

ERMCO

EUROPEAN READY MIXED CONCRETE ORGANIZATION
ASSOCIATION EUROPEENNE DU BETON PRET A L'EMPLOI
EUROPÄISCHER TRANSPORTBETONVERBAND

Concrete:

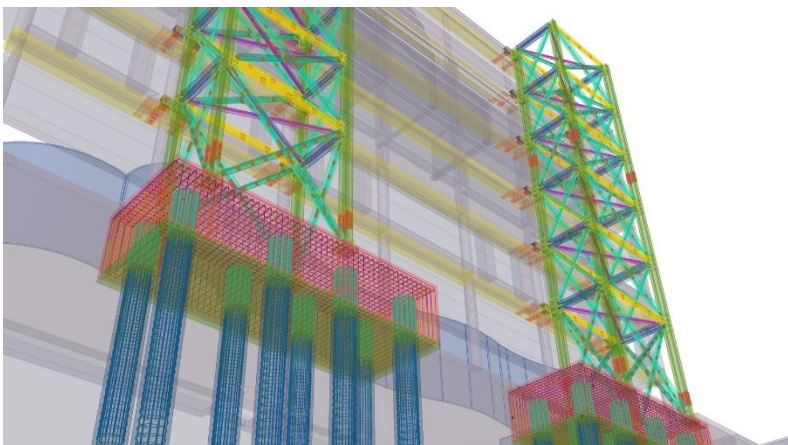
The Digital and Affordable Material

June 2021

1. Digitalization

As mentioned in the European Construction Industry Manifesto, “....to remain competitive in an increasingly globalized market, the EU economy must transform itself digitally. The construction sector is an integral part of the European economy, and the digitalization of the sector is an enabler for the transformation of that economy....”

This because, whereas other industries have already adopted digital processes, construction has so far almost remained an industry characterized by many manual processes and traditional methods. The COVID 19 pandemic crisis has highlighted how it is necessary to innovate the construction sector, and the construction industry is making up for this delay by implementing processes of digitization of the whole supply chain.



Construction is progressively adopting digitalised processes and buildings and infrastructure are becoming sources of data not only during their design but also in their operational phases, generating large amounts of valuable data which can potentially be exploited with the use of Artificial Intelligence (AI).

The progressive digitalisation of the construction sector is bringing profound changes to:

- the way of producing,
- the organization of the companies,
- the products / services,
- the relationship inside the supply chain,

The European Construction sector is investing in digitalization to optimize the cost of housing and improve the pace of renovation and construction of new buildings and infrastructures.

2. Building Information Modelling (BIM)

Some aspects of construction are being digitalized faster than others. In construction digitalization can be said to have started with designers moving away some decades ago from their drawing boards to Computer Aided Design (CAD). Now CAD is increasingly being replaced by Building Information Modelling.



BIM is a digital information management approach being adopted by the construction industry to:

- improve productivity and quality in building and infrastructure projects,
- reduce financial losses during construction, and
- provide a basis for developing future services.

At its core, there is 3D object-oriented model with embedded data that can be shared by and amongst all actors at all stages of a project, from design to

maintenance. In this context, each actor retains responsibility for their own data, but project managers can use BIM as one single reliable source of data for their decision-making. As BIM covers the entire construction sector, including public works and civil engineering, it makes possible to structure and manage the data of a construction work to predict how it can be repaired, destroyed, and how its materials can be recycled.

BIM is neither a product nor a software but a "container of information" with graphic data (such as drawings) and specific technical attributes (such as technical data sheets and characteristics) also relating to the expected life cycle.

One interesting example of how BIM is changing and improving buildings and infrastructures is the world's longest bridge, the [Randselva Bridge](#), a 634-meterlong concrete cantilever being built without drawings and based solely on BIM-models.

