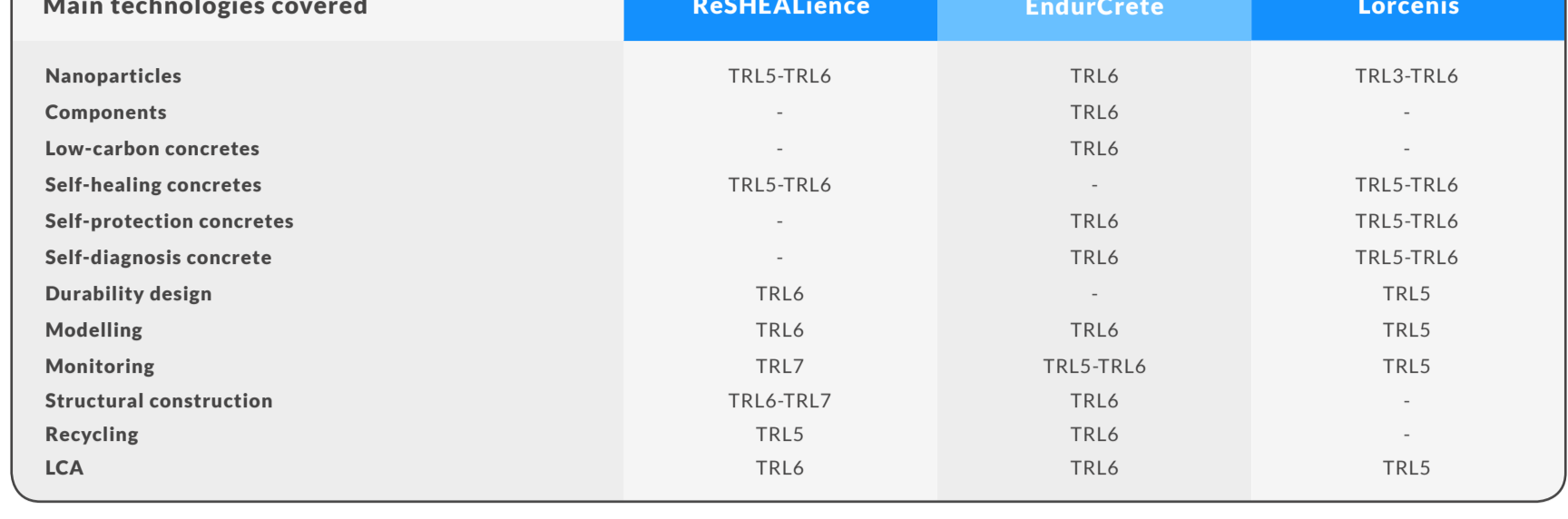
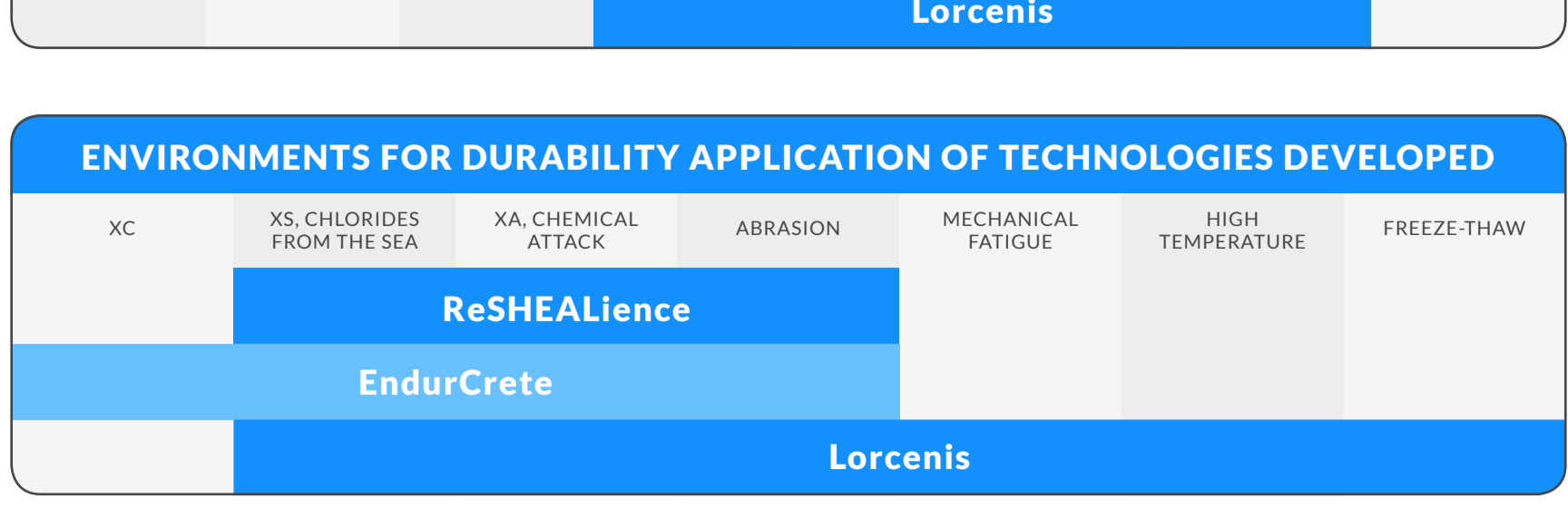


