

BIMplement

Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences.

<http://www.bimplement-project.eu/>

Report:	D6.4 Brochures and articles in scientific and dissemination journals
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Change records

Version	Date	Author	Changes
Version 1.0	2018-09-21	IVE	First version provided
Version 2.0	2020-08-24	IVE	Second version provided
Version 3.0	2021-01-20	IVE	Revision due to the review meeting. Full scientific publications in pdf as copy added in Annex I Full articles in pdf as copy added in Annex II

Summary

There are two project brochures produced at two different stages of the project: the first one at the beginning of the project to inform relevant stakeholder communities of the start of the project and its objectives. The second one was released towards the end of the project and focus on the project's achievements and its life after project completion.

In addition, the BIMplement project was disseminated through press articles of all kinds, from digital dissemination journals with more general content on the BIM methodology applied to nZEB buildings to peer-reviewed articles in scientific publications.

1. Brochures

Both brochures are available on the project website here:

<http://www.bimplement-project.eu/publications/promotion-material/>

The first brochure was produced on the M12 and is available in English, French and Spanish. The brochure answers four basic questions: why? How? What? and where?

The second brochure was produced towards the end of the project and focus on the project's achievements and its life after project completion. It begins with an overview of the project or summary (objective, duration, stages, etc.) and then lists the most outstanding results. Finally, it describes the phases of the project where the user can find more information and expand it if necessary.

Both brochures have the same cover that includes contact information such as the [project website](#), links to active social networks (facebook, twitter and linkedin), the list of partners with their logos and websites and the EU disclaimer.

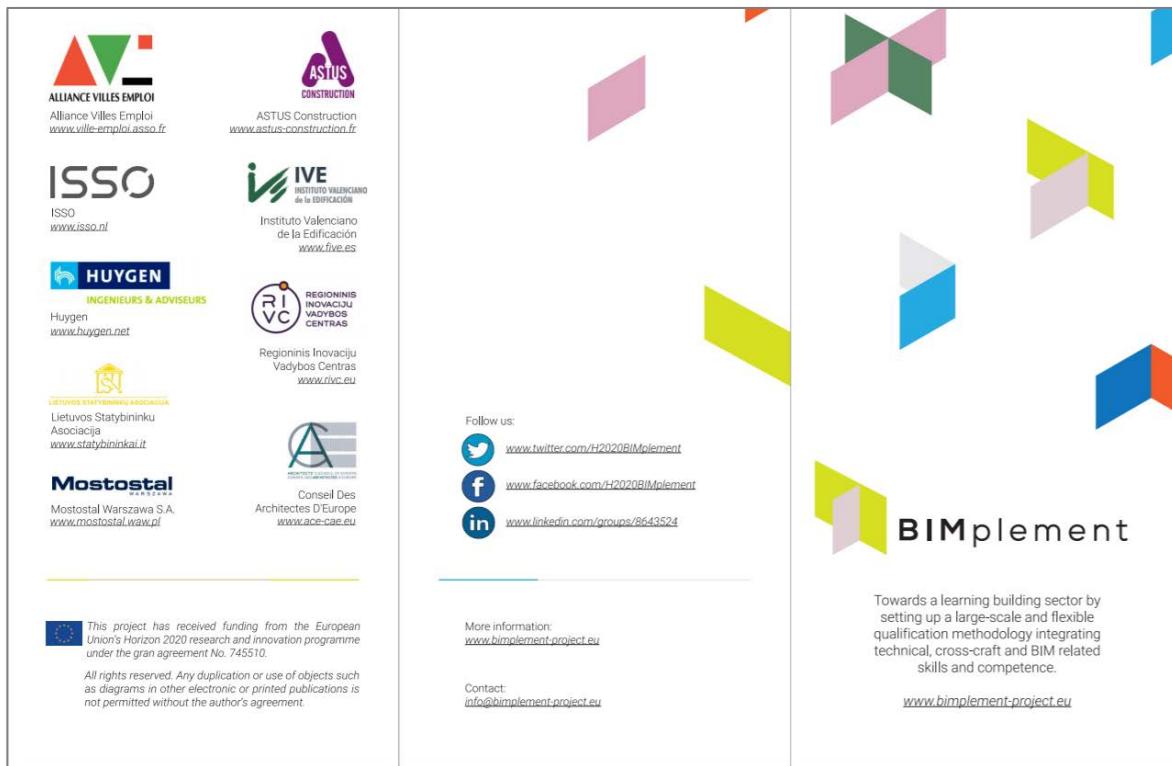


Fig. 1: Brochure cover

WHY?
"BIMplement aims to achieve an improved quality for nZEB construction and renovation"

BIMplement is a 30 month-long EU funded project which started in September 2017. The overall objective is to achieve an **improved quality for nearly Zero Energy Building (nZEB) construction and renovation by using BIM as a medium**. BIM, as a powerful tool much more efficient than just 2D plans, will be used to facilitate and optimize nZEB implementation.

NZEB construction and renovation need an enhanced systematic approach for the quality control of the entire process. This is the first prerequisite to reduce the gap between designed (predicted) and actual performances of buildings, both in terms of energy efficiency and indoor environmental quality. The most important part of this enhanced quality control approach is a fully equipped workforce, capable to implement, execute and perform all the necessary labor actions with a full understanding of the responsibility of their own profession and actions, as well as the relation with the other involved professions and actions within the value chain.

BIMplement in a nutshell

HOW?
"by setting up large scale training, Continuous Professional Development and BIM-enhanced qualification schemes, strengthened with hands-on and BIM-enhanced workplace learning tools"

BIMplement will develop a methodology on how to identify the different professions and levels for the specific crucial topics for nZEB, establishing a easy-to-use link between nZEB skills, BIM skills and the BIM model. The team will link available methodologies of mapping of skills, training and qualifications schemes to the different professions involved in the different phases of the construction process. This includes the definition of **BIM skills** that need to be achieved by all professionals to ensure an improved quality for nZEB. Trainers and trainees will be offered a range of tools for creating a **fully qualified and equipped workforce**. The BIMplement concept includes setting-up **large scale training, Continuous Professional Development** and **BIM-enhanced qualification schemes**, addressing all process phases in a **cross-trade and cross-level multidisciplinary approach**.

Qualification Framework Methodology

BIMplement will combine the upskilling in using BIM with the upskilling on nZEB related topics. For this purpose, BIM model will be used as a medium to bear and offer nZEB technologies' related data, as well as information about the skills needed for the implementation of these technologies.

WHAT?
"testing the methodology by addressing selected nZEB related topics: ventilation and airtightness"

NZEB requires a systematic, integrated approach that covers a large range of topics, technologies, concepts and products. BIMplement will focus on applying the methodology to two of those topics, **building ventilation and airtightness**, to show how the method can be used for the implementation of the Continuous Professional Development and qualification schemes.

WHERE?
"the methodology will be tested in BIM-learning centres and implemented in experimental building sites"

BIMplement experimentation will take place in each country (France, Spain, The Netherlands, Lithuania and Poland) involving **50 construction or renovation projects** that will be used to test the value of BIMplement methodology and BIM-enhanced tools. The aim of this pilots is to provide both professionals (white collars) and craftsmen (blue collars) **Just-in-Time & Just-in-Place** with the necessary **knowledge and skills**, thanks to a real implementation in construction or renovation building sites.

Each country will also carry out BIM awareness campaigns addressed to:

- Public procurers to raise their awareness about the need to include requirements for quality and BIM processes in their call for tenders.
- The craftsmen and SME's to convince them to build up their skills.

Fig. 2: Brochure #1

OVERVIEW

BIMplement is a project financed by the Horizon 2020 programme of the European Union, with a duration of 36 months, in which 9 partners from 5 different countries participate: France, the Netherlands, Spain, Lithuania, and Poland that started in September 2017.

The main objective is to improve the quality in the construction and renovation process of nearly Zero Energy Buildings (nZEB) using BIM as a universal information carrier and facilitator of the learning process within projects and between projects.

BIMplement sets up large scale training, Continuous Professional Development and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences. BIMplement has trained more than 1,100 professionals (blue-collar and white-collar workers) and the methodology has been tested in more than 40 construction or renovation projects in France, the Netherlands, Spain, Lithuania, and Poland.

7 x 210 mm

RESULTS

BIMplement fully builds on the available results of the related BUILD UP Skills (BUS) and Construction Skills projects combining quality assurance with large scale qualification schemes. The results of the BIMplement project have been uploaded to the open database of the PROF/TRAC project, a key BIM project in which nZEB technologies, professions and skills were mapped.

Methodology guides

- A self-instruction guide for implementing BIMplement methodology and Qualifications Framework in other countries and for other topics beyond ventilation and air tightness (D5.2).
- Methodology guide on qualification methodology, raising awareness methodology, methods and supports for contractors (D5.5).

Tools, contents and learning methods

- Tools and learning methods and qualification schemes for BIM workplace trainers (D4.5).
- BIMplement kit: 12-one-hour training sessions, that can be given to site operators by an employee of the company previously trained on the BIM process, the use of viewers, and the use of the BIMplement Kit.
- Catalogue of constructive elements: Software containing a library of elements that can be exported in IFC and imported from any BIM modelling program.

Implementation service concept

- The Implementation service concept developed shows the possible alternative paths, approaches, and tools on how the methodologies could be applied in particular organisational settings (D5.6).

TO KNOW MORE ABOUT

If you want to know more about the BIMplement project, you will find more detailed information on each of the phases of its journey:

Development & Implementation phase

BIMplement has developed and implemented a quality-oriented Qualification Framework. It consists of task based descriptions of competences, skills and knowledge needed in order to connect available knowledge such as learning content and quality inspections to the BIM-model, the building process and the actors involved.

Pilots, demonstration & validation phase

To verify the established matrix and qualification framework, the methodology was tested and validated in more than 40 construction and renovation projects in France, the Netherlands, Spain, Lithuania, and Poland.

Exploitation & replication phase

An exploitation strategy has been developed in order to upscale the methodology to other topics beyond ventilation and air tightness and to other countries by a free and open methodology, implementation services and a shared open development platform.

Fig. 3: Brochure #2

2. Publications

Full articles and scientific publications in pdf as copy can be found in Annex I.

2.1 Article in “REHVA European HVAC Journal”

In October 2018 an article of BIMplement was published in the "REHVA European HVAC Journal" with the title "**Introduction to the H2020 BIMplement project**". The main authors of the article, with the collaboration of all partners, were: Ana Tisov and Peter op'T Veld (Huygen), Jan Cromwijk (ISSO) and Henri le Marois (AVE).

https://www.rehva.eu/fileadmin/REHVA_Journal/REHVA_Journal_2018/RJ5/RJ1805_WEB.pdf



2.2 “CLIMA 2019 International Congress proceedings”

A paper titled “Can BIM be used for smart upskilling professions involved in the construction process?” was submitted to [CLIMA 2019](#) Conference and published as part of ERS Web of Conferences publication:

<https://www.e3s-conferences.org/articles/e3sconf/abs/2019/37/contents/contents.html>

2.3 “VI nZEB Conference proceedings”

In October 2019 the official publication containing a selection of 60 scientific papers sent to the "ViñZEB Conference" was published. Among them was the article "**Qualified professionals with BIM skills: European project H2020 BIMplement**" written by María José Esparza, Miriam Navarro and Begoña Serrano.

This publication is freely accessible and can be read at the following link (pages 109-113):

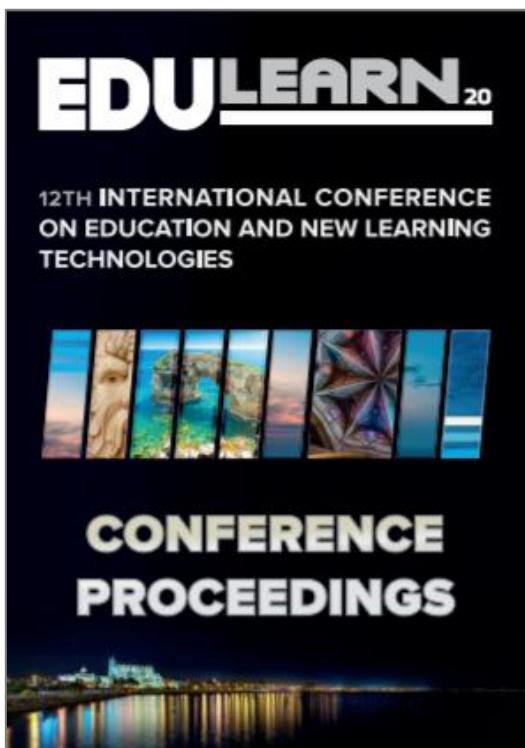
<https://www.construible.es/biblioteca/libro-comunicaciones-proyectos-6-congreso-edificios-energia-casi-nula>

ISBN: 978-1692234782



2.4 "EDULEARN 20" proceedings:

Title: "Improving energy-efficiency skills in the construction sector through technology-enhanced learning: the case of BIMplement project".



Main authors: M.J. Esparza-Arbona (1), M. Navarro-Escudero (1), B. Serrano-Lanzarote (2), J. Cromwijk (3), P. Op' T Veld (4)

- Valencia Institute of Building (IVE) (SPAIN)
- Universitat Politècnica de València (UPV) (SPAIN)
- Stichting Instituut voor Studie Enstimulering van Onderzoek op Hetgebied van Gebouwinstallaties (ISSO) (NETHERLANDS)
- Huygen Installatie Adviseurs (NETHERLANDS)

DOI: <https://doi.org/10.21125/edulearn.2020>

ISBN: 978-84-09-17979-4

3. Articles in dissemination journals

Full articles in pdf as copy can be found in Annex II.

Some articles of the BIMplement project have been published in different dissemination journal. Below is the list of URLs with the articles. More information on the articles published in scientific journals and conference proceedings can be found in D6.6.

- http://www.habitatge.gva.es/va/inicio/area_de_prensa/not_detalle_area_prensa?id=731480
- <https://www.ace-cae.eu/activities/events/2017/bim-in-europe/>
- <https://cordis.europa.eu/project/id/745510/es>
- <http://www.citopcv.com/primera-newsletter-proyecto-bimplement>
- <http://www.buildup.eu/en/news/overview-possibilities-and-challenges-bim-respect-assessment-energy-performance-buildings-0>
- <http://www.rivc.eu/a-fresh-start-of-bimplement-setting-up-a-large-scale-and-flexible-qualification-methodology-integrating-technical-cross-craft-and-bim-related-skills-and-competences/>
- <https://www.ville-emploi.asso.fr/bimplement-projet-europeen-lalliance-villes-emploi/>
- <https://www.construction21.org/france/articles/fr/les-formations-actions-bim-vert-sur-chantiers-le-projet-bimplement.html>
- https://explore.openaire.eu/search/project?projectId=corda_h2020::0e2df2ea334d46cf57f41eecf59b954c
- <http://qualicheck-platform.eu/2018/04/1st-european-conference-bim-and-energy-performance-of-buildings-25-june-2018-brussels-belgium/>
- <http://www.ecoconstruction-rhone.fr/?event=doit-on-encore-attendre-avant-de-se-mettre-au-bim>
- <https://www.buildup.eu/es/news/benefits-bim-and-its-level-adoption-european-countries>
- <http://buildup.eu/en/news/overview-possibilities-and-challenges-bim-respect-assessment-energy-performance-buildings-0>
- <http://buildup.eu/en/events/1st-european-conference-bim-and-energy-performance-buildings-25-june-2018>
- <http://buildup.eu/en/news/overview-how-eu-supporting-bim-and-ict-development-buildings-sector>
- <http://buildup.eu/en/explore/links/bimplement-project>
- <http://www.aecoestudio.com/bimplement-seleccion/>
- <http://www.buildup.eu/en/node/57099>
- <http://www.buildup.eu/en/news/development-and-implementation-bim-enhanced-qualification-framework>
- <http://www.buildup.eu/en/news/bimplement-training-program-france-current-status-and-follow>
- <https://www.buildup.eu/es/node/57783>
- https://www.gva.es/va/inicio/area_de_prensa/not_detalle_area_prensa?id=823804
- https://www.elperiodic.com/conselleria-vivienda-actualizara-catalogo-elementos-constructivos-para-mejorar-digitalizacion-sector-construccion_638736
- <https://www.buildup.eu/en/practices/publications/bim-collaborative-work-methodology-revolutionizing-construction-sector>
- <https://www.interempresas.net/Construccion/Articulos/254435-Instituto-Valenciano-Edificacion-actualizara-Catalogo-elementos-constructivos-mejorar.html>
- <https://www.buildup.eu/en/practices/publications/bimplement-tools-training-content-and-qualification-schemes-bim-work-place>
- <https://www.buildup.eu/en/news/bimplement-project-greater-energy-efficiency-using-bim-airtightness-model>
- https://ec.europa.eu/newsroom/easme/newsletter-specific-archive-issue.cfm?newsletter_service_id=1128&lang=default
- <https://cutt.ly/ieS49XG>
- <https://www.buildup.eu/en/events/webinar-are-we-ready-bim-construction-sites>
- <https://mailchi.mp/d0ae758f049f/bimplement-project-webinar?e=6c450b02eb>
- <https://www.buildup.eu/en/news/webinar-are-we-ready-bim-construction-sites-reality-check-experiences-ground>
- https://www.gva.es/es/inicio/area_de_prensa/not_detalle_area_prensa?id=839716
- <https://www.elperiodicode aqui.com/epda-noticias/la-generalitat-participa-en-un-proyecto-que-promueve-la-metodologia-bim-en-la-rehabilitacion-de-edificios-de-consumo-de-energia-casi-nulo/199294>

https://ec.europa.eu/newsroom/easme/newsletter-specific-archive-issue.cfm?newsletter_service_id=1128&lang=default

<https://ec.europa.eu/easme/en/news/improving-quality-nearly-zero-energy-buildings>

<https://cordis.europa.eu/article/id/411695-bim-trained-on-site-workers-deliver-better-nearly-zero-energy-buildings>

<https://us10.campaign-archive.com/?e=59f9cbb672&u=13772b4410c1c16fd2e367650&id=1a8c98fff7>

[https://www.construible.es/comunicaciones/comunicacion-profesionales-cualificados-habilidades-bim-proyecto-europeo-h2020-bimimplement](https://www.construible.es/comunicaciones/comunicacion-profesionales-cualificados-habilidades-bim-proyecto-europeo-h2020-bimplement)

<https://cutt.ly/9r1ygKF>

<https://www.buildup.eu/en/news/construction-skills-equipping-building-professionals-new-skills-achieve-european-energy-targets>

<https://cutt.ly/9tth8VG>

https://www.gva.es/va/inicio/area_de_prensa/not_detalle_area_prensa?id=854298

<https://www.inmodiario.com/168/28934/curso-online-gratis-herramientas-para-redaccion-proyectos-gestion-obra-mantenimiento-edificios.html>

https://www.elperiodic.com/conselleria-vivienda-arquitectura-bioclimatica-ofrece-gratis-linea-curso-herramientas-para-redaccion-proyectos-gestion-obra-mantenimiento-edificios_675685

<https://cutt.ly/LygvoJk>

<https://youtu.be/RZwVr2unGmc>

https://www.gva.es/va/inicio/area_de_prensa/not_detalle_area_prensa?id=865516

<https://www.interempresas.net/Construccion/Articulos/306924-IVE-presenta-la-nueva-version-del-Catalogo-de-Elementos-Constructivos.html>

<https://www.interempresas.net/Construccion/Articulos/307456-Presentada-una-nueva-version-del-Catalogo-de-Elementos-Constructivos-del-IVE.html>

https://www.elperiodic.com/conselleria-arquitectura-bioclimatica-presenta-nueva-version-catalogo-elementos-constructivos_687699

https://www.gva.es/va/inicio/area_de_prensa/not_detalle_area_prensa?id=881376

https://www.elperiodic.com/generalitat-presenta-resultados-proyecto-bimplement-para-mejorar-construccion-rehabilitacion-edificios-consumo-energia-casi-cero_696919

<https://www.levante-emv.com/comunitat-valenciana/2020/08/20/vivienda-prorroga-ano-plan-alquiler/2043232.html>

<https://castellonplaza.com/Vivienda presenta un proyecto para mejorar la construcción de edificios de bajo consumo>

Annex I

Full articles and scientific publications in pdf as copy can be found on the following pages

Introduction to the H2020 BIMplement project

Towards a learning building sector for enhanced quality control by setting up a qualification methodology integrating technical, cross-trade and BIM related skills and competences

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To improve the current situation and accelerate the rate and quality of nZEB construction and renovation, the European Commission took the challenge supporting several initiatives including H2020 Construction Skills funding schemes. This paper introduces the H2020 Construction Skills project BIMplement, explains its vision and how utilizing BIM to improve skills of different professions can lead to an improved quality and enhanced quality control over entire value chain. The overarching project goal is to achieve an improved quality for nearly Zero Energy Building (nZEB) construction and renovation by using BIM as a universal information carrier and enabler of the learning process within projects and between projects.

Keywords: Quality control, BIM, skills, competences and upskilling, qualification schemes.

Motivation

Given that about 75% of the EU building stock is considered energy inefficient and the energy use in buildings (residential and commercial) is responsible for about 40% of final energy consumption in the European Union [1], energy efficiency renovation represents a promising long-term growth possibility for

the EU construction sector. Nevertheless, construction industry is seen as being relatively inefficient in both process and service delivery. There is evident gap between the designed level of energy efficiency and the level of energy efficiency realized [2] also due to a lack of built quality and skills gap. The construction sector suffers from a lack of skilled workers in general, while

energy efficiency renovations even requires additional competences and qualifications. According to the World Economic Forum, construction labor productivity has stagnated over the past 50 years [3].

This shows that nearly Zero Energy Building (nZEB) construction and renovation need an enhanced systematic approach for the quality control of the entire process. An enhanced quality control approach can only be achieved by a fully qualified and equipped workforce, capable to implement, execute and perform all the necessary actions with a full understanding of the responsibility of their own profession and actions, as well as the relation with the other involved professions and actions within the value chain.

Why to implement BIMplement?

With objectives to improve knowledge, skills and competences of all the relevant disciplines involved in nZEB construction and renovation, and create more collaboration between them, the BIMplement project was funded. The BIMplement is a 30 month-long EU funded project involving 10 partners from 5 different countries: France, the Netherlands, Lithuania, Spain and Poland which started in September 2017.

BIMplement origins - PROF/TRAC project

One of the first projects contracted under H2020 Construction Skills was PROF/TRAC: 'Professional multi-disciplinary Training and Continuing development in skills for nZEB principles' (2015–2018), www.proftrac.eu which is also the foundation for BIMplement. REHVA was one of the core partners in this project; moreover, four national REHVA members were involved in PROF/TRAC as national training providers (ATECYR, DANVAK, HKIS, TVVL).

The overall objective of PROF/TRAC was to develop a European training and qualification scheme as part of a life-long learning process for continuous development and up-skilling of professionals, aiming at middle and senior professionals with a higher education degree (white-collars). The collaboration in PROF/TRAC with European organizations like REHVA, Architect Council of Europe and Housing Europe turned out to be an important prerequisite for the implementation of the results as it appeared to be very effective both for endorsement and for a further European roll out as their national members can act as training providers.

BIMplement builds upon the PROF-TRAC project as also several BuildUp Skills projects (FR, NL, LT) where



Unsplash.com

these project's results and successes offer the necessary building blocks in training, CPD, methodologies for skills mapping (<http://proftrac.eu/training-materials.html>) for all professions and for levels involved in nZEB skills.

BIMplement - the road towards an improved quality for nZEB in Europe

BIMplement engages further and tackles remaining challenge on how to make a major step forward in the implementation of these qualifications where BIM can offer the competitive advantage as an efficient management strategic tool and as such, gives an opportunity to implement results in a BIM-enabled workplace learning environment. This is done in a cross-cutting process that is:

- Cross-trade: with a multidisciplinary approach throughout the entire value chain of the buildings sector.
- Cross-European Qualification Framework (EQF) -level: addressing both blue-collar workers, middle and senior level professionals.
- Cross-time: by setting up a flexible qualification methodology so that new innovations and uses of technologies can be addressed.
- Cross-country: by setting up a mutual recognition scheme of qualifications among different Member States, but by leaving room for Member States specific roles and uses of technology
- Cross-value: by improved appreciation of the end user's needs including the quality of indoor environment (thermal and visual comfort, acoustics, air quality, etc.), in an improved operation and maintenance by closing the learning loop using BIM as information carrier.
- Cross-size: from SME to Enterprise, based on regional of local experience centres or BIM-Hubs.
- Cross-project: by using BIM as a learning environment, to facilitate and enable the learning flow.

In this way BIMplement paves a road towards an improved quality for nZEB construction and renovation by the following objectives:

- addressing the entire value chain of the building sector and the total construction process (from pre-design to in use phase);
- improving skills of professionals as blue-collar workers for nZEB quality (cross-trade & cross-level) via large scale trainings and continuous professional development (CPD);
- developing a flexible qualification methodology that is able to anticipate new products and processes (cross-time) in different countries (cross-country);
- empowered by BIM and BIM enhanced workplace learning tools.

Towards enhanced quality control over entire value chain by using BIM

The four BIMplement steps present a journey towards the upgrade of the quality of the work needed to meet nZEB targets.

Step 1: BIMplement methodology development with tools and learning content, using BIM as an information carrier

The project started with the development of a flexible qualification methodology to standardize the needed qualifications and a range of learning tools, to unlock and implement these qualifications. By using a systematic standardized approach, the mapped qualifications are to be transparent and comparable between EU member states, thus facilitating and providing EU mobility; robust and flexible (dynamic) approach for national adaptation. Also, as the evolution of technologies and materials is rapid, the methodology requires continuously reconsidering and updating our knowledge and skills.

BIMplement develops a general BIM-enhanced qualification framework (QF) structure and method to identify the different professions and professional levels for the specific crucial topics for nZEB technologies, concepts, products, as a function of the phases in the construction process. It is adaptable for blue and white collar-workers and professionals, with an implementation within existing learning tools and method-

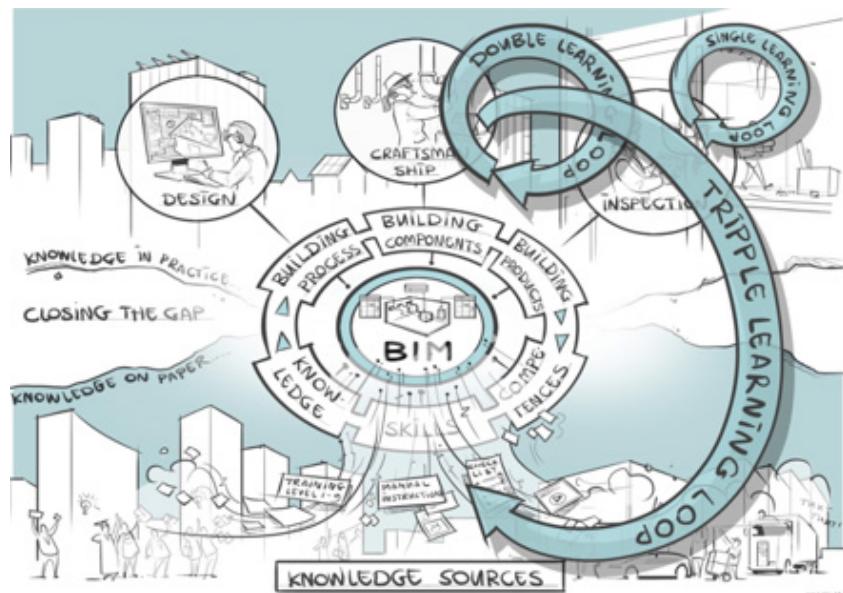


Figure 1. The BIMplement methodology aims to close the gap between the knowledge in practice and knowledge in paper by creating various learning and knowledge exchange loops, supported by adequate quality control.

ologies. This is based on PROF/TRAC Qualification scheme framework while utilizing BIM to connect the knowledge sources with the building process, building components and building products. The methodology building upon existing BIM process structures (CEN/TC 442 Building Information Modelling (BIM)) and existing classifications (e.g. IEC 81346 and ISO TC 59/SC 13/WG 11: ISO 16757 Data structures for building services product catalogues) where the BIMplement didactical task descriptions for the addressed technologies and components are then linked with suitable education material and trainings on a national level.

Step 2: Testing the methodology by implementing it for two specific areas: air-tightness and ventilation

To keep focus within the project itself, the testing of the methodology is dedicated to the implementation of ventilation systems and ensuring the air-tightness of buildings. As for the ventilation, there can be a didactical task connected with the BIM object or technology. Nevertheless, air-tightness is a more complex building application area as it is related to almost all the different building envelope components (transparent as opaque) as to joints application in-between. Therefore, air tightness should be assessed more holistically with objective to control air leakage and heat losses through the building fabric and at interfaces, joints & junctions.

Step 3: Pilots demonstration and validation

The objective of the BIMplement is to apply the methodology in 50 experimental sites (in NL, PL, LT, SP, FR) leading to upskilling 200 white collars and 1000 blue collars in 30–35 construction and renovation projects in France, and others each executing about 5 projects. The learning methods and the qualification schemes are connected to the projects defined in the pilot field labs and the experimental sites, this in order to improve the quality of the involved white- and blue-collar workers and thus, improving the overall quality of the construction process.

The methodology is implemented in collaboration with BIM-learning centres or national BIM experts where several objectives are to be achieved as presented in **Figure 2**.

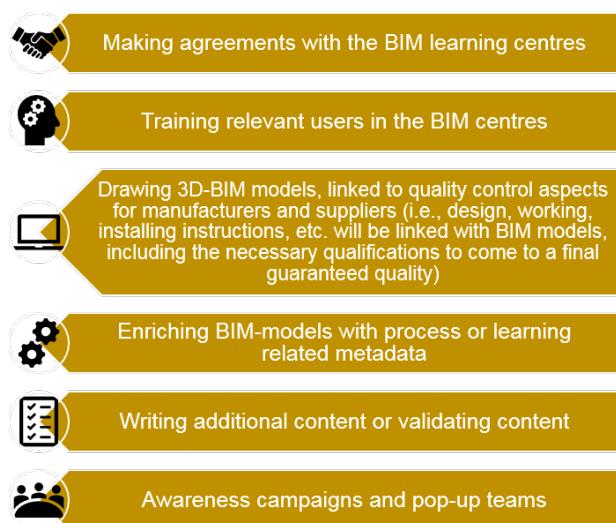


Figure 2. Implementation strategy of the BIMplement methodology in 'real' construction projects.

