Welcome to the 10th issue of TEMA newsletter where you can find an update of all the research activities carried out during the last seven months. We hope you enjoy reading this Newsletter!!

**Published Papers**

- C. Porrás-Amores, J. Santa Cruz Astorqui, M. del Río Merino, P. Villoria-Sáez, C. Viñas Arrebola. Thermal behavior of traditional lightweight gypsum with construction and demolition waste materials. Dyna. Accepted

**Conferences**


**Current Research Projects**

- 2016-2019 Mining the European Anthroposphere (MINEA) COST Action project funded by EU. CA15115
- 2017-2020 REthinking Sustainability TOwards a Regenerative Economy (RESTORE) COST Action project funded by EU. CA16114

**Books - Chapters**

- M. González Cortina, A. Rodríguez Sánchez. Manual de diseño y ejecución de cubiertas con tablero cerámico y otras aplicaciones. HIPALYT Asociación Española de Fabricantes de Ladrillos y Tejas de Arcilla Cocida.

**Final Degree & Master Projects**

- M. Sorrentino. Universita' di Bari. Supervisors: C. Torre; P. Villoria; M. del Río
- A. Longobardi. Universita' di Bari egli Studi di Napoli Federico II. Supervisors: M. Nicoletta; M. del Río
- A. Sagarruy. UPM. Supervisors: M. Álvarez; P. Villoria;
- R. Cels. UPM. Supervisors: C. Viñas; C. Porrás

**PhD Disertation**

- G. González Morán defended her PhD Thesis titled Estudio sobre la viabilidad de la introducción de nuevos materiales a base de titanio para la construcción de fachadas, last 5th of November. Supervisor: M. Del Río and F. Fernández.

- R. Santos Jiménez defended her PhD Thesis titled: Rediseño de residuos de construcción y demolición (RCD) de tipo cerámico para nuevos materiales de construcción sostenibles, last 11th of December. Supervisor: M. Del Río and M. González

**Outgoing & Incoming Visiting Students**

We want to welcome Livia Angeli and Giuseppe Lorusso from the University of Rome, Ulises Mercado from the Universidad Autónoma de Nayarit (México), Claudia Bin from the University of Torino and Maria Giulia Gagliardini from the Universidad of Perugia who joined TEMA last months.
RESTORE COST Action - STUTTGART:
TEMA participated at Wp3 restricted meeting within RESTORE Cost action, which took place on 14th of September at Werner Sober studio in Stuttgart. The aim of the meeting was to discuss and organize the Training School of Bolzano next March 2019. The TS will include a series of activities covering interesting site visits, seminars and competition.

FIBERS FROM CDW RECYCLING: AN ALTERNATIVE TO THE REINFORCEMENT OF CEMENT MORTARS FOR COATINGS:
During 2018, some of TEMA’s researchers have been working on a research project with an specific objective: the possibility to substitute the most common fibers used to reinforce cement mortars for continuous coatings. The new fibers studied were fibers from construction and demolition waste, in particular, fibers from mineral insulation boards. An experimental plan was designed to make a comparative study about the influence of the different fibers in the behaviour of the cement mortars. The tests carried out were: porosity, compression resistance and permeability. The result of the project has been published in the Journal: Construction and Building Materials, titled: Analysis of the behaviour of fibre-reinforced continuous cement mortar coatings in the presence of cracking and humidity.

Good practices for CDW management in building demolitions:
The TEMA group continues working in this research line, specifically through a project being developed by our Erasmus student from Naples, Federica Vitrone. The work she is developing addresses how to manage demolition waste in a demolition of a school located in S. Giorgio a Cr., Naples. The study is divided in different phases. In the first part concepts regarding CDW and circular economy are introduced, considering the waste framework directive 2008/98/CE, the Italians regulations in which it was transposed and some references of good practices implemented by European countries. The second part concerns the case study of the school building of which an inventory of the waste to be generated was identified, using the guidelines promoted by European commission with the Protocol for the management of CDW. The objective is to recover most of the waste produced, represented by concrete and ceramic waste, to build a new school building in the same site.

Healthy-Eco-Active Architecture:
With this suggestive title TEMA has opened a new line of research that links to the COST project in which we are working: Design buildings considering the wellbeing and the health of its occupants. The result of this line is the work we are doing with our Erasmus students in their Tesi di Laurea. On the one hand, Livia DÂngeli, is studying the possibility of re-designing the plaster, as a traditional material, integrating additives to absorb the hazardous particles of the indoor air. It is known that humans spend 80% of their time indoors where the air quality is much worse than outside, due to the presence of high quantities of hazardous particles produced by the construction elements that surround us and that cause damage to health, especially in children. We can improve the Indoor Air Quality by reducing the sources of contamination, filtering the air or acting directly on the construction materials. Livia is applying this to the design of a rehabilitation Project in a school located in Madrid. To design this material, she has followed an experimental plan in the laboratory –which unfolds in two phases, because she is looking for two different materials: one for the interior of the buildings and another for the façades.

INTERIOR strategy: a new active construction system consisting of false ceiling-partition wall, made of gypsum with the addition of sepiolite, which captures and transforms Volatile Organic Compounds into inert and harmless substances, purifying the environment. The use of gypsum allows to obtain also an excellent regulation of humidity thanks to its porous structure;

EXTERIOR strategy: photocatalytic materials, such as those based on Titanium Dioxide, which activated by sunlight decompose the polluting substances present in the air and transforms them into innocuous particles. This new technology makes the antismog surface unaltered over time. This work is being carried out in collaboration with the School of Industrial Design of the Technical University of Madrid, specifically with professors Francisco Fernández and Evangelina Sánchez.

Research project on condensations and water leaks:
The professors Antonio Rodríguez and Mariano González are carrying out a research about the origin of moisture condensation and filtration for a owners community located in Madrid, determining how to validate equipment for measuring humidity according to the values obtains in the laboratory.

White Book for the Building Sector:
The White Book was presented in the framework of the ePower & Building fair in Madrid, the "White Book for the Construction Sector in Spain, Building 2018/19 Trends," a document that reviews the situation of the sector and future prospects and that includes more than 50 articles with opinions and proposals from business associations, institutions, experts, diverse professional groups and other relevant entities in the field of building in Spain. The White Book of the Building is an initiative of the "Best Buildings Cluster" together with the National Confederation of Construction and is published with Interempresas Media. TEMA has participated in the Book with the article titled "From sustainable construction to regenerative construction, transforming buildings through the principles of regeneration".

MORE INFORMATION
Escuela Técnica Superior de Edificación (Universidad Politécnica de Madrid)
Avenida Juan de Herrera, Nº 6, 28040 Madrid
Web page: www.edificacion.upm.es/tema/
E-MAIL: tema.edificacion@upm.es