providing qualitative knowledge and professional expertise.

During 14th-16th October 2021, the **second United Nations Global Sustainable Transport Conference, themed on "Sustainable Transport, Sustainable Development"** was successfully held in Beijing, China. Shedding light on how transportation can contribute to climate response, economic growth and sustainable development, the Conference witnessed government leaders, industry experts, and civil society groups from around the world join the meeting either offline or online to chart the way forward to a more sustainable future and more ambitious climate actions. The President of China, many other UN member states leaders and the UN Secretary General have delivered keynote speeches and underlined the promising future of connectivity and joint efforts to achieve sustainable transport. Dr. Peng Jing, Chair of WFEO-CEIT and me representing WFEO attended the opening ceremony of the conference. WFEO also hosted a **side event – STI for Sustainable Transport** - during the conference with UN-DESA and the Ministry of Transportation of China.

The International Engineering Alliance (IEA) has published the approved updated Graduate Attributes and Professional Competencies (GAPC) Framework that is proudly supported by UNESCO and WFEO. This is a notable outcome from the joint project of WFEO and IEA and other partners. The GAPC will serve to be the pre-eminent international benchmark for engineering education and professional competencies, and enable a transformation of the engineering profession.

To be noted is that the website of the upcoming **World Engineering Summit (WES) 2022 "Innovation + Technology + Sustainability = Engineering 2050"** (4-11 of March 2022 in Costa Rica) is now online. I'd like to sincerely express my appreciation to CFIA for hosting the meetings at this special and critical time.

There have been also many other important events that I could not mention exhaustively in this brief message, such as **the webinars have been organized by our STCs and PICs**, which are very insightful, focusing on pressing issues such as energy and gender, and are also very informative by given best practices and introductory lectures. It is recommended for you to have a closer look into them using the links given.

Finally, I would like to announce that we have started preparing for **World Engineering Day 2022 under the theme “Build Back Wiser – Engineering the Future”**, all of you are invited to join the celebration and preparation and contribute your engineering expertise and innovative ideas to accelerate the delivery of the UN SDGs for all.

GONG Ke
President of WFEO



You can access the WFEO Flash-Info #40, October 2021 at the link here [WFEO Flash-Info #40, October 2021](#)

European Civil Engineering Education and Training Association (EUCEET)



1st Joint Conference of EUCEET and AECEF "The role of education for Civil Engineers in the implementation of the SDGs"

The 1st Joint Conference of EUCEET and AECEF (Association of European Civil Engineering Faculties) was held on 12th November 2021, in Thessaloniki, Greece.

In 2015, the United Nations adopted the 2030 Agenda for Sustainable Development – “a plan for people, planet and prosperity”, which includes 17 Sustainable Development Goals (SDGs) that serve as a roadmap for the national and international policies that should be implemented to achieve a better and more sustainable future for all. Society, Economy, and Environment are recognized as the three pillars for sustainable development. After several attempts to identify and agree upon a global policy for a sustainable future, it is time for implementation. It is time now for global Engineers to get involved in order to bring results in the direction of the implementation of the SDGs.

Two European Civil Engineering associations, the European Civil Engineering Education and Training Association (EUCEET) and the Association of European Civil Engineering Faculties (AECEF) join forces to investigate the very important issue of “The role of education for Civil Engineers in the implementation of the SDGs”. The topics of the conference are related, but not limited, to the following SDGs:

- SDG4 – Quality education
- SDG6 – Clean water and sanitation
- SDG7 – Affordable and clean energy
- SDG8 – Decent work and economic growth
- SDG9 – Industry, innovation, and infrastructure
- SDG11 – Sustainable cities and communities
- SDG13 – Climate action
- SDG14 – Life below water
- SDG15 – Life on land

Watch the Conference at the following link: [The role of education for Civil Engineers in the implementation of the SDGs – YouTube](#)

EU News

European Green Deal: Commission proposes to boost renovation and decarbonisation of buildings

The Commission has proposed to align the rules for the energy performance of buildings with the European Green Deal and decarbonise the EU's building stock by 2050. This [proposal](#) will facilitate the renovation of homes, schools, hospitals, offices and other buildings across Europe to reduce greenhouse gas emissions and energy bills, improving quality of life for millions of Europeans. Today's revision of the energy performance of buildings directive translates the Commission's [Renovation Wave Strategy](#) into concrete legislative action.

Executive Vice-President for the European Green Deal, Frans **Timmermans** said: “*Stimulating renovation of homes and other buildings supports economic recovery and creates new job opportunities. Moreover, energy renovation leads to lower energy bills and in the end the investment pays for itself. By targeting the obstacles to renovation and*

providing financial support for the necessary upfront investment, today's proposal on the energy performance of buildings aims to boost the rate of energy renovation across the EU. Its focus on the worst performing buildings prioritises the most cost-effective renovations and helps fight energy poverty."