First BIMplement trainings already took place in France

Read about the feedbacks from the BIMplement implementation sites:

In France, the one-day BIMplement training took place on the construction site of an office building at Saint-Nicolas-lez-Arras attended by 16 managers and white-collar workers from 14 companies involved in the works; 3 representatives from the client (KIC, a private office builder) and from the third party responsible for building control inspections; 1 BIMplement coach and 1 future 'BIMplement master trainer'. The comments of the participants confirm the interest of this training, as show these witnesses:

- Client's employees, KIC, had to convince the enterprises to come to the training where they expressed at first several concerns: '*I was quite afraid before, because I was not sure that the companies would come to this training session. Most of them were reluctant, saying that they did not understand the interest of a training on BIM and related issues (airtightness and ventilation). But all of them came, and all of them were very satisfied with the training. We (KIC) plan not only to continue the BIMplement training at our Saint-Nicolas-lez-Arras site, but also to use BIMplement at the construction site of a 4.500 m² office building in Valenciennes (nearby Lille) next year.*'

- From managers and white-collar workers following feedbacks were received:

'A very interesting training. I know now why and how the BIM model makes possible the positive interactions between the crafts...'

'I discover that BIM is a beautiful tool to do a high-quality work...'

'When you have high energy efficiency goals, BIM is of great help...'

'I now see that BIM is the medium to solve the conflicts between the crafts at the workplace...'



Figure 3. First BIMplement training taking place in France, 2018.

Step 4: Exploitation and replication

In the end project's aims to ensure that more Member States and nZEB areas will benefit, while fostering further cross-border cross-sector developments on a lasting basis. The lessons learned from the 'pilot field labs' and the 'experimental sites' will be capitalized, together with the tools and learning methods developed. To this effect, last phase of the project covers further exploitation and replication of the project results to increase the number of skilled building professionals and craftsmen across the building value chain through spillover effect. The projects replication and exploitation strategy aims at deliberate efforts to increase the impact of successfully tested innovative qualification and training schemes.

Conclusions so far and recommendations for future

After the mapping of existing knowledge sources was done on a national level, it seems there is sufficient knowledge to deliver quality. However, the problem is that the availability just on time and fit for purpose is very poor. As tested in BIMplement, utilizing BIM allows storing relevant learning and process metadata in an efficient way. Secondly, BIM can be enriched with quality levels, needed skills and linked trainings. In this way, BIM can serve as a multidisciplinary data repository. Enhancing or connecting BIM models with didactical information can enable and facilitate the learning process over the whole value chain. Thirdly, BIM can improve a collaboration between different disciplines and management of works allowing synchronization of design and construction phase. In the end, in BIMplement BIM on its own is not the goal but improved quality for nZEB construction and renovation and a more efficient systematic process are the goals. At the moment the best approach to reach these goals seems to be using BIM.

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Figure 4. From BIMplement methodology to BIMplement in practice.

To conclude, the construction sector is one of the main pillars of the EU economy where the construction industry is one of the largest European industries with 9% of the GDP of the EU [4] and 18 million jobs and 3.1 million enterprises [5]. Innovative solutions within digitalization of the construction industry such as BIM, can respond to the sector's challenges as are lack of skilled workforce, energy efficiency and lagging productivity. On this matter, energy efficiency cannot be reached without sufficient quality and no quality without qualified workforce. As the practice shows, to obtain sufficient qualified workforce upskilling and trainings are required and this is where BIMplement comes in play. ■

Acknowledgement

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PROFESIONALES CUALIFICADOS CON HABILIDADES BIM: PROYECTO EUROPEO H2020 BIMPLEMENT

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Resumen: En los últimos años, la Comisión Europea ha hecho una clara apuesta por la mejora de la cualificación de los agentes involucrados en el proceso de la edificación. En este marco, el proyecto H2020 BIMplement pretende aumentar la calidad en la construcción de nuevos edificios y en la rehabilitación de edificios existentes con enfoque EECN mediante la creación de programas de formación a gran escala, de desarrollo profesional continuo y programas de cualificación apoyados en BIM que aborden toda la cadena de valor con un enfoque multidisciplinar transversal. En este estadio inicial, la investigación se ha centrado en los requisitos de ventilación y estanquidad al aire, por considerarlos prioritarios desde un punto de vista energético. La metodología está siendo testeada y probada en más de 50 proyectos entre los que se encuentran diferentes centros de aprendizaje y pilotos experimentales localizados en España, Francia, Países Bajos, Polonia y Lituania.

Palabras clave: BIM, EECN, Formación, Cualificación, Habilidades, Competencias, Control de Calidad, Tecnología

INTRODUCCIÓN

Dado que aproximadamente el 75% del parque construido de la Unión Europea se considera ineficiente desde un punto de vista energético y el consumo de energía en edificios (residencial y terciario) es responsable de aproximadamente el 40% del consumo final de energía en la UE [1] la rehabilitación energética de los edificios representa una oportunidad a largo plazo para el sector de la construcción.

A pesar de ello, se considera que la industria de la construcción es relativamente ineficiente tanto en el proceso como en la prestación de servicios. Existe una brecha evidente entre el nivel “diseñado” de eficiencia energética y el nivel de eficiencia energética realmente “construido” que resulta de la obra final [2] debido, en muchas ocasiones, al bajo nivel de cualificación de los trabajadores implicados en la etapa de construcción. En general, el sector de la construcción adolece de una falta de trabajadores cualificados, carencia que se agrava si se tiene en cuenta que las rehabilitaciones energéticas requieren incluso de competencias y habilidades adicionales.

Según el Foro Económico Mundial, la productividad laboral en el sector de la construcción se ha estancado en los últimos 50 años [3]. Esto demuestra que la construcción y rehabilitación de edificios de consumo de energía casi nulo (EECN) necesita un enfoque holístico que ahonde en el control de calidad de todo el proceso.

La mejora del control de calidad solo puede lograrse con un equipo de trabajo completamente cualificado y competente, capaz de implementar, ejecutar y realizar todas las acciones necesarias con un entendimiento completo de la responsabilidad que conllevan sus acciones y de la coordinación con el resto de trabajadores junto con los que conforma una cadena de valor [4].

EL PROYECTO

BIMplement es un proyecto financiado por el programa Horizon 2020 de la Unión Europea, con una duración de 30 meses, en el que participan 9 socios de 5 países diferentes: Francia, Países Bajos, Lituania, Polonia y España que comenzó en septiembre de 2017. El objetivo principal es lograr mejorar la calidad en el proceso de construcción y rehabilitación de los edificios de consumo de energía casi cero (EECN) utilizando BIM como portador de información universal y facilitador del proceso de aprendizaje dentro de los proyectos y entre proyectos.

BIMplement establece una formación a gran escala, desarrollo profesional continuo y esquemas de cualificación perfeccionados a través de BIM, abordando toda la cadena de valor con un enfoque interdisciplinario y multidisciplinario a todos los niveles, fortalecido con herramientas de aprendizaje prácticas y utilizadas “in situ”. Estos esquemas de cualificación se aplican en dos requisitos diferentes: ventilación del edificio y estanquidad al aire y están siendo testeados y probados en más de 50 proyectos entre los que se encuentran diferentes centros de aprendizaje y pilotos experimentales localizados en España, Francia, Países Bajos, Polonia y Lituania.

Los objetivos cualitativos del proyecto BIMplement son los siguientes:

- Mejorar la calidad general de todo el proceso de construcción y rehabilitación, desde el diseño previo hasta la fase de construcción y mantenimiento.
- Crear una nueva generación de profesionales y operarios, cualificados para desarrollar proyectos EECN de alta calidad.
- Fomentar las interacciones entre los diferentes oficios y profesiones.
- Desarrollar una metodología de cualificación que integra habilidades y competencias tecnológicas relacionadas con BIM.
- Generar un repositorio de información, recursos didácticos y herramientas educacionales.
- Utilizar BIM como medio o portador de información que favorece el intercambio de datos entre las diferentes etapas del proyecto y las diferentes disciplinas.
- Desarrollar y validar una estrategia de replicación y explotación para sostener los esquemas de cualificación en el futuro una vez finalice el proyecto BIMplement.

METODOLOGÍA

La metodología establece las etapas necesarias para alcanzar los niveles requeridos por los edificios EECN a través de un control de calidad mejorado:

- Fase de desarrollo - Marco de cualificación (Qualification Framework, QF):

Para mejorar el control de calidad del proceso y alcanzar un nivel óptimo en edificios EECN, el proyecto BIMplement se centra en la cualificación del personal implicado y para ello ha desarrollado un “marco de cualificación” orientado a la calidad. El “marco de cualificación” propuesto es el resultado de un proceso integrador en el que se conectan las competencias, habilidades y conocimientos disponibles con el modelo BIM, las etapas de construcción y los agentes involucrados.

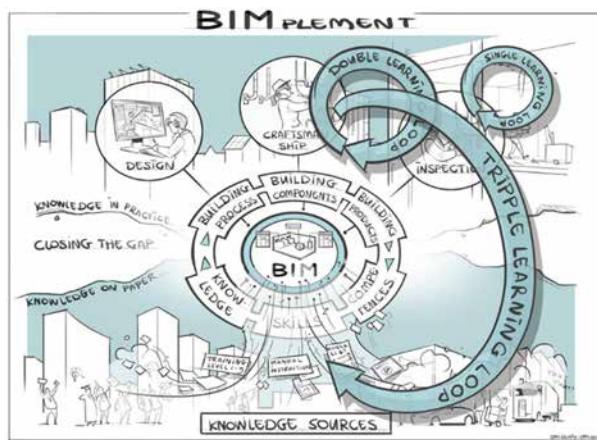


Figura 1. La metodología BIMplement es eliminar la brecha entre el conocimiento “en papel” y el conocimiento “práctico”.

En la formulación de las Unidades de Resultados de Aprendizaje (Unit Learning Outcomes, ULO's) se ha partido de trabajos y proyectos previos (como el proyecto europeo H2020 ProfTrac) y se han tenido en cuenta los conocimientos sobre ventilación y estanquidad al aire, complementados con las habilidades y competencias necesarias para realizar un trabajo de alta calidad en un proyecto EECN que utiliza BIM. Al integrar BIM el marco de cualificaciones se adapta a las exigencias del mercado a medio y largo plazo.

Una “Unidad de Resultados de Aprendizaje” (Unit Learning Outcomes, ULO) forma parte de un sistema de cualificación y consiste en un conjunto coherente de conocimientos, habilidades y competencias (incluida la responsabilidad) que pueden evaluarse y validarse [5].

- Fase de implementación - Implementación del marco de cualificaciones en los requisitos de ventilación y estanquidad al aire

La metodología se dedica a la implementación de sistemas de ventilación y a garantizar la estanquidad al aire de los edificios. En cuanto a la ventilación, puede haber una tarea didáctica relacionada con el objeto o la tecnología BIM. Sin

embargo, la estanquidad al aire es un requisito más complejo de aplicar en los edificios, ya que se relaciona con casi todos los componentes de la envolvente, tanto transparentes como macizos, y los encuentros entre elementos. Por lo tanto, la hermeticidad al aire debe evaluarse de forma más integral con el objetivo de controlar las fugas de aire y las pérdidas de calor a través de la piel del edificio y de las uniones y juntas [4].

- Fase de validación-Pilotos y demostradores:

Para la verificación de la matriz y el marco de cualificación establecidos, la metodología será testeada y validada en un total de 50 proyectos de construcción y rehabilitación en Francia, Polonia, Lituania, países Bajos y España. Francia acometerá la mayor parte de ellos, unos 30-35 proyectos aproximadamente, que servirán de modelo o referencia al resto de países que llevarán a cabo 5 proyectos cada uno.

Cada país hará uso de la infraestructura de capacitación existente de una manera óptima y comenzarán con una campaña de concienciación local a pequeña escala sobre la necesidad del control de calidad y el papel de las nuevas metodologías para lograrlo, como BIM. En concreto, en España se han organizado varias acciones, entre ellas la celebración de una jornada de concienciación en mayo de 2018 en Valencia, dirigida especialmente a técnicos de la Administración, y varias reuniones con expertos en BIM cuya opinión y conocimiento ha sido de gran ayuda para establecer la estrategia a seguir en la Comunitat Valenciana.



Figura 2. Campaña de concienciación celebrada en la sede de la Generalitat Valenciana (Valencia, mayo 2018).

Para la experimentación de la metodología BIMplement y encontrar proyectos piloto que cumplieran con los criterios requeridos, IVE inició una ronda de contactos con promotoras y constructoras de la zona. Muchos de estos contactos provenían de la campaña de concienciación de Valencia citada anteriormente y, actualmente, ya se ha firmado la colaboración con algunos de ellos. La formación de sus empleados se realizará en el último trimestre del año.

El Instituto Valenciano de la Edificación, en su misión de asesoramiento a la Generalitat Valenciana en el desarrollo de políticas, herramientas, etc. para la mejora de la calidad del entorno construido, ha creado diferentes herramientas de apoyo a los profesionales, tanto en la fase de diseño (técnicos facultativos) como en la fase de construcción (operarios). En línea con los objetivos del proyecto BIMplement se está trabajando en la actualización de las herramientas listadas a continuación para así trasladar la valiosa información que recogen a elementos BIM genéricos:

- Catálogo de elementos constructivos <https://bit.ly/2GuY1zS>
- Cartillas de obra <https://bit.ly/2OkY73h>
- POMEES: Programa de Operaciones de Mantenimiento <https://bit.ly/2YqnkgE>
- Pliego general de Condiciones Técnicas en la Edificación <https://bit.ly/32V5dP8>
- Base de Datos de Construcción <https://bit.ly/2XyO4vQ>

RESULTADOS

A continuación, se listan los principales logros y resultados que se esperan del proyecto BIMplement. Algunos de ellos ya se han alcanzado y otros están en proceso ya que el proyecto se encuentra en el mes 23 de un total de 30 meses de duración:

- Marco de cualificación mejorado con BIM materializado en una guía o manual que tendrá una versión a modo de herramienta informática. Esta guía contendrá instrucciones de cómo aplicar la metodología y el marco de cualificaciones en otros países y para otros requisitos más allá de la ventilación y la estanquidad al aire.
 - Matriz de habilidades y profesiones: mapeado de las habilidades y competencias adicionales necesarias para optimizar la ventilación y estanquidad al aire de los EECN, vinculados a los perfiles profesionales involucrados en todas las fases del proyecto.
 - Inventario de herramientas, contenidos didácticos y métodos de aprendizaje utilizables en BIMplement.
 - Documento o guía dirigido a los “trainers” o profesionales encargados de transmitir los conocimientos y el valor añadido de la metodología BIMplement. Este documento incluye los contenidos citados anteriormente: marco de cualificación, matriz e inventario de contenidos y métodos de aprendizaje.
 - Validación en 50 proyectos experimentales en 5 países europeos: Francia, Lituania, Polonia, Países Bajos y España.
 - En torno a 1200 profesionales serán formados a razón de 1000 operarios y 200 técnicos facultativos.

Project phase	Tasks	Sub-tasks	UoL Nr.:	
Execution Phase	Making holes in wall(s) and/or floor(s)	choose/review position and dimensions of the recess in the wall make the recess or correct the sizes if necessary	12.1 12.2	
	Install air ducts	construct the duct system (supply and discharge); fix ducts in place, connect ducts	13.1 13.2	
ULOs for the NZEB Ventilation				
No.	Fields of Knowledge / Areas	Skills	Competence	
	Assessment		Aut.	
12.1	knowledge of making holes in walls/floors	drill/drill techniques know how to make angled joints/connections and the difference between the types of ducts	mechanical constructing a duct system	Contractor
13.1	knowledge of angled/recessed ducts	know how to connect the ventilation unit to the duct system	mechanical	Installer
13.2	knowledge of fixing ducts during building	know how to connect the duct system to the heat source/heat sink	mechanical	Contractor
13.3	knowledge of elements during planning of ducting	know how to plan the required ducting	mechanical produce the required design/ drawing plan	Contractor
13.4	knowledge of creating various ducts and press them	know about all influences on ducts and influence of air speed on the efficiency of various connections	mechanical set up and inspect early work	Contractor
13.5	knowledge of creating straight connections in ducts	know about the influence of air pressure and influence of air flow on the efficiency of various connections	mechanical set up and inspect early work	Installer
13.6	knowledge of creating tight exhaust air units and press them	know about the influence of air pressure and influence of air flow on the efficiency of various connections	mechanical set up and inspect early work	Installer
14.1	knowledge of all relevant aspects of units	describe the functioning of the ventilation unit know how to make angled joints/connections and the difference between the types of ducts	mechanical constructing the ventilation unit	Installer
14.2	knowledge of angled/recessed ducts	know how to connect the unit to the waste water system	mechanical connecting the ventilation unit to the duct system	Installer
14.3	knowledge of waste water systems	know how to connect the unit to the waste water system	mechanical assessing whether the unit can be connected to the waste water system	Installer / advisor
14.4	knowledge of angled/recessed connecting ducts	know about the influence of air pressure and influence of air flow on the efficiency of various connections	mechanical assessing whether the unit can be connected to the waste water system	Installer / advisor
14.5	knowledge of right medication	know about the influence of air pressure and influence of air flow on the efficiency of various connections	mechanical assessing whether the unit can be connected to the waste water system	Installer / advisor
14.6	knowledge of building services regarding electricity	leading a safe and reliable power supply within safety limits	connect with electricity and the ducts in order to produce the required ducting	Installer / electrician

Figura 3. Matriz de habilidades y profesiones.

DISCUSIÓN Y CONCLUSIONES

En la metodología BIMplement se utiliza un enfoque estandarizado sistemático, por lo que las cualificaciones mapeadas resultan transparentes y comparables entre los estados miembros de la UE, lo que facilita su adaptación al contexto nacional y favorece la movilidad de los profesionales entre los países de la UE.

El marco de cualificaciones se conecta a BIM, que ya se vislumbra como una tecnología digital prometedora capaz de transformar la forma en que se diseñan, construyen y mantienen los edificios y las infraestructuras. BIM debe considerarse como una metodología estratégica y completa para aumentar la productividad de la construcción al ofrecer ahorros en los costes, una mejor gestión de la construcción y la explotación, una mayor calidad también ambiental y una mayor transparencia y colaboración entre los profesionales [6].

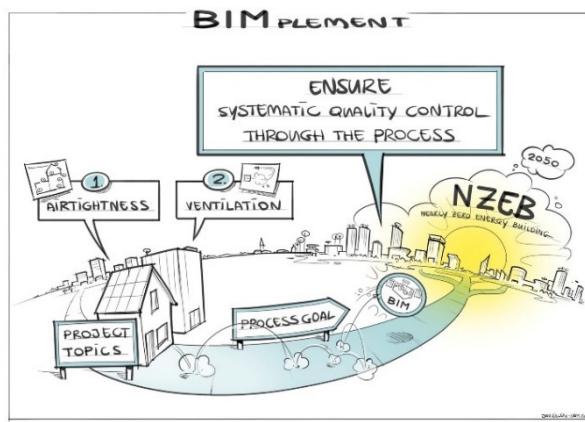


Figura 4. El objetivo último de BIMplement es mejorar el control de calidad utilizando BIM como medio.

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IMPROVING ENERGY-EFFICIENCY SKILLS IN THE CONSTRUCTION SECTOR THROUGH TECHNOLOGY-ENHANCED LEARNING: THE CASE OF BIMPLEMENT PROJECT

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The building sector offers a large untapped potential for cost-effective energy savings. One of the most challenging aspects of reducing energy use in the building sector lies in increasing the rate, quality and effectiveness of nZEB (nearly Zero Energy Buildings) construction and renovation.

The European Commission has underlined one of the barriers that hampers the development of nZEBs and effective renovations is the lack of adequate constructions skills. Improving the skills of the different building and trade professionals in the area of low carbon and energy-efficient construction is key to tackle this barrier. To improve this situation the BUILD UP Skills initiative was launched in 2011 and has been expanded under the European Horizon 2020 research and innovation programme with specific calls for projects on Construction Skills. The objective is to increase the number of skilled building professionals across the building value chain (designers, architects, engineers, building managers, technicians, installers, workers, apprentices and other building professionals) to ensure proper interactions between different trades and professions.

Since 2011, several projects across Europe have been funded to map the skills gaps and needs and provide building professionals and construction workers with the necessary training to meet the challenges posed by energy-efficiency regulations. Moreover, during the last period, the introduction of digital learning environments in the construction sector has gained importance.

The recent report titled "Supporting digitalisation of the construction sector and SMEs" states that the digitalisation of the construction sector is underway in Europe but at a slower pace than expected. The report also presents an overview and brief description of the recommended actions to improve the current state of digitalisation of the construction sector, among which is the following: "Provide lifelong (Digital) skills development for employees within the construction sector through trainings". New digital technologies, such as Building Information Modelling (BIM), have begun to transform the way that buildings are designed, built, operated and maintained.

This paper introduces the EU-funded H2020 project BIMplement whose main objective is to achieve an improved quality for nZEB construction and renovation by using BIM as a universal information carrier and enabler of the learning process within building projects and between building projects. BIMplement sets up large scale training, Continuous Professional Development and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences. The value of the BIMplement methodology is being tested in 50 construction or renovation projects in France, Spain, the Netherlands, Lithuania and Poland.

Keywords: innovation, technology, research projects, bim, digitalization, buildings, construction, skills, qualification, european commission, h2020.

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Abstract

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Keywords: Innovation, technology, research projects, BIM, digitalization, buildings, construction, skills, qualification, European Commission, H2020.

1 INTRODUCTION

Recent studies indicate that the construction, use, and maintenance of residential and commercial buildings are responsible for approximately 40% of final energy consumption in the EU. Of these buildings, approximately 75% are considered inefficient from an energy point of view [2]. Furthermore, there is an evident gap between the "designed" level of energy efficiency and the truly "built" level that results from the final work [3].

According to the World Economic Forum, construction labor productivity has stagnated or even decreased over the past 50 years [4]. Reasons for this are, among others, the persistent fragmentation of the industry; inadequate collaboration between the players; the sector's difficulty in adopting and adapting to innovative technologies; the difficulties in recruiting a talented and future-ready workforce; and insufficient knowledge transfer from project to project [5].

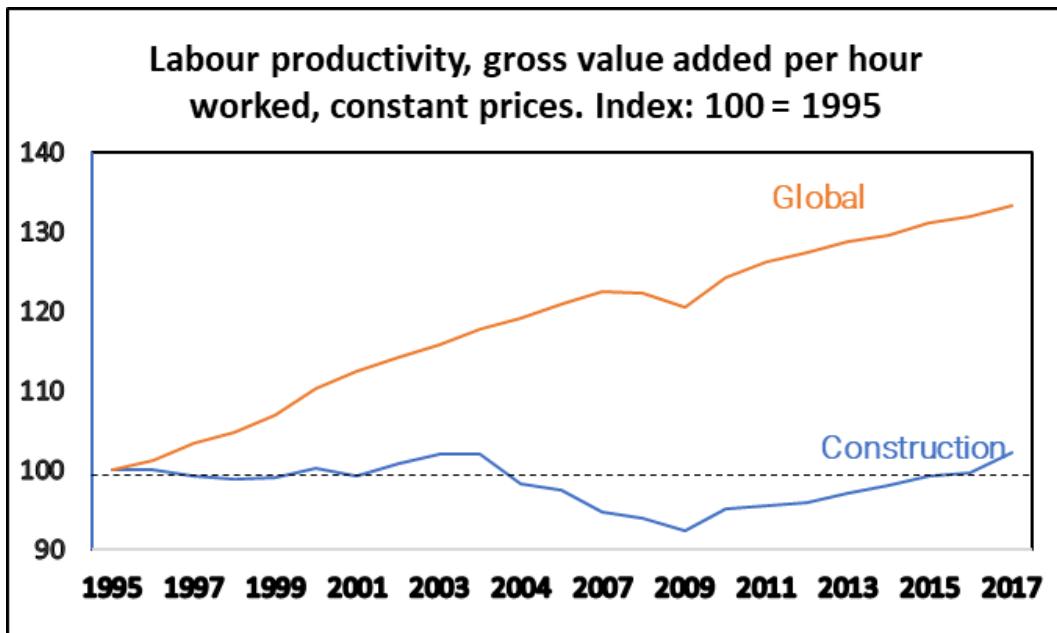


Figure 1. Own elaboration based on Organization for Economic Cooperation and Development (OECD) statistics.

In this scenario, the quality energy renovation of the existing building stock in the EU is seen as an opportunity for the construction sector. Improving quality control throughout the entire process can only be achieved with a fully qualified and competent work team, able to implement, execute and perform all necessary actions with a full understanding of the responsibility that their actions entail and coordination with the rest of the workers along with those who make up a value chain [6].



Figure 2. BIMplement project logo

BIMplement is a project financed by the Horizon 2020 programme of the European Union, with a duration of 36 months, in which 9 partners from 5 different countries participate: France, the Netherlands, Lithuania, Poland and Spain that started in September 2017.

The main objective is to improve the quality in the construction and renovation process of nearly zero energy buildings (nZEB) using BIM as a universal information carrier and facilitator of the learning process within projects and between projects.

BIMplement project is building on results and experiences of the **Build Up Skills (BUS) and H2020 Construction Skills projects** and is focused to the call EE14-2016 Construction skills.

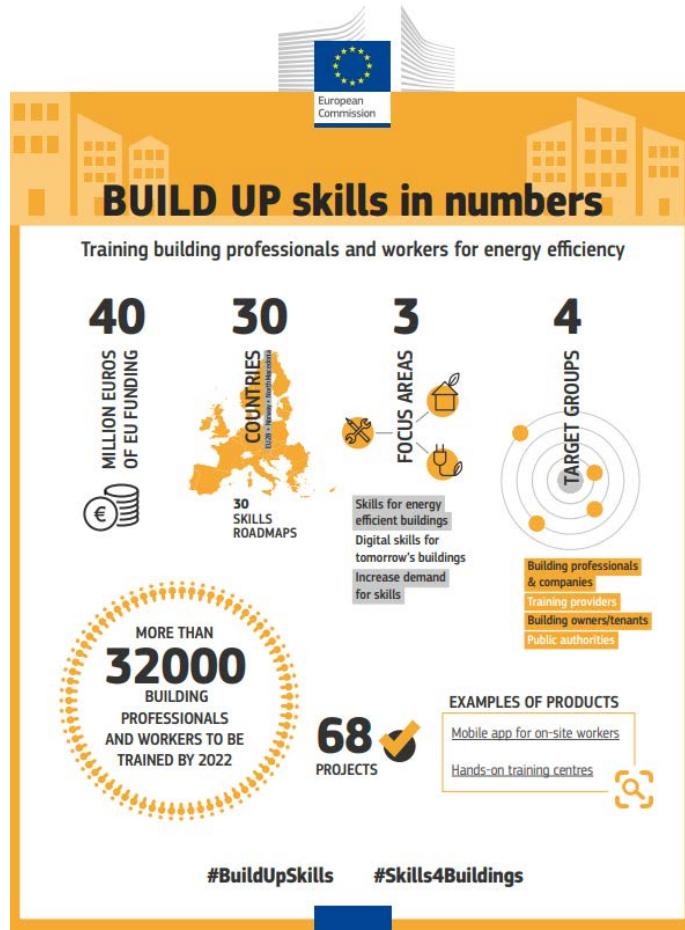


Figure 3. Infographic: Build Up skills in numbers

Moreover, the H2020 Programme supports BUS type projects and organizes regular exchange activities at EU level to promote the European dimension of this important initiative and to foster learning between the countries. This is the case of the so-called "BUS EU exchange meetings" that have been held since 2016 and in which the coordinators of ongoing projects participate to exchange experiences and to create synergies amongst the projects.

The BUILD UP skills exchange meetings have shown that there is a need for setting up a mutual recognition scheme of qualifications among different Member States but also that all professionals need to be aware of new materials and products, the integration of renewable energy sources, new systems or processes, such as standardisation and common voluntary certification of buildings, and the use of building information modelling (BIM) tools. [7].

Building Information Modeling (BIM) provides a new collaborative work methodology for the construction sector that is revolutionizing the way of working, especially in the collaboration among the agents involved in the different construction processes.

Working at BIM means having a single model form which to generate and manage all the project information throughout its entire life cycle. Architects, engineers and construction professionals have a methodology that allows them to operate together in real time. Any change or information introduced in the model modifies the set of affected elements automatically.

In addition, the use of the BIM methodology increases the productivity of construction and provides: cost savings, better management of construction and operation, higher environmental quality and greater transparency and collaboration among professionals.

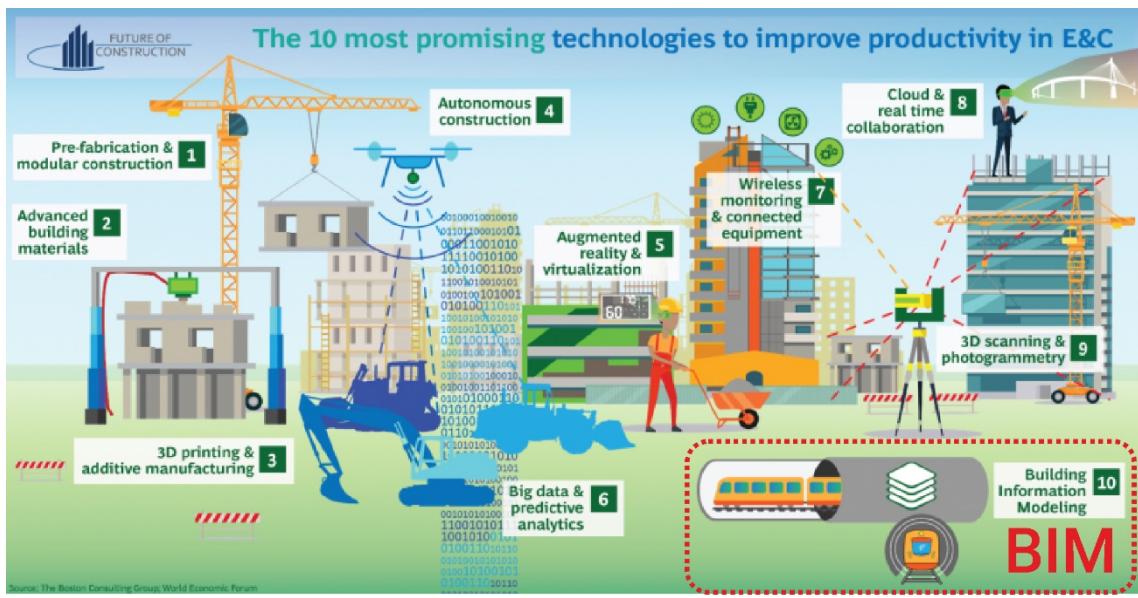


Figure 4. Source: The Boston Consulting Group; World economic Forum

For these reasons, the BIMplement project uses BIM as a universal information carrier and enabler of the learning process within projects and between projects. As using BIM is new for many SMEs, BIMplement combines the upskilling in using BIM with the Just-in-Time and Just-in-Place upskilling on nZEB related topics.

Upgrading or setting up large-scale qualification and training schemes that promote the digitization of the sector goes hand-in-hand with initiatives that increase the demand for skilled building professionals, creating new job opportunities and boosting Europe's economic competitiveness. [7].

