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Project Fast Facts

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Program: Eco Innovation
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Website: www.rewastee.eu

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REWASTEE ...The world's first flexible acoustic membrane with phase change material!

PRODUCTS & APPLICATIONS

REWASTEE delivers to the sustainable construction market a unique and specialist flexible membrane (manufactured from recycled content) for acoustic insulation ('REWASTEE') and the world's first flexible acoustic membrane incorporating phase change materials (PCM) ('REWASTEE plus') which provides thermal buffering.

PRODUCTS

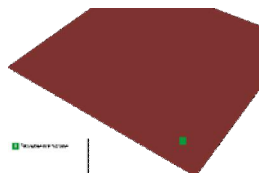
'REWASTEE'

a rubber-like flexible mat with a high surface density (approx.7kg per m²). Ideal for use as acoustic insulation.

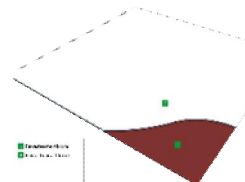
'REWASTEE plus'

has many of the sound insulation properties of REWASTEE but also provides thermal inertia via PCM.

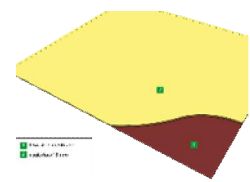
Both membranes can be used for as either a simple membrane for coating (e.g. applied directly to surfaces) or layering applications. Alternatively, they can be integrated into manufactured building products such as sound insulation panels and multilayer wall partitions.



Simple membrane layer
(available with or without adhesive surface)



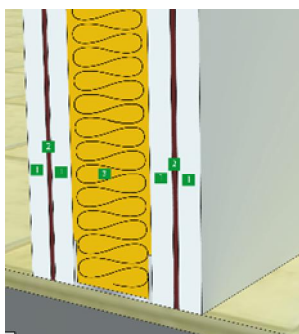
Membrane + 13mm
plasterboard complex



Membrane + 15mm
insulation complex

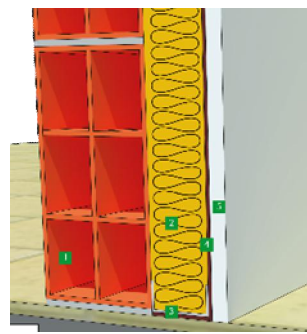
APPLICATIONS

REWASTEE and REWASTEE plus can be used in a number of wall, floor, and ceiling / roof applications. The following shows examples of how the simple membrane layer can be incorporated in to common (i) internal partitions, and (ii) external façade walls designs.



Internal partition

- § Plasterboard
- § Rewastee membrane
- § Plasterboard
- § Insulation
- § Plasterboard
- § Rewastee membrane
- § Plasterboard



External façade wall

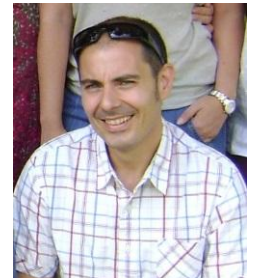
- § Plasterboard
- § Rewastee membrane
- § Insulation
- § Brick wall

(contact us or see our website for more information on applications www.rewastee.eu)

NEWSFLASH!

LEADING SPANISH CONSTRUCTION COMPANY FCC GIVE VIEWS ON REWASTEE

FCC Construcción (www.fcc.es) is a leading EU construction firm with over 110 years of construction experience. In this article the **REWASTEE** team interview Christian Cortes de la Fuente, Doctor of Industrial Engineering, FCC Construcción to gain insight into the company and to understand why they are excited by the potential of the **REWASTEE** products.



Dr Christian Cortés,
FCC Construcción



Q: Who are FCC and why are you interested in the **REWASTEE products?**

FCC: "FCC Group is one of Europe's leading construction, environmental and water service companies with revenue in excess of €11,000m. FCC Construcción is the infrastructure arm of the FCC Group and we span every field of building and engineering design and construction. We are a pacesetter in civil engineering, buildings and industrial projects in Spain, the EU, America and other growing international markets. FCC has erected some landmark buildings designed by the most prestigious architects from Spain and abroad, blending contemporary architecture with the most advanced technologies in environmentally conscious and

smart building design, management and control. As a result we are always on the look-out for innovative construction products that can add value to our projects. Regarding **REWASTEE**, FCC is very interested in using new materials with novel properties to deliver increased comfort (acoustic and thermal) for building users. Using the most innovative technology for each project provides added value and is a differentiating factor in the current highly competitive market. **REWASTEE** does this whilst also reducing energy consumption in line with our climatic objectives.