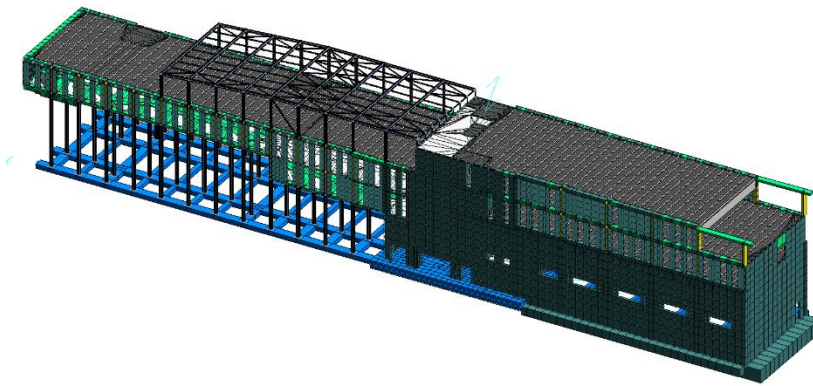
BIM does not only allow to build new buildings but also look at and take account of how buildings and infrastructures are connected. The New European Bauhaus should strongly support the digital revolution in construction by promoting opportunities for BIM implementation.

3. BIM IN EUROPE – HORIZON 2020 BIM PROJECTS

- **BIM Speed project 2018 – 2022** [Europa.eu/project](#). Coordinated by TECHNISCHE UNIVERSITÄT BERLIN – Germany. The mission is to take 'BIM for renovation' to a deep renovation level for at least 60% energy saving, and to accelerate the market uptake across the EU.
- **BIM4REN** [Bim4ren.eu](#) is a 2018-2022 funded project for the development of the exploitation of BIM potential for the energy renovation of existing buildings for the whole construction value chain.

- **SPHERE** [Sphere-project.eu/](https://sphere-project.eu/) is a 4-year, Horizon 2020 project that aims to provide a BIM-based Digital Twin Platform to optimise the building lifecycle, reduce costs and improve energy efficiency in residential buildings.
- **DigiPLACE** www.digiplaceproject.eu is a preliminary study setting up the reference architecture framework for the development of construction oriented digital platforms as common ecosystems of digital services to support innovation, commerce etc.

4. THE ERMCO PRODUCT DATA TEMPLATE



In 2021 the European Ready Mixed Concrete Organization (ERMCO) has established a “BIM Working Group” requested to prepare a Product Data Template (PDT) covering all properties of concrete to be used in BIM models.

Between different

countries, or within different organisations, product characteristics do not always share the same name, spelling or abbreviation. To help machines understand the intended meaning of information there a common framework of concepts and the relationships between those concepts are needed. A data template considers all these differences and give each characteristic the same ID/container regardless of country or organization. A PDT is a «hotel» for all properties/characteristics that describes a product where each characteristic has its own room- so every time you ask for «room 346» you will get the values for the same characteristic – every time.

Addressing the needs and requests of the different stakeholders (architects, engineers, producers, construction companies, clients, etc.), in close contact with BIM experts the ERMCO PDT under preparation includes all relevant parameters related to concrete properties, as described in the concrete standard EN 206 and its national annexes, and other concrete properties not covered by EN 206.

By this initiative, ERMCO ensures that BIM is applicable to the concrete sector and contributes to the creation of an objects' dictionary, clarifying the definitions and characteristics of concrete to realize those objects. While concrete environmental data may be integrated into BIM models since the beginning, in order to be used at the very early stage of the decision process, by relying on better traceability BIM can also be a facilitator in the re-use of recycled concrete.



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About ERMCO

The European Ready Mixed Concrete Organization (ERMCO), a non – profit body under the Belgian law, is the federation of the European National Associations of ready-mixed concrete producers. Since 1967, ERMCO has been deeply involved in the promotion and development of the ready-mixed concrete industry: its mission is to make the voice of the industry heard at European level, to actively contribute to the development of concrete related standards, to foster innovation in the concrete production and delivery process and to improve the image and appreciation of concrete as an economical but environmentally friendly construction material. is Currently, **ERMCO has 20 Full, 6 Associate, 1 Corresponding and 2 Supporting Members** from different countries all over the world (www.ermco.eu).