INTRODUCTION

The three H2020 projects included in this Special Newsletter are Research and Innovation Actions (RIA) that pertain to the field of nanotechnologies, being all of them related with cementitious composites. They share their vision of increasing the performance of the concrete and use them to multiply the structure durability and its control. The main construction sectors covered by the technologies developed to enhance durability in aggressive environments and sustainability:

LORCENIS, started in 2016, is focused in energy infrastructures in severe operation environments (deep sea, freeze-thaw common Aggressive Exposure Environments (chemical attack, XA and marine, XS). Both project integrate nano-additives with new functionalities in high performance concretes, while **EndurCrete** integrates Nano additives in low-carbon concretes, oriented also to more common construction spectrum of applications. The three strategies can be combined and even synergic and covered a TRL range between 5 to 7 of technologies.

This will be proven in the different prototypes which will include, among others the testing of nanoparticles, advanced concretes and durability-design approaches can provide already at medium-term. Together, the prototypes will cover the specific knowledge of more than 45 partners, proving that the benefits of these developments can go far beyond the construction sector.



Main technologies covered	ReSHEALience	EndurCrete	Lorcenis
Nanoparticles	TRL5-TRL6	TRL6	TRL3-TRL4
Components	-	TRL6	-
Low-carbon concretes	-	TRL6	-
Self-healing concretes	TRL5-TRL6	-	TRL5-TRL6
Self-protection concretes	-	TRL6	TRL5-TRL6
Self-diagnosis concrete	-	-	TRL5-TRL6
Durability design	TRL6	-	TRL6
Modelling	TRL6	TRL6	TRL5
Monitoring	TRL7	TRL5-TRL6	TRL5
Structural construction	TRL6-TRL7	TRL6	-
Recycling	TRL5	TRL6	-
LCA	TRL6	TRL6	TRL5

ENDURCRETE

"New Environmental Friendly and Durable conCrete, Integrating industrial by-products and hybrid systems, for civil, industrial and offshore applications"



<http://endurcrete.eu>

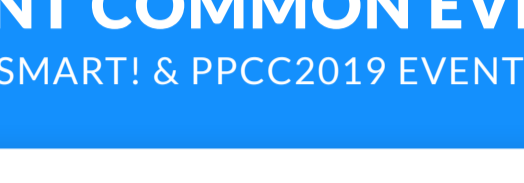


RESHEALIENCE

"Rethinking coastal defence and Green-Energy Service Infrastructures through enhanced durability high-performance Fiber reinforced cement-based materials"



<https://uhd.eu/>



LORCENIS

"Long Lasting Reinforced Concrete for Energy Infrastructures under severe Operating Conditions"



<https://www.sintef.no/projectweb/lorcenis/>



RECENT COMMON EVENTS

B-SMART! & PPCC2019 EVENTS



B-SMART! COMFORT, SAFETY, SUSTAINABILITY, INNOVATION

MADE EXPO, MILANO | 14.03.2019

MADE expo is Italy's most important trade show for the Building & Construction industry and also one of Europe's most significant events dedicated to the Architecture and the Construction sectors. Over 90,000 visitors, 900 exhibitors, 250 events and conferences with more than 14,000 participants.

B-SMART was packed programme of conferences, workshops and labs on the fundamental issues of the construction world in a professional, engaging and interactive way. Conferences, prototypes and interactive labs provided valuable technical, scientific and regulatory insights into solutions, materials and technologies for the design, the renovation and the construction of comfortable, safe and sustainable buildings.

