

International Brokerage Event  
Brussels, 26-27/10/2017



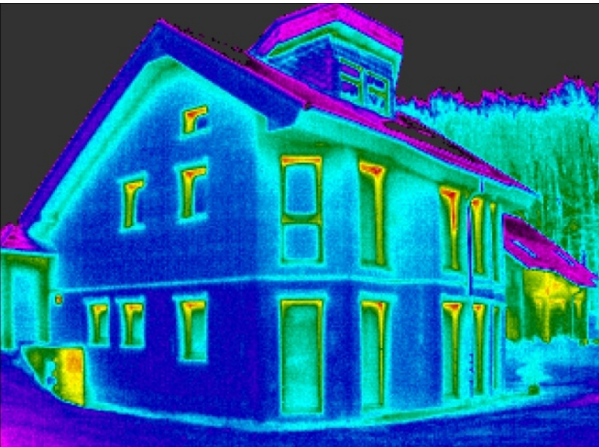
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# Bilkent University and UNAM



Bilkent University has again been named as Turkey's highest-ranked university the latest Quacquarelli Symonds Graduate Employability Rankings for 2018. Among the universities evaluated, Bilkent ranked in the 251-300 band overall. Boğaziçi, İTÜ, İstanbul, Koç, METU and Sabancı universities ranked in the 301-500 band.

As a national nanotechnology center, UNAM, located in the Bilkent University, is continuously growing and reaching out to more researchers every year. Since the establishment of UNAM, the infrastructure has been developed to satisfy the needs of researchers from universities and institutions in Turkey and neighboring countries. With its ever expanding capabilities, UNAM is providing the 21st century state-of-the-art technology to support the research and development activities.



Passive House is the main concern for the City of Future

Expected Features from Building Materials are;

- Thermal Insulation
- Noise Isolation
- Fire Retardant
- Additional features (optionally) such as photovoltaic (PV)

Those features are supplied by manufacturer today but fire retarding has the lack of counterbalance.

**Different study are exist on producing building material based on using cement and other fire resistive binder. But the gaining of all features in one structure, achieving cost efficiency is the problem.**

# 2017 CALL SMART CITIES AND COMMUNITIES (SCC) AN INNOVATIVE MATERIAL: CLAY BASED EXPANDED PERLITE BOARD (EPcB) FOR A PASSIVE HOUSE



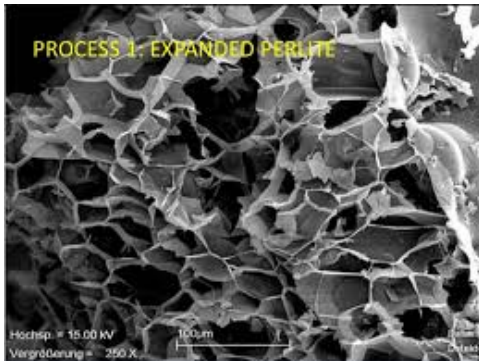
- Objectives:
  - to decrease CO2 emissions of the building
  - to use long term natural material
  - to innovate/ create thermal resistant and fire retarding exterior wall board
- Expected results
  - It potentially possible for many construction material facility to be created which will be Expanded Perlite Aggregate (EPA) based.
  - Both employment and international trade volume will be profounded.

# SMART CITIES AND COMMUNITIES (SCC)

## AN INNOVATIVE MATERIAL: CLAY BASED EXPANDED PERLITE BOARD (EPcB) FOR A PASSIVE HOUSE



As the natural materials, Expanded Perlite and Clay are two candidates for building materials which comply nearly all features but having lack of strength problem.



Any case using these materials supply fire retarding but thermal insulation and acoustical behavior can only be retrieved with using less amount of clay binder. **Our current study is on establishing a good composite by using chemical (treatment) preprocessing and including fiber material in to structure to reach required strength for a exterior thermal insulation building boards . By the end of the Project it is expected gaining process capability of a suitable plate which has all expected feature combined for a passive house.**



Another important thing on these material is their chemical structure reserve big amount of SiO (%60 -75) . These leads possible integrated photovoltaic (PV) application can be build on the composite material with a good pre treading.

# SMART CITIES AND COMMUNITIES (SCC) AN INNOVATIVE MATERIAL: CLAY BASED EXPANDED PERLITE BOARD (EPcB) FOR A PASSIVE HOUSE



Preliminary work for perlite – clay board production, study is in starting phase by the current time

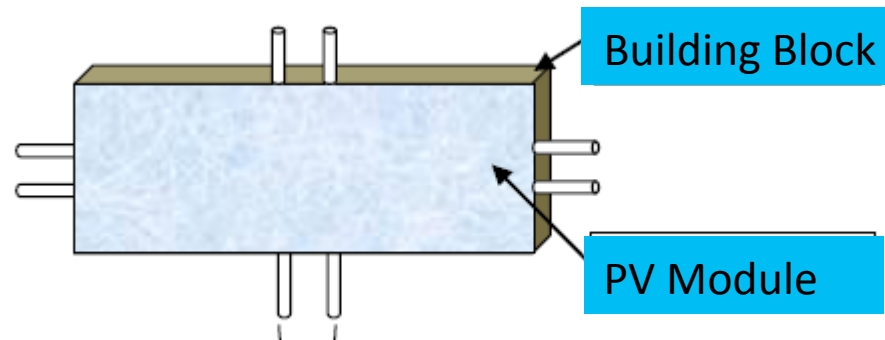
The final compound is planning to be structured by filling the composite (chemical preprocessed Expanded Perlite + Clay + Mineral fiber-possibly) in a fiber grid and gaining elasticity.



Representative Figure

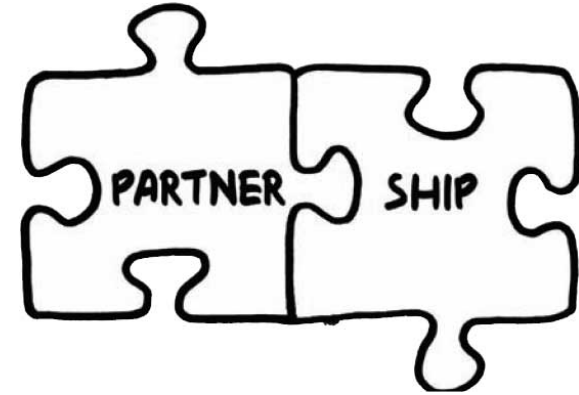


# SMART CITIES AND COMMUNITIES (SCC) AN INNOVATIVE MATERIAL: CLAY BASED EXPANDED PERLITE BOARD (EPcB) FOR A PASSIVE HOUSE



A sketch for expected final Photovoltaic (PV) Featured Board

# SMART CITIES AND COMMUNITIES (SCC) AN INNOVATIVE MATERIAL: CLAY BASED EXPANDED PERLITE BOARD (EPcB) FOR A PASSIVE HOUSE



## *Looking for ;*

Partnership for joining Project with owned experience to support Project and gaining found from EU to reaching to perfect **Building Exterior Insulation Board** for feature Passive House especially support commercialization phase.



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# Recommendations



- The presentation **has to** last up to **4 minutes (maximum)**
- Do not overload your slides
- Provide weblinks to additional material
- Slides should be in English
- Do not use videos etc. – they might be not supported by the Infoday IT system
- Send your presentations in PDF format to: [CoF@turkeyinh2020.eu](mailto:CoF@turkeyinh2020.eu) until **23 September 2016.**