



**RESEARCH TEAM**

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 Mariano González Cortina  
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Welcome to the 8th 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 Journals**

Santa Cruz Astorqui, J; Del Río Merino, M; Villoria Sáez, P; Porras-Amores, C. Analysis of the Relationship between Density and Mechanical Strength of Lightened Gypsums: Proposal for a Coefficient of Lightening. *Advances in Materials Science and Engineering*, vol. 2017, Article ID 7092521. Doi: [10.1155/2017/7092521](https://doi.org/10.1155/2017/7092521)

González Cortina, M; Saiz Martínez, P; Fernández Martínez, F. Environmental Improvement in Use of Fine Fraction Recycled Aggregates as a Raw Material in Masonry Mortar Fabrication. *The Open Construction and Building Technology Journal*, 2017, 11: 371-380 DOI: [10.2174/1874836801711010371](https://doi.org/10.2174/1874836801711010371)

**Accepted Journals**

Del Río Merino, M; Santa Cruz Astorqui, J; Villoria Sáez, P; Santos Jiménez, R. González Cortina, M. "Eco plaster mortars with addition of waste for high hardness coatings". *Construction and Building Materials*. Accepted in press

Villoria Sáez, P; Santa Cruz Astorqui, J; Del Río Merino, M; Mercader Moyano, M.P; Rodríguez Sánchez, A. "Estimation of construction and demolition waste in building energy efficiency retrofitting works of the vertical envelope". *Journal of Cleaner Production*. Accepted in press

**PhD Disertation**

María José Leiva Aguilera defended her PhD Thesis titled "Plaster additivated with rice husk waste" (Escayola aditivada con residuos de cáscara de arroz) last 22<sup>nd</sup> of September. Supervisor: M. del Río Merino



G. García; M. González; F. Magdalena; M. del Río. Mortars Added with Metakaolin: Effect of Aggregate Proportion. *DYNA*, 92(2) 155-157. Doi: <http://dx.doi.org/10.6036/8194>


Del Río Merino, M; Villoria Sáez, P; Torrijos Antelo, F. Reverse logistics applied to building companies. Demolition stage. *Building and Management* vol. 1(2), pp. 12-23, 2017

M. González Cortina, A. Rodríguez Sánchez, E. Santiago Monedero, A. Ribas Sangüesa, E.Gracia Iguacel, C. Tarragona Matute. Diseño y ejecución de cubiertas con tablero cerámico. *Revista Conarquitectura: Arquitectura con Arcilla Cocida*. vol. 63, pp. 62-29, 2017. ISSN: 1578-0201

Villoria Sáez, P; Del Río Merino, M. Redesign of Traditional Composites for the Building Construction Based on Circular Economy Criteria. Editorial. *The Open Construction and Building Technology Journal (TOCBTJ)*, 2017, 11: 332-333 DOI: [10.2174/1874836801711010332](https://doi.org/10.2174/1874836801711010332)

Del Río, M; Santa Cruz, J; Villoria, P; Viñas, C; Rodríguez, A; Porras, C." Valorization of Building Retrofitting Waste as Alternative Materials in Gypsums". *TOCBTJ*, 2017, 11: 334-342 DOI: [10.2174/1874836801711010334](https://doi.org/10.2174/1874836801711010334)

**Current Research Projects**

 **2014-2017** "W2R: De residuos a recursos" Ministry of Economy and Competitiveness

**2016-2017** "Dictamen pericial de cuantificación de mano de obra en las obras de construcción" (Manpower quantification assessment in construction). Private funding

**Final Degree & Master Projects**

M. Infante. Universita' degli Studi di Napoli Federico II. "Caratterizzazione sperimentale delle prestazioni di malte alleggerite in un'ottica di sostenibilità" Supervisors: M. Fumo; M. del Río; P. Villoria;

A. Marotta. Universidad de Milan "análisis de las propiedades de pinturas térmicas de uso en edificación". Director: A. Rodríguez Sánchez y C. Porras Amores

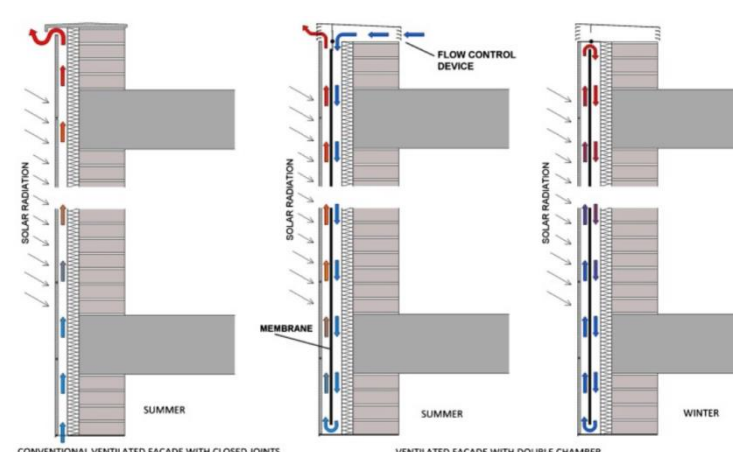
N.C. Gomes de Jesús "Aplicación de la metodología Design Thinking para el desarrollo de un modelo sostenible de alojamientos y turismo rural". Director: M. González Cortina

**NEW VENTILATED FAÇADE WITH DOUBLE CHAMBER AND FLOW CONTROL DEVICE**

Commonly, ventilated façades are composed by an inner sheet, thermal insulation, air chamber and exterior finishing. TEMA has designed a new system for ventilated facade by adding a second air chamber parallel to the existing one, both interconnected by the bottom of the facade, and with a device at the top to regulate the air flow in the chambers. This double-chamber ventilated façade presents two improvements over the conventional system. In the first place, energy losses and gains are reduced through the façade. Secondly, the double-chamber design with the top finishing device allows the vertical temperature gradient in the chambers to be significantly reduced throughout the year.