Commissioner for Energy, Kadri **Simson**, said: *"Buildings are the single largest energy consumer in Europe, using 40% of our energy, and creating 36% of our greenhouse gas emissions. That is because most buildings in the EU are not energy efficient and are still mostly powered by fossil fuels. We need to do something about this urgently, as over 85% of today's buildings will still be standing in 2050, when Europe must be climate neutral. Improving our homes is also an effective response to high energy prices – the worst-performing buildings in the EU consume many times more energy as new or properly renovated ones. And it's often the most vulnerable who live in the least efficient houses and therefore struggle to pay the bills. Renovation reduces both the energy footprint of buildings and the energy costs for households, while also boosting economic activity and job creation."*

The Commission proposes that **as of 2030, all new buildings must be zero-emission**. To harness the potential of faster action in the public sector, all new public buildings must be zero-emission already as of 2027. This means that buildings must consume little energy, be powered by renewables as far as possible, emit no on-site carbon emissions from fossil fuels and must indicate their global warming potential based on their whole-life cycle emissions on their Energy Performance Certificate.

When it comes to renovations, new EU-level minimum energy performance standards are proposed, requiring the **worst-performing 15% of the building stock of each Member State to be upgraded** from the Energy Performance Certificate's Grade G to at least Grade F by 2027 for non-residential buildings and 2030 for residential buildings. This initial focus on the lowest performing buildings fulfils the twin objective of maximising the potential for decarbonisation and for the alleviation of energy poverty.

Energy performance certificates provide publicly available information about energy consumption and are important guides to investment, buying, and rental decisions. With today's proposals, **Energy Performance Certificates will become clearer and contain improved information**. The **obligation to have an energy performance certificate is extended** to buildings undergoing major renovation, buildings for which a rental contract is renewed and all public buildings. Buildings or building units which are offered for sale or rent must also have a certificate, and the energy performance class will need to be stated in all advertisements. By 2025, all certificates must be based on a harmonised scale from A to G.

National Buildings Renovation Plans will be fully integrated into National Energy and Climate Plans. This will ensure comparability and tracking of progress, and make a direct link to mobilising financing and triggering the reforms and investments that are needed. These plans will need to include roadmaps for **phasing out fossil fuels in heating and cooling by 2040 at the latest**, along with a pathway for transforming the national building stock into zero-emission buildings by 2050.

Easier **access to information and lower costs for consumers** help to boost renovation. Today's proposal introduces a building 'Renovation passport' that provides owners a tool to facilitate their planning and a step-by-step renovation towards zero-emissions level. The proposal defines 'mortgage portfolio standards' as a mechanism to incentivise lenders to improve the energy performance of their portfolio of buildings, and encourage potential clients to make their properties more energy efficient. The Commission also invites Member States to include renovation considerations in public and private financing rules and to establish appropriate instruments, in particular for low-income households. No financial incentives should be given for the installation of fossil fuel boilers as of 2027 and Member States are given the legal **possibility to ban fossil fuel use in buildings**.

The new rules encourage the use of information and communication technology (ICT) and smart technologies to ensure buildings operate efficiently, and calls for digital building databases to be established. Regarding mobility, the proposal **supports the rollout of charging infrastructure for electric vehicles** in residential and commercial buildings, and makes more dedicated parking space available for bicycles.

Background

The revision of the Energy Performance of Buildings Directive is part of the [Commission's "Fit for 55" proposals to deliver on the European Green Deal](#) and the [European Climate Law](#). It complements the other components of the package adopted in July 2021, setting the vision for achieving a zero-emission building stock by 2050. It is a key legislative instrument to achieve the 2030 and 2050 decarbonisation objectives: buildings account for 40% of energy consumed in the EU and 36% of energy-related greenhouse gas emissions; heating, cooling and domestic hot water are responsible for 80% of the energy that households consume.

The Commission is determined to alleviate energy poverty. There are more than 30 million building units in the EU consuming excessive energy (at least 2.5 times more than average buildings) which drives up energy bills of households. The benefits of lower energy bills are even more relevant in the current context of high energy prices. People living in worst performing buildings and those facing energy poverty would benefit from renovated and better buildings, as well as from reduced energy costs, and be buffered from further market price increases and volatility.

By increasing the renovation rate, the measures in the revised directive will create local jobs, supporting innovation diffusion and SMEs. Increased intensity of renovations needs to be supported by adequate capacity and skilled workforce.

