



MATERIAL PASSPORT

LOAD BEARING EXTERNAL WALL PANEL

C89





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Material Identification

> Material Name

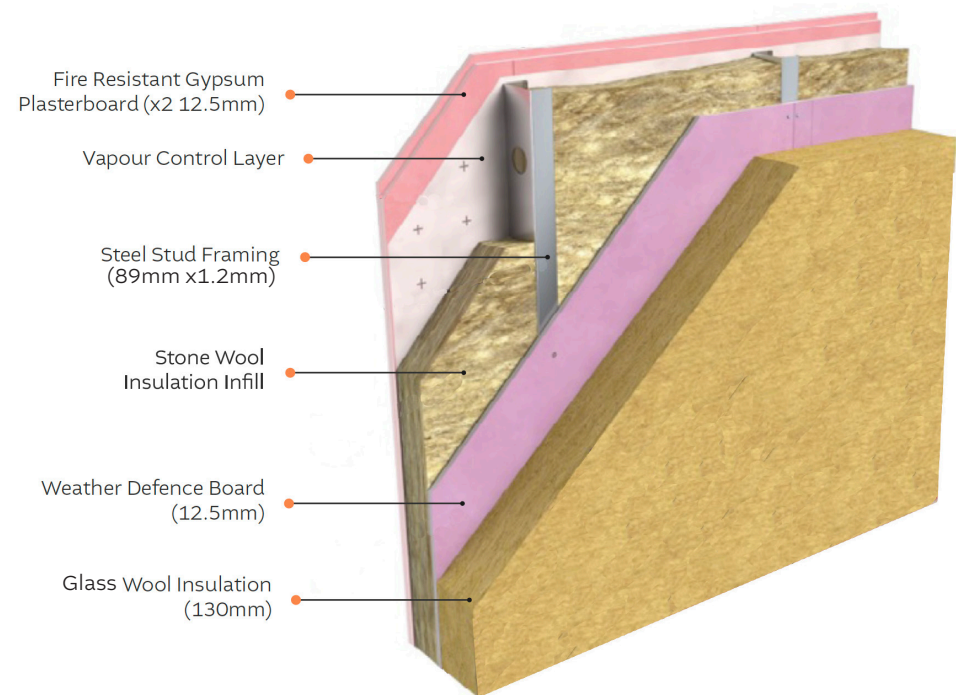
Remagin Loadbearing External Wall Panel C89

> Material Type

Loadbearing external wall panel

> Manufacturer Information

Remagin (ETEX Group)

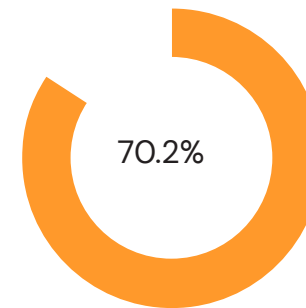




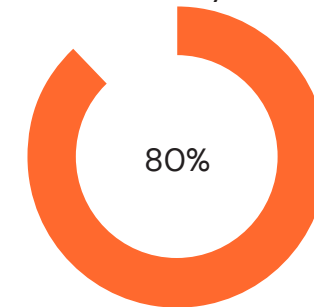
Performance

Embodied carbon:	41 kgCO ₂ e/m ²
Circularity score:	80%
Input secondary:	70.2%
Output recoverable:	90.50%
Detachability:	100%
Mass:	47.21kg

