



# P2ENDURE

## PLUG & PLAY BUILDING RENOVATION

### NEWSLETTER #2

winter edition 2017/2018



**Project aim:** provides scalable, adaptable and ready-to-implement prefabricated Plug-and-Play (PnP) technologies for building deep renovation. These innovative solutions are applicable to transform non-functioning or sub-optimal public and historic buildings into dwellings and are applicable for a wide range of building typologies.

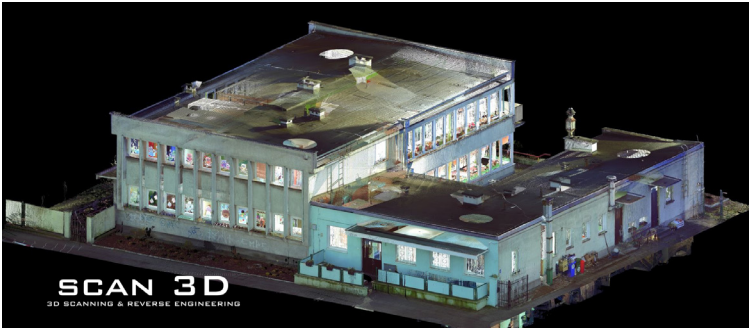
**Main innovation:** PnP prefab systems enabled by 3D printing, innovative sensing technologies, such as laser scanning, thermal scanning and the Comfort Eye - an innovative IEQ scanning device. P2ENDURE presents a proof-of-performance of the optimised PnP renovation techniques by implementing ten large-scale live demonstration projects that represent the main deep renovation typologies and real market demand in four EU geo-clusters.

This is the 2nd newsletter of the H2020 P2ENDURE research project. It introduces the work done in the last year and presents the main achievements gained by the P2ENDURE consortium. It was a year wherein the BIM models of most of the demonstration cases have been created and lots of progress on real renovation work is to be seen in some demo buildings.

[www.p2endure-project.eu](http://www.p2endure-project.eu)



## WORK IN PROGRESS



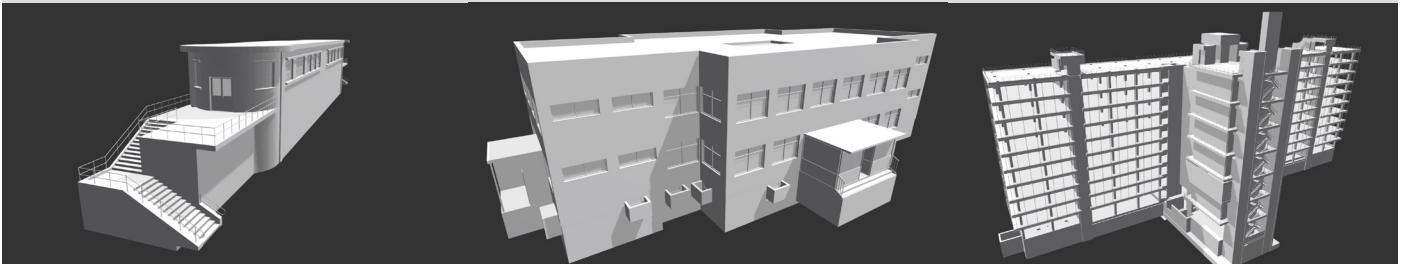
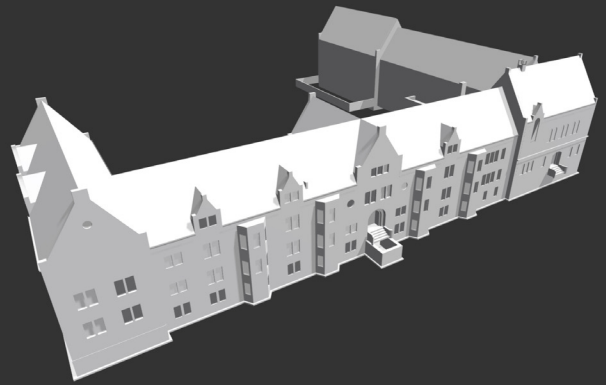
3D models were created of the demonstration case in Gdynia and Warsaw, Poland based on point cloud achieved from laser scanning.

Videos and an [interactive model](#) of the 3D models are available on the P2ENDURE website and YouTube channel.

## BIM MODELS

**BIM models** of most of the demonstration buildings were created. There are available to view on the P2ENDURE website and [Sketchfab](#) also in **VR mode**. The pictures below show BIM models of the following demo cases:

1/ [Tilburg](#), NL 2/ [Genoa](#), IT 3/ [Warsaw](#), PL 4/ [Enschede](#), NL

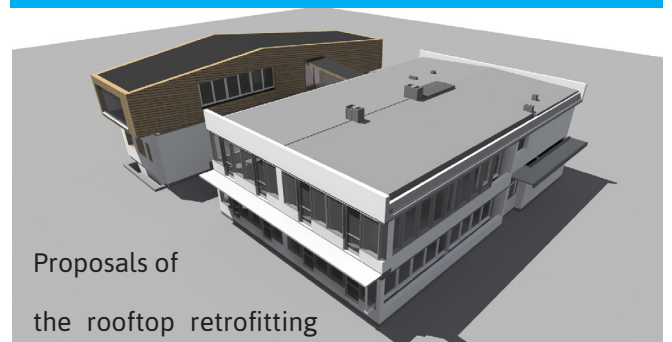


## 3D PRINTING ROBOT

The on-site **3D printing robot** developed by [Invela](#) and [Robot-at-Work](#) has completed printing the first gable at the Korsløkken demonstration case in Denmark. The [video](#) showing this process is available on P2ENDURE YouTube.