2 METHODOLOGY

Concerning the methodology, BIMplement fully builds on the available results of the related BUILD UP Skills (BUS) and Construction Skills projects in combination with a direct implementation of the methodologies combining quality assurance with large scale qualification schemes. This is brought into practice on local and regional scale, by demonstrating, testing and validating the methodology and effectiveness of qualification schemes in real projects.

One of the main sources is the PROF/TRAC project in which all technologies and professions (on medium and senior level) for nZEB are mapped as well as a methodology for skills mapping and identification of skills gaps. Moreover, the PROF/TRAC open data base on teaching and training materials was used.

2.1 Development phase

BIMplement has developed and implemented a quality-oriented Qualification Framework. It consists of task based descriptions of competences, skills and knowledge needed in order to connect available knowledge such as learning content and quality inspections to the BIM-model, the building process and the actors involved.

The starting scheme came from previous H2020 projects such as PROF/TRAC and national BUILD UP Skills projects in the Netherlands, France, Spain and Lithuania. The qualifications for working on airtightness and ventilation were enriched with skills and competences needed for performing a high-quality job in a nZEB project that is using BIM.

Task based Unit of Learning Outcomes (ULO's) have been formulated, which are components of a qualification consisting of a coherent set of knowledge, skills and competence (including responsibility) that can be assessed and validated.

Project phase	Tasks	Sub-tasks	ULO Nr.
execution phase	Making holes in wall(s) and/or floor(s)		
	check/mark position and dimensions of the recess in the wall	12.1	
execution phase	make the recess or correct the sizes if necessary	12.2	
	Install air ducts		
execution phase	construct the duct system (supply and discharge)	13.1	
	fix ducts in floors against flooding	13.2	

ULOs for the NZEB Ventilation					
Nr.	Fields of knowledge /Course	Knowledge	Skills	Competence	Actor
12.2	Installing ducts	knowledge of making holes in walls/floors	drilling techniques	necessary	Constructor
13.1		knowledge of airtight of connecting ducts	know how to make airtight connections and the difference between the types of ducts	constructing a duct system	Installer
13.2		knowledge of fixing ducts against flooding	know how to fix ducts against flooding	fix ducts in floors against flooding	Constructor
13.3		knowledge of measures during pouring concrete of floorslab	know how to pour the concrete	produce the adjoining screed / finishing passages in walls	Constructor
13.4		knowledge installing supply valves and preset them	influence of valve on airflows in rooms and influence of air speed on comfort	set up and mount supply valves	Installer
13.5		knowledge of making airtight connections in ducts	necessity of airtight connections	make airtight connections	Installer
13.6		knowledge installing exhaust valves and preset them	influence of valve on airflows in rooms and influence of air speed on comfort	set up and mount valve	Installer
14.1	Mount centrally ventilation unit	knowledge of vibration-free assembly of unit	describe the mounting of the ventilation unit	mounting the ventilation unit	Installer
14.2		knowledge of airtight of connecting ducts	know how to make airtight connections and the difference between the types of ducts	connecting the ventilation unit to the duct system	Installer
14.3		knowledge of waste water systems	know how to connect the unit to the waste water system	system	Installer / adjust expert
14.4		knowledge of airtight connecting ducts	know how to make airtight connections and the difference between the types of ducts	assembling silencers between unit and duct system	Installer
14.5		vapor-tight insulation	insulating air ducts and know when and how to do so vapor-tight	isolating channels from the outside to the unit in systems with heat recovery	Installer / isolator
14.6		knowledge of building decree regarding electricity	making a safe and reliable power supply and/or data communication	construct facilities such as electricity and data cables	Installer / electrician

Figure 5. Unit of Learning Outcomes (ULO's)

2.2 Implementation phase

The BIMplement methodology addresses the entire value chain of the building sector and all professions involved. To keep focus the general implementation within this project is dedicated to the professions and skills involved in realizing ventilation systems and realizing an air tight building. The reason for selecting these two specific topics is that both ventilation and air tightness have a large impact on both energy use, indoor air quality, thermal comfort and health.

Learning and project results are used to create three different kind of learning loops within the project, between projects and within the value chain:

- 1 Single-loop learning: if an activity is performed correct or if a model, material or method is applied well.
- 2 Double-loop learning: if the model, method, material or activity can be improved.
- 3 Triple-loop learning: if the model, material, method or activity is the right solution.

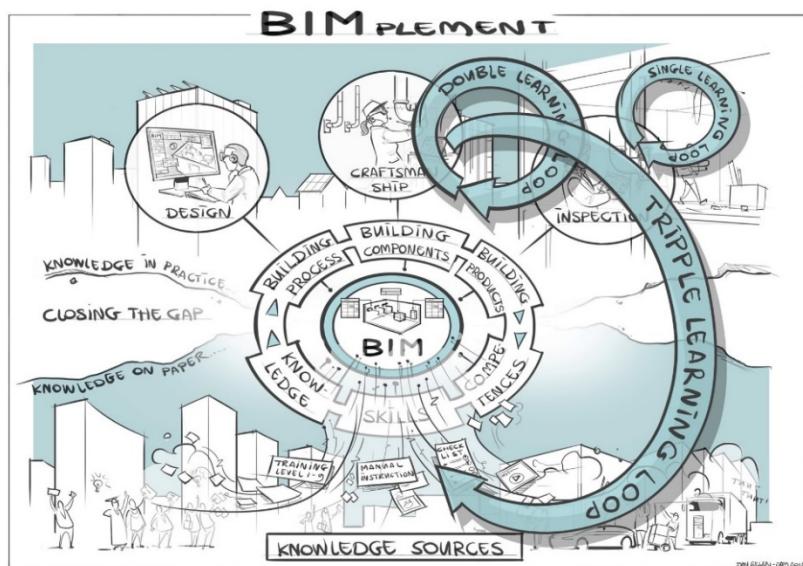


Figure 6. BIMplement learning loops to reduce the gap between designed and actual performances of buildings

2.3 Pilots, demonstration and validation phase

To verify the established matrix and qualification framework, the methodology was tested and validated in a total of 50 construction and renovation projects in France, Poland, Lithuania, the Netherlands and Spain. France undertook most of the pilots, some 30 - 35 projects approximately, which served as a model or reference to the rest of the countries that carried out 5 projects each.

Each project has been analyzed from two points of view: on the one hand, the quality of the project's 3D or BIM model, which has often been improved by the course coordinator or Master Trainer. On the other hand, the level of maturity in BIM and knowledge of the agents in nZEB, ventilation and air tightness, without forgetting the established connections and real dialogue between the parties for smooth and effective communication.

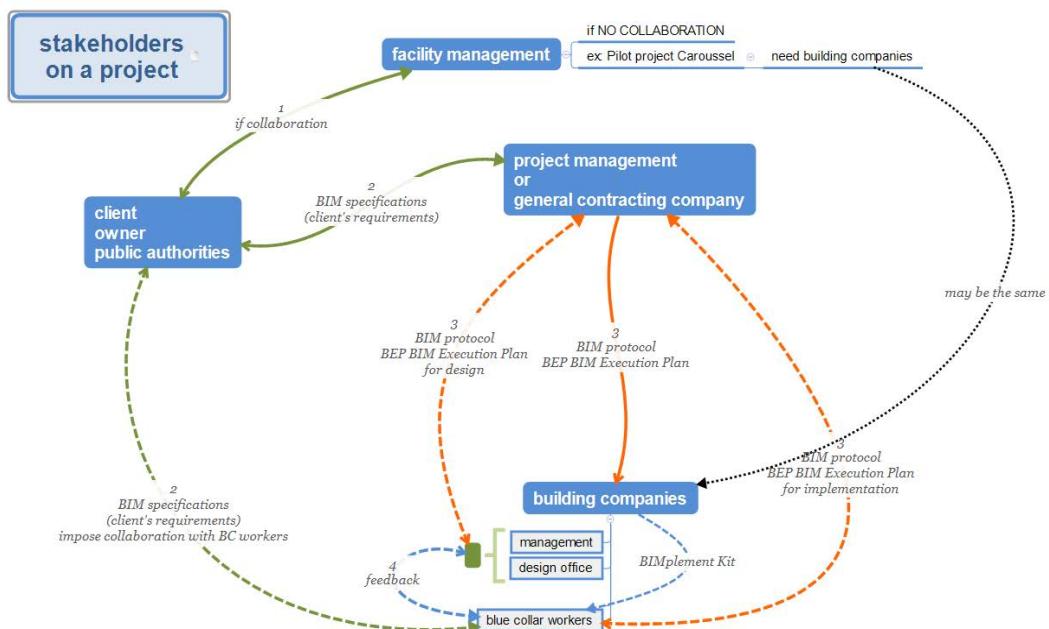


Figure 7. Identification of the stakeholders involved in the project and relationships between them

This valuable information has been the starting point to develop personalized educational content for each pilot. Each country made optimal use of existing training infrastructure and contents or has even developed new tools adapted to its regional context. For example, many of the French pilots have used the "Praxibat" portable containers that already existed in which the airtightness of different products and solutions have been truly experienced on-site by blue-collar workers. In Spain, on the other hand, an application that already existed called "Catalogue of construction elements" has been improved and in its new version the library of elements and products it contains can be downloaded in iFC so that they can be imported from any BIM modeling program.



Figure 8. The "Praxibat" mobile centre in France

Tipos	Subtipos	Soluciones de Catálogo		Soluciones de usuario		Modificar Parámetros	Filtros	Aplicar filtros	Ver sólo habilitada				
		Código	Sección	Pavimento	Canto (cm)	Piezas de entrevigado	E (mm)	M kg/m ²	DB-SI	DB-HR FORJADO			
									R/E/I	M kg/m ²	R _A	L _{NW} dB	
									ΔR _A dBA				
1	1	FJ0125CE1TOE		Terrazo	25	Cerámico	390	516	REI90 REI120	294	51	82	9.5
1	1	FJ0125HA1TOE		Terrazo	25	Hormigón aligerado	390	544	REI90 REI120	321	52	81	9
1	1	FJ0125HO1TOE		Terrazo	25	Hormigón	390	569	REI90 REI120	346	54	79	8
1	1	FJ0125HP1TOE		Terrazo	25	Picón	390	543	REI90 REI120	321	52	81	9
1	1	FJ0125ME1TOE		Terrazo	25	EPS mecanizadas enrasadas	390	436	REI30 REI60 REI90 REI120 REI180 REI240	214	46	87	12

Figure 9. Screenshot of the Spanish application "Catalogue of construction elements"

2.4 Exploitation and replication phase

An exploitation strategy has been developed for further exploitation and replication of the project to increase the number of skilled building professionals and craftsmen across the building value chain. This exploitation plan facilitates:

- The upscaling of the methodology to other /new topics
- Sustaining the used content within existing tools
- Upscaling the action to other countries by a free and open methodology, implementation services and a shared open development platform.

3 RESULTS

The main achievements and results obtained from the BIMplement project are listed below:

- Qualification framework improved with BIM materialized in a guide or manual that will have a version as a computer tool. This guide will contain instructions on how to apply the methodology and qualifications framework in other countries and for other requirements beyond ventilation and air tightness.
- Skills and professions matrix: mapping of the additional skills and competencies necessary to optimize ventilation and air tightness of the EECN, linked to the professional profiles involved in all phases of the project.
- Inventory of tools, didactic contents and learning methods usable in BIMplement.
- Document or guide for trainers or professionals in charge of transmitting the knowledge and added value of the BIMplement methodology. This document includes the aforementioned contents: qualification framework, matrix and inventory of contents and learning methods.
- Validation in 50 experimental projects in 5 European countries: France, Lithuania, Poland, the Netherlands and Spain.
- Around 1200 trained professionals distinguishing between 1000 operators and 200 medical technicians.

4 CONCLUSIONS

Nearly Zero Energy Building (nZEB) construction and renovation need an enhanced systematic approach for the **quality control** of the entire process. This is the first prerequisite to reduce the gap between designed (predicted) and actual performances of buildings, both in terms of energy efficiency

and in indoor environmental quality. The most important part of this enhanced quality control approach is a **fully qualified and equipped workforce**, capable to implement, execute and perform all the necessary labor actions with a full understanding of the responsibility of their own profession and actions, as well as the relation with the other involved professions and actions within the value chain. BIMplement project offers a **methodology to create and standardize the needed qualifications and a range of learning tools** to unlock and implement these qualifications. To be future-ready subject specific qualifications are enriched with the skills and competences needed when performing the job in a nZEB project that is using BIM. By using a standardised methodology **the created qualifications are transparent and comparable between EU member states**, thus facilitating and providing EU mobility.

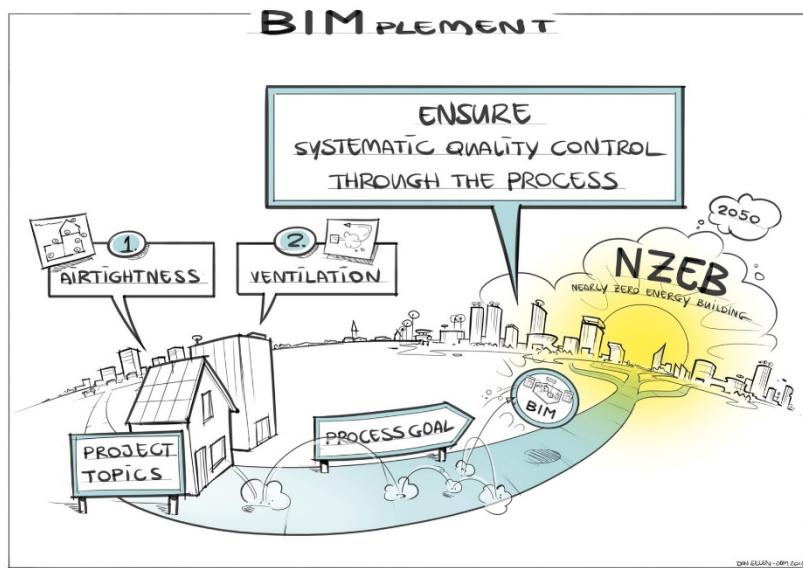


Figure 10. BIMplement project: Enhanced quality control for nZEBs

ACKNOWLEDGEMENTS

Without the contribution of the following researchers, BIMplement would not have been possible: Henri le Marois & Lucie Becdelievre & Narjis Ben Moussa (AVE, France), Myriam Olivier & Philippe Perreau (ASTUS, France), Peter op 't Veld & Ana Tisov (Huygen, the Netherlands), Jan Cromwijk & Jaap Kolk (ISSO, the Netherlands), Piotr Dymarski (Mostostal, Poland), Vaidotas Sarka (LSA, Lithuania), Mantas Jonauskis (RIVC, Lithuania), Veronika Schröpfer & Larissa di Rosso (ACE, Belgium), Miriam Navarro & María José Esparza (IVE, Spain).

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Annex II

Full articles in pdf as copy can be found on the following pages

Estàs en: Inici > L'Administració > Gabinet de Comunicació > Notes de premsa > **Detall de nota de premsa**

ÀREES

Arquitectura
Bioclimàtica i
Sostenibilitat
Energètica
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**INFORMACIÓ
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Comunicació
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registral
Organismes i
empreses
públiques
Legislació
Ajudes
Informació a la
ciutadania
Protecció de
dades
Projectes i obres
Administració
electrònica
Butlletí de notícies
Normativa en
tramitació
Normativa
tramitada
Directrius,
instruccions,

[Imprimir/Descarregar](#)[Tornar](#)**La Generalitat participa en un projecte europeu del programa 'Horizon 2020' sobre formació en 'Building Information Modeling'**

17/12/2017

La Conselleria d'Habitatge, Obres Públiques i Vertebració del Territori, a través de l'Institut Valencià de l'Edificació (IVE), i la Conselleria d'Economia Sostenible, Sectors Productius, Comerç i Treball, a través del SERVEF, estan participant en el projecte europeu BIMPLEMENT sobre tecnologia Building Information Modeling (BIM). Es tracta d'una metodologia que s'està introduint gradualment en el sector de la construcció i que millorarà la qualitat del procés edificatori i la gestió de projectes d'edificació a través d'un model d'informació digital.

La directiva de la Unió Europea sobre contractació pública estableix la necessitat de l'ús de mitjans electrònics en els processos de contractació a partir de 2008, fent especial referència a les eines de modelatge electrònic i d'informació de les construccions per als procediments de contractació d'obres i concursos de projectes.

En aquest sentit, la Unió Europea destinarà fons perquè els professionals coneguen i incorporen a la seua activitat diària eines com BIM, que milloren la qualitat del procés edificatori i reduïsquen la bretxa entre el disseny i el rendiment real dels edificis, especialment en temes que afecten la seua eficiència energètica.

Per això, la Generalitat ha impulsat, a través de les diverses trobades que han mantingut des de la Direcció General d'Habitatge, l'IVE i el SERVEF, aquest projecte d'investigació finançat per la Comissió Europea. "L'objecte principal del projecte és crear una nova generació de professionals amb habilitats en el maneig de BIM com a eina transversal i d'enfocament multidisciplinari entre diversos oficis i professions", ha indicat la directora general d'Habitatge, Rebeca Torró.

Grup de treball

Aquest projecte, que ha sigut aprovat recentment, tindrà una duració de 30 mesos i compta amb la participació de països com França, Bèlgica, els Països Baixos, Lituània, Polònia i Espanya. La reunió de llançament va tindre lloc els passats 12 i 13 d'octubre a París i s'hi van consolidar les bases tant per al desenvolupament de la metodologia de formació, així com per a la seua implementació a través de cursos BIM experimentals que seran duts a terme en diferents regions pilot.

La Mesa per a la Rehabilitació de la Comunitat Valenciana, constituïda per la Conselleria d'Habitatge, va crear un grup específic de treball que s'ocupa d'analitzar la manera d'implementar aquesta tecnologia en les licitacions públiques. En 2016 va organitzar la jornada "BIM (Building Information Modeling): futur o present", dirigida als tècnics i responsables de les diverses administracions públiques i gestors de patrimoni immobiliari per a oferir-los una panoràmica general i les perspectives de futur en l'àmbit nacional i internacional d'aquesta nova tecnologia, que els servisca per a prendre posició i planificar la seua implantació per a la gestió de les licitacions públiques.

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UNIÓ EUROPEA

Fons Europeu de Desenvolupament Regional

BIM IN EUROPE

In view of the growth of Building Information Modelling in various EU Member States, in 2015 ACE has established a work group to look at the legal, technical and financial issues surrounding the advent of BIM, develop its policy and engage with work to develop an European (CEN) standard.

The "BIM IN EUROPE" Conference presented the results of three years of work of the ACE BIM Work Group, together with interventions by the EU BIM Task Group, CEN Committee and BIM users. The event was organised with the support of the Creative Europe Programme of the European Union.

Speakers and Presentations

(Click on the Youtube icon to watch the video)



Lars Jarle Nore, Chairman ACE

BIM Work Group

[Read the presentation on the ACE BIM Work Group](#)

Lars is the Chairman of the ACE BIM Work Group and ACE Representative in the CEN TC442. He has worked in Ramboll since 1989, becoming Head of Architecture and Planning. He is member of the ACE Executive Board for 2015-2017.



Øivind Rooth, Chairman CEN TC 442

Øivind is the Chair of the CEN Technical Committee 44. He is also Chairman of the Standardisation Committee on Building Information Modelling in Norway and Senior Technical Advisor of the Norwegian Building Authority



Adam Matthews, Chair of the EU BIM Task Group

[Read the presentation](#)

Adam is Head of International Affairs for the UK Government's BIM Task Group. Since 2013, he has led the formation of a public sector



network, the 'EU BIM Task Group' and is Chair of the group following the European Commission's award of co-funding for the project.



Anette Søby Bakker, ACA Norway

Anette works as Chief Legal Advisor at the Association of Consulting Architects (ACA), the Industry and employer organization for offices with practicing building architects, landscape architects and interior architects in Norway

[Read the presentation](#)



Tilmann Prinz, BAK Germany

Tilmann is the Secretary General of the Federal Chamber of German Architects (BAK) and a member of the ACE BIM Work Group. He has been Managing Director and Legal Adviser at the German Association of Architects (Bund Deutscher Architekten BDA) Berlin in 1997 and, from 2002 to 2003 was Senior Policy Advisor at the Architects Council of Europe (ACE) in Brussels.

[Read the presentation](#)



Peter Hyttel Sørensen, DA

Denmark

Peter is a BIM expert representing DA Denmark in the ACE BIM Work Group. He is a member of the National ISO office (2015-2016) and has been participating in CEN TC 442 Workgroup. Peter has worked for the Architectural firm CF Møller since 2000.

[Read the presentation](#)



**Peter Op 't Veld, BIMplement
Project Partner**[Read the presentation](#)

Peter is the coordinator of the PROF-TRAC project and partner in the BIMplement Project, in which ACE is taking part. He is Senior Consultant at Huygen and visiting professor at Hasselt University since 2014.

**Vincent Gourguechon, TIM
Architecture, Tourcoing (France)**[Read the presentation](#)

Vincent is the founder of TIM Architecture. The studio was founded in 2011 by a group of self-employed architects who collaborate since 2006. The agency develops different projects in multiple areas: public facilities, collective and individual housing, offices, urban and landscaped developments and research

**Astrid Van Veen, Snøhetta
(Norway)**[Read the presentation](#)

Astrid is Senior Architect and Project Leader at Snøhetta, an international architecture, landscape architecture, interior design and brand design office based in Oslo, Norway and New York City, with more than 180 employees from 30 different nations

Videos

BIM IN EUROPE - Streaming Part 1



BIM IN EUROPE - Streaming Part 2



activities



**HORIZON
2020**

Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences

Ficha informativa

Información del proyecto

BIMplement

Identificador del acuerdo de subvención:
745510

[Sitio web del proyecto](#) ↗

Estado

Proyecto cerrado

Fecha de inicio
1 Septiembre 2017

Fecha de finalización
31 Agosto 2020

Financiado con arreglo a
H2020-EU.3.3.7.

H2020-EU.3.3.1.

Presupuesto general
€ 999 620

Aportación de la UE
€ 999 620

Coordinado por
ALLIANCE NAT VILLES INNOVATION EMPLOI ASSOCIATION
Francia

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RESULTS PACK

**Construction skills:
Equipping building
professionals with new
skills to achieve European
energy targets**

20 Diciembre 2019



Objetivo

NZEB construction needs an enhanced systematic approach for the quality control of the entire process to reduce the gap between designed and actual performances of buildings. This requires a fully qualified and equipped workforce, capable to implement, execute and perform all the necessary labor actions with understanding of the responsibility of their own profession and actions, as well as the relation with the other involved professions and actions. BIMplement offers the trainers and the learners a range of tools that fit the objective of developing a fully qualified and equipped workforce, capable to implement, execute and perform all the necessary labour actions. Main aim is to achieve an improved quality for NZEB construction and renovation by setting up a large scale, training, CPD and qualification schemes, addressing the entire process phases in a cross-crafts and cross level multidisciplinary approach, strengthened with hands-on and BIM-enhanced workplace learning tools by following objectives:

1. To improve the overall quality of renovations and new constructions, based on a BIM-enabled workplace learning, addressing the entire process phases in a cross-crafts multidisciplinary approach
2. To create a new generation of professionals and craftsmen, equipped and enabled by BIM skills, to enhance the overall quality of construction and renovation across the entire process
3. To foster interactions between different trades and professions enabled by a flexible qualification, certification and accreditation methodology for implementing BIM as a workplace learning environment
4. To sustain the qualification and training schemes a replication and exploitation strategy will be developed and validated

At the end of the 2 years project BIMplement has developed a transferable method based on the experience of previous BUS and H2020 Construction Skills projects and on experimentations in territories with craftsmen and small enterprises.

Programa(s)

Tema(s)

Convocatoria de propuestas

H2020-EE-2016-CSA

Régimen de financiación

CSA - Coordination and support action

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Participantes (10)

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Última actualización: 19 Mayo 2020**Número de registro:** 210066**Permalink:** <https://cordis.europa.eu/project/id/745510/es>

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Primera newsletter Proyecto BIMplement

inicio

Enviado por admin el Mar, 24/07/2018 - 09:25



Proyecto BIMplement: 1ª newsletter

La primera e-newsletter del proyecto BIMplement ya está disponible [aquí](#) con contenido relacionado con la metodología BIM, sus beneficios y su nivel de implantación en Europa.

Suscríbete a la [e-newsletter](#) para recibir más información, visita la web www.bimplement-project.eu y sigue sus redes sociales [Twitter](#), [Facebook](#) o [LinkedIn](#)

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OVERVIEW | Possibilities and challenges of BIM with respect to the assessment of the energy performance of buildings

19 December 2017

 / Pan European (</en/category/countries/other/pan-european>)

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(<https://www.buildup.eu/sites/default/files/illustrations/bim0.jpg>)

*By Peter Wouters
(<http://www.buildup.eu/en/users/peter-wouters>),
INIVE*

BIM (Building Information Modelling) is in many EU countries high on the agenda. This article is focusing on the potential of BIM in relation to the energy performance of building assessment and also in relation to a better quality of the works.

ISO 29481-1:2016 (en)
(<https://www.iso.org/standard/60553.html>), defines BIM as the “use of a shared digital representation of a built object (including buildings, bridges, roads, process plants, etc.) to facilitate design, construction and operation processes to form a reliable basis for decisions”.

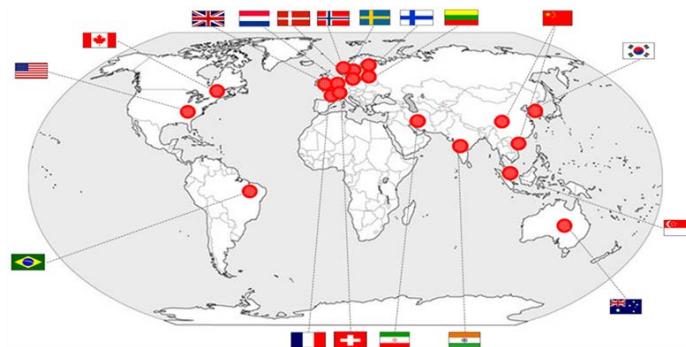
BIM developments in Europe

The future market uptake of BIM is difficult to predict with great accuracy, but it clearly is a development with great potential

(<http://www.buildup.eu/en/node/53866>).

In terms of requirements, an increased number of countries (<http://www.buildup.eu/en/node/55267>) impose the use of BIM for certain types of projects, e.g.:

- Since 2010, obligatory in Norway for new buildings;
- Since 2011, mandatory in the Netherlands for public works of more than €10 M;
- Since 2016 mandatory in the UK for public buildings above £5 M;
- Since 2008 mandatory in the USA by the general services administration for the submission of government projects.



*Global perspective of BIM implementation throughout the world
(Source: Roadmap Proposal for Implementing Building Information Modelling (BIM) in Portugal
(<https://www.scirp.org/journal/PaperInformation.aspx?PaperID=67253>). Maria João Falcão Silva, Filipa Salvado, Paula Couto and Álvaro Vale e Azevedo. Open Journal of Civil Engineering (OJCE), Vol.6 No.3, June 2016)*

In its 2016 report ‘Shaping the Future of Construction – A breakthrough in mindset and technology (<http://www.buildup.eu/en/node/48834>)’ by the World Economic Forum, prepared in collaboration with the Boston Consulting Group, the market view on a whole range of new technologies has been

collected. From this survey, it appears that BIM has the highest likelihood and an expected extreme high impact on the building sector.

In practice, there are a lot of initiatives at international level and in the individual countries, e.g.:

- in France, the national plan for the numeric transition ‘Plan Transition Numérique dans le Bâtiment (<http://www.batiment-numerique.fr/>)’;
- in the UK, the “Building Information Modelling (BIM) task group (<http://www.buildup.eu/en/node/46506>)”;
- in Denmark, “Det Digitale Byggeri (<https://bips.dk/v%C3%A6rk%C3%B8jsomr%C3%A5de/det%20digitale%20byggeri#0>)” (The digital construction);
- in Belgium, the ‘BIM platform (<https://www.bim-platform.be/>)’;
- in the USA, the “buildingSMART alliance (<http://www.buildup.eu/en/node/55269>)”, a council of the National Institute of Building Science;
- at European level, the EU BIM task group (<http://www.buildup.eu/en/node/53925>).

What can BIM mean for EPC calculations?

At present, the calculation of the Energy Performance Certificate (EPC) of a building is an activity on its own. One has to collect all data, introduce all these data (surfaces, volumes, product and system data ...) into the software tool. This can be very time consuming. Therefore, it is important/necessary to have the possibility of simplified procedures. Examples of such simplified procedures are e.g.:

- to treat a dwelling as a single zone;

- to have default values for various systems;
- to have simplified procedures to deal with thermal bridges.

With BIM, and of course depending on the Level of Development (LoD) of the BIM approach, there is no need for collecting all these data for EPC calculations as they are part of the BIM model. Of course, specific tools have to be developed for the EPC calculations. Such BIM approach can reduce the required efforts for obtaining an EPC substantially.

What can be the impact on the calculation procedures themselves? An interesting example are thermal bridges

(<http://www.buildup.eu/en/node/47964>): with a detailed BIM model, and given the calculation power of modern computers, it becomes possible to have a 3-dimensional transmission analysis (<https://www.iso.org/standard/65710.html>) of the building shell, meaning that there is no need any more to speak about a ‘thermal bridge’.

Another example is the assessment of overheating risks (<http://www.buildup.eu/en/node/53234>). At present, most countries use simplified procedures which only give a rough indication of the risk of overheating and/or the related energy consumption for achieving appropriate thermal comfort. With a detailed BIM model, much more refined assessment methods become possible without requiring specific efforts for collecting input data.

With respect to HVAC systems (<http://www.buildup.eu/en/node/55211>), most countries have at present (very) simplified procedures to assess the energy performances of such systems. With BIM, a more refined assessment becomes possible.

BIM and standardisation

In order to accelerate the market uptake of BIM, standardisation of protocols is important. Within the context of CEN, Technical committee 442 (https://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:1991542&cs=16AAC0F2C377A541DCA571910561FC17F) (Building Information Modelling) was created in September 2016. At ISO level, Technical Committee 59 (http://www.iso.org/iso/iso_technical_committee%3Fcommid%3D49070) is also dealing with BIM.

In order to develop on the short term data structures for providing data from CE marking (<http://www.buildup.eu/en/node/53992>) in BIM compatible formats, CEN has set up a ‘Smart CE marking’ workshop agreement (<http://www.buildup.eu/en/node/55275>).

With the market uptake of BIM, and assuming that BIM models will be used for EPC calculations, there might be also new tasks for standardisation in relation to EPBD related standards. BIM offers the possibility to have a better physical modelling of energy processes (see examples before for thermal bridges, overheating assessment, HVAC modelling). It is important that the (CEN and ISO) standards reflect such development.