Endurcrete and Reshealience project with the sponsorship of ACI Italy chapter organized within the B-SMART a common workshop:

THE CONCRETE CONSTRUCTION INDUSTRY FACING DURABILITY CHALLENGES: THE ITALIAN CONTRIBUTION IN SYNERGY WITH THE EUROPEAN VISION OF THE HORIZON 2020 PROJECTS RESHEALIENCE AND ENDURCRETE

The event was intended for all operators in the construction sector, with particular reference to concrete, from material and component producers to construction companies, building and infrastructure managers, and technical and administrative decision makers. The speakers, chosen from among the participants in the research groups involved, provided an updated overview of the most current issues concerning the durability of reinforced concrete structures and infrastructures and the most up-to-date solutions and methodologies to address them at the various technical-operational-decision levels.

TOPICS AND SPEAKERS

"THINK" AND "DESIGN" THE DURABILITY OF CEMENT MATERIALS: THINKING ABOUT THE CURRENT SERVICE LIFE OBJECTIVES

"Concept and design" of durability of cement based materials: Going beyond the current service life targets
Liberato Ferrara - Politecnico di Milano, Italy - ReSHEALience project coordinator

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MEASURE AND "MONITOR" DURABILITY

Non-destructive techniques to measure and monitor the durability of concrete
Gianmarco Revel - Università Politecnica delle Marche, Italy - Endurcrete project

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Predictive monitoring systems for rebar corrosion assessment in aggressive environments
Maria Cruz Alonso, CSIC, Spain, Reshealience/Lorcenis projects

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Novel carbon based additions for self sensing concretes
Francesca Tittarelli - Università Politecnica delle Marche, Italy - Endurcrete project

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DESIGN WITH DURABILITY: LIFE CYCLE ANALYSIS

Design with the durability: Life-Cycle Analysis
M. Chiara Caruso - Consorzio STRESS, Italy - ReSHEALience project

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"BUILD DURABILITY": THE EXPERIENCE AND THE POINT OF VIEW OF THE "END-USERS" AND STAKEHOLDERS

Reduction of costs through extreme durability concretes: Two successful stories
Esteban Camacho - Research and Development Concretes, Spain - ReSHEALience project

