



TEMA Newsletter

JAN 2015 – JUL 2015

RESEARCH TEAM

Mercedes del Río Merino
Mariano González Cortina
Jaime Santa Cruz Astorqui
Antonio Rodríguez Sánchez
Carmen Viñas Arrebola
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Alicia San Antonio González
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Published Journals

F. González-Yunta, M. González-Cortina, F. Lasheras-Merino. Influence of treatment "by fire" in the characteristics of traditional lime stucco. *Informes de la Construcción* Vol. 67, 537, e052 enero-marzo 2015 doi: <http://dx.doi.org/10.3989/ic.13.016>

A. San-Antonio-González, R. Santos Jiménez, M. del Río Merino, M. González Cortina and C. Vinas Arrebola. "Feasibility of Recycling CDW as Raw Material in Gypsum Composites". *Athens Journal of Technology & Engineering (AJTE)*. ISSN: 2241-8237.

A. San-Antonio González; M. del Río Merino; C. Viñas Arrebola; P. Villoria Sáez. "Lightweight material made with gypsum and extruded polystyrene waste with enhanced thermal behaviour" *Construction & Building Materials* Vol. 93, pp 57-63. Doi: <http://dx.doi.org/10.1016/j.conbuildmat.2015.05.040>

P. Villoria Sáez; C. Porrás Amores; M. del Río Merino "New quantification proposal for construction waste generation in new residential constructions" *Journal of Cleaner Production*. *Journal of Cleaner Production* 102, pp 58-65 ISSN: 0959-6526. doi: <http://dx.doi.org/10.1016/j.jclepro.2015.04.029>

P. Saiz-Martínez; M. González-Cortina; F. Fernández-Martínez. "Characterization and influence of fine recycled aggregates on masonry mortars properties". *Materiales de Construcción*. Vol. 65, 319, e058. Doi: <http://dx.doi.org/10.3989/mc.2015.06014>

Chapters/Books

M. del Río Merino; R. Santos Jiménez; P. Villoria Sáez; M. González Cortina "Chapter 9: New applications of recycled ceramic waste generated in building rehabilitation works" Book Title: "The Sustainable Renovation of Buildings and Neighbourhoods" Edit. M.P. Mercader Moyano Bentham Science Publishers. ISBN: 9781681080642

Welcome to the third TEMA newsletter where you can find an update of all the research activities carried out during the last seven months. Enjoy reading this Newsletter!!

Accepted Journals

A. San-Antonio González; M. del Río Merino; C. Viñas Arrebola; P. Villoria Sáez. "Lightweight material made with gypsum and XPS waste with enhanced thermal behaviour"

P. del Solar Serrano; M. del Río Merino. "Methodology to select continuous improvement opportunities in housing blocks" *Informes de la construcción*

A. Pedrosa; M. del Río Merino; C. Fonseca. "Interaction between plasticized polyvinyl chloride waterproofing membrane and extruded polystyrene board, in the inverted flat roof". *Materiales de construcción*

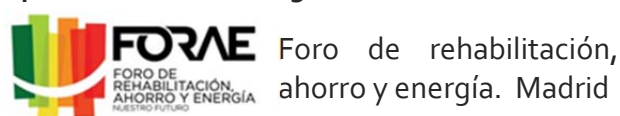
P. Yanes; M, del Río Merino "Lapilli cement mortar lightened with treated expanded polystyrene beads". *ZKG International*. In press

S. Romaniega Piñeiro; M, del Río Merino; C, Pérez García. "New plaster composite with mineral wool fibres from CDW recycling" *Advances in Materials Science and Engineering*. In press

F. Puertas; R. Santos Jiménez; M.M. Alonso; M. del Río Merino. "Alkali-activated cement mortars containing recycled clay-based construction and demolition waste." *Ceramics-Silikáty*. In press

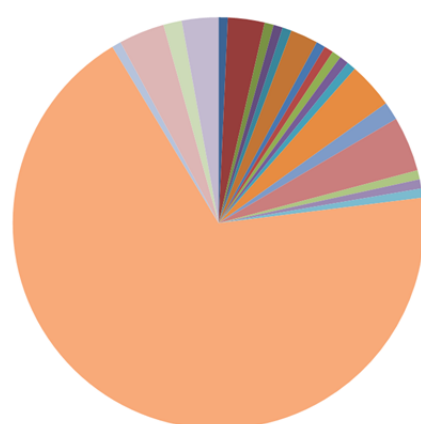
Upcoming events & conferences

4-6 NOVEMBER 2015



14-16 DECEMBER 2015 - III COINVEDI

International Congress on Construction and Building Research - Escuela Técnica Superior de Edificación (UPM), Spain.