BIM and convergence of national EPC calculation procedures

At present, there are still major differences in the national calculation EPC processes (<http://www.buildup.eu/en/node/48585>). With the new set of CEN standards, one can expect more convergence in the EPC calculation procedures. However, one observes sometimes very big differences in the visions on the need for simplification and this is often a barrier for further convergence.

With BIM, there is the possibility to come with limited or no efforts for the user to a more accurate physical modelling of the energy performances and therefore the possibility of nearly no differences in views between member states. If the thermal bridges are automatically calculated due to the fact that the BIM model has all relevant information, why should countries have different procedures?

BIM and EPC compliance

At present, data collection for calculating the EPC of a building is in most cases an autonomous activity not linked to other design and execution processes (<http://www.buildup.eu/en/node/53866>). This might fundamentally change when BIM will become mainstream. All relevant product and system data can then be directly coupled to the BIM objects (brick, thermal insulation, fan, heat pump ...). There still will be a challenge for compliant data, but this will not be any longer a specific challenge for the energy related performances. Moreover, one can expect that the BIM model will be updated once design or execution modifications are decided and this not driven by the energy concerns but by the need that the BIM model effectively represents what is constructed.

As a result, it might mean that, once the BIM approach has become mature, there is nearly no need for specific compliance efforts related to EPC compliance.

BIM and quality of the works

Quality of the works (<http://www.buildup.eu/en/node/54436>) is frequently reported problem. An advantage of the market uptake of BIM is the possibility to come to a better quality of the works. This can be illustrated for ventilation systems. If the BIM model of the installation includes all components, it will be

possible to assess if the required air flow rates can be achieved, if the acoustical performances can be reached.

Several Horizon 2020 projects are dealing with BIM and quality of the works (see further).

BIM and smartness indicator

The implementation of the concept of a smartness indicator (<http://www.buildup.eu/en/node/52377>) is proposed in the revision of the EPBD. With the expected market uptake of BIM, it probably becomes also possible to set up in a cost effective manner more refined assessment methods for the smartness indicator of buildings.

European projects related to BIM and energy performance

Within the context of Horizon 2020, 3 BIM related projects are running with a strong link to building works focusing on the energy performance of buildings:

1. BIMPLEMENT

(http://cordis.europa.eu/project/rcn/210066_en.html) “Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-cra and BIM related skills and competences“.

The main aim of BIMPLEMENT is to achieve an improved quality for NZEB construction and renovation by setting up a large scale, training, Continuing Professional Development (CPD) and qualification schemes. This is done by addressing the entire process phases in a cross-cra s and cross level multidisciplinary approach, strengthened with hands-on and BIM-enhanced workplace learning tools by following objectives:

- to improve the overall quality of renovations and new constructions, based on a BIM-enabled workplace learning, addressing the entire process phases in a cross-cultural multidisciplinary approach;
- to create a new generation of professionals and craftsmen, equipped and enabled by BIM skills, to enhance the overall quality of construction and renovation across the entire process;
- to foster interactions between different trades and professions enabled by a flexible qualification, certification and accreditation methodology for implementing BIM as a workplace learning environment;
- to sustain the qualification and training schemes a replication and exploitation strategy will be developed and validated.

2. BIMEET (<http://www.buildup.eu/en/node/54596>) “BIM-based EU-wide Standardised Qualification Framework for achieving Energy Efficiency Training”.

The BIMEET project aims to leverage the take-up of Information and Communications Technology (ICT) and BIM through a significant upgrade of the skills and capacities of the EU construction workforce.

Through its actions the project will:

- pave the way to a fundamental step change in delivering systematic, measurable and effective energy efficient buildings through BIM training with a view to effectively address European energy and carbon reduction targets;
- promote a well-trained world leading generation of decision makers, practitioners, and blue collars in BIM for energy efficiency;

- establish a world-leading platform for BIM for energy efficiency training nurtured by an established community of interest.

3. Net-UBIEP

(<http://www.buildup.eu/en/node/55273>) “Network for Using BIM to Increase the Energy Performance”.

The project proposes BIM Qualification Models integrated with energy competences, to widespread a better comprehension of energy issues along all the value chain of building industry so that both existing and new buildings will have better energy performances. The definition of the BIM Qualification Models will pass through the identification of specific energy BIM competences needed to implement BIM models during the whole building life cycle.

During the project the “integrated” BIM Qualification Models will be validated by stakeholders thanks to the delivering of different training activities. Once the schemes will be validated, they will be proposed for standardisation to find a broader acceptance at European and international level through regulatory organisations (CEN / ISO).

There are also other BIM related EU funded projects with a link to energy, e.g. the BERTIM (<http://www.buildup.eu/en/node/51066>) project (developing a BIM tool for renovation) and the P2ENDURE (<http://www.buildup.eu/en/node/50652>) project (using BIM to model the predicted behaviour of a range of technologies for the renovation of existing buildings using thermal and acoustic scanning technologies as well as 3D scanning).

Conclusions

A lot of developments are taking place in the field of BIM. There probably will be major differences in speed of implementation between countries and for

various building types, but there is no doubt that its importance will substantially grow in the coming decade. BIM can offer major opportunities in relation to the energy performance assessment of buildings, including compliance and enforcement. Moreover, it can at the same time contribute to better quality of the energy systems and the market uptake of smart building systems.

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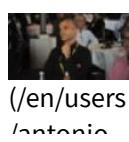
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A fresh start of BIMplement – setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences



NZEB construction needs an enhanced systematic approach for the quality control of the entire process to reduce the gap between designed and actual performances of buildings. While focusing on ventilation and airtightness, BIMplement offers the trainers and the learners a wide range of tools that fit the objective of developing a fully qualified and equipped workforce, capable to implement, execute and perform all the necessary labour actions.

Main aim is to achieve an improved quality for NZEB construction and renovation by setting up a large scale, training, CPD and qualification schemes, addressing the entire process phases in a cross-crafts and cross level multidisciplinary approach, strengthened with hands-on and BIM-enhanced workplace learning tools.

BIMplement represents a transferable method that will be tested during experimentations in territories with craftsmen and small and medium enterprises in France, Netherlands, Spain, Lithuania, and Poland. Regional Innovation Management Centre takes a lead in development and implementation of the replication and exploitation strategy leading to wider use of developed methodology across different EU countries and areas.

Consortium members:

- Alliance Villes Emploi, France
- ASTUS Construction, France
- STICHTING INSTITUUT VOOR STUDIE ENSTIMULERING VAN ONDERZOEK OP HETGEBIED VAN GEBOUWINSTALLATIES, Netherlands
- STICHTING OPLEIDINGS- EN ONTWIKKELINGSFONDS VOOR HET TECHNISCH INSTALLATIEBEDRIJF*ST.POL.- EN ONTWIKK.FONDS TECH INSTALL.BEDR OTIB, Netherlands
- Huygen Installatie Adviseurs, Netherlands
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- INSTITUTO VALENCIANO DE LA EDIFICACION, Spain
- SERVICIO VALENCIANO DE EMPLEO Y FORMACION, Spain
- MOSTOSTAL WARSZAWA SA, Poland
- CONSEIL DES ARCHITECTES D'EUROPE, Belgium

Project: Towards a learning building sector by setting up a large-scale and flexible qualification technical, cross-craft and BIM related and competences (BIMplement), contract No 745510

Web: <http://www.bimplement-project.eu/>

The project is funded under:

[H2020-EU.3.3.1. – Reducing energy consumption and carbon footprint by smart and sustainable use](#) [H2020-EU.3.3.7. – Market uptake of energy innovation – building on Intelligent Energy Europe](#)



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BIMplement : projet européen avec l'Alliance Villes Emploi



Démarré en septembre 2017, le projet BIMplement est un projet financé par l'Union Européenne dans le cadre du programme Horizon 2020. **L'Alliance Villes Emploi est le coordonnateur du projet qui associe 9 partenaires européens et qui sera mis en œuvre jusqu'en février 2020.**

L'objectif général du projet « BIMplement » est de contribuer à la réalisation de constructions et des rénovations de bâtiments à basse consommation d'énergie en mettant en place des **programmes de formations ciblant les apports pédagogiques pour obtenir des bâtiments à basse et très basse consommation d'énergie et**

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Le BIM (Building Information Modeling) est un processus qui intègre des méthodes de travail avec un partage d'informations fiables tout au long de la durée de vie d'un bâtiment et une maquette numérique qui est une représentation digitale des caractéristiques physiques et fonctionnelles de ce bâtiment. Le processus BIM facilite le travail et la collaboration entre les parties prenantes d'un projet de construction ou de rénovation : maîtres d'ouvrage, architectes, ingénieurs et entrepreneurs. Il permet à un bâtiment d'être construit, testé et analysé en temps réel avant même le premier coup de pioche. Il permet également de prendre en compte les problématiques de gestion et de maintenance du bâtiment.



Le projet BIMplement se déroule en plusieurs étapes :

- La première étape consiste à élaborer une méthodologie de qualification intégrant le BIM et s'appuyant sur BIM, avec des contenus de formation et des outils pédagogiques pouvant être utilisés sur les lieux de travail.
- La seconde étape vise l'expérimentation de la méthodologie sur des chantiers de travaux de construction et de rénovation de bâtiments basse/ très basse consommation en France, Espagne, Hollande, Pologne et Lituanie.
- Enfin, la troisième étape consistera à élaborer une stratégie d'essaimage et de pérennisation.

L'expérimentation en France, avec les Maisons de l'Emploi

En France, l'expérimentation est possible grâce à l'appui des 8 Maisons de l'Emploi :



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Celles-ci contribuent à repérer 3 chantiers pilotes et 30 chantiers expérimentaux pour la mise en place de formation sur les chantiers.

Les Maisons de l'Emploi :

- Mènent des campagnes de sensibilisation auprès des maîtres d'ouvrage sur les exigences de qualité à prendre en compte dans leurs appels d'offre et sur le processus BIM et auprès des professionnels du bâtiment pour les inciter à se former ;
- Contribuent à repérer les chantiers pilotes et les chantiers expérimentaux ;

2 chantiers pilotes sont d'ores et déjà repérés dans deux régions différentes

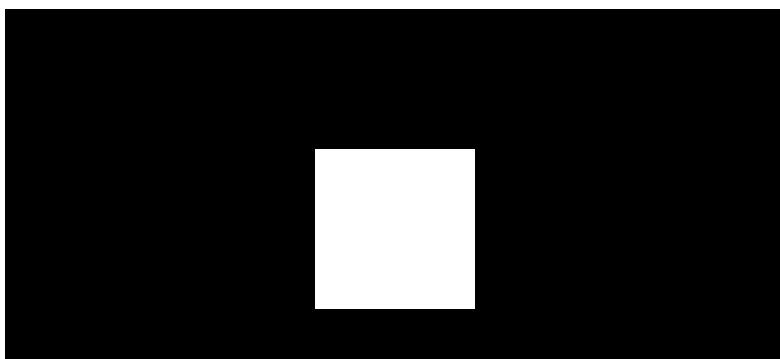
- Contribuent à identifier et sélectionner des formateurs BIM dans chacun des territoires d'expérimentation, qui seront formés sur les chantiers pilotes par notre partenaire français ASTUS Construction ;
- Réalisent un suivi des actions expérimentales de formation menées en lien avec chacun des chantiers retenus et participeront à l'évaluation de ces actions.

Le consortium de partenaires français, hollandais, espagnols, polonais, lituaniens et belges (de statut européen) se réunissent régulièrement, sous la coordination de l'Alliance Villes Emploi, pour avancer dans ces différentes étapes du projet. Le meeting de lancement du projet s'est tenu à Paris les 12 et 13 octobre 2017. Le 13 mars 2018, l'Alliance Villes Emploi organisait, avec son partenaire ASTUS Construction, la 2^{ème} journée de formation des "BIMplement coaches" français du projet européen BIMplement au sein de ses locaux.

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- <https://cordis.europa.eu/article/id/411695-bim-trained-on-site-workers-deliver-better-nearly-zero-energy-buildings/fr>

DOCUMENTS DE SUPPORT

DE L'ATELIER NATIONAL DU PROJET

EUROPÉEN BIMplement

Jeudi 09 juillet 2020 de 10h-12h30

Suite à l'Atelier National pour le Déploiement du projet européen **BIMplement** en France qui s'est déroulé jeudi 9 juillet 2020, ci-dessous les documents de support utilisés lors de cet évènement.

- [Atelier national BIMplement 09 juillet 2020](#)
- [Intervention Astus](#)
- [Programme Atelier National BIMplement](#)
- [Projet de déploiement de BIMplement en France](#)

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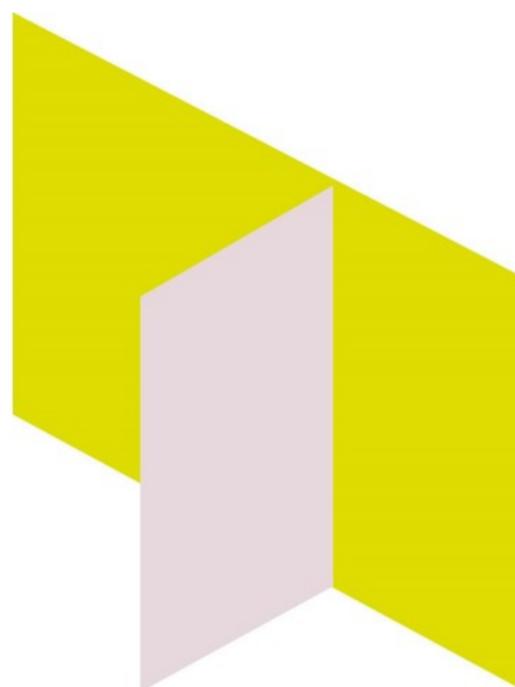


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Les formations/actions BIM « vert » sur chantiers : le projet BIMplement

par [guersendre nagy](#) / 2018-03-06 10:52:39 / France / 1 420



BIMplement

L'objectif général du projet « BIMplement » est de contribuer à la réalisation de constructions et des rénovations de bâtiments à basse consommation d'énergie en mettant en place des programmes de formation ciblant les apports pédagogiques pour obtenir des bâtiments NZEB et utilisant le BIM comme outil fédérant l'intelligence collective de l'ensemble des acteurs.

Ces formations s'adressent à toute la « chaîne de valeur » dans une approche inter-métiers et inter-niveaux, avec des formations pratiques sur les lieux de travail, notamment pour mobiliser les artisans et les compagnons, principales cibles du projet.

Si vous souhaitez en savoir plus de vive voix, venez assister à la conférence « Le BIM, outil de conception BEPOS » sur [Passi'bat](#) le 20 mars à 12h.

Un projet européen H2020

Les constructions et les rénovations de bâtiments à très faible consommation d'énergie requièrent, pour être performantes, une main d'œuvre pleinement qualifiée capable de mettre en œuvre et de réaliser toutes les tâches nécessaires, ceci en ayant une bonne compréhension des responsabilités de leurs métiers respectifs et des relations avec les autres métiers de la « chaîne de valeur ». Pour contribuer à cette montée en compétences des professionnels du bâtiment - cols blancs et cols bleus - , Alliance Villes Emploi et ASTUS Construction se sont associés avec des partenaires d'autres pays européens (hollandais, lituaniens, polonais et espagnols) pour construire le pro' Contribuer dans le cadre du programme Horizon 2020 (sept. 2017 à 2020)

Les partenaires porteurs du projet :

- Alliance Villes Emploi (France) - pilote
- ASTUS Construction (France)
- Dutch Knowledge Centre for the building and building services sector (Netherlands)
- Huygen Installie Adviseurs (Netherlands)
- Regional Innovation Management Center (Lituanie)
- Lithuanian Builders Association (Lituanie)
- Instituto Valenciano de la Edificacion (Espagne)
- Valencia Employment Service and Training (Espagne)
- Mostostal Warszawa SA (Pologne)
- Architects' Council Europe (Bruxelles)

La première étape consiste à élaborer une méthodologie de qualification NZEB intégrant le BIM et s'appuyant sur BIM, avec des contenus de formation et des outils pédagogiques pouvant être utilisés sur les lieux de travail. Durant cette étape seront construites des matrices croisant les compétences à acquérir avec les programmes de formation à mettre en place. L'étanchéité à l'air et la ventilation seront plus particulièrement approfondies, dans la mesure où elles sont des indicateurs forts de qualité et des traitements indispensables à l'obtention d'un niveau NZEB.

La seconde étape vise l'expérimentation de la méthodologie sur des chantiers de travaux de construction et de rénovation de bâtiments basse/ très basse consommation en France, Espagne, Hollande, Pologne et Lituanie. En France, l'expérimentation se fera avec l'appui des **8 Maisons de l'Emploi** qui contribueront à repérer **3 chantiers pilotes et 30 chantiers expérimentaux** pour la mise en place de formation sur les chantiers. Les Maisons de l'Emploi :

- Mèneront des campagnes de sensibilisation auprès des maîtres d'ouvrage sur les exigences de qualité à prendre en compte dans leurs appels d'offre et sur le processus BIM et auprès des professionnels du bâtiment pour les inciter à se former ;
- Contribueront à repérer les chantiers pilotes et les chantiers expérimentaux (2 chantiers pilotes sont d'ores et déjà repérés dans deux régions différentes)
- Contribueront à identifier et sélectionner des formateurs BIM dans chacun des territoires d'expérimentation, qui seront formés sur les chantiers pilotes ASTUS Construction.
- Réaliseront un suivi des actions expérimentales de formation menées en lien avec chacun des chantiers retenus et participeront à l'évaluation de ces actions.

Les premières formations sur chantiers devraient débuter en septembre 2018. La même méthodologie sera mise en œuvre dans les 4 autres pays, avec la sélection d'un chantier pilote et de 4 à 5 chantiers expérimentaux.

 Contribuer

Les 8 territoires Français du projet **BIMplement**



Enfin, la troisième étape consistera à élaborer une stratégie d'essaimage et de pérennisation.

- **sur les « chantiers pilotes »** pour les professionnels qui y travaillent et pour les futurs « BIM référents de chantiers » qui encadreront les chantiers expérimentaux sur site seront mises en œuvre par ASTUS Construction. Ces formations porteront notamment sur :
 - - Le « décisionnel BIM » pour les maires d'ouvrage, et sur le processus BIM pour la maîtrise d'œuvre.
 - - L'intégration dans un processus BIM, et le management collaboratif pour les artisans et les entreprises.
- **sur les « chantiers expérimentaux »** sur les lieux de travail seront assurées par les « BIM référents de chantiers » formés par ASTUS Construction sur les « chantiers pilotes ». Prenant en compte les retours d'expérience sur les chantiers, la méthodologie, ainsi que les contenus et les outils pédagogiques seront améliorés.

Auteurs : Marie-Pierre Establie d'Argencé, Déléguée Générale, Alliance Villes Emploi - Loëva Labye, Cheffe de projet Europe Insertion Développement Durable.

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Contribuer



Project . 2017 - 2020 . Closed

BIMplement

Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences

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EUROPEAN COMMISSION

Funder: **European Commission** Project code: 745510 Call for proposal: H2020-EE-2016-CSA

Funded under: H2020 | CSA Overall Budget: 999,620 EUR Funder Contribution: 999,620 EUR

Status: Closed

Start Date

01 Sep 2017

End Date

31 Aug 2020

[Detailed project information \(CORDIS\)](#)

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Research Data: No



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Description

NZEB construction needs an enhanced systematic approach for the quality control of the entire process
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to reduce the gap between designed and actual performances of buildings. This requires a fully qualified
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understanding of the responsibility of their own profession and actions, as well as the relation with the
other involved professions and actions. BIMplement offers the trainers and the learners a range of tools
that fit the objective of developing a fully qualified and equipped workforce, capable to implement,
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QUALICHeCK



1st European conference | BIM and energy performance of buildings, 25 June 2018, Brussels, Belgium

Posted on 2018/04/04 by Marianna Papaglastra



[Update 2018/07/04: The presentation files are now available]

1st European conference “BIM and energy performance of buildings”
25 June 2018, 9:00 – 17:00
Brussels – Auditorium Hadewijch

The market uptake of BIM (Building Information Modelling) is rapidly growing in nearly all European countries and one can assume that this trend will continue and even accelerate in the coming years.

In practice, there was until recently in most countries little to no attention for BIM as a support tool for the regulatory assessment of the energy performance of buildings. A smart use of BIM can be a win-win situation for both areas, whereby there surely are still several bottlenecks and challenges ahead of us.

This first conference, organised by INIVE EEIG on behalf of the QUALICHeCK platform, aims to present the status of BIM and opportunities and challenges regarding BIM use for the regulatory assessment of the energy performance of buildings. The aim is also to explore possibilities and challenges for an accelerated interaction/integration.

The conference will cover visions of needs, on-going research and development work as well as demos of already existing solutions and panel discussions.

For more information, including the detailed agenda and registration, download the conference flyer.

You may download the Conference presentations from the table below (Right click on the PDF links and Save As...).

SESSION		FILE	VIDEO
1	<i>chairs: Amandine De Coster – Lacourt (EASME) and Peter Wouters (QUALICHeCK)</i>		
	<i>Welcome and context of the conference Johan Willemen (past president FIEC and president BBRI)</i>		
	<i>Interactive voting session part 1 Prof. Arnold Janssens</i>	PDF	

	(UGent)		
	Revision of the Energy Performance of Buildings Directive <i>Sylvain Robert (DG ENER)</i>	PDF	
	History of BIM developments and expectations for the future <i>prof. Stefan Boeykens (KUL and D-Studio)</i>	PDF	
	BIM implementation in EU member states and other regions and expected developments <i>Léon Van Berlo (TNO)</i>	PDF	
	Demonstration "BIM as working today" <i>Juan Nolet (Besix)</i>	PDF	
2	<i>chairs: Sue Arundale (FIEC) and Bart Ingelaere (BBRI)</i>		
	Commission initiatives for the modernisation of construction: digitalisation, BIM and energy performance of buildings – <i>Lutz Köppen (DG GROW)</i>	PDF	
	Product and system modelling using the web and linked data <i>Prof. Pieter Pauwels (Chair LBD-W3C and UGent)</i>	PDF	
	Panel discussion "Construction 4.0 and BIM" <i>Moderated by Bart Ingelaere (BBRI)</i> Participants: <i>Ann Van den Borre (VK Architects and Engineers)</i> – <i>Lutz Koeppen (DG GROW)</i> – <i>Eugenio Quintieri (EBC)</i> – <i>Juan Nolet (FIEC)</i> – <i>Philippe De Mey (Real Estate Management EU Commission)</i>	PDF	
	Application of BIM to the assessment of the energy performance of buildings <i>Peter Wouters (INIVE EEIG and QUALICHeCK platform)</i>	PDF	
	Demonstration "Focus on energy, environment, indoor climate modelling and simulation with BIM" <i>Benjamin Gonzales (CYPE), Patrick Corrales and David Da Silva (CSTB)</i>	PDF	VIDEO
3	<i>chairs: Jens Laustsen (EPBD CA coordinator) and Philippe Moseley (EASME)</i>		
	Horizon 2020 support for BIM in energy efficient buildings <i>Philippe Moseley (EASME)</i>	PDF	
	BIMplement – BIM and energy efficiency skills <i>Ana Tisov (Huygen)</i>	PDF	
	BERTIM Using BIM for renovation with prefabrication – <i>Asier Mediavilla (Tecnalia)</i>	PDF	
	Could we rethink the French building legislation in the context of BIM? <i>Thomas Welsch (Directorate of Housing, Urbanism and Landscape)</i>	PDF	
4	<i>chairs: Gunnar Grün (Fraunhofer IBP) and Jean-Christophe Visier (CSTB)</i>		

	Standardisation challenges for the energy performance assessment in a BIM context <i>Dick van Dijk (EPB-research)</i>	PDF	
	Demonstration “Use of BIM for design of installations, energy performance and comfort evaluation” <i>Niels Vercaemst (Ingenium)</i>	PDF	
	Panel discussion about BIM and the energy performance of buildings assessment with representatives from government and stakeholders <i>Moderated by Peter Wouters (INIVE EEIG and QUALICHeCK platform)</i> Participants: <i>Maarten De Groote (BPIE) Ad Van der Aa (NVBV) – Sylvain Robert (DG ENER) – Dan Napar (eu-bac) – Marc Bosmans (EURIMA) – Karsten Duer (Velux and venticool platform) – Dick van Dijk (CEN aspects)</i>	PDF	
	Interactive voting session part 2 <i>Prof. Arnold Janssens (UGent)</i>	PDF	
	Conclusions <i>Jean-Christophe Visier (CSTB)</i>	PDF	

Posted in Announcements, Conferences, Files, Highlights, Special Sessions Tagged Building Information Modelling, conference permalink [<http://qualicheck-platform.eu/2018/04/1st-european-conference-bim-and-energy-performance-of-buildings-25-june-2018-brussels-belgium/>]

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Doit-on encore attendre avant de se mettre au BIM ?

BIM = Modélisation des Informations du Bâtiment

Comprendre le processus BIM, convaincre les acteurs de la construction



*Par Philippe Perreau, Consultant en Management de processus BIM, Formateur BIM,
ATELIER NOMADES ARCHITECTURES*

5à7 éco-construction - Comprendre le BIM



Le BIM pour la maîtrise d'ouvrage



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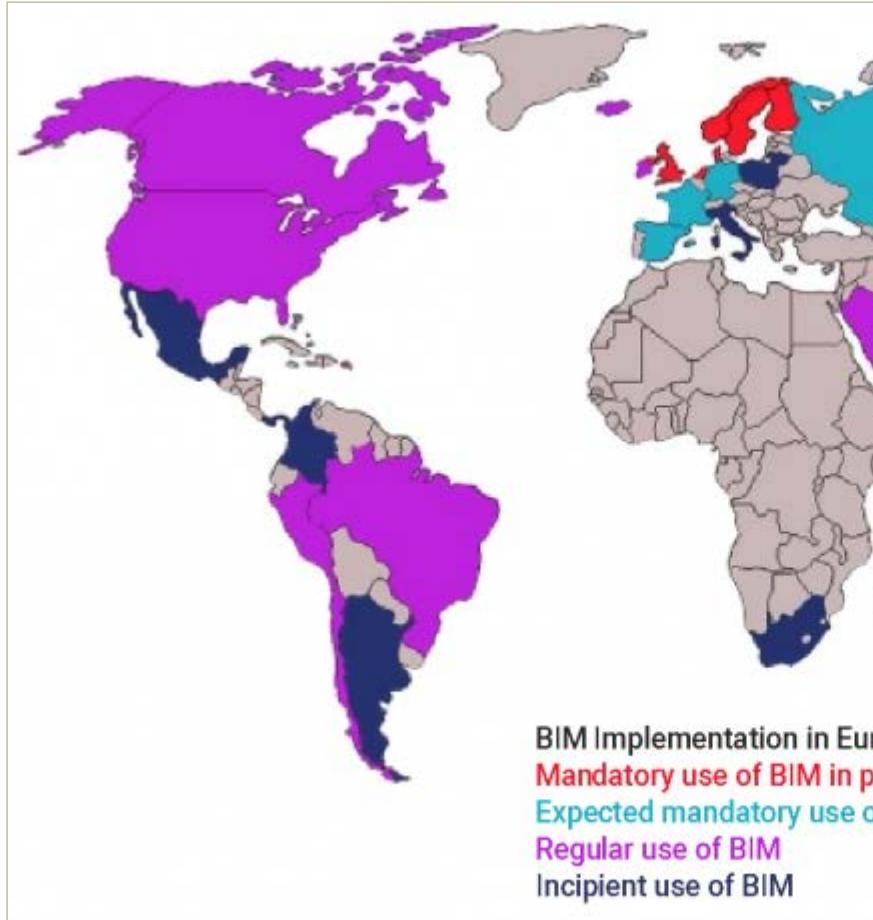
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Benefits of BIM and its level of adoption in European countries

14 Septiembre 2018 / Undefined (/es/taxonomy/term/294)

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Building Information Modelling (BIM) (<http://www.bim-implementation-project.eu/>) is at the centre of a digital transformation of the construction sector and the built environment. The European construction sector represents 9% of EU GDP and 18 million employees being a driver for economic growth in Europe. However, according to the World Economic Forum (<https://www.weforum.org/>), construction labour productivity has stagnated or even decreased over the past 50 years. In light of OECD (<http://www.oecd.org/>) figures, construction sector labour-productivity growth doesn't match the labour productivity growth achieved in the overall economy. Reasons for this are, among others, the persistent fragmentation of the industry; inadequate collaboration between the players; the sector's difficulty in adopting and adapting to innovative technologies; the difficulties in recruiting a talented and future-ready workforce; and insufficient knowledge transfer from project to project.

The World Economic Forum described BIM as one of the 10 most promising technologies that can act as a force for lowering the barriers for change and reversing this trend. New digital technologies, such as BIM itself, have begun to transform the way that buildings and infrastructures are designed, built and maintained. In our opinion, BIM is much more than a digital technology and should be considered as a strategic and complete methodology to increase construction productivity by delivering cost savings, improved construction and exploitation management, better environmental performance and quality, enhanced transparency and collaboration across the industry.

This is why, a growing number of European governments and public sector organisations have introduced initiatives to promote the wider adoption of BIM at a national, regional or public estate level. However, BIM is still distant from reaching its potential in Europe; and, as shown in the following picture, is progressing at different speeds in European countries.

Looking at how Europe is doing with BIM there is no doubt a lot of movement and initiatives are going on. There are some countries such as The Netherlands, the United Kingdom or Nordic countries where the compulsory use of BIM in public projects is already a reality and it is also being spread to private sector. In the Netherlands, BIM is becoming mainstream by most large construction companies. Also, the government is demanding the use of BIM in their integrated design and building contracts since 2011. Halfway through, there are countries such Spain or France where the mandatory use of BIM in public projects is expected soon. In Spain, the Es.BIM (<http://www.esbim.es/es-bim/>) platform, initiative sponsored by the Spanish Ministry of Civil Works engaging companies and professionals from different areas of the

Architecture, Engineering and Construction (AEC) industry, is encouraging the adoption of BIM by ensuring the process covers the whole construction chain. In addition, the timetable for mandatory BIM implementation on public sector projects is now a reality.

In France, 3D models tend to be widespread in the field of new building but is much more limited in renovation projects. However, the BIM process is rarely implemented by all stakeholders who intervene in a project, and only a few of them are really involved in it. Also, BIM is usually used during the concept and design phases, but the process is not pursued during the execution phase. As for the adoption of BIM on public sector projects, everyone agrees on the key position of BIM within the next year, even though, nobody know the exact date.

Finally, there are other cases, such as Poland or Lithuania where the use is still incipient. In Poland, public investors are becoming more and more aware of the potential of BIM technology in cubature and infrastructure investments. At the moment, the use of BIM technology is not mandatory yet in Poland for this type of projects, and the Ministry of Infrastructure and Construction is currently at the stage of supporting pilot projects aimed at verifying the implementation of the BIM methodology.