Alongside today's package, the Commission has published a [Staff Working Document](#) outlining possible scenarios for a transition pathway toward a more resilient, greener and more digital construction ecosystem. With this document, the Commission invites Member States, industry stakeholders and all the other relevant actors to take active part in co-creating a vision for the future of the construction ecosystem. Additional information, views, as well as ideas for concrete actions, commitments and investments can be provided through an [EU Survey](#), which is open until 28 February 2022.

For More Information

[Q&A on the Energy Performance of Buildings](#)
[Factsheet on the Energy Performance of Buildings](#)

[Proposal for a Directive on the energy performance of buildings](#)
[Annexes to the Proposal for a Directive on the energy performance of buildings](#)
[Energy performance of buildings webpage](#)
[Renovation Wave Strategy](#)
[Renovation Wave webpage](#)
[Staff Working Document with the analysis of the national long-term renovation strategies](#)
[Long-Term Renovation Strategies webpage](#)
[European Green Deal](#)

Commission presents guide for a fair transition towards climate neutrality

On 15th December 2021, the Commission issued policy guidance for a fair and inclusive transition towards climate neutrality to complement the package on delivering the Green Deal presented in July. The [proposed Council Recommendation](#) sets out specific guidance to help Member States devise and implement policy packages that ensure a fair transition towards climate neutrality, by addressing the relevant employment and social aspects linked to the transition in a comprehensive manner. The proposal pays particular attention to addressing the needs of the people and households that are highly dependent on fossil fuels and could be most affected by the green transition, and invites Member States to make optimal use of public and private funding and work in close cooperation with social partners.

Fairness and solidarity are defining principles of the [European Green Deal](#). Policy actions to support people and their active participation are key for a successful green transition. With the right actions and policies in place, the green transition has the potential to create an additional 1 million jobs by 2030 in the EU and some 2 million jobs by 2050. At the same time, it is important to ensure that no one is left behind, and that the EU and its Member States continue to improve their capacities to anticipate change and to provide targeted support to the regions, industries, workers and households facing future challenges.

Putting people at the heart of the green transition

To fully realise the employment and social potential of the green transition, it is essential to use all available tools and put the right policies in place at EU, national, regional and local levels. Today's proposal encourages Member States to take measures and actions, adapted to their particular circumstances, including:

- **Measures to support quality employment and facilitate job-to-job transitions.** This includes for instance offering tailored job search assistance and promoting job creation, and facilitating access to finance and markets for micro, small and medium-sized businesses, in particular those contributing to climate and environmental objectives.
- **Measures to support equal access to quality education and training.** This concerns for example developing up-to-date intelligence on skills needs in the labour market, providing high-quality and inclusive education and training on skills and competences relevant for the green transition, and increasing adult participation in lifelong learning.
- **Measures to support fair tax-benefit and social protection systems.** The proposal invites Member States to assess and, where necessary, adapt these systems, for instance by further shifting the tax burden away from labour towards other sources contributing to climate and environmental objectives.
- **Measures to support affordable access to essential services.** Member States are invited to continue to mobilise public and private financial support to invest into renewable energy, tackle mobility challenges and promote cost-saving opportunities linked to the circular economy.
- **Measures to coordinate policy action, follow a whole-of-economy approach,** and actively involve social partners, civil society, regional and local authorities and other stakeholders. Measures to further strengthen the evidence base and advance the consistency of definitions and methodologies are also important to improve the targeting of social and labour market policies.
- **Optimal use of public and private funding.** Member States have a wide range of EU and other funding at their disposal to implement the necessary measures for a fair transition to climate neutrality. The proposed [Social Climate Fund](#) of €72.2 billion in particular will support vulnerable households, transport users and micro-enterprises affected by the introduction of emissions trading for fuels used in road transport and buildings. It will be funded by the revenues of the emission trading. Other available EU funding under NextGenerationEU includes the [Just Transition Mechanism \(JTM\)](#) and the [European Social Fund Plus \(ESF+\)](#), the EU's main instrument for investing in people with a budget of €99.3 billion in 2021-2027. A significant share of reforms and investments in Member States' Recovery and Resilience Plans financed by the [Recovery and Resilience Facility \(RRF\)](#) will be directed to social policies, with specific support for the fair green transition by for example promoting the creation of green jobs and the development of green skills.