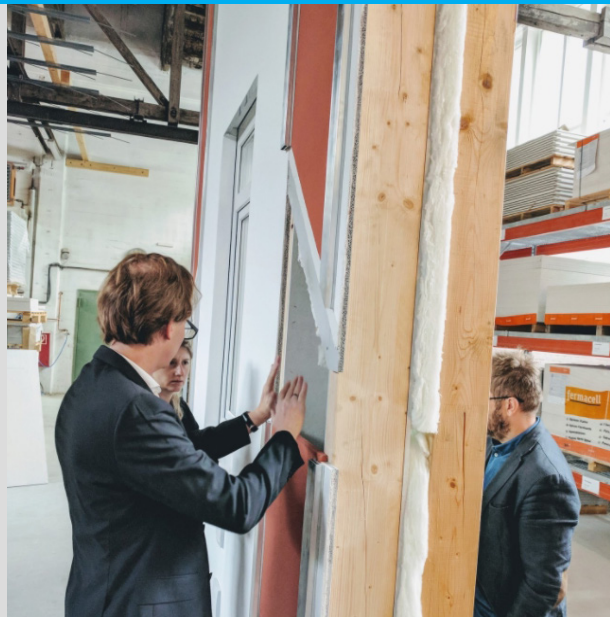
## ROOFTOP RETROFITTING



Proposals of the rooftop retrofitting module, multifunctional panels and reversible window have been prepared for the demonstration cases in Warsaw and Gdynia, Poland. The picture shows the **rooftop retrofitting module** developed by [PAN+ architectuur](#) and multifunctional panel developed by [Fermacell](#).

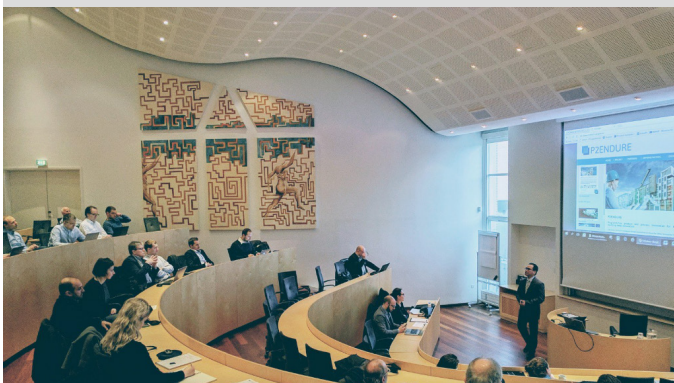
### TECHNICAL WORKSHOP IN BAD GRUND

The technical meeting in Bad Grund, Germany at Fermacell premises on 21st August 2017 was mainly organised to analyse the prototype of the multifunctional panel prepared by Fermacell and to discuss optimisation and implementation of the FC panel in the demonstration cases in Warsaw and Gdynia, in Poland.



### MEETING IN ODENSE, DENMARK

On the first day during the joint workshop with [MORE-CONNECT](#), two site visits took place: to the demonstration building, where [Ennogie](#) solar roof system has been installed, and to the Robotic Valley in Odense. Besides demonstration of the 3D printing technology for building envelopes developed by Invela, other robotic technologies and their applications in different industries were explained and demonstrated.



### MEETING IN GENOA, ITALY

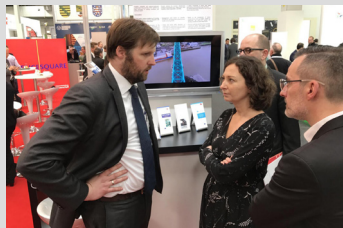


During this two-days meeting, marking the first year of the project, the results of the first pre-renovation condition assessment and the prototype of **BIM parametric modeller** was demonstrated. BIM-based energy calculations were discussed and proposals of the solutions providers for the ongoing demonstration cases were presented. Last but not least, a site visit to the demonstration case was organised and pre-renovation condition assessment was performed with the RE Suite tool developed by [DEMO Consultants](#).

## WE'VE ATTENDED

We have participated in several events not only for dissemination purposes but also to exchange knowledge with experts in related professions and to build synergies with EU and national R&D projects.

Important events we've visited were:



- [CeBIT](#) Global Event for Digital Business in Hannover, March 2017

- [3rd EU Energy Summit](#) in Brussels, March 2017



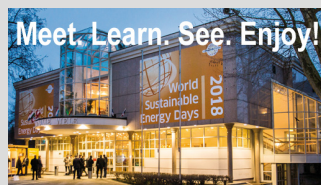
- [EeB cPPP Impact Workshop](#) organised by the European Commission and ECTP Energy Efficient Buildings (E2B) Committee in Brussels, May 2017

## WHERE THEORY MEETS PRACTICE

Great news! P2ENDURE is going to be presented during this well-known international conference on renewable energy.



We are attending the [WSED2018](#)! Europe's largest annual conferences in the field of sustainable energy.



We are preparing a paper for [IBPC2018](#) (7th International Building Physics conference in Syracuse, USA). The theme this year is "Healthy, Intelligent, and Resilient Buildings and Urban Environments".



## IN THE MEDIA

- Article on the [Website of the City of Gdynia](#), Poland
- Short article in Local newspaper "Ratusz" of the City of Gdynia, Poland
- Information on P2ENDURE added on the [Build Up Portal](#) in the Explore section
- Short article on the [Italian portal](#) "Info Build ENERGIA"
- Upcoming publications: two conference papers for the World Sustainable Energy Days ([WSED2018](#)) & 7th International Building Physics Conference ([IBPC2018](#))



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