Nevertheless, there is still a long way ahead to catch up worldwide leaders such as the United States & Canada or Japan & South Korea.

Several studies have underlined the main barriers for BIM adoption: low demand, absence of national standards, initial investment or lack of knowledge and experience of stakeholders involved in the AEC industry. BIMplement project is trying to overcome this last barrier by setting up large scale training and Continuous Professional Development (CPD). BIM uses are different depending on the role and task each actor performs in the construction chain, therefore the training to reach the skills needed should be adapted.

BIMplement is working toward a unified approach to BIM in Europe by providing a methodology on how to identify the different professions and levels involved in the construction chain and offering them the specific BIM training they need. Having partners from 5 different countries in Europe (France, Spain, The Netherlands, Lithuania and Poland) allow us to test this training methodology in countries whose level of BIM adoption is different so far.

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Author(s) (organisation) Valencia Institute of Building (IVE) (/es/taxonomy/term/15188)

Submitted by: MARIA JOSE ESPARZA ARBONA (/es/users/pepa) (IVE - VALENCIA INSTITUTE OF BUILDING)

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1st European conference | BIM and energy performance of buildings, 25 June 2018

Monday, 25 June, 2018

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4th announcement

June 25 2018 1st European conference ‘BIM and energy performance of buildings’ Brussels –Belgium

Context of the conference

The market uptake of BIM (Building Information Modelling) is rapidly growing in nearly all European countries and one can assume that this trend will continue and even accelerate in the coming years. In practice, there was until recently in most countries little to no attention for BIM as a support tool for the regulatory assessment of the energy performance of buildings. A smart use of BIM can be a win-win situation for both areas, whereby there surely are still several bottlenecks and challenges ahead of us. This first conference, organised by INIVE EEIG on behalf of the QUALICHeCK platform, aims to present the status of BIM and opportunities and challenges regarding BIM use for the regulatory assessment of the energy performance of buildings. The aim is also to explore possibilities and challenges for an accelerated interaction/integration. The programme will cover visions of needs, on-going research and development work as well as demos of already existing solutions and panel discussions.

Provisional programme

8:30 Welcome coffee

9:00 Session 1 – chairs: Amandine De Coster - Lacourt (EASME) and Peter Wouters (QUALICHeCK) - Welcome and context of the conference – Johan Willemen (past president FIEC and president BBRI) - Interactive voting moderated by Prof. Arnold Janssens (UGent) - Revision of the Energy Performance of Buildings Directive – Sylvain Robert (DG ENER) - History of BIM developments and expectations for the future – prof. Stefan Boeykens (KUL and D-Studio) - BIM implementation in EU member states and other regions and expected developments – Léon Van Berlo (TNO) - Demonstration “BIM as working today” – Juan Nolet (Besix)

10:45 Coffee break

11:15 Session 2 – chairs: Sue Arundale (FIEC) and Bart Ingelaere (BBRI) - Commission initiatives for the modernisation of construction: digitalisation, BIM and energy performance of buildings – Lutz Köppen (DG GROW) - Product and system modelling using the web and linked data – Prof. Pieter Pauwels (Chair LBD-W3C and UGent) - Panel discussion “Construction 4.0 and BIM” – Moderated by Bart Ingelaere (BBRI) o Participants: Lutz Koeppen (DG GROW) – Eugenio Quintieri (EBC) - Juan Nolet (FIEC) – Philippe

De Mey (Real Estate Management EU Commission) - Application of BIM to the assessment of the energy performance of buildings – Peter Wouters (INIVE EEIG and QUALICHeCK platform) - Demonstration “Focus on energy, environment, indoor climate modelling and simulation with BIM – Benjamin Gonzales (CYPE) and Patrick Corrales (CSTB)

13:00 Lunch

14:00 Session 3 – chairs: Jens Laustsen (EPBD CA coordinator) and Philippe Moseley (EASME) - Horizon 2020 support for BIM in energy efficient buildings – Philippe Moseley (EASME) - BIMplement – BIM and energy efficiency skills - Ana Tisov (Huygen) - BERTIM – Using BIM for renovation with prefabrication – Asier Mediavilla (Tecnalia) - Could we rethink the French building legislation in the context of BIM? – Thomas Welsch (Directorate of Housing, Urbanism and Landscape)

15:15 Coffee break

15:45 Session 4 – chairs: Gunnar Grün (Fraunhofer IBP) and Jean-Christophe Visier (CSTB) - Standardisation challenges for the energy performance assessment in a BIM context – Dick van Dijk (EPB-research) - Demonstration “Use of BIM for design of installations, energy performance and comfort evaluation” – Niels Vercaemst (Ingenium) - Panel discussion about BIM and the energy performance of buildings assessment with representatives from government and stakeholders – Moderated by Peter Wouters (INIVE EEIG and QUALICHeCK platform) o Maarten De Groote (BPIE) - Ad Van der Aa (NVBV) - Sylvain Robert (DG ENER) – Dan Napar (eu-bac) – Marc Bosmans (EURIMA) - Karsten Duer (Velux and venticool platform) – Dick van Dijk (CEN aspects) - Interactive voting part 2 – moderated by Prof. Arnold Janssens (UGent) - Conclusions – Jean-Christophe Visier (CSTB)

17:15 Reception

Organisers

This conference is organised by INIVE EEIG on behalf of the QUALICHeCK platform (www.qualicheck-platform.eu (<http://www.qualicheck-platform.eu>)). The members of INIVE EEIG are BBRI, CETIAT, CSTB, eERG, Fraunhofer IBP, NKUA, SINTEF, TMT US and TNO (www.inive.org (<http://www.inive.org>)).

Supporter and endorsement

The conference receives support and endorsement from the following international organisations (preliminary list):

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In addition, there is specific support at Belgian level from: The cluster BIM (www.bimportal.be (<http://www.bimportal.be>)) The Technical Committee 'BIM and ICT' of the Belgian Building Research Institute The Strategic Basic Research Project NEPBC, supported by the Research Foundation – Flanders (FWO) The pre-normative research project CODEC supported by the Federal Public Services

We like also to thank the Flemish Energy Agency (VEA) for providing the conference facilities.

Registration and fee Registration can be done by google form: Please register here https://docs.google.com/forms/d/e/1FAIpQLSdiX0rVryTTqCakqMqbhZADatsdpoNFKKQlj32J_-QI3EA-UA/viewform?c=0&w=1 (https://docs.google.com/forms/d/e/1FAIpQLSdiX0rVryTTqCakqMqbhZADatsdpoNFKKQlj32J_-QI3EA-UA/viewform?c=0&w=1)

The workshop fee is: - Governmental organisations: free of charge
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OVERVIEW | How is the EU supporting BIM and ICT development in the buildings sector?

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During the conference, representatives of the European Commission highlighted EU initiatives for the decarbonization of the construction sector. BIM plays a key role as the digitisation of process information provides a unique tool to control and optimise energy-efficient factors across the whole lifecycle of the building. This is applicable for new construction and renovation projects.

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The *SWIMing project* looked at over 100 EeB projects, analysing 53 in detail, and resulted in 49 case studies from 33 projects of particular relevance to BIM and interoperability. It has worked to identify shared data requirements, promote data harmonization for improved interoperability and identify where linked open data technologies can be utilized to make data more accessible and, hence, easier to exploit.

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To reinforce knowledge and skills in the construction sector, the EU has set up the BUILD UP Skills initiative (<http://www.buildup.eu/en/skills>). This started under the Intelligent Energy Europe (IEE) (<https://ec.europa.eu/easme/en/section/energy/intelligent-energy-europe>) programme and aimed to boost continuing education and training of craftsmen and other on-site construction workers and systems installers in the building sector. After an initial phase (Pillar I e II) the initiative was followed by *Horizon 2020 Construction skills* (<http://www.buildup.eu/en/news/new-skills-construction-sector-achieve-european-energy-targets>) to support and further develop multi-country qualification and training schemes.

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BIMplement project

12 March 2019

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(<https://www.buildup.eu/sites/default/files/illustrations/bimplement.jpg>)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 745510.

Nearly Zero Energy Building (nZEB) construction and renovation need an enhanced systematic approach for the quality control of the entire process. This is the first prerequisite to reduce the gap between designed (predicted) and actual performances of buildings, both in terms of energy efficiency and in indoor environmental quality. The most important part of this enhanced quality control approach is a fully qualified and equipped workforce, capable to implement, execute and perform all the necessary labor actions with a full understanding of the responsibility of their own profession and actions, as well as the relation with the other involved professions and actions within the value chain.

BIMplement will offer a methodology to create and standardize the needed qualifications and a range of learning tools to unlock and implement these qualifications. To be future-ready subject specific qualifications will be enriched with the skills and competences needed when performing the job in a nZEB project that is using BIM. By using a standardised methodology the created qualifications

will be transparent and comparable between EU member states, thus facilitating and providing EU mobility.

This approach is condensed in the following objectives:

- To improve the overall quality of nZEB new constructions and renovations, based on BIM-enabled workplace learning, addressing the entire value chain in a cross-trades multidisciplinary approach
- To create a new generation of professionals and craftsmen, qualified to deliver high quality nZEB-projects by using technical, cross-trade and BIM skills and competences
- To foster interactions between different trades and professions enabled by a flexible qualification methodology for integrating technical, cross-trade and BIM related skills and competences into the workplace learning environment
- To sustain the qualification and training schemes a replication and exploitation strategy will be developed and validated



<https://www.bimplement-project.eu/> (<https://www.bimplement-project.eu/>)



Additional documents

Permalink (<https://www.buildup.eu/node/57209>)

<https://www.buildup.eu/en/node/57209>



BIMplement

Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences.

www.bimplement-project.eu

Proyecto BIMplementeu y AECOestudio

AECOestudio partners, s.l. con la mediación del IVE (Instituto Valenciano de la Edificación) @Fundacion_IVE (https://twitter.com/Fundacion_IVE)y BuildingSmart entra a formar parte del Proyecto @H2020BIMplement (<https://twitter.com/H2020BIMplement>) financiado por la EU, cuyo

objetivo es mejorar la calidad en la construcción y rehabilitación de Edificios de consumo de Energía Casi Nulo (EECN-nZEB), utilizando metodología BIM.

Lituania y Polonia a través de 50 proyectos de construcción o
rehabilitación.



El proyecto persigue además la concienciación de licitadores públicos para que incluyan requisitos de calidad y procesos fundamentados en metodología BIM en sus convocatorias de licitaciones.

Nuestro equipo contribuye con el edificio del Centro de desarrollo y aceleración turística de la Comunidad Valenciana, ya en fase de obra.

<https://www.bimplement-project.eu/rehva-journal-publishes-an-interesting-article-about-bimplement/>

f ([http://www.facebook.com/sharer.php?
u=\[http://www.aecoestudio.com/bimplement-
seleccion//&t=Proyecto%20BIMplement.eu%20y%20AECOestudio\]\(http://www.aecoestudio.com/bimplement-seleccion/\)](http://www.facebook.com/sharer.php?u=http://www.aecoestudio.com/bimplement-seleccion/&t=Proyecto%20BIMplement.eu%20y%20AECOestudio))

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< Anterior



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SEARCH



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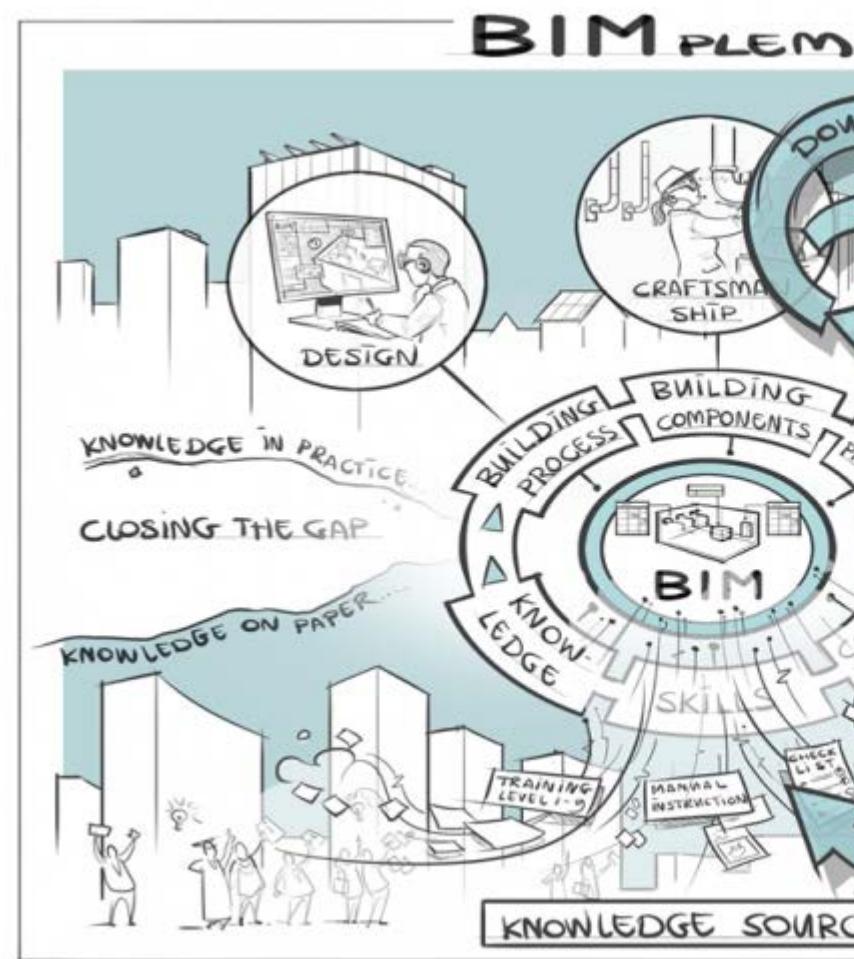
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Development and Implementation of a BIM – enhanced Qualification Framework

13 June 2019 / Undefined (/en/category/countries/undefined)

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by **Pepa Esparza Arbona** (<http://www.buildup.eu/en/users/pepa>), IVE - Valencia Institute of Building

Nearly Zero Energy Building (nZEB) construction and renovation need an enhanced systematic approach for quality control of the entire process. The most important part of the **BIMplement** (<http://www.buildup.eu/en/explore/links/bimplement-project>) enhanced quality control approach is a fully qualified and equipped workforce.

Capable to implement, execute and perform all the necessary labor actions with a full understanding of the responsibility of their own profession and actions.

As well as the relation with the other involved professions and actions within the value chain. In order to make sure that available 'good practices' are

applied across the building sector and by all relevant actors involved.

To be able to reach this goal BIMplement is developing and implementing a quality oriented Qualification Framework. In this article a short introduction.

The Qualification Framework is visualized in above image as the connected segments around the BIM-model. It consists of descriptions of competences, skills and knowledge needed in order to connect available knowledge such as learning content and quality inspections to the BIM-model, the building process and the actors involved.

In such a way that on national level available ‘stand-alone’ qualifications on nZEB, interdisciplinary and BIM process related qualifications become part of an integrated qualification.

In the first work packages of BIMplement the ‘engine’ behind this Qualification Framework, the BIMplement qualification methodology is developed and applied. We started with the description of craftsmanship in the form of a task based qualification.

This based on work done in previous Horizon 2020 projects such as PROF/TRAC (http://www.buildup.eu/en/explore/links/pro_rac-project-open-training-and-qualification-platform-nzeb) and national BUILD UP Skills (<http://www.buildup.eu/en/skills>) projects in the Netherlands, France, Spain and Lithuania. The table below illustrates this starting point.

To be future-ready the qualifications for working on airtightness and ventilation have been enriched with skills and competences needed for performing a

high-quality job in a nZEB project that is using BIM. The EQF-methodology, CEDEFOP guidelines and the taxonomy of Bloom have been taken into account.

These have been very useful especially when it comes to the formulation of correct Unit of Learning Outcomes (ULO's) and active task names.

A **Unit of Learning Outcomes (ULO)** is a component of a qualification consisting of a coherent set of **knowledge, skills** and **competence** (including responsibility) that can be assessed and validated.

In collaboration with H2020 project NEWCOM (<http://www.buildup.eu/en/explore/links/newcom-project>) the methodology was applied and further optimized. This led to an improved methodology that enables normalization of the qualification in order to prevent double tasks, subtasks and Unit of Learning Outcomes.

On the basis of this insight the methodology was translated into an easy to use Qualification database for storage and future use analysis of the qualifications.

By applying the methodology and database, the qualifications are transparent and comparable between EU member states, thus facilitating and providing EU mobility.

In deliverable 'D2.3 Adjusted methodology for a BIM-enhanced Qualification Framework including an instruction guide (<https://www.bimplement-project.eu/wp-content/uploads/2019/03/D2.3-Adjusted-methodology-for-a-BIM-enhanced-Qualification-Framework-including-an-instruction-guide.pdf>)' you can find a more extended story of our quest to come to this result. It also contains a first version of the BIMplement instruction guide for application of the developed Qualification Framework.

In the next phase of the BIMplement project each involved country will apply the results in a number of projects in which training interventions, based on the matrix, will be executed and tested in practice.

The pilots will be used for the verification of the matrix and the qualification schemes and give feedback to the previous steps.

The pilots will also be used to test the value of BIM-enhanced tools to empower the different kinds of learning loops. In our next newsletter, lessons learned in the BIMplement pilot field labs will be shared.

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BIMplement training program in France: current status and follow-up

13 June 2019 / Undefined (</en/category/countries/undefined>)

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One of the objectives of BIMplement (<http://www.buildup.eu/en/explore/links/bimplement-project>)'s project is to create a new generation of professionals and craftsmen, qualified to deliver high quality nZEB-projects by using technical, cross-trade and BIM skills and competences.

To this end, training sessions will be carried out in 50 construction sites located in France, Spain, the Netherlands, Poland and Lithuania.

By the end of the project, 1 000 craftsmen (blue-collar workers) and 200 professionals (white-collar workers) will be trained in BIM-enhanced quality control.

The case of France: selected territories and agreed construction sites

France acts as a learning and replication case for the other countries, executing about 30 - 35 construction and renovation projects by 2020. These numbers in France are feasible as training on quality control is already planned and the training infrastructure is in place.

In France, 8 territories were selected to carry out this great challenge:

- The agglomeration of Saint Quentinnois
- European Metropole of Lille
- The territory of Nièvre
- The city of Dijon
- The territory of the Pays Voironnais and Sud

Grésivaudan

- The territory of the Ardèche Méridionale
- The city of Lyon
- The territory of Ouest Provence

In each territory there is an organization which has the willingness and the competencies to lead the process and one of its employees has been designated and trained as “BIMplement coach”.

He/she is in charge of implementing and coordinating the BIMplement project in its territory by mobilising stakeholders and finding and documenting potential field labs and experimental sites.

More information about the French coaches (click here) (<https://www.bimplement-project.eu/bimplement-coaches/france/>).

France currently has launched 18 construction sites through which it will train 600 blue-collar workers and 120 white-collar workers of construction companies with fewer than 50 employees:

- Construction of a swimming pool in Dijon: + info (<https://www.bimplement-project.eu/redesign-of->

the-dijon-carrousel-swimming-pool/)

- Renovation of a highschool in Besançon
- Construction of a highschool in Besançon
- Construction of 40 bio-sourced houses
- Renovation of the Cité Muséale Château Chinon in Nièvre
- Renovation of 127 dwellings in Voreppe Bourg-vieux
- Two buildings in Voreppe Rives
- Renovation of the Sainte-Marie hospital in Privas in Ardèche Méridionale
- Construction of 2 office buildings in Saint-Nicolas-les-Arras: + info (<https://www.bimplement-project.eu/1st-bimplement-training-in-france-in-saint-nicolas-lez-arras/>)
- Construction of a digital house in Lomme
- Construction of a structure for children in Istres
- Construction of Technical Services of the Port Saint Louis du Rhône

In some of these locations the training has already begun as for example in Dijon, Voreppe and Saint-Nicolas-les-Arras, and in others it will start soon.

Awareness campaigns as a key point in the process

The priority of the Employment Houses (*Maison de l'emploi*) is to increase public awareness and rallies as many stakeholders around the project as possible.

Bilateral and collective actions (with partners such as trainings centers, Architects' associations, cluster, representatives of cities, social housing...) mobilize a lot of energy from the BIMplement coaches project managers before concluding a partnership.

A strong political support of the project is also essential.

This upstream work is most time consuming, but also represents an investment for the implementation of BIMplement and its future developments:

“That is approximately over 15 meetings with different stakeholders from around October 2017 until now. A significant part of the job that requires for example preparation and writing minutes of meetings. This step aims to develop partnership in order to ensure that all relevant stakeholders adhere to the results of the project and to legitimate it (...) Moreover, it is also really important to master the subject and participate to events that gathers together professionals. That represents again around 15 days of work since the beginning. In total, awareness campaign, strategic monitoring, and trainings represent 40% of my job on this project” (Carole Boursbaquet, Maison de l’Emploi of Dijon).

But when people join the project, it is like a snowball effect

In theory, BIMplement was supposed to train both white collars and blue collars but the reality is different. For most actors, BIM subject is pretty new and they need time and a pedagogical approach before any attempt to implement it.

Quickly, the BIMplement coaches realized that some meetings with the higher level of decision-maker have to be organized.

The pilot field lab in Dijon with the construction of the Carrousel swimming pool is the right example of a snowball effect. The Carrousel in Dijon led directly to other projects thanks to new contacts such as the City of Dijon and the Franche-Comté Region.

Currently, in one hand the city of Dijon supports a construction project of 40 bio-sourced houses. The first training was planned in June, 7th 2019 as the work starts in April.

In the other hand, Franche-Comté Region supports the renovation and the construction of 2 high school's projects.

The pilot field lab in Dijon just signed its convention in April:

“On April 5th, 2019 on the swimming pool Carrousel site in Dijon, a press conference was held with Pierre Pribetich, 1st Vice President of the city of Dijon and Océane Charret-Godard, President of Creativ’ as part of the BIMplement project. The construction of the swimming pool is one of the BIM reference at European level. CREATIV’ is proud to have initiate such a project of training on-site for all building professionals for a better collaboration practice. A first step in France!!!” (Fabrice Rey, Director of the Maison de l’Emploi of Dijon).

Since the beginning of the project, there have been more than 21 bilateral meetings, around 10 collective actions organized and more than 50 people trained.

As new works on site have started in the territory of Franche-Comté, Provence-Alpes-Côtes-D’Azur, more than 13 trainings will be launched by July 2019.

Consequently, this runo mechanism opens the possibility to implement on a wider scale a training policy on-site in this territory. It seems that BIMplement has a bright future!

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Submitted by: MARIA JOSE ESPARZA ARBONA (/en/users/maria-jose-esparza-arbona) (IVE - VALENCIA INSTITUTE OF BUILDING)

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BUSCAR



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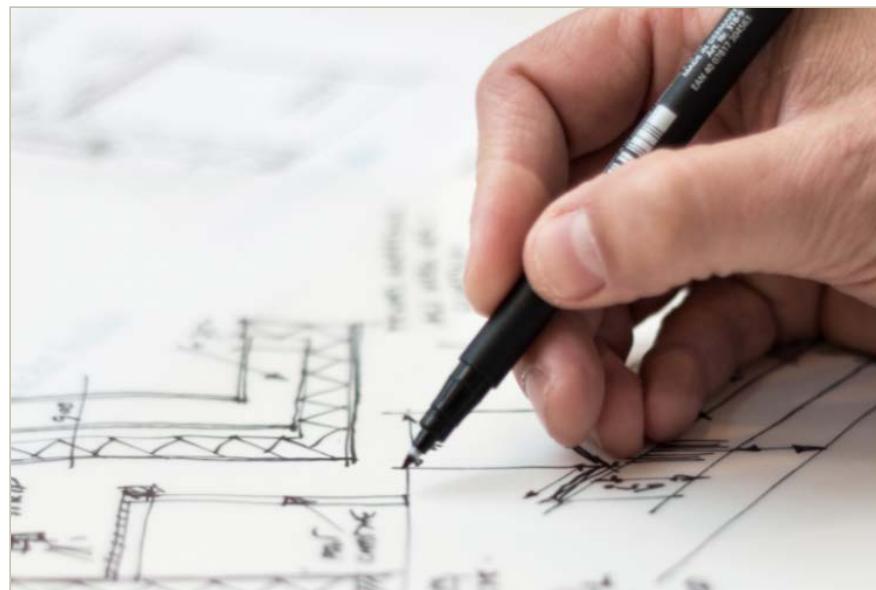
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OVERVIEW | New skills for a sustainable and energy efficient EU building stock

 01 Julio 2019 / EU Institutions ([/es/taxonomy/term/134](#))

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(https://www.buildup.eu/sites/default/files/illustrations/capture_26.png)

The construction sector has a large potential for **cost effective energy savings**. With the EU planning aimed at nearly zero energy target for new buildings by 2020, the construction sector is confronted with the urgent need to upskills its workforce.

This need implies both **meeting the targets** and **learning** how to use innovative approaches and technology solutions to keep high quality of construction and increase the building energy efficiency.

A proper managing of the whole construction process ensures effective interactions among the players in the value chain, enabling to **reduce the gap** between theoretical and actual performances.

Energy efficiency and digitalisation have emerged as two of the most influential drivers affecting the workers upskill in the construction industry.

This, especially in consideration to the fact that stringent energy efficiency targets and increasing demand for sustainable construction solutions are bringing a meaningful transformation of the needed skills.

Such transformation of skills is required during all stages of the building process, from *planning* to *design, construction, maintenance and renovation*, and in case *demolition*.

More specifically, some of the skills acquiring greater importance include process engineering, integrated planning, interdisciplinary communication, lean construction management, ICT/digital-base approach, knowledge of renewable energy and energy efficiency implementation from technology and impact point of view.

Naturally, aligning the competences of the workers to the requirements imposed both by policy drivers and market demand will ultimately result in a **more productive, profitable and competitive construction sector**.

Looking at the **design** stage, designers are facing the challenge, not only to predict the building performance (energy demand, indoor comfort, protection from the climate, etc.) but also to establish a degree of interaction between the occupant and the building that cannot be taken for granted.

The construction sector is constantly dealing with new technologies and materials and building facility managers are called to handle the innovative solutions embedded in building so that it performs as nominally designed, probably lacking the skills and knowledge to do so.

This has effectively resulted in the need to bridge the energy performance gap in energy efficient buildings, resulting from the construction sector embarking in the route of energy efficiency and decarbonisation.

This transition has prompted a transformation within the building sector that requires the acquisition of **new skills**.

However, the introduction of new skills in the construction sector is associated with several **barriers**, some of which are listed below.

1. The **decrease** in the number of young skilled workers are probably influenced by a negative image of the construction sector (security, low wages, etc.).
2. The **ageing** of the construction sector's workforce has been recorded as a continuous issue, providing additional barriers for the integration of new skills in the industry.
3. **Migration** of highly skilled workers from countries with lower wages to countries with higher wages can create a shortage of high-skilled workers in the former.
4. The **misalignment between vocational education trainings and the demand for skills** on the construction labour market slows down the upgrade and development of the sector, leaving workers with often outdated skills.

While the question of which new skills are needed is wide open, the **BUILD UP Skills** (<http://www.buildup.eu/en/skills>) **initiative**, coordinated by the Executive Agency for Small and Medium-sized Enterprises (EASME), was set up in 2011 to boost education and training in construction.

Its primary aim is to increase the number of qualified workers across Europe to deliver building renovations, which offer high-energy performance as well as new, nearly zero-energy buildings.

This initiative funded 30 projects in 2011-2012 to gather key stakeholders from the energy, education, training and building sectors in ‘National Qualification Platforms’.

The platforms mapped the existing workforce, qualification programmes, gaps and barriers, and future skills needs. On this basis, national roadmaps were developed.

One of the main findings within the BUILD UP Skills initiative was that 3 million workers in Europe would need training on energy efficiency and renewable technologies by 2020.

In 2013-2014, a second batch of 22 projects was funded to turn the national roadmaps into action. This was achieved by designing new qualifications and training schemes and improving existing ones. In this context, more than 8 500 people across Europe were trained in 805 pilot courses.

From 2014 onwards, the Horizon 2020 (<https://ec.europa.eu/programmes/horizon2020/en>) Framework Programme provided continued support to BUILD UP Skills initiative. The focus was shifted to large-scale international qualification and training schemes, while also addressing professions (engineers, architects, building managers, etc.).

The EU contribution to BUILD UP Skills since 2011 amounts to EUR 38 million, showing the importance of the EU commitment in this field. Some of these projects are listed in the following.

-The FIT-TO-NZEB (<http://buildup.eu/en/learn/tools/fit-nzeb-training-tool-enhance-knowledge-and-skills-nzeb?gid=50727>), have been focusing on understanding which competencies are required and it has attempted to develop taxonomies of new required energy-efficiency related competencies.

-The **BUStoB** (<http://buildup.eu/en/explore/links/bustob-project-0>) project has approached to fill the skills gap with the introduction of training modules covering a range of subjects related to green skills for the building and installation workforce

-The platform **BuildUpSkillsNL** (<https://buildupskills.otib.nl/english/>) contributes to the energy transition with a particular focus on new skills required by construction workers. The mission of BUS-NL was to make sure that future Dutch workers in the construction and installation sectors would be ready for a future with (near) zero energy buildings in a sustainable built environment.

-The **ingREeS** (<http://buildup.eu/en/node/54225>) project offers education and training programmes for middle and senior level engineers and construction professionals, the main target group of the project, while covering the following professions identified in both roadmaps as key for achieving the EU 2020 energy targets.

-**MEnS** (<http://buildup.eu/en/explore/links/meeting-energy-professional-skills-mens>) is a project conceived to provide or improve the near-zero-energy-building professional's skills. It is an aid for building managers, engineers, and architects and it is delivered through a series of accredited training activities.

-There is also the **PROF/TRAC** (<http://buildup.eu/en/explore/links/pro-trac-project-open-training-and-qualification-platform-nzreb>) European Qualification Scheme on nZEB skills which targets higher degree professionals. This framework constitutes a solid basis to compare the nZEB skills required by the different

professions and from one country to another. This provides an extensive library of nZEB-related courses.

-The Train-to-NZEB (<http://buildup.eu/en/explore/links/train-nzeb-building-knowledge-hubs-europe-0>) project aims to provide training to improve the knowledge and skills in the construction sector and to provide practical training, demonstrations and a comprehensive consulting service for the design and construction of Nearly Zero-Energy Buildings (NZEB) supported by RES, based on the Passive House concept.

For the coming years, the focus will be on boosting the demand for skilled building professionals. The Horizon 2020 Secure, clean and efficient energy (<https://ec.europa.eu/programmes/horizon2020/en/h2020-section/secure-clean-and-efficient-energy>) Work Programme for 2019-2020 is currently welcoming proposals in this field.

These proposals are expected to develop market level actions and/or support legislative changes.

The **digitalisation** of the building sector is a skill that keeps attracting attention and raises new questions.