**WANT TO LEARN MORE ABOUT THIS SYSTEM?**

Please continue reading: Santa Cruz Astorqui, J. and C. Porras-Amores, *Ventilated Façade with double chamber and flow control device. Energy and Buildings* 149, p. 471-482 (2017).



## IV INTERNATIONAL CONGRESS ON CONSTRUCTION AND BUILDING RESEARCH

TEMA participated in the organizing and scientific committee of IV COINVEDI, which was held last 14<sup>th</sup> and 15<sup>th</sup> of December in the University of La Laguna (Tenerife). More than 50 presentations and discussions were organized in five sessions, providing the opportunity to discuss about the trends in the construction sector. Finally, we would like to thank everyone for their participation in the Congress and hope to see you back in the forthcoming editions of COINVEDI.

TEMA participated in the following oral presentations:

M. Infante; D. Lepore; M. Fumo; M. Nicoletta; M. Del Río Merino and P. Villoria. Replacement of arlite with polyterene waste in cement mortar applications as an alternative to construction materials IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

B.M. Martino; C. Cecere; M. del Río Merino; P. Villoria Sáez; J. Santa Cruz Astorqui. Viability of an eco-plaster with ceramic waste and expanded polystyrene IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

A. Vilardi; M. Del Río Merino; P. Villoria Sáez; G. Scaccianoce; M. La Gennusa. New lightened gypsum plaster with expanded and extruded polystyrene wastes: mechanical and thermal analysis. IV COINVEDI Tenerife (Spain). 14-15 Diciembre 2017.

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. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

J. Santa Cruz Astorqui; M. del Río Merino; P. Villoria-Sáez; C. Porrás-Amores. Analysis of the viability of prefabricated elements for partitions and inner layers of the façades manufactured with plaster and aggregates from waste recycling. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

M.A. Morales Arribas; J.A. Pérez Benedicto; M. del Río-Merino. Influence of the modulus of deformation of concrete with recycled aggregates in the design of rigid pavements as a tread layer. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

A. Marotta; C. Porrás-Amores; A. Rodríguez Sánchez; C. Viñas Arrebola. Assessment of the energy-efficiency and thermal comfort of an office building served by an active chilled beam system (ACB). IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

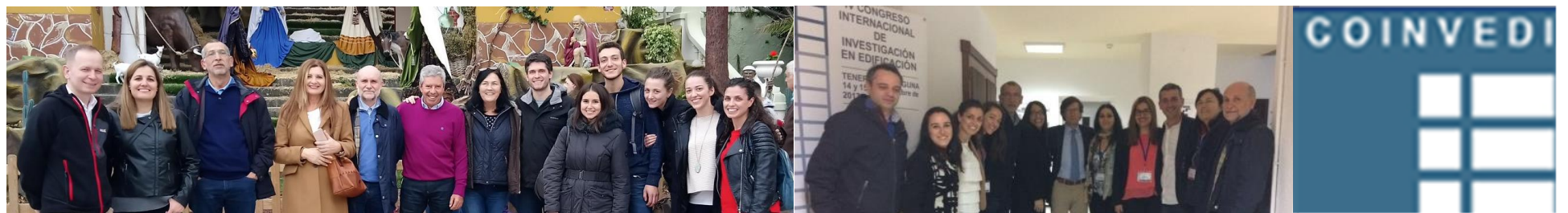
P. Aguilera Benito; C. Viñas Arrebola; A. Rodríguez Sánchez; S. Varela Lujan. Analisis del comportamiento térmico en una edificación de grandes superficies acristaladas con vidrios de altas prestaciones. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

R. Castelluccio; M. Fumo; M. del Río Merino; V. Vitiello. Monitoring systems for the test of rehabilitation of masonries affected by rising damp. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

M. González Cortina; P. Saiz Martínez, F. Fernández. The influence of addition fibres into masonry mortars fabricated with mixed recycled aggregate. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

A. Vidales Barriguete; M. Del Río Merino; E. Atanes. Analysis of the contribution of plastic waste of cables in a plaster matrix. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.

C. Piña Ramírez; M. Del Río Merino; C. Viñas Arrebola. New cement mortar reinforced with mineral wool fibres from CDW recycling. IV COINVEDI. Tenerife (Spain). 14-15 Diciembre 2017.



## OUTGOING & INCOMING VISITING students

We want to thank all our international students for all their work and good times we had together: **Marica Sorrentino** from the University of Bari, **Stefania** from the University of Torino and **Antonio Marotta** from the University of Milan. **It was a pleasure having you here with us!!!!**

We will also want to welcome **Iolanda Longobardi** from the University of Naples, who will join TEMA next February.

## News

M. del Río, M. González and P. Villoria visited the University of Naples and participated as members of the evaluation committee of the Thesis di Laurea. Oct 2017

Paola Villoria visited Loughborough University and collaborated with Prof. Osmani within the framework of MINEA COST Action.

Antonio Rodríguez, Mariano González, Mercedes del Río, César Porrás and Paola Villoria were invited as Evaluation committee members of several PhD thesis at different Universities, such as: Universidad de Valencia, Universidad de Burgos, University of Sevilla, UPM, etc. Sept-Dic 2017.

Jaime Santa Cruz, Mercedes del Río, César Porrás and Paola Villoria have participated as a member of the Scientific Committee at the 4th International Congress on Construction and Building Research (COINVEDI 2017) held in Tenerife, Dec 2017.

TEMA Group together with some Master Students attended a tour organized by ARPADA Construction Company in order to visit several construction sites. Dec 2017

## MORE INFORMATION

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