- Albania
- Algeria
- Austria
- Belgium
- Brazil
- Chile
- China
- Cyprus
- France
- Germany
- India
- Iran
- Ireland
- Italy
- New Zealand
- Philippines
- Puerto Rico
- Spain
- Tunisia
- Turkey
- United Kingdom
- United States

If you want to browse more information about the congress please visit the web site: http://www.edificacion.upm.es/congresos/III_coinvedi/

PhD Disertations

Antonio Pedrosa González "Durability analysis of Inverted flat roof through the study of the interactions and incompatibilities between synthetic membranes and the extruded polystyrene" (*"Análisis de la durabilidad de la cubierta plana invertida a través del estudio de las interacciones e incompatibilidades entre las membranas sintéticas y el poliestireno extrusionado"*) on 10th February 2015 Supervisor: M. del Río Merino



Natalia González Pericot "Los residuos de envases y embalajes en edificación residencial. Patrones de generación y estrategias de mejora de su gestión." (*"Packaging waste generated in residential building constructions. Generation patterns and strategies to enhance their management"*) on 22nd April 2015 Supervisor: M. del Río Merino



**ADMISSION OPEN FOR COURSE 2015/2016
NEW MASTERS @ ETSEM!!**

MASTER IN INNOVATION IN BUILDING CONSTRUCTION TECHNOLOGY
MASTER IN BUILDING CONSTRUCTION MANAGEMENT

Please visit the web site: <https://www.edificacion.upm.es/estudios/master-innovacion-tecnologica-edificacion.html>



Conferences

R. Díaz Rubio; M. del Río Merino; "Cuantificación de las variables que determinan la huella de carbono". Exco 15, 11-13 Feb 2015, Valencia, Spain

M. del Río Merino; P. Villoria Sáez; A. San A. González; R. Santos Jiménez; M. González Cortina; J. Santa Cruz Astorqui; A. Rodríguez Sánchez; C. Viñas Arrebola. "Proyecto W2R: Valorización integral de los residuos generados en la rehabilitación energética de edificios. Ecomateriales de yeso". II Jornada de Innovación en el sector del Yeso. 17 Apr 2015, Madrid

R. Santos Jiménez; M. del Río Merino; M. González Cortina. "Viabilidad de nuevos ecomateriales de yeso con cargas de residuo cerámico". II Jornada de Innovación en el sector del Yeso. 17 Apr 2015, Madrid

A. San A. González; M. del Río Merino; C. Viñas Arrebola. "Nuevo ecomaterial de yeso con residuo de poliestireno extruido". II Jornada de Innovación en el sector del Yeso. 17 Apr 2015, Madrid

P. Villoria Sáez; M. del Río Merino; César Porras Amores; A. San A.-González. "Empirical model to calculate the waste generated in residential building constructions". II International & VI National Congress on Sustainable Construction and Eco-Efficient Solutions. 23-25 May 2015, Sevilla Spain.

R. Santos Jiménez; M. del Río Merino; M. González Cortina. "Plaster matrix with construction and demolition ceramic waste as raw material". II International & VI National Congress on Sustainable Construction and Eco-Efficient Solutions. 23-25 May 2015, Sevilla Spain.

A. San A. González; M. del Río Merino; C. Viñas Arrebola. "Material de construcción ligero fabricado con yeso y residuo de poliestireno extruido". II International & VI National Congress on Sustainable Construction and Eco-Efficient Solutions. 23-25 May 2015, Sevilla Spain.

P. Saiz Martínez; M. González Cortina; F. Fernández Martínez. "Utilización de la fracción fina del árido reciclado procedente de residuos de construcción y demolición, RCD, en la fabricación de morteros de albañilería". II International & VI National Congress on Sustainable Construction and Eco-Efficient Solutions. 23-25 May 2015, Sevilla Spain.

P. Villoria Sáez, M. del Río Merino, J. Santa Cruz Astorqui; A. Rodríguez Sánchez. "Integrating Best Practices for Construction Waste in Quality Management Systems". ICACEE 2015: XIII International Conference on Architectural, Civil and Environmental Engineering. 13-14 Jul 2015, Stockholm, Sweden.

R. Santos Jiménez; A. San A. González; M. del Río Merino; M. González Cortina; C. Viñas Arrebola. "Gypsum composites with CDW as raw material". ICACEE 2015: XIII International Conference on Architectural, Civil and Environmental Engineering. 13-14 Julio 2015, Stockholm, Sweden.