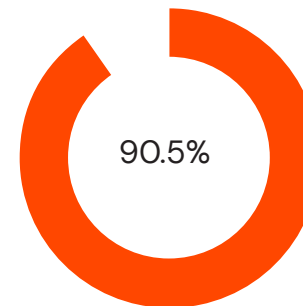
Input Secondary



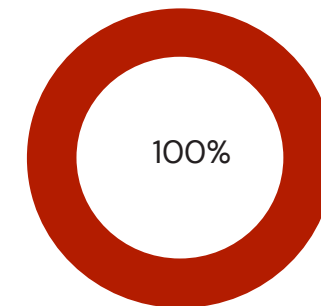
Circularity



Output Recoverable



Detachability

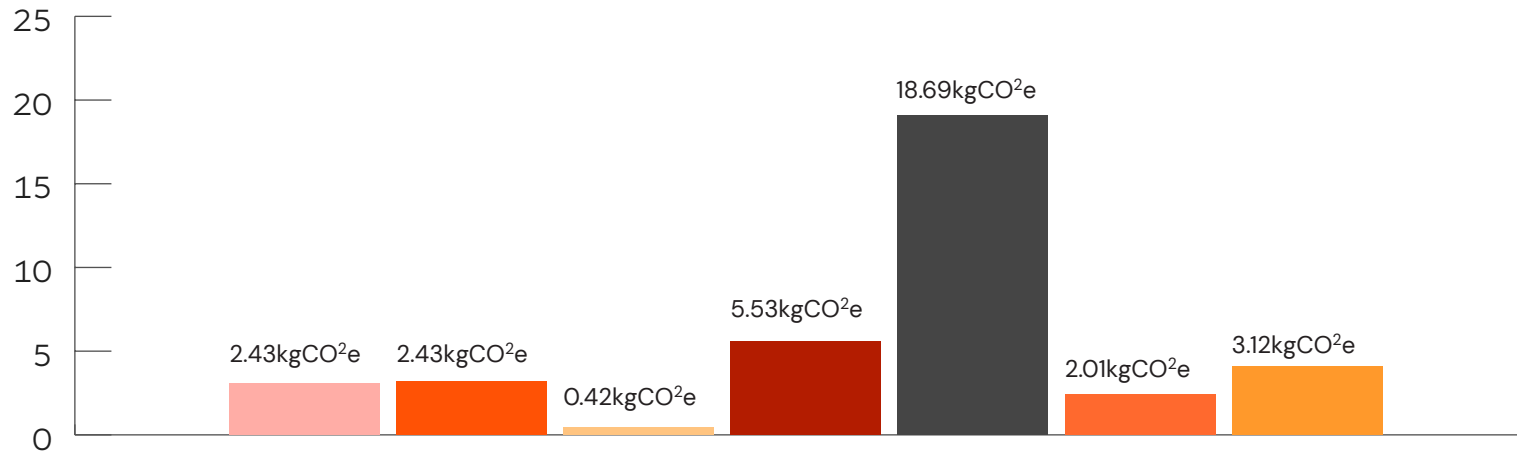








Material Flow Analysis uses input/output processes, including both material and economic information.

Specifications



Embodied Carbon of each material of the Load Bearing ext. wall (1 m²)



-  2x Gypsum Plasterboard, fire resistant, 12.5 mm, 10.2 kg/m², 816 kg/m³, Siniat Fire Board (Etex Building Performance Limited)
-  Vapour Control Membrane, 0.11 kg/m², IZOPERM PLUS (Partel)
-  Stone Wool Insulation, TERRA Wall P1203 / TER32KP, 100mm (URSA INSULATION SA)
-  Framing: Steel Stud (Remagin) S450 Steel With Z275 Zinc Coating, 1.2mm - 89mm
-  Gypsum Board, water resistant, 12.3 kg/m², WEATHER DEFENCE BD 13 SINIAT
-  Glass Wool Insulation, FACADE 35 R / - UGW35VV, 130mm (URSA)

-  Complying with the BS EN ISO 9001 standard. Environmental management of the manufacturing process is certified to BS EN ISO 14001. Responsible sourcing of all material supply chains and the production process is certified to the BES6001 Framework Standard (certificate held at "Very Good" level)
-  EC1, A+ emissions dans l'air interieur
-  L'usine de EL PLA couverte par le système de vérification EPD est certifiée ISO 9001, ISO 14001 et possède le label environnemental de type I conformément à la norme ISO 14024
-  Environmental Policy Statement, Certificate of Registration, Certificate of Registration Environmental Management System - ISO 14001:2015, The Environmental Permitting (England and Wales)
-  ISO 14001 certified, European Certification Board
-  European Certification Board, A+ emissions dans l'air interieur