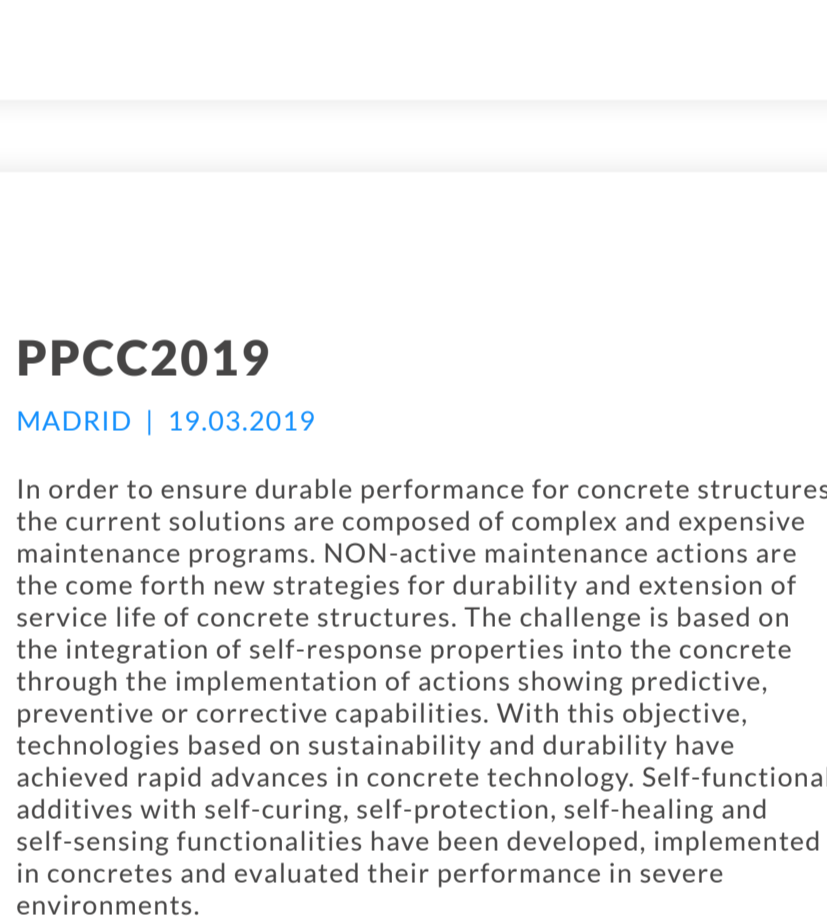
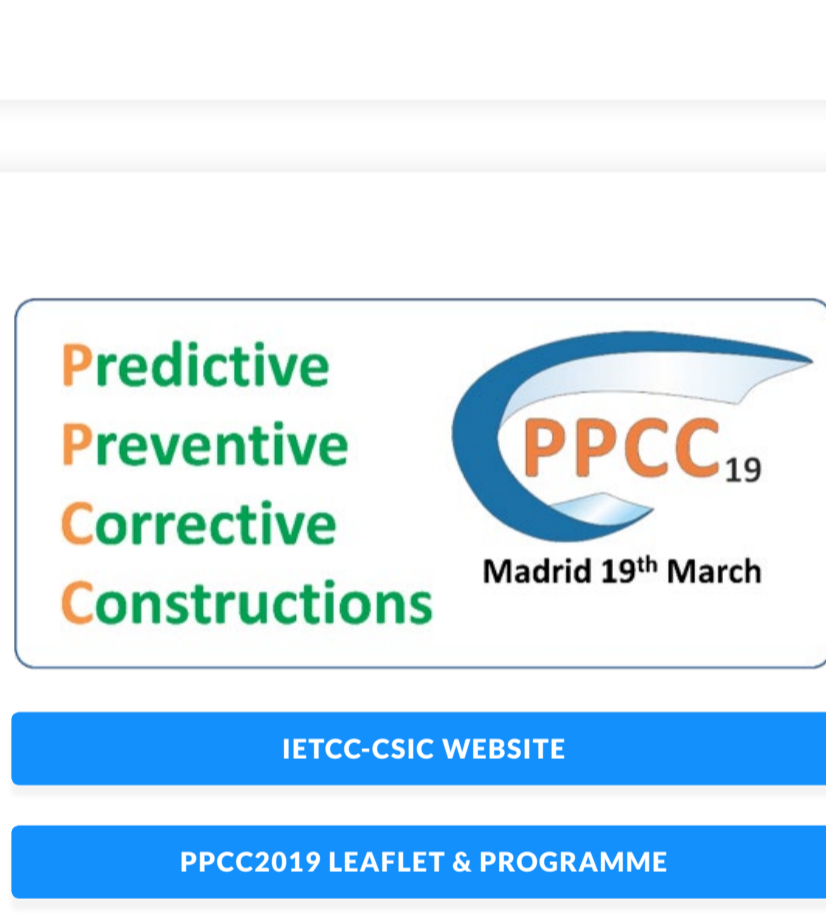
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Application of high durability concrete (UHDC) in the industry
Francesco Animato - Enel Green Power, Italy - ReSHEALience project

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Development of concrete panels reinforced with technical sensorized fabric
Paolo Corvaglia - RINA Consulting / Tesi System, Italy - Endurcrete project

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[IETCC-CSIC WEBSITE](#)

[PPCC2019 LEAFLET & PROGRAMME](#)

These functionalities have been discussed in the frame of the International Networking event under the name of **Predictive-Preventive-Corrective Constructions** (PPCC19) held in Madrid 19th March (link). However, the practical application of these new technology need for appropriate diffusion channels and dissemination forums where the latest advances are compared at the level of research and application expectances. The focus of the International Workshop was to provide a framework for the exchange of knowledge on the latest advances in research, on site applications and market needs in the field of construction.

This open discussion forum brought together more than 100 people from Nine EU countries were represented from construction industry, Ministries and academia. The aim of this international event was the analyses of expectances for implementation of emerging concrete technologies and additives based on "self-response capacity" and dissemination of experiences products

[VIEW THE PRESENTATIONS - TORROJA TV](#)

TOPICS AND SPEAKERS

INTRODUCTION OF THE LORCENIS PROJECT

LORCENIS Project challenges
C. Simon & M. Pilz - (Norway) SINTEF, (LORCENIS coordination, Profile: RTD), Chemist, PhD, Senior research scientist at SINTEF working with materials and nanotechnology and collaborating as project manager with industrial and academic partners on both national and international levels.