M. del Río Merino; P. Villoria Sáez; R. Santos Jiménez; A. San A. González; M. González Cortina; J. Santa Cruz Astorqui; A. Rodríguez Sánchez; C. Viñas Arrebola. Waste 2 Resources: Valorization of the waste generated in building retrofitting works. Eco-friendly gypsum materials. World Congress and Expo on Recycling. 20-22 Jul 2015, Barcelona Spain.



News

A. Rodríguez Sánchez and M. González Cortina were invited as evaluation committee members of several PhD thesis at Universidad Politécnica de Madrid, Apr 2015.

M. del Río Merino is part of the Editorial Board for Construction and Demolition waste at Edorium Journal of Waste Management, Mar 2015.

M. González Cortina was invited as Evaluation committee member of a PhD thesis at Universidad de Burgos, Mar 2015.


M. del Río Merino participated as a member of the Honor committee at the "II Congreso Internacional y IV Nacional De Construcción Sostenible y Soluciones Ecoeficientes" held in Seville. May 2015


M. del Río Merino obtained the Full Professor position at the School of Building Engineering of Madrid (UPM), Jun 2015.


P. Villoria Sáez participated as a session chair at the XIII International Conference on Architectural, Civil and Environmental Engineering held in Stockholm, Sweden. Jul 2015

P. Villoria Sáez participated as a member of the scientific committee at the Rilem Conference "III Progress of recycling in the built environment" held in Sao Paulo, Brazil. Aug 2015

Current Research Projects

 **2014-2017** "W2R: De residuos a recursos"

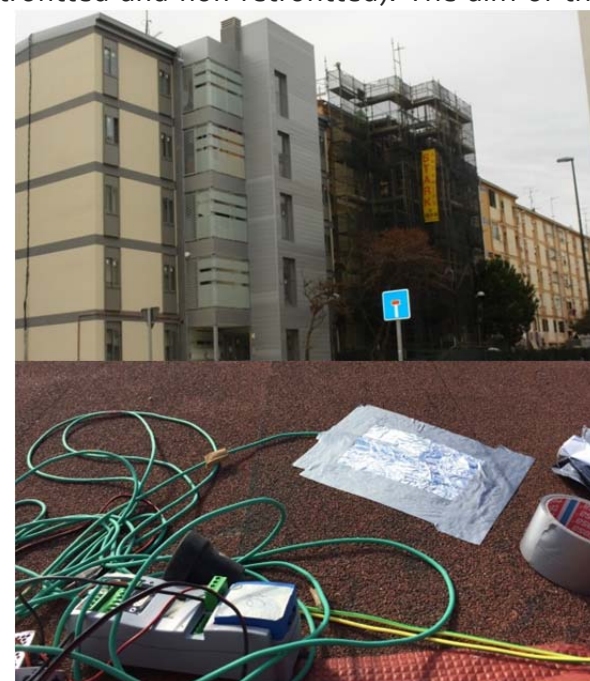
 **2015-2016** "Asesoramiento técnico para realizar el pavimento de los pabellones de la institución ferial de Madrid" IFEMA

 **2012-2015** GtoG "From cradle to cradle: a circular economy for the European gypsum industry with the demolition and recycling industry" Life+

 **2012-2016** "Triqer" 7th Framework Programme for Research

BUILDING ENVELOPE RETROFITTING WORKS – MONITORING SYSTEM

The severe crisis and the development of new energy efficiency regulations for the building sector, is forcing the sector towards a new paradigm: rehabilitation works, in particular rehabilitation works to improve building energy efficiency. One of our current projects consists on the rehabilitation of three buildings located in the south of Madrid. Each building consists of ten dwellings and five floors (two dwellings per floor). These buildings do not meet the existing Spanish regulations regarding thermal issues. Therefore, a retrofitting of the building envelope is needed. This rehabilitation work is focused on both façades (were an EIFS system is used), the roof (were an 8-cm thermal insulation and a new finishing material is placed), and the ground floor slab (were a 4-cm thermal insulation is placed on the upper side of the crawling chamber). The construction work has been done in stages allowing to analyze and monitor --at the same time and with the same weather conditions-- the different parts of the building (both retrofitted and non-retrofitted). The aim of this study is to obtain data on temperature, humidity, air velocity, radiation, etc. in different façades (orientations). The monitoring process lasted 3 weeks. During these weeks, we had diverse climatic conditions, allowing the analysis of each situation. Several measurements were taken from the inside, the chamber and the outside of the opaque envelope, as well as the openings. Subsequently, results from retrofitted areas will be compared to those non-retrofitted in order to obtain the percentage of thermal improvement and the reduction of emissions. Currently, we are analyzing the results.



MORE INFORMATION

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