Digital skills, and how to go about them and where will they take the building sector has been examined recently in the Skills event (<http://buildup.eu/en/news/register-build-skills-workshop-construmat19>) at CONSTRUMAT'19 (<http://buildup.eu/en/events/barcelona-building-construmat-bb-construmat19>), where several experts from the construction sector and the European Commission gathered to answer such questions and develop guidelines to inform policymakers.

The proceedings to such event and the presentations are published in the BUILD UP Skills section (<http://www.buildup.eu/en/skills/build-skills-workshop-construmat19>) and EASME website (<https://ec.europa.eu/easme/en/news>).

Among the certainties, one is that **digital attitude in the building sector** has been increasing over recent years, but it is necessary it continues to increase and improve in the future.

One tangible example is the even larger use of **building information modelling (BIM)** which allows not only an enhanced systematic approach for quality control of the entire process, it also facilitates the change of the scale and scope of focus within a building-related project.

BIM can manage neighbourhood scale design for planning purposes but is also very useful when designing low to zero carbon technologies, such as district heating at a development level.

A digital environment allows to hold constructive detailing information that can be later used in the construction phase and reach a 1:1 scale of specific constructive detail for tendering purposes.

The principal benefit of BIM is that it allows the efficient progress throughout the lifecycle of an architectural project from design through construction to closeout and beyond, safeguarding information and integrating different stakeholder requirements in a common data environment.

Later in the buildings' life cycle, the same detail can be used as a source of information for maintenance and retrofitting activities.

A number of projects currently funded under the BUILD UP Skills initiative are developing BIM related skills qualification frameworks as well as

competencies training: these are the **Net-UBIEP** (<http://buildup.eu/en/explore/links/net-ubiep-project-0>) , **BIMplement** (<http://buildup.eu/en/explore/links/bimplement-project>), **BIMEET** (<http://buildup.eu/en/explore/links/bimeet-project>) and **BIMcert** (<https://www.bimcert.org/>) projects.

Digitalisation has achieved an important point for performance prediction (<http://buildup.eu/en/topics/calculation-simulation>), with the introduction of Building Energy Modelling (**BEM**) in the design of buildings. BEM tools and processes can be used to simulate energy performance, evaluate energy needs and optimize architectural design.

Knowing how to use BEM is a skill that is getting attention from designers in recent years and has also been enabled by the update of climate data (<http://buildup.eu/en/learn/tools/new-simulation-climate-data-europe-available?gid=50727>).

The combination of both leads to another aspect of building energy efficiency and defines a new approach to translate between Building Information Modelling (BIM) and Building Energy Modelling (BEM) so called BIM2BEM.

The BIM2BEM approach integrates BEM and BIM and leads to the design and construction of more adaptable buildings that can cope with evolving environmental policies (<https://www.sciencedirect.com/science/article/pii/S2090447917300047>).

In the construction and operation of buildings, digitalisation has become more open to the use of sensor and digital **platforms** for sharing data (<http://buildup.eu/en/explore/links/smart-cities-emergence-cyber-safe-buildings>). This way, stakeholders of a building (such as designers,

building managers, owners, occupants, owners, etc.) can share data and inform decisions in a continuous communication channel.

This is the case not only for the increased attention to the post-occupancy evaluation of buildings, but also to the development of platforms such as the one from the ExcEED project (<http://buildup.eu/en/explore/links/european-energy-efficient-building-district-database-exceed-project-0>), collecting an actual building's energy performance data and providing information to designers, energy managers and policymakers.

The building sector faces several **challenges** in embedding a process of digitalisation. However, there appears to be many questions as to what tools are needed and therefore what skills (<http://buildup.eu/en/skills>).

The required transformation of the building stock (energy efficiency, renewable resources integration, building simulation, optimization of building simulation) to achieve carbon emissions targeted by governments is a key challenge in the agenda of the European Commission

While it is claimed that digital technologies are necessary to achieve energy efficiency, there are several obstacles to overcome and **questions** yet to answer.

The question of *what* skills are needed is immediately correlated to *how* such skills will be facilitated to those who may have been working differently up until now.

Adaptation is required not only at the educational level but also in the day-to-day work environment.

Projects such as Fit-to-NZEB (<http://buildup.eu/en/learn/tools/fit-nzeb-training-tool-enhance-knowledge-and-skills-nzeb>) create tools to fill the gap and have also developed courses (<http://buildup.eu/en/news/pilot-training-and-educational-courses-deep-energy-retrofit-starting-under-fit-nzeb-project>) where technology is translated for those hand-on-hand with the operational tasks.

Finally, other projects such as Cra Edu (<http://buildup.eu/en/practices/publications/cra-ed-u-horizon-2020-project-setting-national-qualification-and-training>) and NEWCOM (<http://buildup.eu/en/explore/links/newcom-project>) work by setting up national qualification and training schemes for cra speople in an attempt to completely close the gap between strategic and operational labour in the construction process.

A **common approach** to skills needs to be adopted in order to allow a robust transformation of the building sector.

Digitalisation is on its way and the training of skilled workers needs to be a parallel and important task, as well as the creation of a platform of qualified trainers that can support the adoption of innovation.

The EU-funded projects are designed and implemented such notable upskilling programmes (<https://cordis.europa.eu/article/id/400910-new-skills-for-the-construction-sector-to-achieve-european-energy-targets/en>) to turn this ambition into a **viable reality** across Europe.

↗ Fuente:



English (/en/news/overview-new-skills-sustainable-and-energy-e_ficient-eu-building-stock)

Enlace permanente (<https://www.buildup.eu/node/57783>)

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Information about this post

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La Conselleria d'Habitatge actualitzarà el Catàleg d'elements constructius per a millorar la digitalització del sector de la construcció

12/09/2019

- L'Institut Valencià de l'Edificació desenvoluparà aquest document d'ús freqüent per part dels projectistes

La Vicepresidència Segona i Conselleria d'Habitatge i Arquitectura Bioclimàtica, a través de l'Institut Valencià de l'Edificació (IVE), actualitzarà el Catàleg d'elements constructius per a millorar la digitalització del sector de la construcció.

El Catàleg d'elements constructius és una aplicació informàtica que ofereix un ampli mostrari de solicions constructives, i és un dels documents més utilitzats pels projectistes. S'hi especificuen informacions de qualsevol tipus: característiques tèrmiques, acústiques, d'impermeabilitat, de protecció enfront del foc, etc. Amb aquest catàleg, els projectistes poden conéixer les característiques de les solicions seleccionades i justificar el compliment de les exigències establides en la normativa vigent.

L'objectiu d'aquesta actualització és transformar el catàleg en una aplicació web des de la qual es puguen descarregar les solicions constructives en format de dades tipus IFC, i es puguen importar des de qualsevol programa de modelatge BIM (Building Information Modeling).

A més, amb aquesta aplicació es disposarà d'una àmplia biblioteca d'elements constructius en format BIM de manera que, des d'un únic model, es puga gestionar gran part de la informació necessària de l'edifici al llarg del cicle de vida d'aquest.

La posada en marxa d'aquesta línia de treball s'emmarca dins de l'aposta de la Comissió Europea per la digitalització del sector de la construcció i la necessitat de qualificar els professionals per mitjà de programes de formació, noves habilitats i aquells coneixements que demana el mercat.

Concretament, aquesta actuació forma part del projecte europeu BIMplement del programa Horizon 2020, en el qual participa la Vicepresidència Segona i Conselleria d'Habitatge i Arquitectura Bioclimàtica, a través de l'IVE.

Dins d'aquest projecte europeu es treballa en diverses línies d'actuació, entre les quals destaca la formació gratuïta a professionals del sector perquè amplien el coneixement per a millorar la qualitat dels edificis de consum d'energia quasi zero (EECN), mitjançant la metodologia BIM com a eina de treball.

Aquesta formació, en la qual participaran entorn de 1.200 professionals del sector, s'impartirà a Espanya, Holanda, Lituània, Països Baixos i Polònia i la versió actualitzada del Catàleg d'elements constructius s'emprarà com a material docent.



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La Conselleria de Vivienda actualizará el Catálogo de elementos constructivos para mejorar la digitalización del sector de la construcción

ELPERIODIC.COM - 12/09/2019

- El Instituto Valenciano de la Edificación desarrollará este documento de gran uso por parte de los proyectistas

La Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática, a través del Instituto Valenciano de la Edificación (IVE), va a actualizar el Catálogo de elementos constructivos para mejorar la digitalización del sector de la construcción.

El Catálogo de elementos comunes es una aplicación informática que ofrece un amplio muestrario de soluciones constructivas, siendo uno de los documentos más utilizados por los proyectistas. En él se especifican informaciones de todo tipo, características térmicas, acústicas, de impermeabilidad, de protección frente al fuego, etc. Con él, los proyectistas pueden conocer las características de las soluciones seleccionadas y justificar el cumplimiento de las exigencias establecidas en la normativa vigente.

El objetivo de esta actualización es transformar el catálogo en una aplicación web desde la que se puedan descargar las soluciones constructivas en formato de datos tipo IFC y se puedan importar desde cualquier programa de modelado BIM (Building Information Modeling).

Además, con esta aplicación se dispondrá de una amplia biblioteca de elementos constructivos en formato BIM de manera que, desde un único modelo, se pueda gestionar gran parte de la información necesaria del edificio a lo largo de su ciclo de vida.

La puesta en marcha de esta línea de trabajo se enmarca dentro de la apuesta de la Comisión Europea por la digitalización del sector de la construcción y la necesidad de cualificar a los profesionales a través de programas de formación, nuevas habilidades y aquellos conocimientos que demanda el mercado.

Concretamente, esta actuación forma parte del proyecto europeo BIMplement del programa Horizon 2020, en el que participa la Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática, a través del IVE.

Dentro de este proyecto europeo se trabaja en varias líneas de actuación, entre las que destaca la formación gratuita a profesionales del sector para que amplíen su conocimiento en cómo mejorar la calidad de los Edificios de Consumo de Energía Casi Cero (EECN) utilizando la metodología BIM como herramienta de trabajo.

Esta formación, en la que participarán en torno a 1.200 profesionales del sector, se impartirá en España, Holanda, Lituania, Países Bajos y Polonia y la versión actualizada del Catálogo de elementos constructivos se empleará como material docente.

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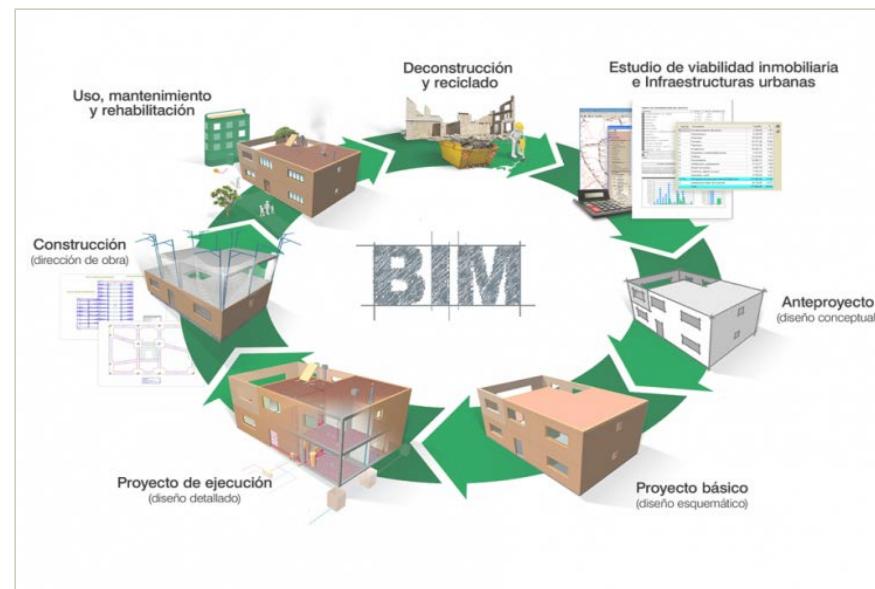
BIM



BIM: the collaborative work methodology that is revolutionizing the construction sector

10 September 2019 /

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BIM

(https://www.buildup.eu/sites/default/files/illustrations/bim_circle.png).

The evolution of new technologies is leading the construction sector to a new revolution in the way of working, especially in the collaboration among the agents involved in the different construction processes.

Traditionally, for the design, construction and use of buildings, the sector has developed many tools that are usually handled by specialized technicians in each area: CAD programs (Computer Aided Design) and modeling for the graphic representation of the elements, different calculation programs to measure structures and facilities, tools to indicate how the project should be built or its subsequent maintenance, among others.

These tools operate independently, leaving the generated information dispersed among the different programs used. Plans and documents on paper are responsible for collecting and centralizing the results.

In order to calculate, these tools need to have numerous and diverse information on the construction elements such as: their weight to

calculate the structure, thermal performance to design the insulation of the facades and the roofs of the building, or the price of the materials to be able to assess the cost of execution of the work.

This information is usually available from different sources and is often not presented in a homogeneous way. With this way of working there is a risk that the results obtained by the different programs may present contradictions or conflicts with each other.

The situation is radically transformed with the appearance of BIM (Building Information Modeling) providing a new collaborative work methodology for the construction sector.

Working at BIM means having a single model from which to generate and manage all the project information throughout its entire life cycle.

Architecture, engineering and construction professionals have a methodology that allows them to operate together in real time; Any change or information introduced in the model modifies the set of affected elements automatically. For example, by introducing the air conditioning ducts into the model, the system checks their possible interference with the structure, partitions or other installations.

Another added value of BIM technology is the possibility to define the elements that make up the building. It is possible to define its properties and characteristics (thermal, acoustic, environmental footprint, ...), obtain product certifications or specify the technical conditions for proper execution or maintenance.

This information can be used both in the project phase (for structural, thermal calculation, etc. in order to perform simulations and analysis of possible

behaviors) and to track maintenance tasks throughout their useful life.

All this means having a powerful tool with which to avoid contradictions and project errors, carry out realistic planning, shorten the execution deadlines and with all this, optimize investments.

Once this journey has begun, the future of construction cannot be other than adopting this new technology, using it at all stages of the life of the building: from the project phase to its demolition, through its construction, operation and conservation.

The way to go

Progressively, a greater number of agents in the construction sector is assuming this new way of working and relating to others. In addition, the directives of the European Union push local administrations to join this trend, establishing digitalization in public tender procedures.

To achieve an acceptable level of implementation of the BIM methodology, it is necessary to act in several lines of work. Traditional work tools must be adapted to new technology and different agents must be trained and upskilled.

In parallel, it is necessary to define standards and rules that allow the exchange of information between employees in a unique and reliable way.

Different specialists can manage different programs to calculate but the information must be transferred reliably to the BIM program and the model is where all the project information should be collected.

To improve the current situation and accelerate the rate of upskilled professionals in the construction sector, the European Commission took the challenge supporting several initiatives including H2020 Construction Skills funding schemes.

The overarching H2020 Construction Skills project BIMplement goal is to achieve an improved quality for nearly Zero Energy Building (nZEB) construction and renovation by using BIM as a universal information carrier and enabler of the learning process within projects and between projects.

If you are interested in the BIM methodology, we invite you to follow the BIMplement project: Web (<https://www.bimplement-project.eu/>), Twitter (<https://twitter.com/H2020BIMimplement>), Facebook ([https://www.facebook.com/H2020BIMimplement/](https://www.facebook.com/H2020BIMimplement)), LinkedIn (<https://www.linkedin.com/groups/8643524/>)/ Sign-up here to BIMplement's e-newsletter (<https://www.bimplement-project.eu/contact/>)

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El Instituto Valenciano de la Edificación actualizará el Catálogo de elementos constructivos para mejorar la digitalización del sector de la construcción

13/09/2019

213



La Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática de la Generalitat Valenciana, a través del **Instituto Valenciano de la Edificación** (IVE), va a actualizar el Catálogo de elementos constructivos para mejorar la digitalización del sector de la construcción.

El Catálogo de elementos comunes es una aplicación informática que ofrece un amplio muestrario de soluciones constructivas, siendo uno de los documentos más utilizados por los proyectos. En él se especifican informaciones de todo tipo, características térmicas, acústicas, de impermeabilidad, de protección frente al

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BIMplement - Tools, training content and qualification schemes for BIM work place trainers (D4.5)

13 September 2019 /

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(https://www.buildup.eu/sites/default/files/illustrations/clipboard01_16.jpg)

The project objectives are to enhance nZEB construction and renovation, while easy up collaboration and up-skilling of stakeholders.

- The focus will be given to two major subjects, that will have a great influence on the nZEB result: ventilation and airtightness.
- BIM modelling and BIM model use will be the essential tools that will allow all stakeholders to collaborate

The main concerned stakeholders to reach these objectives are the building companies who work on site. The training sessions will be, preferably, carried out on the working site. The training program will have to take into account the local working situations that should be improved following this up-skilling.

This “BIM as a tool” approach is explicated in this deliverable. It aims at presenting the different types of training to be implemented, depending on the project, the stakeholders, and their skill levels. These training are focused on BIM (adapted uses at the different phases of the project, and in relation with

the different stakeholders), but, as often as possible, demonstrations will be done on ventilation and airtightness with the help of the WP3 (first) approach.

The definitions of the BIMplement project (<https://www.buildup.eu/en/explore/links/bimplement-project>) stakeholders, with reference to the Grant Agreement, are the following :

- The ‘BIMplement coach’ will be in charge of implementing the BIMplement project in its territory by mobilising stakeholders, finding and documenting potential field labs and experimental sites, and by coordinating the implementation of the project in its territory.
- The pilot field labs will be national or regional BIM-learning Centres or on-site construction projects where the trainings of ‘BIMplement workplace trainers’ and the first tests of the tools and learning methods of BIMplement will take place. A possible additional stakeholder has been introduced: the ‘BIMplement master trainer’. When it appears useful, Master trainers may train BIMplement workplace trainers who will implement on blue collar training. Such a solution has been developed in France where 30 projects are expected.
- For the implementation at the experimental sites, ‘BIMplement workplace trainers’ will be responsible for the training implementation on each experimental site. The BIMplement workplace trainers will receive assistance of Alliance Villes Emploi, ASTUS, and the other members of the consortium.

D4.5 gives a detailed content of:

- how the BIMplement (Master) trainer will analyse the project context
- what should be the BIMplement trainer pedagogical and technical skills
- canvas of a BIM training course, including a whole set of the different points the BIMplement trainer may encounter when he analyses his project (§6)

- detailed list of the data to be collected and analysed , related to ventilation and airtightness (§7) It has to be noted that §6 and 7 correspond also to what would be included in a training session for design o ice and project manager in order, for them, to design a more adapted BIM model for on site use
- and finally, (8), gives a detailed content of the training sessions to be given on site, for blue collar workers to use a BIM model

 URL of the publication: <https://www.bimimplement-project.eu/publications/> (<https://www.bimimplement-project.eu/publications/>)

Additional documents



d4.5_tools_and_learning_methods_and_qualification_schemes_for_bim_workplace_trainers.pdf
(https://www.buildup.eu/sites/default/files/content/d4.5_tools_and_learning_methods_and_qualification_schemes_for_bim_workplace_trainers.pdf)

Permalink (<https://www.buildup.eu/node/58131>)

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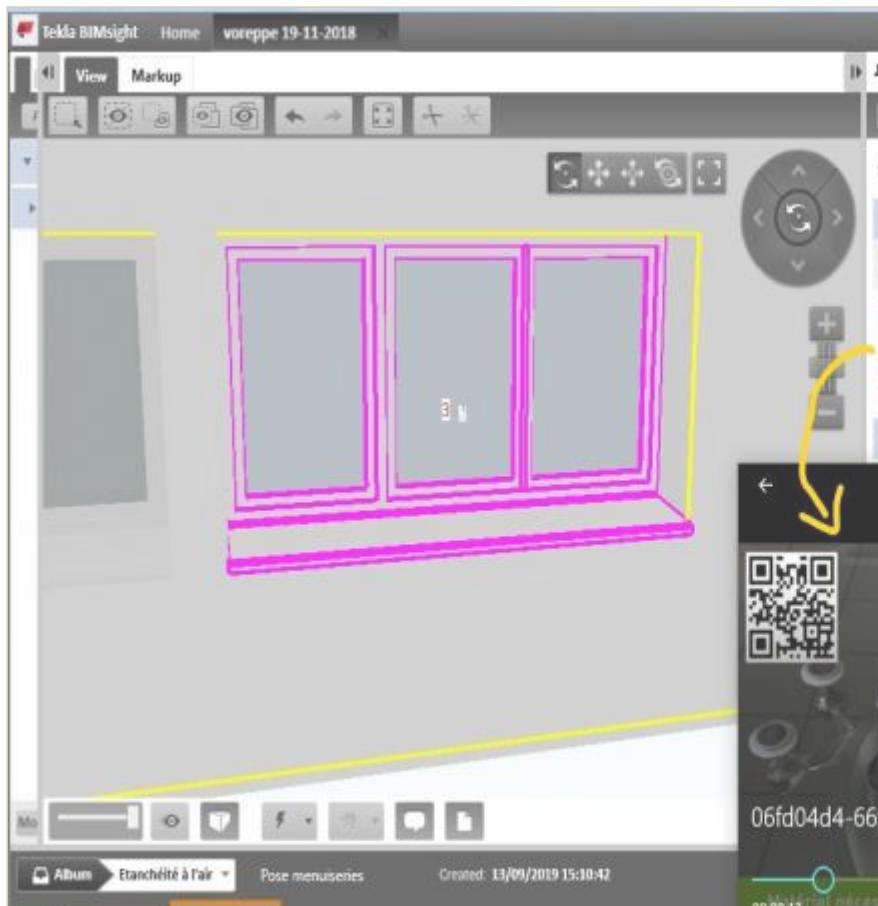
BIMplement project: greater energy efficiency using a 'BIM airtightness model'



23 September 2019 / Undefined (/en/category/countries/undefined)

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Topic of the month 'Digitalisation of the Building and Construction sector'!

Improve building energy efficiency is one of the main issues of the BIMImplement project (<https://www.buildup.eu/en/explore/links/bimplement-project>). To that end, BIM (Building information modelling) is used as an on-site tool for Blue collar workers to better understand the type of work to be implemented.

BIM models and airtightness issues

The BIM process that creates BIM models allows a much better representation of almost any kind of construction material, products and structures than 2D plans ... but airtightness. Yet, this question is a

central point to ensure a high energy efficiency quality of a building. In fact, two issues are related to this point:

- › there exist NO IfcObject related to airtightness. This means that, contrarily to ventilation for which it is possible to list and assemble any IfcObject that constitute the whole ventilation network, it is not possible, at the present time, to design a BIM model that includes airtightness solutions.
- › Airtightness comes within competency of a lot of different batches in a construction project: structure, plumbing, joinery, ventilation, electricity, HVAC, ...

Within the BIMplement project, an experiment is on the way to be tested on several real construction site in France, and by the French BIMplement partners. Two complementary approaches are being developed to answer this issue:

- › BIM model as an on-site tool for blue-collar workers: BIMplement means to give access to a specific BIM model to all blue-collar workers in order to bring them any information they need to implement products and material that may affect airtightness quality.
- › Hands-on training on airtightness implementation: because the airtightness issue is still not concrete and clear, during BIMplement, a container with real and full-size airtightness solutions are presented in a container installed on the construction site (see Fig.2 & 3).

This paper will present the means to implement the first solution. Yet, both merge on site: the BIM model use requires the operator to have good practices and skills, and the solution needs the BIM models to present the adapted solution and the products and instruction guides to implement them.

Experimental BIM process for airtightness

The aim of this BIMplement experience is to design an on-site BIM model that will use by on-site operators to implement any material/products/solutions to airtight a building. During the development of our experimental project, several phases will be implemented, with the help and participation of all stakeholders:

- › the architect designs a BIM model, in which standard solutions are given to answer the airtightness issue.

Attempts to take this issue into account has been given in 2011

(<https://www.energie.org/web/index.php/49-premeabilite-a-l-air/permeab...>

(<https://www.energie.org/web/index.php/49-premeabilite-a-l-air/permeabilite-a-l-air-du-batiment/932-documents-sur-la-mise-en-oeuvre-de-l-etancheite>))

- › then the companies that answer a call for bid will produce technical details (with the possible help of a manufacturer), including name of the products to be used. These explanations are part of the bid choice process.

- › at last, the chosen building company will simplify the original BIM model for his site operators (§3). This phase will be greatly accompanied by the BIMplement partners. In addition, training will be implemented both for the managerial level and for the site level, by the BIMplement partners, to explain how to use and enrich a BIM model.

The airtightness BIM model and its site implementation

This BIMplement experiment is conducted in France. First step is to design a specific BIM model dedicated to airtightness, extracted from the project BIM model, enriched with attach technical files (documents, notes, pictures, technical guides, quality control sheets, ...) for a better implementation of airtightness on site. To that end, the building company, with the help of the French BIMplement partners, have to:

- › check the quality of the BIM model and minimize all conflicts,
- › identify all airtightness weak points, that usually depends on different batches, and that need to be treated,
- › design airtightness solutions to answer the issue (adapted products, technical design and implementation details, implementation instruction guide, sketches, videos, ...). During the BIMplement experiment, this step will be done with the help of ILLBRUCK company,
- › extract, from the original BIM model, a "simplified" model where will be deleted as many elements as possible that are not related to airtightness weak points,
- › integer these data into the airtightness BIM model. These elements will be adapted to all craftsmen and trades involved in airtightness issue. For instance, in Fig. 1, 3 documents have been linked to the window-BIM-object: one pdf technical document, one video, and one quality control sheet to be filled by operator.

The second part of this experiment will also be implemented by the French BIMplement partners on the construction site:

- › train the blue-collar workers on how to visualize the projects with freeware viewers,

- › train the blue-collar workers to open documents attached to the model, to exchange with other stakeholders with notes, to attach a picture, to fill up a linked control quality sheet ...
- › train the blue collar to manipulate the products and materials and implement full size and on-site the solution. This part will be done with the help f ILLBRICK company
- › control the building airtightness quality during the construction phase, which means ask the operators to take pictures of implementation and link them to the BIM object in the model, and fill up control quality sheets from the BIM model.

This project will be tested end of 2019, on 2 projects, rehabilitation of multi-storey residential buildings and building of wooden structure houses. Both projects have been launched in June 2019. The airtightness BIM models should be created by the end of October, and the on-site trainings will take place in December 2019.

First returns of experience

Such experiments can be done only because the clients are aware of the impacts of airtightness on energy efficiency, agrees to be volunteer in the process, and include in their contracts a compulsory on-site training for operators and a careful control during the final airtightness test.

Yet, in many cases, it appears that the contractual documents are not coherent enough, and do not reflect the client's needs in terms of on-site quality and as-built model. These documents also do not enough specify the role of the BIM Assistant to the Contracting Authority.

The BIM model is created by architects, engineers usually for their own purpose. In these experiments, the BIMplement partners had to convince these stakeholders of the interest to bring their model on the building site, and, as a consequence, to adapt and enrich it for the needs of on-site operators.

Both approaches proposed in §1 will be implemented independently on different real sites during the BIMplement project. In addition, on some of them, they will be conducted simultaneously. A special feedback will be completed in order to assess the results in terms of airtightness level of quality (airtightness tests will be conducted on these sites).

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Target Group Local/regional/national authorities and facilitators (/en/taxonomy/term/141), Building professionals (/en/taxonomy/term/142)

Author(s) (organisation) Myriam Olivier (ASTUS) (/en/free-authors-tags/myriam-olivier-astus), Philippe Perreau (ASTUS) (/en/free-authors-tags/philippe-perreau-astus)

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Webinar: Are we ready for BIM in construction sites?

Tuesday, 3 December, 2019

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This webinar will take place Wednesday, 3 December 2019, at 10:00 CET.

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The digitalisation of the design and construction process of the European built environment is remodelling the way of work inside the whole value chain. The adaptation to this new work environment is a challenge to be faced by all stakeholders across the construction chain, affecting professionals such as architects and engineers, as well as contractors and construction workers. BIM could be regarded as the driving force of this transformation. At the moment, eight European member states (Austria, Denmark, Finland, Germany, Italy, Luxemburg, Spain and United Kingdom) have made the use of BIM mandatory for public works.

For the past two years, the BIMplement team has been developing a BIM based training for white- and blue-collar workers on topics such as ventilation and airtightness.

This interactive panel discussion will uncover the training experiences in each of the 5 countries involved in the project (France, Lithuania, Poland,

Spain and the Netherlands). The webinar will address the impact BIM maturity had in these training experiences, the potential of BIM to improve the construction quality and the tools developed by each partner to address the chosen focus of ventilation and airtightness.

Join us and learn more about the project and the experiences we faced in this exciting time of the digitalisation of the construction industry.

The project welcomes stakeholders to join the debate and suggest ways to overcome the encountered barriers, name best practice examples and help us to succeed.

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Target Group Local/regional/national authorities and facilitators (/en/taxonomy/term/141), Building professionals (/en/taxonomy/term/142), Building occupants (/en/taxonomy/term/143)

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Webinar: “Are we ready for BIM in construction sites? A reality check: Experiences from the ground”

03 December 2019 / Undefined (/en/category/countries/undefined)

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Please watch the recording in our YouTube channel
(<https://www.youtube.com/watch?v=NaApH47aDbA>) and consult the presentation though this link
(https://www.buildup.eu/sites/default/files/content/bimplement_webinar_20191203.pdf).**

The digitalisation of the design and construction process of the European built environment is remodelling the way of work inside the whole value chain. The adaptation to this new work environment is a challenge to be faced by all stakeholders across the construction chain, affecting professionals such as architects and engineers, as well as contractors and construction workers. BIM could be regarded as the driving force of this transformation. At the moment, eight European member states (<https://ec.europa.eu/docsroom/documents/37923>) (Austria, Denmark, Finland, Germany, Italy, Luxemburg, Spain and United Kingdom) have made the use of BIM mandatory for public works.

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La Generalitat participa en un proyecto que promueve la metodología BIM en la rehabilitación de edificios de consumo de energía casi nulo

26/12/2019

- La participación en el proyecto BIMplement se realiza a través del IVE
- El Ayuntamiento de València colabora con la cesión de un edificio en el centro de la ciudad

La Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática participa, a través del Instituto Valenciano de la Edificación (IVE) en el proyecto europeo BIMplement del programa Horizon 2020, cuyo objetivo es mejorar la calidad en la construcción o rehabilitación de edificios de consumo de energía casi nulo (EECN) utilizando la metodología Building Information Modeling (BIM) como medio.

Con el objeto de mejorar la cualificación de los agentes involucrados en el proceso de construcción, la metodología que propone BIMplement será testeada en aproximadamente 50 edificios piloto reales localizados en Francia, Lituania, Países Bajos, Polonia y España. Para ello, cada uno de estos países está colaborando con diferentes empresas constructoras interesadas en formar a su personal, tanto en BIM como en criterios de eficiencia energética.