Condition



Current Condition / State
Usage History
Maintenance Records
Repair History

New
Most materials are expected to last 60 years and be easily disassembled
There is no maintenance needed
The vapour membrane needs to be substituted after 30 years, which can easily be done by disassembling the inner part of the wall



Physical Information
Dimensions
Weight
Colour

1 x 1 x 0.257m
47.21kg
Each material has a different colour. The colour of the outer materials is black from the insulation (external) and pink from the fire-resistant gypsum plasterboard (internal). The external face will have a cladding applied which means the insulation will not be visible.



Texture

Volume:	0.257m ³	Stability:	Yes
Density:	183.7kg/m ³	Resistance:	Yes
Compressive Strength:	Yes	U-Value:	0.182 W/m ² k
Loadbearing:	Yes	Acoustics:	48 (-7) Rw

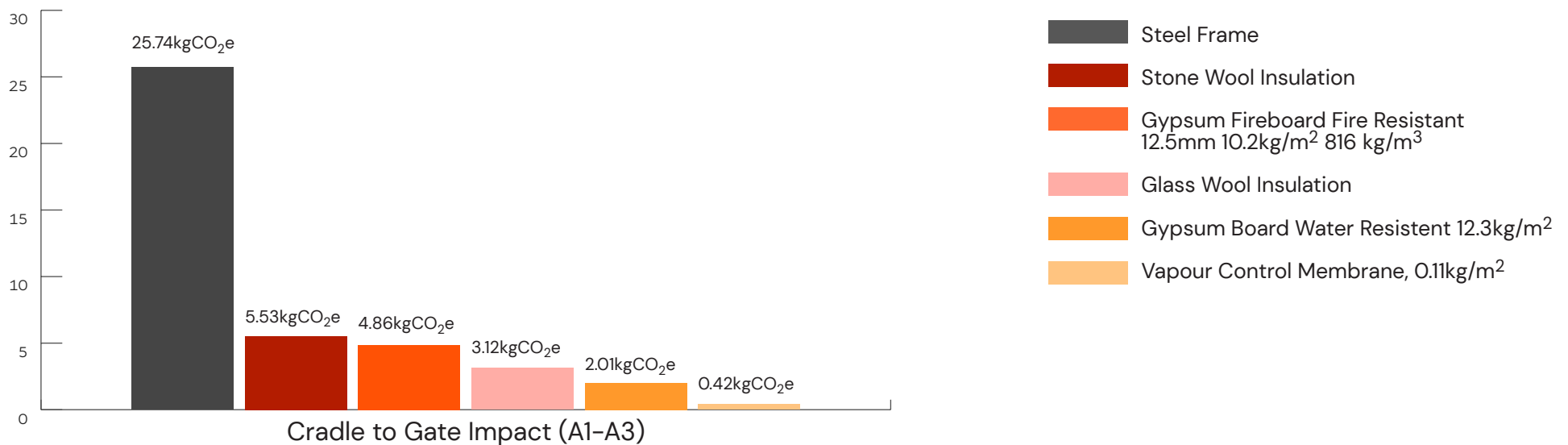


Environmental Impact

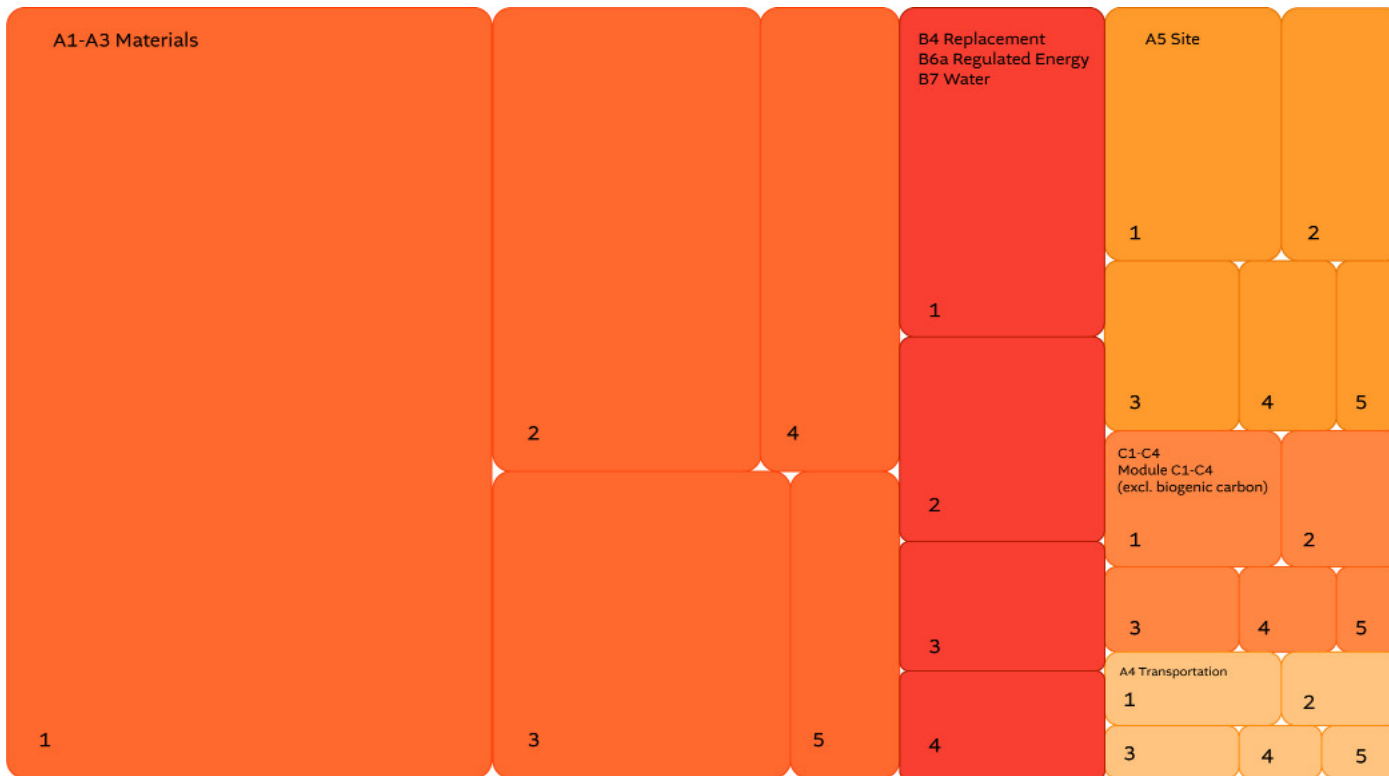
Carbon Footprint	41 kgCO ₂ e/m ²
Energy Consumption	79.2 MJ total use of renewable primary energy 591 MJ total use of non renewable primary energy
Water Usage	0.395 m ³
Cradle to Gate	6.08kg hazardous waste disposed 54.6kg non hazardous waste disposed 0.0134kg radioactive waste disposed

GLOBAL WARMING POTENTIAL

Most contributing materials (non-decarbonised scenario)



Environmental Impact



A1-A3 Materials

1. Structural steel and steel profiles
2. Specialty gypsum board
3. Stone wool insulation
4. Glass wool insulation
5. Plastic membranes

B4 Replacement – B6a Regulated Energy – B7 Water

1. Specialty gypsum board
2. Plastic membranes
3. Electricity
4. Water

A5 Site

1. Specialty gypsum board
2. Structural steel and steel profiles
3. Stone wool insulation
4. Glass wool insulation
5. Plastic membranes

C1-C4 Module C1-C4 (excl. biogenic carbon)

1. Specialty gypsum board
2. Structural steel and steel profiles
3. Plastic membranes
4. Stone wool insulation
5. Glass wool insulation