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GENERAL BACKGROUND OF THE NW PPCC19 AND MARKET ANALYSES

Frame for Non-active maintenance actions
R. Garcia, SIKA; M. C. Alonso, CSIC; J. Vera, ACCIONA Const, Spain

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Sustainability: Standards and targets
I. Jaraeta, ANFAH, Spain; (Profile: IND)

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Market analyses: Durability prescriptions & profitability
E. J. Ayala, J. Vera, ACCIONA, Spain; (Profile: IND)

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Market Analyses: Durability and service-life of offshore concrete structures
K.T. Fosså, K. Haldorsen, KVAERNER, Norway; (Profile: IND)

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PANEL ANALYSES OF PREDICTIVE ACTIONS

Health monitoring of structures
M.C. Alonso (Spain), Institute Eduardo Torroja, CSIC, (LORCENIS/ ReSHEALience projects)

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Site monitoring to prove extreme durability
E. Camacho (Spain), SME Research & Development Concretes, (ReSHEALience partner)

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New materials for self-diagnosis in construction
A. Korzhenko (France), Arkema, (Profile: IND)

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Active contributing technologies in the field of durability
R. Garcia (Spain), SIKA, (profile IND)

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Expectances from internal curing in concrete
M. Francini, S. Irico (Italy), BUZZI UNICEM, Dyckerhoff, (Profile: IND)

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Expectances from self-protection systems
F. Maia (Portugal), SMALLMATEK, (LORCENIS partner, SME), R&D Director of Smallmatek

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PANEL ANALYSES OF LATENT CORRECTIVE ACTIONS

Practice needs for crack sealing
U. Mueller (Sweden), RISE-CBI, (LORCENIS partner, RTD)

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Expectances from self-healing systems
J. Vera (Spain), ACCIONAConst, (LORCENIS & ENDURCRETE projects partner, IND)

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Crack self-healing technologies and challenges
K. Van Tittelboom (Belgium), UGent, (LORCENIS partner, RTD)

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Actual needs and future expectances from new NON-active Maintenance
M. Arana (Spain), Const Ministry, Harbors affair, (External, Ministry, end-user)

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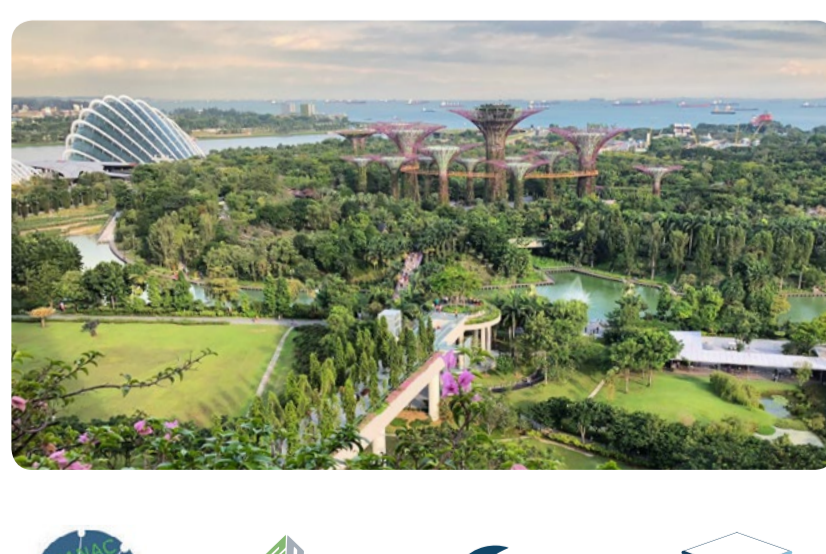
The importance of sustainability and related policy in EU RTDI calls
L. Inigo (Spain), CDTI (NMBP Nat. contact), (External, Ministry, RTDI)

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FINAL ANALYSES AND CONCLUSIONS