Q: **REWASTEE is the world's first flexible acoustic membrane with phase change material. What benefits does the material bring and what problems does this help solve?**

FCC: "Today's society demands a quality of construction on a level with the economic effort involved in procuring a home or a complex building. FCC Construcción has responded to this demand by adopting a personalized approach incorporating the latest in construction systems and management methods, with the goal of rationalizing execution. In the construction market,

"[REWASTEE] provides added value and is a differentiating factor in the current highly competitive market"

the introduction of new materials with new properties that allow a reduction in the energy required to maintain thermal comfort and improved sound insulation is both necessary and indispensable for improving the quality of life of people. The new materials used in modern construction must also be sustainable and help reduce waste. In addition, they should also be efficient on site, for example, be of reduced size / weight, be easy to install or reduce

the energy used during construction and operation. That's why we promote the research being done by the **REWASTEE** team in the field of new construction materials."

Q: How does **REWASTEE compare with existing sound insulation products that FCC use?**

FCC: "No other acoustic solution product on the market includes Phase Change Materials despite there being a wide variety of traditional products. **REWASTEE** is also made from recycled content so has improved sustainability credentials. These factors add significant value for us and our customers."

"No other acoustic solution product on the market includes Phase Change Materials"

Q: What type of client / buildings do you think could benefit from **REWASTEE products?**

FCC: "The products can be used in many applications, so it could be anyone looking to ensure good acoustic performance and improved energy performance, whilst using a sustainable building product that is manufactured from recycled materials, to do so. We see potential to use **REWASTEE** products for sound insulation and thermal inertia in both housing and non-residential buildings, for new construction as well as refurbishments. FCC Construcción aims to make people's life better, via the provision of citizen services as well as from house building, construction and refurbishment. We use the best expertise, tools and materials to ensure we achieve this goal. For this reason, the development of new construction materials with novel properties should not only be promoted by the construction companies, but also by other stakeholders across the sector."

"REWASTEE is also made from recycled content so has sustainability credentials"



Hotel "Porta Fira de Barcelona"
building by FCC Construcción
(awarded with the Emporis
Skyscraper Award, 2010)

NEWSFLASH!

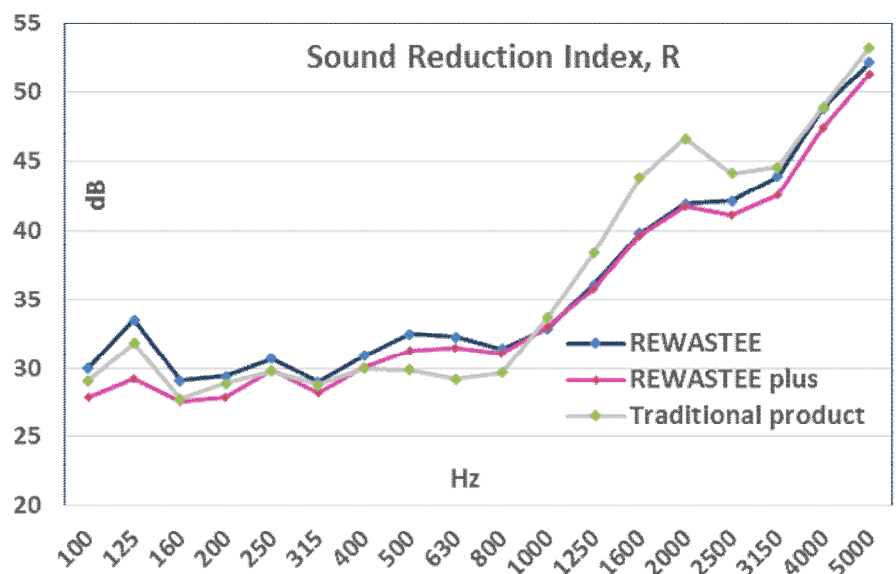
Acoustic test results are just in ... and they are excellent!

REWASTEE and *REWASTEE Plus* have both recently been tested to confirm their Airbourne Sound Insulation properties. A traditional polymer-based membrane was also tested in order to provide a performance comparison with the new REWASTEE products. These results provide independent confirmation of the excellent performance. An extract from our technical datasheet is provided below. Additional tests (including a range of general material properties, thermal conductivity, etc.) have been completed previously. For further information please see our website, or contact us via (<http://www.rewastee.eu/contact/>).