Members of the College said

Frans **Timmermans**, Executive Vice-President for the European Green Deal said: *"With the Green Deal we will create a modern, sustainable economy with jobs that last for decades to come. Europe's transition to climate neutrality will not be easy and we need to have policies across the economy that bring everyone along. Today we complement our proposals on the Social Climate Fund, the Just Transition Mechanism and others with additional policy guidance to make sure we leave no one behind on our path to a healthy, green, and fair future."*

Valdis **Dombrovskis**, Executive Vice-President for an Economy that Works for People, said: *"To protect our planet and future generations, we must build a sustainable economy that works for everyone. The green transition has significant economic and job creation potential. It is essential that we make the most of the opportunities offered by the green transition, while making sure it is fair and inclusive so that no one is left behind. For this, we must invest in skills, quality jobs and affordable services."*

Nicolas **Schmit**, Commissioner for Jobs and Social Rights, said: *"The Green Deal is an economic and climate imperative, and we all have to collectively ensure its success. But we do not underestimate the social and employment impact of the green transition. Social fairness must be at its heart, reflecting the values of the European social market economy. This policy guidance provides detailed, tangible ways for Member States, regions and local com-*

unities to protect the people who are at risk of poverty and social exclusion, as well as to enable people to make the most of the opportunities that the climate transition offers.”

Background

The [European Green Deal](#), launched in 2019, sets out the EU strategy to become the first climate-neutral continent and transform the Union into a sustainable, fairer and more prosperous society that respects the planetary boundaries. The need for a fair transition is an integral part of the Green Deal which underlined that no person and no place should be left behind.

This is in line with the 2015 [Paris Agreement](#), the European Council's [Strategic Agenda](#) 2019-24 and the [European Climate Law](#) in force since July 2021. The [European Pillar of Social Rights Action Plan](#) complements and supports the green and digital transitions in line with a strong social Europe, notably through three EU headline targets in the areas of employment, skills, and social inclusion, endorsed by EU leaders in May and June 2021.

In July 2021, the Commission adopted the ['Fit for 55' package](#) to deliver on the EU's binding 2030 climate target of reducing net greenhouse gas emissions by at least 55% on the path to climate neutrality by 2050. This included the Social Climate Fund which aims to mobilise €72.2 billion to address the impacts of emissions trading in road transport and buildings on vulnerable households, micro-enterprises and transport users, to be funded by the revenues of the new emissions trading system. As part of the 'Fit for 55' package, the Commission announced a proposal for a Council Recommendation by the end of 2021 to provide further guidance to Member States on how to best address the social and labour aspects of the green transition.

For More Information

[Questions and answers: A fair transition towards climate neutrality](#)

[Factsheet: A fair transition towards climate neutrality](#)

[Commission proposal for a Council Recommendation on ensuring a fair transition towards climate neutrality](#)

[Staff Working Document accompanying the proposal for a Council Recommendation on ensuring a fair transition towards climate neutrality](#)

[European Green Deal website](#)

[European Pillar of Social Rights website](#)

Public Consultations of the European Commission

Please note that the European Communications regularly does Public Consultations many of which are very relevant for the engineering professions. We would therefore advise to regularly check the page and contribute to relevant topics: [LINK](#)

Upcoming events

Date	Event	Place
25.01.2022	WCCE's 16 th General Assembly 	Virtual
1-3.02.2022	San Fernando Earthquake Conference – 50 Years of Lifeline Engineering  Conference website	California, USA and online
9-10.02.2022	Civil Engineering Conference 2022  https://cec.svf.tuke.sk/	Kosice, SLOVAKIA
4-11.03.2022	World Engineering Summit 2022  https://www.wes2022.cr/en/	COSTA RICA

Date	Event	Place
19-24.06.2022	<p>3rd European Conference on Earthquake Engineering and Seismology (3ECEES)</p>  <p>A joint event of the 17th European Conference on Earthquake Engineering & 38th General Assembly of the European Seismological Commission International Conference Centre, Bucharest, Romania. 19 – 24 June 2022</p> <p>https://3ecees.ro/</p>	Bucharest, ROMANIA
27-29.06.2022	<p>10th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground</p> <p>https://www.is-cambridge2020.eng.cam.ac.uk/</p>	Cambridge, U.K.
15-17.07.2022	<p>4th International Conference on performance-based design in earthquake geotechnical engineering</p>  <p>http://www.pbd-iv2021.com/</p>	Beijing, CHINA
15-17.09.2022	<p>28th European Young Geotechnical Engineers Conference and Geogames</p> <p>https://www.issmge.org/events/28th-european-young-geotechnical-engineers-conference-and-geogames-date-change</p>	Moscow, RUSSIA
25-28.06.2023	<p>9th International Congress on Environmental Geotechnics</p>  <p>https://www.iceg2022.org/</p>	Chania, GREECE
11-13.10.2023	<p>7th World Engineers Convention 2023 – WEC 2023</p>  <p>http://www.wec2023.com/</p>	Prague, CZECH RE- PUBLIC



The end of the year brings no greater joy than the opportunity to express to you season's greetings and good wishes. May your holidays and New Year be filled with joy!

We look forward to cooperating with you in 2022 and beyond.

All the best from the President, the Executive Board and Secretary of the European Council of Civil Engineers.

Andreas Brandner
ECCE President

Maria Karanasiou
ECCE General Secretary



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**“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.