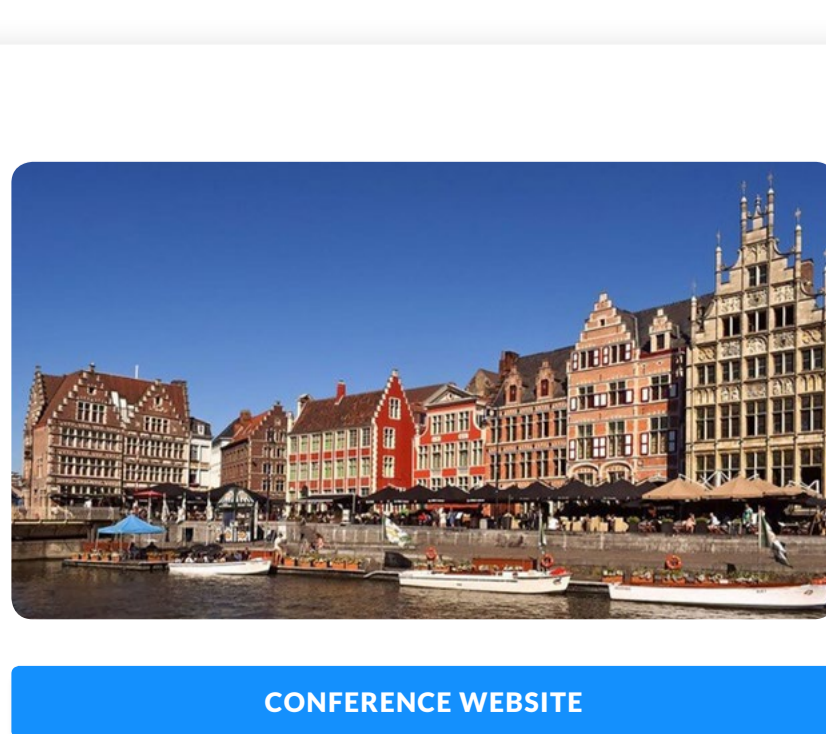
Final Debate: Analysis on new durability strategies and lessons learnt from PPCC19
Emmanuel Gallucci (Switzerland), SIKA

[WATCH](#)



NEXT PLANNED COMMON EVENT

AMANAC WORKSHOP & LORCENIS CONFERENCE



AMANAC WORKSHOP
BRUSSELS, BELGIUM | 03.07.2019 | 13.00 - 18.00

EndurCrete, Reshealience, Dacomat and AMANAC projects are co-organizing a common workshop "WHAT KIND OF BUILT ENVIRONMENT FOR FUTURE GENERATIONS?" with the main aim to introduce to the audience main challenges and needs in construction industry, sustainability and durability of concrete built environment and how the general public and society respond to these trends.

MAIN THEMATIC:

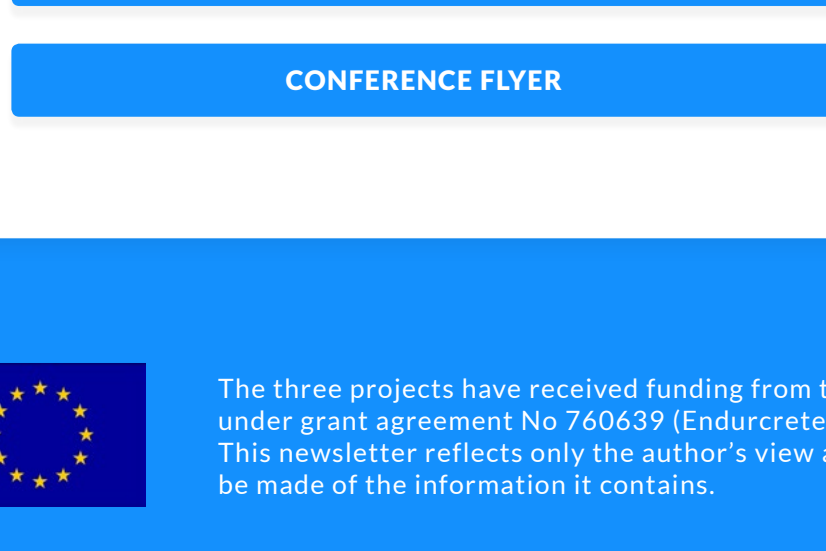
Part 1: Sustainable construction: European Projects

Part 2: What are the Challenges and Needs for the actors in the construction industry?

Part 3: Making the professionals aware of the solutions for durable structures

Part 4: What are the responsibilities of the institutions public and the society representatives

Discussions: Developing solutions that last 100 years



LORCENIS CONFERENCE
GHENT, BELGIUM | 10. - 11.07.2019

Conference on Durable Concrete for Infrastructure under Severe Conditions in the framework of the **LORCENIS** project: Smart Admixtures, Self-responsiveness and Nano-additions

CONFERENCE TOPICS:

Smart concrete admixtures, internal curing, self-sealing, self-healing, carbon based fillers, nanofibers, nanotubes, layered double hydroxides, nano- and microcapsules, self-healing polymers for concrete Effects of smart admixtures on fresh and hardened concrete properties Modelling and service life prediction of concrete in extreme conditions Durability of infrastructure in the energy sector Durability and sustainability of tailor-made concrete in extreme conditions: Extreme thermal gradients, Ice impact, Corrosion, Freeze-thaw, Deep-sea, Mechanical fatigue, Acid attack.