Entre las entidades y organismos consultados cabe destacar la colaboración establecida con el Ayuntamiento de València, que ha puesto a disposición de la investigación un inmueble municipal localizado en la calle Guillem de Castro, destinado a oficina municipal de empleo, y donde actualmente se está llevando a cabo una rehabilitación.

La empresa encargada de la obra es la constructora BECSA que, desde hace unos años, ha iniciado un proceso de implantación de la metodología BIM en sus proyectos. La empresa firmó el pasado mes de abril un convenio para colaborar en BIMplement en calidad de 'supporter'. Gracias a este convenio, el personal investigador ha podido acceder y analizar el modelo BIM del proyecto.

Además, se ha elaborado una formación personalizada dirigida principalmente al personal de la empresa y a la que también ha asistido personal del Ayuntamiento de València.



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La participación en el proyecto BIMplement se realiza a través del IVE

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Improving the quality of nearly-Zero Energy Buildings



The BIMplement project, funded under Horizon 2020 Energy Efficiency, is using Building Information Modeling (BIM) to achieve a higher quality of nearly-Zero Energy Buildings (nZEB). Narjisse Ben Moussa, project coordinator, tells us more about it in this interview.

Could you describe the project and its objectives?

The overall objective of BIMplement is to improve the quality of nZEB construction and renovation. More concretely, we are mapping the skills to be developed or acquired in the new ZEB and BIM technology, especially for construction companies and designers, designing and implementing training programs. We are particularly focused on two main

problematics that are strictly linked with the developing of quality nZEB, which are ventilation and air tightness.

The project also aims through this to reduce the gap between design and actual performance in nZEB, both in terms of energy efficiency and indoor environmental quality.

What are the main challenges and achievements?

We had one big challenge related to the training of blue collars. Their training and upskilling on nZEB was one crucial element of the project, but the approval of these trainings requires quite a long decision-making process. BIM is a 3D model, different from the 2D ones that are generally used on site. So we needed to convinced all involved stakeholders of the importance and added value of BIM, as well as of its implementation program, which requires much more effort and time than we initially planned in the project. But it was a success and we achieved these results.

Another added value of BIMplement is that it addresses the whole value chain of the building sector and construction process, from design to implementation, and this helps achieving goals and meet the standards of nZEB.

How do you think Horizon 2020 funding will help you in the development of your project?

The funding has been necessary for us to implement the project. Being involved and funded by a European program, allowed us not only to work with other European partners and develop BIMplement in different contexts, but also to showcase local projects. Also, the EU funding is often seen as neutral funding (not from one of the national players). This means that it opens doors for cooperation at a national and EU level.

What is in your opinion the golden tip for potential beneficiaries, the key to success to get funding?

Our key success in getting funding is developing proposals with 'the end goal' in mind. And then crafting a 'fit' and 'balanced' consortium around it.

**HORIZON
2020**

Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences

Results in Brief

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BIM-trained on-site workers deliver better nearly zero-energy buildings

Nearly zero-energy buildings tend to be more promising on paper than they are in real-life. To revert this trend, the EU-funded BIMplement project has been training on-site workers across Europe on how to use building information modelling.



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This year marked a turning point for the construction and renovation sector. As of January, the Energy Performance of Buildings Directive effectively requires any new public building to be a nearly zero-energy building (NZEB). By 2021, this obligation will extend to all new construction projects, while renovation works will also need to comply by 2050.

So, the march towards energy efficiency has begun. But as soon as you look closer, you realise it's not without

stumbles. “There is still a considerable gap between designed and actual performance, in terms of both energy efficiency and indoor environmental quality,” says Narjisse Ben Moussa, Sustainable Development and Europe Project Officer at Alliance Ville Emploi. “This has several explanations, one of which is the lack of a qualified workforce.”

The answer, according to Ben Moussa, lies in building information modelling (BIM): Instead of the usual 2D plans, construction and site operators should now work with 3D representations enhanced with detailed schematics and documents, in a coordinated manner. This is particularly true for NZEBs which are much more complex than traditional buildings. Here, the smallest conflict or misunderstanding between the different actors involved can easily lead to major errors directly impacting energy efficiency.

Reaching the right stakeholders

This is where BIMplement (Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences) comes into play. “The project focuses on construction companies and on-site workers who have so far been mostly left behind in BIM process strategies. We strongly believe that they are in fact the very stakeholders who can guarantee that implementation complies with design,” Ben Moussa explains.

The project focused specifically on ventilation and airtightness. The team developed different types of BIM-focused training depending on stakeholders and skill levels. From there, they selected several pilot labs (national or regional BIM-learning Centres or on-site construction projects) where the training and the first tests of BIMplement’s **tools and learning methods** adapted to on-site workers would take place.

“This is an important step for approaching different actors of the construction value chain. BIMplement goes way beyond methodologies, tools and technical training: It considers social acceptance to guarantee successful implementation and appropriation by the targeted groups. Moreover, pilot projects are being developed to ensure that new tools are adapted to each partner’s national or regional context. These first results will then be implemented and tested within so-called ‘experimental sites’, i.e. real construction projects, where they will be validated in different contexts,” says Ben Moussa.

Raising awareness

Perhaps BIMplement's most critical endeavour is to raise awareness and convince stakeholders of the importance not only of using BIM in their projects, but also of conducting on-site training for manual workers with BIM models suitable for their needs. According to Ben Moussa, it is also one of the team's most difficult tasks.

"The rather low level of BIM maturity, and sometimes the low NZEB maturity of the whole value chain, makes it very difficult to interact directly with manual workers. In fact, convincing all involved stakeholders of the importance and added value of BIM and BIMplement has required much more time and effort than we initially planned," Ben Moussa points out.

No matter how difficult, this convincing is crucial for the future of the sector. Skilled on-site workers will help avoid errors and improve the quality of buildings, and ultimately they are key to meeting the EU's energy efficiency objectives by 2050.

Keywords

BIMplement, construction, zero-energy, NZEB, energy efficiency, BIM, building information modelling

Project Information

BIMplement

Grant agreement ID: 745510

[Project website](#)**Status**

Closed project

Start date

1 September 2017

End date

31 August 2020

Funded under

H2020-EU.3.3.7.

H2020-EU.3.3.1.

Overall budget

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EU contribution

€ 999 620

Coordinated by

ALLIANCE NAT VILLES
INNOVATION EMPLOI
ASSOCIATION

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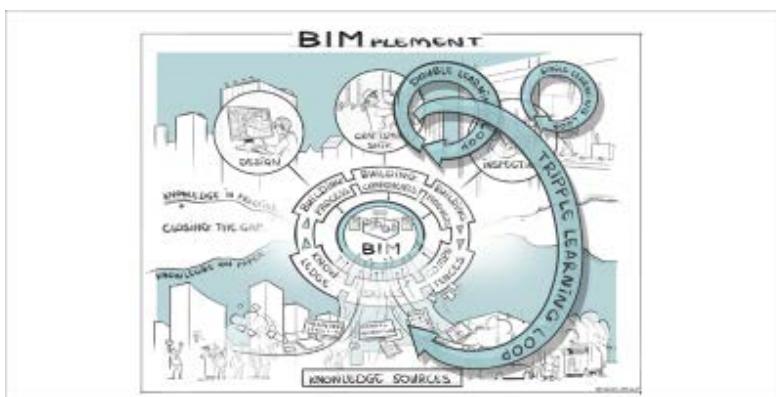


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Resumen

En los últimos años, la Comisión Europea ha hecho una clara apuesta por la mejora de la cualificación de los agentes involucrados en el proceso de la edificación. En este marco, el proyecto H2020 BIMplement pretende aumentar la calidad en la construcción de nuevos edificios y en la [rehabilitación](#) de edificios existentes con enfoque EECN mediante la creación de programas de formación a gran escala, de desarrollo profesional continuo y programas de cualificación apoyados en BIM que aborden toda la cadena de valor con un enfoque multidisciplinar transversal. En este estadio inicial, la investigación se ha centrado en los requisitos de ventilación y estanquidad al aire, por considerarlos prioritarios desde un punto de vista energético. La metodología está siendo testeada y probada en más de 50 proyectos entre los que se encuentran diferentes centros de aprendizaje y pilotos experimentales localizados en España, Francia, Países Bajos, Polonia y Lituania.

Palabras clave

BIM, EECN, Formación, Cualificación, Habilidades, Competencias, Control de Calidad, Tecnología

Introducción

Dado que aproximadamente el 75% del parque construido de la Unión Europea se considera ineficiente desde un punto de vista energético y el consumo de energía en edificios (residencial y terciario) es responsable de aproximadamente el 40% del consumo final de energía en la UE [1] la rehabilitación energética de los edificios representa una oportunidad a largo plazo para el sector de la construcción.

A pesar de ello, se considera que la industria de la construcción es relativamente ineficiente tanto en el proceso como en la prestación de servicios. Existe una brecha evidente entre el nivel “diseñado” de eficiencia energética y el nivel de eficiencia energética realmente “construido” que resulta de la obra final [2] debido, en muchas ocasiones, al bajo nivel de cualificación de los

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CONSTRUIBLE

Según el Foro Económico Mundial, la productividad laboral en el sector de la construcción se ha estancado en los últimos 50 años [3]. Esto demuestra que la construcción y rehabilitación de edificios de consumo de energía casi nulo (EECN) necesita un enfoque holístico que ahonde en el control de calidad de todo el proceso.

La mejora del control de calidad solo puede lograrse con un equipo de trabajo completamente cualificado y competente, capaz de implementar, ejecutar y realizar todas las acciones necesarias con un entendimiento completo de la responsabilidad que conllevan sus acciones y de la coordinación con el resto de trabajadores junto con los que conforma una cadena de valor [4].

El proyecto

BIMplement es un proyecto financiado por el programa Horizon 2020 de la Unión Europea, con una duración de 30 meses, en el que participan 9 socios de 5 países diferentes: Francia, Países Bajos, Lituania, Polonia y España que comenzó en septiembre de 2017. El objetivo principal es lograr mejorar la calidad en el proceso de construcción y rehabilitación de los edificios de consumo de energía casi cero (EECN) utilizando BIM como portador de información universal y facilitador del proceso de aprendizaje dentro de los proyectos y entre proyectos.

BIMplement establece una formación a gran escala, desarrollo profesional continuo y esquemas de cualificación perfeccionados a través de BIM, abordando toda la cadena de valor con un enfoque interdisciplinar y multidisciplinar a todos los niveles, fortalecido con herramientas de aprendizaje prácticas y utilizadas "in situ". Estos esquemas de cualificación se aplican en dos requisitos diferentes: ventilación del edificio y estanquidad al aire y están siendo testeados y probados en más de 50 proyectos entre los que se encuentran diferentes centros de aprendizaje y pilotos experimentales localizados en España, Francia, Países Bajos, Polonia y Lituania.

Los objetivos cualitativos del proyecto BIMplement son los siguientes:

- Mejorar la calidad general de todo el proceso de construcción y rehabilitación, desde el diseño previo hasta la fase de construcción y mantenimiento.
- Crear una nueva generación de profesionales y operarios, cualificados para desarrollar proyectos EECN de alta calidad.
- Fomentar las interacciones entre los diferentes oficios y profesiones.
- Desarrollar una metodología de cualificación que integra habilidades y competencias tecnológicas relacionadas con BIM.
- Generar un repositorio de información, recursos didácticos y herramientas educacionales.
- Utilizar BIM como medio o portador de información que favorece el intercambio de datos entre las diferentes etapas del proyecto y las diferentes disciplinas.
- Desarrollar y validar una estrategia de replicación y explotación para sostener los esquemas de cualificación en el futuro una vez finalice el proyecto BIMplement.

Metodología

La metodología establece las etapas necesarias para alcanzar los niveles requeridos por los edificios EECN a través de un control de calidad mejorado:

- Fase de desarrollo - Marco de cualificación (Qualification Framework, QF):

Para mejorar el control de calidad del proceso y alcanzar un nivel óptimo en edificios EECN, el proyecto BIMplement se centra en la cualificación del personal implicado y para ello ha desarrollado un "marco de cualificación" orientado a la calidad. El "marco de cualificación" propuesto es el resultado de un proceso integrador en el que se conectan las competencias,

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Figura 1. La metodología BIMplement es eliminar la brecha entre el conocimiento "en papel" y el conocimiento "práctico".

En la formulación de las Unidades de Resultados de Aprendizaje (Unit Learning Outcomes, ULO's) se ha partido de trabajos y proyectos previos (como el proyecto europeo H2020 ProfTrac) y se han tenido en cuenta los conocimientos sobre ventilación y estanquedad al aire, complementados con las habilidades y competencias necesarias para realizar un trabajo de alta calidad en un proyecto EECN que utiliza BIM. Al integrar BIM el marco de cualificaciones se adapta a las exigencias del mercado a medio y largo plazo.

Una "Unidad de Resultados de Aprendizaje" (Unit Learning Outcomes, ULO) forma parte de un sistema de cualificación y consiste en un conjunto coherente de conocimientos, habilidades y competencias (incluida la responsabilidad) que pueden evaluarse y validarse [5].

- Fase de implementación - Implementación del marco de cualificaciones en los requisitos de ventilación y estanquedad al aire

La metodología se dedica a la implementación de sistemas de ventilación y a garantizar la estanquedad al aire de los edificios. En cuanto a la ventilación, puede haber una tarea didáctica relacionada con el objeto o la tecnología BIM. Sin embargo, la estanquedad al aire es un requisito más complejo de aplicar en los edificios, ya que se relaciona con casi todos los componentes de la envolvente, tanto transparentes como macizos, y los encuentros entre elementos. Por lo tanto, la hermeticidad al aire debe evaluarse de forma más integral con el objetivo de controlar las fugas de aire y las pérdidas de calor a través de la piel del edificio y de las uniones y juntas [4].

- Fase de validación-Pilotos y demostradores:

Para la verificación de la matriz y el marco de cualificación establecidos, la metodología será testeada y validada en un total de 50 proyectos de construcción y rehabilitación en Francia, Polonia, Lituania, países Bajos y España. Francia acometerá la mayor parte de ellos, unos 30-35 proyectos aproximadamente, que servirán de modelo o referencia al resto de países que llevarán a cabo 5 proyectos cada uno.

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En España se han organizado varias acciones, entre ellas la celebración de una jornada de concienciación en mayo de 2018 en Valencia, dirigida especialmente a técnicos de la Administración, y varias reuniones con expertos en BIM cuya opinión y conocimiento ha sido de gran ayuda para establecer la estrategia a seguir en la Comunitat Valenciana.

Figura 2. Campaña de concienciación celebrada en la sede de la Generalitat Valenciana (Valencia, mayo 2018).

Para la experimentación de la metodología BIMplement y encontrar proyectos piloto que cumplieran con los criterios requeridos, IVE inició una ronda de contactos con promotoras y constructoras de la zona. Muchos de estos contactos provenían de la campaña de concienciación de Valencia citada anteriormente y, actualmente, ya se ha firmado la colaboración con algunos de ellos. La formación de sus empleados se realizará en el último trimestre del año.

El Instituto Valenciano de la Edificación, en su misión de asesoramiento a la Generalitat Valenciana en el desarrollo de políticas, herramientas, etc. para la mejora de la calidad del entorno construido, ha creado diferentes herramientas de apoyo a los profesionales, tanto en la fase de diseño (técnicos facultativos) como en la fase de construcción (operarios). En línea con los objetivos del proyecto BIMplement se está trabajando en la actualización de las herramientas listadas a continuación para así trasladar la valiosa información que recogen a elementos BIM genéricos:

- Catálogo de elementos constructivos <https://bit.ly/2GuY1zS>
- Cartillas de obra <https://bit.ly/2OkY73h>
- POMEES: Programa de Operaciones de Mantenimiento <https://bit.ly/2YqnkgE>
- Pliego general de Condiciones Técnicas en la Edificación <https://bit.ly/32V5dP8>
- Base de Datos de Construcción <https://bit.ly/2Xy04vQ>

Resultados

A continuación, se listan los principales logros y resultados que se esperan del proyecto BIMplement. Algunos de ellos ya se han alcanzado y otros están en proceso ya que el proyecto se encuentra en el mes 23 de un total de 30 meses de duración:

- Marco de cualificación mejorado con BIM materializado en una guía o manual que tendrá una versión a modo de herramienta informática. Esta guía contendrá instrucciones de cómo aplicar la metodología y el marco de cualificaciones en otros países y para otros requisitos más allá de la ventilación y la estanquedad al aire.

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INVENTARIO DE CONTENIDOS, CONTENIDOS ADICIONALES Y MÉTODOS DE APRENDIZAJE DESARROLLADOS EN BIMplement.

- Documento o guía dirigido a los “trainers” o profesionales encargados de transmitir los conocimientos y el valor añadido de la metodología BIMplement. Este documento incluye los contenidos citados anteriormente: marco de cualificación, matriz e inventario de contenidos y métodos de aprendizaje.
- Validación en 50 proyectos experimentales en 5 países europeos: Francia, Lituania, Polonia, Países Bajos y España.
- En torno a 1200 profesionales serán formados a razón de 1000 operarios y 200 técnicos facultativos.

Figura 3. Matriz de habilidades y profesiones.

Discusión y conclusiones

En la metodología BIMplement se utiliza un enfoque estandarizado sistemático, por lo que las cualificaciones mapeadas resultan transparentes y comparables entre los estados miembros de la UE, lo que facilita su adaptación al contexto nacional y favorece la movilidad de los profesionales entre los países de la UE.

El marco de cualificaciones se conecta a BIM, que ya se vislumbra como una tecnología digital prometedora capaz de transformar la forma en que se diseñan, construyen y mantienen los edificios y las infraestructuras. BIM debe considerarse como una metodología estratégica y completa para aumentar la productividad de la construcción al ofrecer ahorros en los costes, una mejor gestión de la construcción y la explotación, una mayor calidad también ambiental y una mayor transparencia y colaboración entre los profesionales [6].

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Figura 4. El objetivo último de BIMplement es mejorar el control de calidad utilizando BIM como medio.

Agradecimientos

Sin la contribución de los siguientes investigadores, BIMplement no sería posible: Henri le Marois & Lucie Becdelievevre (AVE, France), Myriam Olivier & Philippe Perreau (ASTUS, France), Peter op 't Veld & Ana Tisov (Huygen, the Netherlands), Jan Cromwijk & Jaap Kolk (ISSO, the Netherlands), Piotr Dymarski (Mostostal, Poland), Vaidotas Sarka (LSA, Lithuania), Mantas Jonauskis (RIVC, Lithuania), Veronika Schröpfer & Larissa di Rosso (ACE, Belgium).

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The European Portal For Energy Efficiency In Buildings



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The Commission is in the process of updating some of the content on this website in light of the withdrawal of the United Kingdom from the European Union. If the site contains content that does not yet reflect the withdrawal of the United Kingdom, it is unintentional and will be addressed.

Construction skills: Equipping building professionals with new skills to achieve European energy targets

10 January 2020

/ Pan European (/en/category/countries/other/pan-european)

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(<https://www.buildup.eu/sites/default/files/illustrations/2-man-on-construction-site-during-daytime-159306.jpg>).

Through its BUILD UP Skills initiative, the EU aims to equip the next generation of construction sector workers – from on-site workers to design professionals and senior management – with the skills and knowledge needed to ensure building and renovation projects meet stringent energy efficiency requirements.

The EU launched the BUILD UP Skills initiative (<https://www.buildup.eu/en/events/build-skills-initiative-training-european-building-professionals-towards-energy-efficiency>) in 2011 to answer to the lack of adequate construction skills which hampers the development of NZEBs and effective renovations. This initiative aimed to increase the number of qualified trade professionals by developing national qualification platforms and roadmaps, and providing training in the field of energy efficiency and renewable energy in buildings. The scope of the initiative has been expanded to other building professionals under Horizon 2020, with projects developing multi-country qualification and training schemes.

CORDIS Results Pack focuses on 11 EU-funded projects based across Europe that have driven forward the BUILD UP Skills initiative.

The BUStoB project (<https://www.buildup.eu/en/explore/links/bustob-project-0>) has been working in the Netherlands to provide construction workers with the training they need to meet the challenges posed by new energy efficiency regulations. The Train-to-NZEB project (<https://www.buildup.eu/en/news/way-nearly-zero-energy-buildings-train-nzeb-project-0>) has established world-class energy efficiency facilities and innovative teaching programmes in five Central and Eastern European countries. This work continues under the Fit-to-nZEB project (<https://www.buildup.eu/en/explore/links/fit-nzeb-project>) that extended the network of training centres to Croatia, Greece and Italy, where the focus is on energy-efficient building renovation. Meanwhile, the ingREeS project (<https://www.buildup.eu/en/node/54225>), based in Austria, the Czech Republic and Slovakia, addressed the skill and knowledge needs of middle- and senior-level construction professionals.

Then we have the PROF-TRAC and MEnS projects that worked closely together to provide accredited train-the-trainers programmes, training materials and a centralised platform to allow for the development of the skills that professionals need to create and operate more energy-efficient buildings. Of the six new projects added to this updated edition of the Pack, several of them, such as the BIMplement (<https://www.buildup.eu/en/explore/links/bimplement-project>), BIMcert (<https://www.buildup.eu/en/explore/links/bimcert-project>), BIMEET (<https://www.buildup.eu/en/explore/links/bimeet-project>) and Net-UBIEP (<https://www.buildup.eu/en/explore/links/net-ubiep-project-0>) projects, have been training building professionals on how to use and implement building information modelling (BIM). Finally, the newly featured CEN-CE project

(<https://www.buildup.eu/en/explore/links/cen-ce-project>) has developed a qualification and training scheme for heating and air conditioning professionals to ensure they comply with new CEN standards on the energy performance of buildings published in 2017.

Original news can be found here (<https://cordis.europa.eu/article/id/400910-construction-skills-equipping-building-professionals-to-achieve-european-energy-targets>).

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AVANCE PROYECTOS I+D+i

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Holistic and reliable European Voluntary Certification Scheme to trigger deep renovation of non-residential buildings

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Curso presencial gratuito "Introducción a BIM"

Próximamente se va a impartir un curso presencial de 15 horas de "Introducción a BIM". Si estás interesado en asistir, suscríbete a la enewsletter del proyecto BIMplement ([pincha aquí](#)) y sé el primero en enterarte ¡Las plazas son limitadas!

BIMplement es un proyecto H2020 financiado por la UE cuyo objetivo general es mejorar la calidad de los edificios de consumo de energía casi nulo (EECN - nZEB) mediante la creación de programas de formación a gran escala apoyados en la metodología BIM.

Más información: www.bimplement-project.eu, Twitter, Facebook y LinkedIn



Últimas novedades del proyecto HAPPEN

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- Celebrada en Labin (Croacia) la cuarta reunión del proyecto donde se planificaron los próximos pasos a seguir +info



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La Conselleria d'Habitatge i Arquitectura Bioclimàtica ofereix gratis en línia el curs 'Eines per a la redacció de projectes, gestió d'obres i manteniment d'edificis'

16/04/2020



- El curs està organitzat per l'Institut Valencià de l'Edificació i té una duració de 30 hores
- L'objectiu és millorar la capacitat de professionals en el coneixement i maneig de les eines informàtiques relacionades

amb el sector de la construcció

La Vicepresidència Segona i Conselleria d'Habitatge i Arquitectura Bioclimàtica, a través de l'Institut Valencià de l'Edificació (IVE), ofereix de manera gratuïta la inscripció en el curs 'Eines per a la redacció de projectes, gestió de les obres i manteniment dels edificis' per a facilitar l'accés a aquest durant la situació excepcional provocada per la crisi de la COVID-19.

Es tracta d'un curs pràctic de 30 hores en línia que té com a objectiu el coneixement i maneig de les eines informàtiques que ha desenvolupat l'IVE junt amb la Generalitat per a la redacció dels projectes, així com per a la gestió durant l'execució de l'obra i el manteniment de l'edifici acabat.

El curs es planteja amb un clar caràcter pràctic i pretén que l'alumne coneix i s'exerceix en el maneig de les diferents eines de foment de la qualitat en el procés de l'edificació i que resulten de suport per al quefer professional dels tècnics de l'àmbit de la construcció.

El programa de continguts està dividit en tres parts. La primera se centra en les eines per a la redacció de projectes i inclou elaboració de pressupostos, estudi de gestió de residus i plecs generals de condicions tècniques en l'edificació i en obres d'urbanització.

La segona part proposa continguts per a la gestió de

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l'execució de les obres dels edificis: planificació del control de qualitat, guies de qualitat, cartilles d'obres, proves de servei d'edificació, justificació del control de qualitat i el llibre de l'edifici.

El programa es tanca amb l'apartat d'eines que contribueixen a la digitalització del sector: el catàleg d'elements constructius i maneig de l'aplicació esmentada.

Aquests continguts estaran disponibles durant tres mesos des de la data de matriculació en el curs. A més, les persones inscrites han de superar amb èxit una prova tipus test per a obtindre el certificat d'aprofitament del curs.



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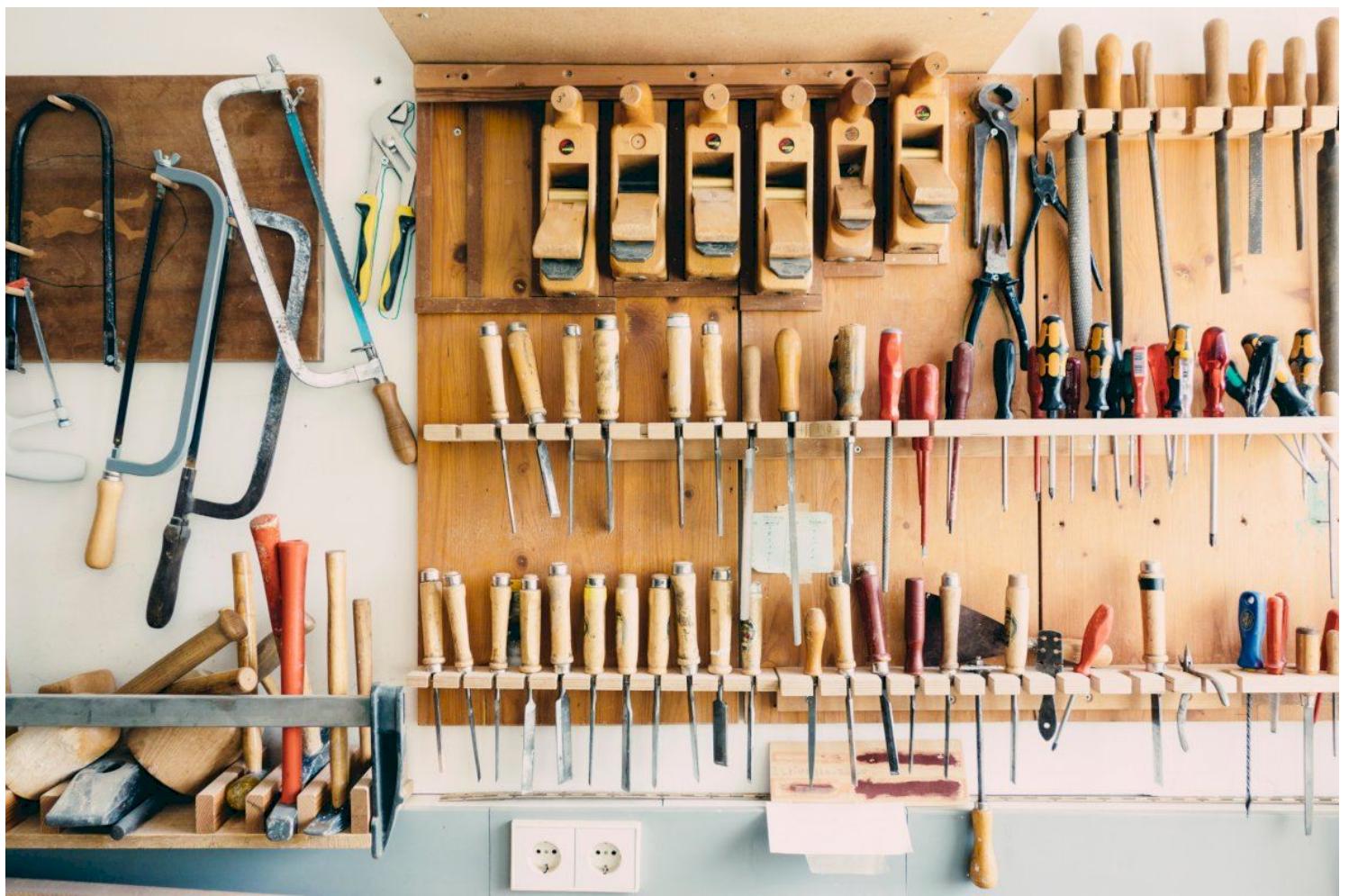
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La Conselleria de Vivienda y Arquitectura Bioclimática ofrece gratis en línea el curso 'Herramientas para la redacción de proyectos, gestión de obras y mantenimiento de edificios'

ELPERIODIC.COM - 16/04/2020



- El curso está organizado por el Instituto Valenciano de la Edificación y tiene una duración 30 horas
- El objetivo es mejorar la capacitación de profesionales en el conocimiento y manejo de las herramientas informáticas relacionadas con el sector de la construcción

La Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática, a través del Instituto Valenciano de la Edificación (IVE), ofrece de forma gratuita la inscripción al curso 'Herramientas para la redacción de proyectos, gestión de las obras y mantenimiento de los edificios' para facilitar el acceso al mismo durante esta situación excepcional provocada crisis de la COVID-19.

Se trata un curso práctico de 30 horas 'online' que tiene como objetivo el conocimiento y manejo de las herramientas informáticas que ha desarrollado el IVE junto con la Generalitat para la redacción de los proyectos, así como para la gestión durante la ejecución de la obra y el mantenimiento del edificio terminado.

El curso se plantea con un claro carácter práctico y pretende que el alumno conozca y se ejercente en el manejo de las distintas herramientas de fomento de la calidad en el proceso de la edificación y que resultan de apoyo para el quehacer profesional de los técnicos del ámbito de la construcción.

El programa de contenidos está dividido en tres partes. La primera se centra en las herramientas para la redacción de proyectos e incluye: elaboración de presupuestos, estudio de gestión de residuos y pliegos generales de condiciones técnicas en la edificación y en obras de urbanización.

Los segunda parte propone contenidos para la gestión de la ejecución de las obras de los edificios: planificación del control de calidad, guías de calidad, cartillas de obras, pruebas de servicio de edificación, justificación del control de calidad y el libro del edificio.

El programa se cierra con el apartado de herramientas que contribuyen a la digitalización del sector: el Catálogo de elementos constructivos y manejo de dicha aplicación.

Estos contenidos estarán disponibles durante tres meses desde la fecha de matriculación al curso. Además, las personas inscritas deben superar con éxito una prueba tipo test para obtener el certificado de aprovechamiento del curso.