Airborne Sound Insulation (tested in accordance with UNE-EN ISO 10140-2:2011)

Freq (Hz)	Sound Reduction Index, R (dB)		
	REWASTEE	REWASTEE plus	traditional product
100	30.03	27.9	29.1
125	33.5	29.2	31.8
160	29.1	27.6	27.8
200	29.4	27.9	28.9
250	30.7	29.9	29.8
315	29	28.2	28.8
400	30.9	30.1	30
500	32.5	31.3	29.9
630	32.3	31.5	29.2
800	31.4	31.1	29.7
1000	32.9	33	33.7
1250	36.1	35.8	38.4
1600	39.8	39.7	43.8
2000	41.9	41.7	46.6
2500	42.1	41.1	44.1
3150	43.9	42.6	44.6
4000	48.9	47.5	49
5000	52.2	51.4	53.3

R _A (dBA)	35.9	35.3	35.1
R _w (dB)	35	35	35
C	0	-1	-1
C _{tr}	-2	-3	-3



Test specimens comprised:

- 12.5mm plasterboard + insulation membrane + 12.5mm plasterboard.
- Materials were screwed.
- Test specimen dimensions: 1200 x 1480mm

Test Specimen	Test Specimen Description (Insulation Membranes)
REWASTEE	REWASTEE of 5 mm thickness and mass per unit area 9.5 kg/m ²
REWASTEE plus	REWASTEE plus of 5 mm thickness and mass per unit area 9.3 kg/m ²
Traditional product	(non-REWASTEE) polymer-based membrane, of 5 mm thickness and mass per unit area 10 kg/m ²

PARTNER FOCUS - EURECAT


450
Professionals


+38M
Revenue


+160
R&D Projects

EURECAT (a member of TECNIO) is the major Technology Centre in Catalonia and the result of the merger on the 1st May 2015 of the Technology centres: Ascamm; Barcelona Media; BDigital and Cetemmsa. It provides unique technology and advanced knowledge to industry in order to solve its needs for innovation and empower competitiveness.

As well as being the REWASTEE project coordinator, EURECAT:

- Provides **technical & commercial** input to the manufacturing process and the scaling up of production
- Provides expert product **Life Cycle Analysis**
- Provide technical & commercial expertise regarding **certification**
- Coordinates the **exploitation, replication & transfer** activities in Spain

eurecat
Centre Tecnològic de Catalunya

www.eurecat.org

Eurecat, leader in industrial research and key player of the Catalan innovation system.

ITALIAN NATIONAL TV COVERAGE FOR REWASTEE & R2M!

REWASTEE partner, **R2M Solution** promoted REWASTEE at ECOMONDO conference in Rimini, Italy in December 2015. A short film was produced featuring REWASTEE project, available here:

<https://www.youtube.com/watch?v=2GauQBzGq2I>



EVENTS - COME AND MEET REWASTEE!

The REWASTEE team will be at the following forthcoming events. Please get in touch if you would like to meet us.



INNOSTORAGE Conference

16-18 February 2016

Ben-Gurion Univeristy of the Negev, Beer-Sheva,
Israel



Please see our website for details of more upcoming events www.rewastee.eu

REWASTEE co-patent holders, the **University of Lleida** and the **University of Barcelona** are attending the INNOSTORAGE conference.

INNOSTORAGE (www.innostorage.eu/index.php) is an FP7 European project concerning the development of efficient thermal energy storage systems using phase change materials.

The conference will bring together leading experts from around the world, disseminate knowledge gained within the INNOSTORAGE project and help develop new opportunities for international scientific cooperation in the field of thermal energy storage.

REWASTEE partner, **Nobatek** attended WASTE MEETINGS in Lyon, France on 2-3 December 2015. The conference was dedicated to the treatment, recycling and recovery of waste.

Nobatek met with potential REWASTEE collaborators

WASTE
Meetings



"REWASTEE will deliver to the sustainable construction market the intellectual property and manufacturing know-how for a high-density recycled product membrane for acoustic insulation and optionally for thermal buffering using phase change materials. It will be used for both as a simple membrane for coating and layering applications and also as a component of integrated building products with first applications being multilayer walls and multilayer wall partitions."