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Triple A-reno Home show

TripleA-reno pretende que **la rehabilitación energética de los edificios de viviendas** sea más **Atractiva, Amigable y Asequible para todos**. Para ello, está diseñando una plataforma virtual que asegurará que el diseño de una rehabilitación esté basado en las necesidades reales de las personas, incluso en las actuales circunstancias, atendiendo a los retos que esta nueva realidad nos impone: terrazas, espacios flexibles, luz natural, ventilación, características que facilitan el confinamiento e influyen en el confort y salubridad de las viviendas, pero también en su rendimiento energético. En este contexto, los eventos de difusión enmarcados en el '**Triple A-reno Road Show**', se convierten en los contenidos multimedia del '**Triple A-reno Home show**'.

Más información, [pincha AQUÍ](#)

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Próximamente estará disponible una nueva versión del "Catálogo de elementos constructivos" desarrollada en el marco del **proyecto BIMplement**. En esta nueva versión, el catálogo será una aplicación web que **exportará soluciones constructivas en formato IFC**, de manera que éstas se podrán importar a programas de modelado BIM. Además, se ha desarrollado un complemento específico para maximizar su compatibilidad con Revit.

- ¿Cómo será el nuevo "Catálogo de elementos?": ver vídeo [AQUÍ](#)
- ¿Cómo manejar el nuevo "Catálogo de elementos"?": ver vídeo [AQUÍ](#)

Más información: www.bimplement-project.eu, Twitter, Facebook y LinkedIn



U-CERT

User-Centred Energy Performance
Assessment and Certification

U-CERT, hacia la nueva generación de Certificación Energética de Edificios

El proyecto U-CERT tiene el ambicioso objetivo de fortalecer la implementación de la **Energy Performance of Buildings Directive (EPBD)** mediante la inclusión de nuevos elementos que refuercen la confianza en la **Certificación Energética de Edificios (CEE)**, asegurando un enfoque centrado en el usuario, contemplando los elementos innovadores de las últimas tecnologías y reflejando la dimensión inteligente de los edificios. Puedes consultar la primera e-newsletter del proyecto [AQUÍ](#)

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La Conselleria d'Arquitectura Bioclimàtica presenta una nova versió del Catàleg d'elements constructius

22/06/2020



- Martínez Dalmau assegura que amb aquesta aplicació en línia s'avança en la implantació d'aquesta tecnologia en el sector de la construcció
- El catàleg ofereix un ampli mostrari de solucions constructives per a dissenyar els elements constructius de l'edifici

La Vicepresidència Segona i Conselleria d'Habitatge i Arquitectura Bioclimàtica, a través de l'Institut Valencià de l'Edificació (IVE), ha presentat una nova versió del seu Catàleg d'elements constructius v 4.00, en una trobada que s'ha celebrat de manera telemàtica.

El vicepresident segon i conseller d'Habitatge i Arquitectura Bioclimàtica, Rubén Martínez Dalmau, ha assegurat que "és un dels documents de la Generalitat més utilitzat pels i les professionals, tant de l'àmbit privat com de les administracions públiques". Amb aquesta nova eina en línia es pretén "avançar en la implantació d'aquesta tecnologia en el sector de la construcció i, especialment, en les licitacions de l'Administració pública".

Tradicionalment, per al disseny i la construcció d'edificis i infraestructures, el sector disposava d'eines que eren manejades per tècnics especialitzats en cada àrea (programes de CAD, de càcul, etc.). Amb l'aparició del Building Information Modeling (BIM), la situació es transforma radicalment amb una nova metodologia col·laborativa de treball per al sector de la construcció. Treballar en BIM suposa disposar d'un únic model des del qual generar i gestionar tota la informació del projecte al llarg de tot el seu cicle de vida.

La versió 4.00 es presenta com una aplicació en línia que no requereix instal·lació i a la qual es pot accedir des de



Galeria
d'imatges



[La Conselleria de Arquitectura Bioclimàtica presenta una nueva versión \(...\)](#)

qualsevol dispositiu amb connexió a Internet. L'aplicació estarà disponible en el web de l'IVE i les persones usuàries podran guardar i accedir als seus projectes emmagatzemats en el núvol.

La presentació també ha tingut la participació de la directora general d'Innovació Ecològica en la Construcció, Nuria Matarredona, que ha assenyalat que, "mitjançant el projecte 'BIMplement' que acaba de concluir, la Generalitat Valenciana IVE està apostant pel desenvolupament de programes de formació i de qualificació amb el suport de BIM i també per adaptar les seues eines a les noves tecnologies".

El Cataleg d'elements constructius ofereix un ampli mostrari de solucions constructives amb la informació tècnica necessària per a dissenyar els elements constructius de l'edifici i justificar el compliment de les exigències establides en la normativa vigent.

Estalvi d'energia

Aquesta nova versió està adaptada a la revisió publicada el desembre de 2019 del Codi Tècnic de l'Edificació (CTE) relacionada amb l'estalvi d'energia, i hi incorpora la informació necessària per a comprovar el compliment de les noves exigències. Per exemple, inclou la modificació introduïda en el càlcul de la transmitància tèrmica i de control solar d'elements envirrats, com les finestres i portes balconeres.

Una altra de les novetats que incorpora aquesta nova versió és la possibilitat d'exportar en format IFC els elements constructius generats pel catàleg a qualsevol dels programes de modelatge acollits al format BIM.

Aquesta nova tecnologia permet reunir en un únic model tridimensional de l'objecte de projecte tota la informació que serà necessària al llarg de tot el seu cicle de vida. Aquesta informació s'emprarà tant en la fase de projecte per al càlcul estructural o tèrmic com per a fer un seguiment de les tasques de manteniment en la seua etapa de servei, o per a prescriure'n l'adequat desmuntatge o demolició al final de la seua vida útil.

Aquesta informació addicional l'obté el catàleg i hi incorpora altres publicacions i eines de l'IVE amb la base de dades de què s'obtenen els preus, el plec general de condicions tècniques, les cartilles d'obra o les tasques de manteniment definides en el llibre de l'edifici.

D'aquesta manera, les solucions creades des del catàleg es poden importar des dels programes BIM i incorporar les característiques tècniques dels productes i de les solucions constructives al model de l'edifici per a fer càlculs i definir processos addicionals.

Aquesta iniciativa ha tingut el suport de la Unió Europea, que ha incorporat el desenvolupament del catàleg en el projecte europeu 'BIMplement' del programa 'Horizon 2020'. El projecte té previstes diverses accions, entre les quals destaca la formació gratuïta de professionals del sector,

perquè amplien el seu coneixement sobre com millorar la qualitat dels edificis de consum d'energia quasi zero (EECN) utilitzant la metodologia BIM com a mitjà.



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MAPEI 360°
Proveedor integral para la construcción

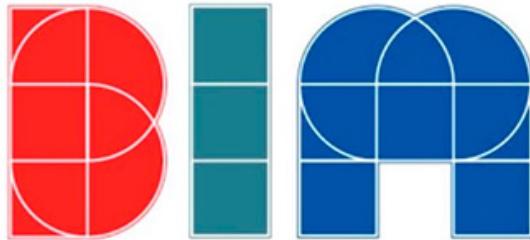
Demostración práctica online

IVE presenta la nueva versión del Catálogo de Elementos Constructivos

17/06/2020

236





Presentación de la
nueva versión del

CATÁLOGO DE ELEMENTOS CONSTRUCTIVOS

(info) La emisión comenzará en 5 días
22 de junio 17:00



El próximo 22 de junio a las 17.00h, el **Instituto Valenciano de la Edificación**, IVE realizará una demostración práctica de la nueva versión v.04.00 del Catálogo de Elementos Constructivos que incorpora 3 novedades que suponen un cambio conceptual en su funcionamiento:

1. La aplicación pasa a ser online, el usuario no necesita descargar ni instalar nada en su ordenador. Los proyectos se guardan y almacenan en la nube.
2. Las soluciones constructivas seleccionadas se exportan en formato IFC para ser importadas por los programas de modelado BIM.
3. El Catálogo se complementa con un plugin específico para instalar en Revit para adecuar las soluciones constructivas a su proyecto particular.

El Catálogo está adaptado al DB de 'Ahorro de energía' de la última revisión del CTE de diciembre de 2019, incorporando la información necesaria para comprobar el cumplimiento de las nuevas exigencias. Además, incorpora el nuevo procedimiento de cálculo de la transmitancia térmica y de control solar de elementos acristalados.

A partir del martes 23 el catálogo estará disponible gratuitamente en la web del IVE.

Acceso al enlace de la emisión





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MAPEI 360°
Proveedor integral para la construcción

Con esta aplicación online se avanza en la implantación de esta tecnología en el sector de la construcción

Presentada una nueva versión del Catálogo de Elementos Constructivos del IVE

24/06/2020

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La Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática, a través del **Instituto Valenciano de la Edificación** (IVE), ha presentado una nueva versión de su Catálogo de Elementos Constructivos v 4.00, en un encuentro que se ha celebrado de manera telemática.

El vicepresidente segundo y conseller de Vivienda y Arquitectura Bioclimática, Rubén Martínez Dalmau, ha asegurado que "es uno de los documentos de la Generalitat más utilizado por los y las profesionales, tanto del ámbito privado como de las administraciones públicas". Con esta nueva herramienta online, se pretende "avanzar en la implantación de esta tecnología en el sector de la construcción y, especialmente, en las licitaciones de la Administración pública".

Tradicionalmente, para el diseño y la construcción de edificios e infraestructuras el sector contaba con herramientas que eran manejadas por técnicos especializados en cada área (programas de CAD, de cálculo, etc). Con la aparición de 'Building Information Modeling' (BIM), la situación se transforma radicalmente con una nueva metodología colaborativa de trabajo para el sector de la construcción. Trabajar en BIM supone disponer de un único modelo desde el que generar y gestionar toda la información del proyecto a lo largo de todo su ciclo de vida.

La versión 4.00 se presenta como una aplicación online que no requiere instalación y a la que se puede acceder desde cualquier dispositivo con conexión a internet. La aplicación estará disponible en la web del IVE y las personas usuarias podrán guardar y acceder a sus proyectos almacenados en la 'nube'.

La presentación también ha contado con la participación de la directora general de Innovación Ecológica en la Construcción, Nuria Matarredona, quien ha señalado que "a través del proyecto BIMplement que acaba de concluir, la Generalitat Valenciana IVE, está apostando por el desarrollo de programas de formación y de cualificación apoyados en BIM y también en adaptar sus herramientas a las nuevas tecnologías".

El Catálogo de Elementos Constructivos ofrece un amplio muestrario de soluciones constructivas con la información técnica necesaria para diseñar los elementos constructivos del edificio y justificar el cumplimiento de las exigencias establecidas en la normativa vigente.

Ahorro de energía

Esta nueva versión está adaptada a la revisión publicada en diciembre de 2019 del Código Técnico de la Edificación CTE relacionada con el ahorro de energía, e incorpora la información necesaria para comprobar el cumplimiento de las nuevas exigencias. Por ejemplo, incluye la modificación introducida en el cálculo de la transmitancia térmica y de control solar de elementos acristalados, como son las ventanas y puertas balconeras.

Otra de las novedades que incorpora esta nueva versión es la posibilidad de exportar en formato IFC los elementos constructivos generados por el Catálogo a cualquiera de los programas de modelado acogidos al formato BIM.

Esta nueva tecnología permite reunir en un único modelo tridimensional del objeto de proyecto toda la información que va a ser necesaria a lo largo de todo su ciclo de vida. Esta información se empleará tanto en la fase de proyecto para el cálculo estructural o térmico, como para realizar un seguimiento de las tareas de mantenimiento en su etapa de servicio, o para prescribir su adecuado desmontaje o demolición al final de su vida útil.

Esta información adicional, el Catálogo la obtiene e incorpora de otras publicaciones y herramientas del IVE con la base de datos de la que se obtienen los precios, el pliego general de condiciones técnicas, las cartillas de obra o las tareas de mantenimiento definidas en el libro del edificio.



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COMUNIDAD VALENCIANA | POLÍTICA

La Conselleria de Arquitectura Bioclimática presenta una nueva versión del Catálogo de Elementos Constructivos

ELPERIODIC.COM - 22/06/2020



- Martínez Dalmau asegura que con esta aplicación online se avanza en la implantación de esta tecnología en el sector de la construcción

La Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática, a través del Instituto Valenciano de la Edificación (IVE), ha presentado una nueva versión de su Catálogo de Elementos Constructivos v 4.00, en un encuentro que se ha celebrado de manera telemática.

El vicepresidente segundo y conseller de Vivienda y Arquitectura Bioclimática, Rubén Martínez Dalmau, ha asegurado que "es uno de los documentos de la Generalitat más utilizado por los y las profesionales, tanto del ámbito privado como de las administraciones públicas". Con nueva herramienta online, se pretende "avanzar en la implantación de esta tecnología en el sector de la construcción y, especialmente, en las licitaciones de la Administración pública".

Tradicionalmente, para el diseño y la construcción de edificios e infraestructuras el sector contaba con herramientas que eran manejadas por técnicos especializados en cada área (programas de CAD, de cálculo, etc). Con la aparición de 'Building Information Modeling' (BIM), la situación se transforma radicalmente con una nueva metodología colaborativa de trabajo

La versión 4.00 se presenta como una aplicación online que no requiere instalación y a la que se puede acceder desde cualquier dispositivo con conexión a internet. La aplicación estará disponible en la web del IVE y las personas usuarias podrán guardar y acceder a sus proyectos almacenados en la 'nube'.

La presentación también ha contado con la participación de la directora general de Innovación Ecológica en la Construcción, Nuria Matarredona, quien ha señalado que "a través del proyecto BIMplement que acaba de concluir, la Generalitat Valenciana IVE, está apostando por el desarrollo de programas de formación y de cualificación apoyados en BIM y también en adaptar sus herramientas a las nuevas tecnologías".

El Catálogo de Elementos Constructivos ofrece un amplio muestrario de soluciones constructivas con la información técnica necesaria para diseñar los elementos constructivos del edificio y justificar el cumplimiento de las exigencias establecidas en la normativa vigente.

Ahorro de energía

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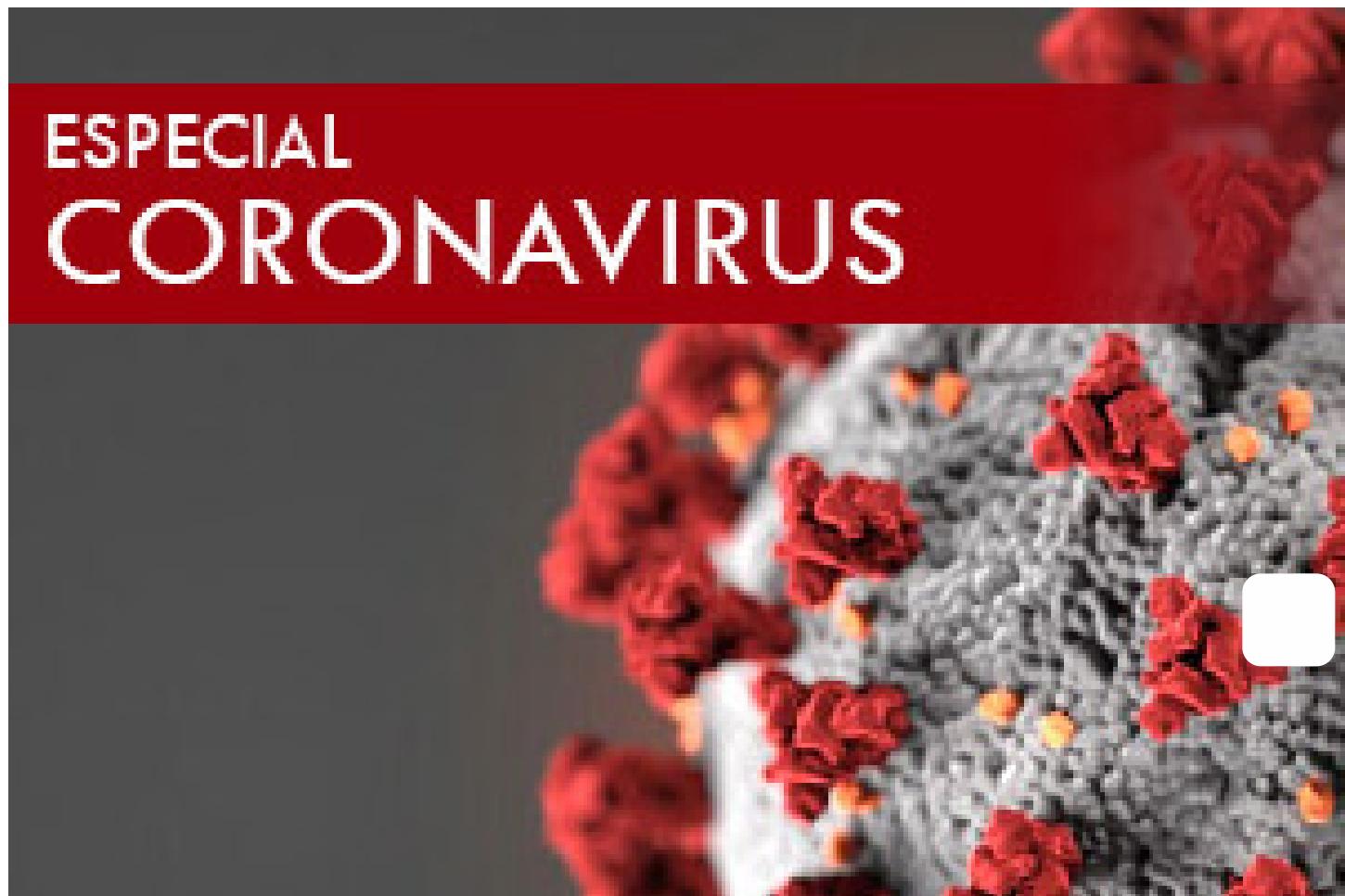
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Esta nueva tecnología permite reunir en un único modelo tridimensional del objeto de proyecto toda la información que va a ser necesaria a lo largo de todo su ciclo de vida. Esta información se empleará tanto en la fase de proyecto para el cálculo estructural o térmico, como para realizar un seguimiento de las tareas de mantenimiento en su etapa de servicio, o para prescribir su adecuado desmontaje o demolición al final de su vida útil.

Esta información adicional, el Catálogo la obtiene e incorpora de otras publicaciones y herramientas del IVE con la base de datos de la que se obtienen los precios, el pliego general de condiciones técnicas, las cartillas de obra o las tareas de mantenimiento definidas en el libro del edificio.

De esta manera, las soluciones creadas desde el Catálogo se pueden importar desde los programas BIM e incorporar las características técnicas de los productos y de las soluciones

desarrollo del Catálogo en el Proyecto Europeo BIMplement del programa Horizon 2020. El proyecto tiene previstas varias acciones, entre las que destaca la formación gratuita de profesionales del sector, para que amplíen su conocimiento sobre cómo mejorar la calidad de los Edificios de Consumo de Energía Casi Cero (EECN) utilizando la metodología BIM como medio.



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La Generalitat presenta els resultats del projecte BIMplement per a millorar la construcció i rehabilitació d'edificis de consum d'energia quasi zero

18/08/2020

- Després de tres anys de camí, conclou el projecte BIMplement del programa Horizon 2020 de la Unió Europea

La Vicepresidència Segona i Conselleria d'Habitatge i Arquitectura Bioclimàtica, mitjançant l'Istitut Valencià de l'Edificació (IVE), ha presentat els resultats del projecte BIMplement per a millorar la qualitat en el procés de construcció i rehabilitació dels edificis de consum d'energia quasi zero, una vegada conclòs aquest, després de tres anys de camí.

La Vicepresidència Segona ha participat en el projecte BIMplement del programa "Horizon 2020" de la Unió Europea juntament amb entitats de França, els Països Baixos, Lituània i Polònia.

El vicepresident segon i conseller d'Habitatge i Arquitectura Bioclimàtica, Rubén Martínez Dalmau, en la seua aposta per la progressiva digitalització del sector de la construcció, ha manifestat la decisió "d'avançar en la implantació de la metodologia BIM en el sector i, especialment, en les licitacions de l'Administració pública".

L'objectiu principal del projecte era millorar la qualitat en el procés de construcció i rehabilitació dels edificis de consum d'energia quasi zero mitjançant la creació de programes de formació a gran escala, de desenvolupament professional continu i programes de qualificació basats en BIM i dirigits als diferents agents involucrats en el procés.

Al llarg d'aquests 36 mesos, el projecte BIMplement ha format més de 1.100 professionals en conceptes vinculats als edificis de consum d'energia quasi zero i als requisits de ventilació i d'estanquitat a l'aire, així com en l'ús i el maneig de BIM. Així mateix, la metodologia proposada pel projecte s'ha testat en més de 40 edificis reals que han funcionat a manera de pilots.

En concret, a la Comunitat Valenciana, es van signar tres acords de col·laboració amb les empreses constructores Becasa, Obremo i Clàssica Urbana, les quals van facilitar l'accés a tres edificis seus, actualment en construcció, a la ciutat de València: l'Oficina d'Ocupació, Formació i Emprenedoria, al carrer Guillem de Castro; el Centre de Desenvolupament i Acceleració Turística de la Comunitat Valenciana, al passeig de l'Albereda i l'edifici residencial Hevia, a l'avinguda del Mestre Rodrigo.

En el web del projecte estan disponibles els principals resultats del projecte que poden resumir-se en: un marc de qualificació que integra habilitats i competències tecnològiques relacionades amb BIM, un repositori d'informació, recursos didàctics i eines educacionals i

una estratègia de rèplica per a explotar la metodologia en el futur.

Dins del repositori d'informació destaca la nova versió BIM del Catàleg d'elements constructius, desenvolupada per l'IVE a petició de la Vicepresidència Segona i Conselleria d'Habitatge i Arquitectura Bioclimàtica i que ja està disponible, gratuïtament, en el web de l'IVE.

Aquesta versió 4.00 va presentar-se el passat mes de juny en una trobada telemàtica en què van participar tant el vicepresident segon i conseller d'Habitatge i Arquitectura Bioclimàtica, Rubén Martínez Dalmau, com la directora general d'Innovació Ecològica en la Construcció, Nuria Matarredona.

Matarredona ha declarat que "amb el projecte BIMplement, la Generalitat està apostant pel desenvolupament de programes de formació i de qualificació basats en BIM i també per adaptar les eines de què disposa a les noves tecnologies".



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COMUNIDAD VALENCIANA | URBANISMO E INFRAESTRUCTURAS

La Generalitat presenta los resultados del proyecto BIMplement para mejorar la construcción y rehabilitación de edificios de consumo de energía casi cero

ELPERIODIC.COM - 18/08/2020

- Después de tres años de andadura, el proyecto BIMplement del programa Horizon 2020 de la Unión Europea llega a su fin

edificios de consumo de energía casi cero, que después de tres años de andadura llega a su fin.

La Vicepresidencia segunda ha participado en el proyecto BIMplement del programa Horizon 2020 de la Unión Europea junto con entidades de Francia, Países Bajos, Lituania y Polonia.

El vicepresidente segundo y conseller de Vivienda y Arquitectura Bioclimática, Rubén Martínez Dalmau, en su apuesta por la progresiva digitalización del sector de la construcción, ha manifestado la decisión de "avanzar en la implantación de la metodología BIM en el sector y, especialmente, en las licitaciones de la Administración Pública".

El principal objetivo del proyecto era mejorar la calidad en el proceso de construcción y rehabilitación de los edificios de consumo de energía casi cero (EECN) mediante la creación de programas de formación a gran escala, de desarrollo profesional continuo y programas de cualificación apoyados en BIM dirigidos a los diferentes agentes involucrados en el proceso.

A lo largo de estos 36 meses, el proyecto BIMplement ha formado a más de 1100 profesionales en conceptos vinculados con los EECN y los requisitos de ventilación y estanquidad al aire, así como en el uso y manejo de BIM. Asimismo, la metodología propuesta por el proyecto se ha testeado en más de 40 edificios reales que han funcionado a modo de pilotos.

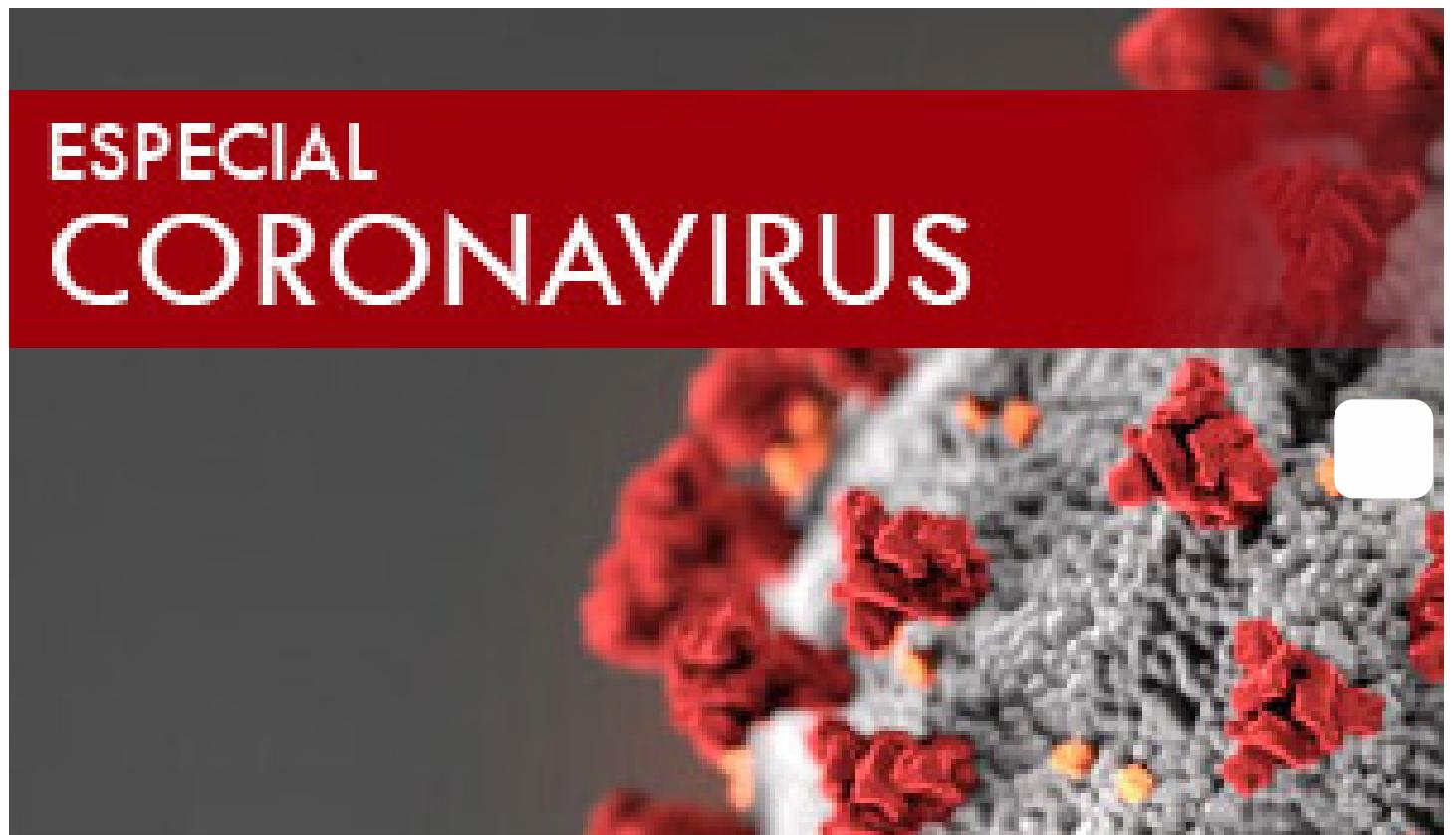
En concreto, en la Comunitat Valenciana se firmaron tres acuerdos de colaboración con las empresas constructoras Becasa, Obremo y Clásica Urbana, quienes facilitaron el acceso a tres de sus edificios, actualmente en construcción, en la ciudad de València: la 'Oficina de empleo, formación y emprendimiento', en la calle Guillem de Castro; el 'Centro de Desarrollo y Aceleración Turística de la Comunitat Valenciana' del Paseo de la Alameda y el edificio residencial 'Hevia', en la Avenida del Maestro Rodrigo.

En la web del proyecto están disponibles los principales resultados del proyecto que pueden resumirse en: un marco de cualificación que integra habilidades y competencias tecnológicas relacionadas con BIM, un repositorio de información, recursos didácticos y herramientas educacionales y una estrategia de réplica para explotar la metodología en el futuro.

Dentro del repositorio de información destaca la nueva versión BIM del 'Catálogo de elementos constructivos' desarrollada por el IVE a petición de la Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática y que ya está disponible de manera gratuita en la web del IVE.

Esta versión 4.00 fue presentada durante el pasado mes de junio en un encuentro telemático

Matarredona ha declarado que "a través del proyecto BIMplement, la Generalitat está apostando por el desarrollo de programas de formación y de cualificación apoyados en BIM y también en adaptar sus herramientas a las nuevas tecnologías".



de edificios de bajo consumo

Castellón Plaza

VIVIENDAS



18/08/2020 - VALÈNCIA (EP). La Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática, a través del **Instituto Valenciano de la Edificación** (IVE), ha presentado los resultados del proyecto **BIMplement** para mejorar la calidad en el proceso de construcción y rehabilitación de los edificios de consumo de energía casi cero, que después de tres años de andadura llega a su fin.

La Vicepresidencia segunda ha participado en el proyecto BIMplement del programa **Horizon 2020** de la **Unión Europea** junto con entidades de Francia, Países Bajos, Lituania y Polonia, ha indicado la Generalitat en un comunicado.

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El principal objetivo del proyecto era mejorar la calidad en el proceso de construcción y rehabilitación de los edificios de consumo de energía casi cero (EECN) mediante la creación de programas de formación a gran escala, de desarrollo profesional continuo y programas de cualificación apoyados en BIM dirigidos a los diferentes agentes involucrados en el proceso.

A lo largo de estos 36 meses, el proyecto BIMplement ha formado a **más de 1.100 profesionales** en conceptos vinculados con los EECN y los requisitos de ventilación y estanquidad al aire, así como en el uso y manejo de BIM. Asimismo, la metodología propuesta por el proyecto se ha testeado en más de 40 edificios reales que han funcionado a modo de pilotos.

En concreto, en la Comunitat Valenciana se firmaron tres acuerdos de colaboración con las empresas constructoras Becasa, Obremo y Clásica Urbana, quienes facilitaron el acceso a tres de sus edificios, actualmente en construcción, en la ciudad de València: la 'Oficina de empleo, formación y emprendimiento', en la calle Guillem de Castro; el 'Centro de Desarrollo y Aceleración Turística de la Comunitat Valenciana' del Paseo de la Alameda y el edificio residencial 'Hevia', en la Avenida del Maestro Rodrigo.

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