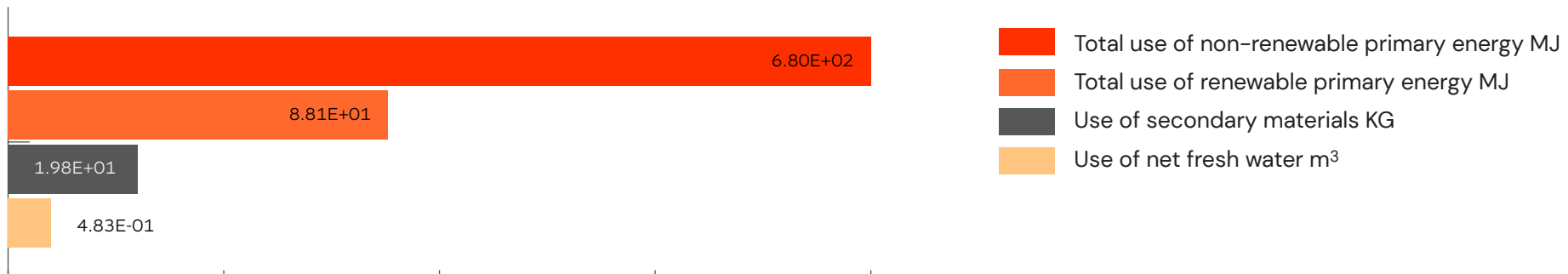
A4 Transportation

1. Specialty gypsum board
2. Structural steel and steel profiles
3. Stone wool insulation
4. Glass wool insulation
5. Plastic membranes



Natural Resources & Environmental Impact Indicators

USE OF NATURAL RESOURCES



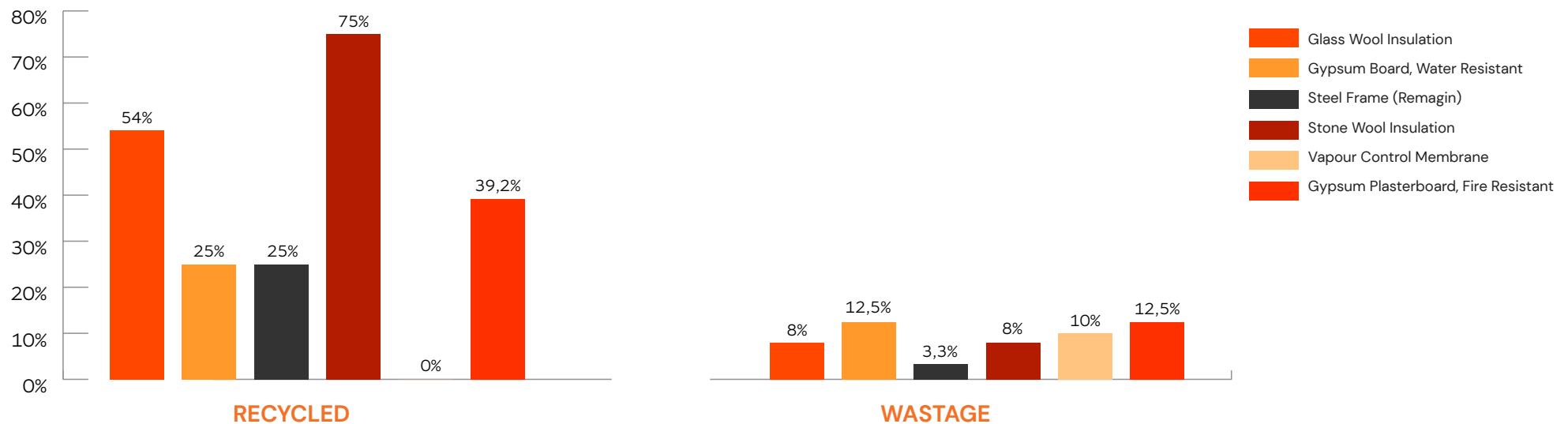
CORE ENVIRONMENTAL IMPACT INDICATORS





Wastage & Recycled Material

CONSTRUCTION WASTAGE AND RECYCLED CONTENT OF EACH MATERIAL / LAYER IN %



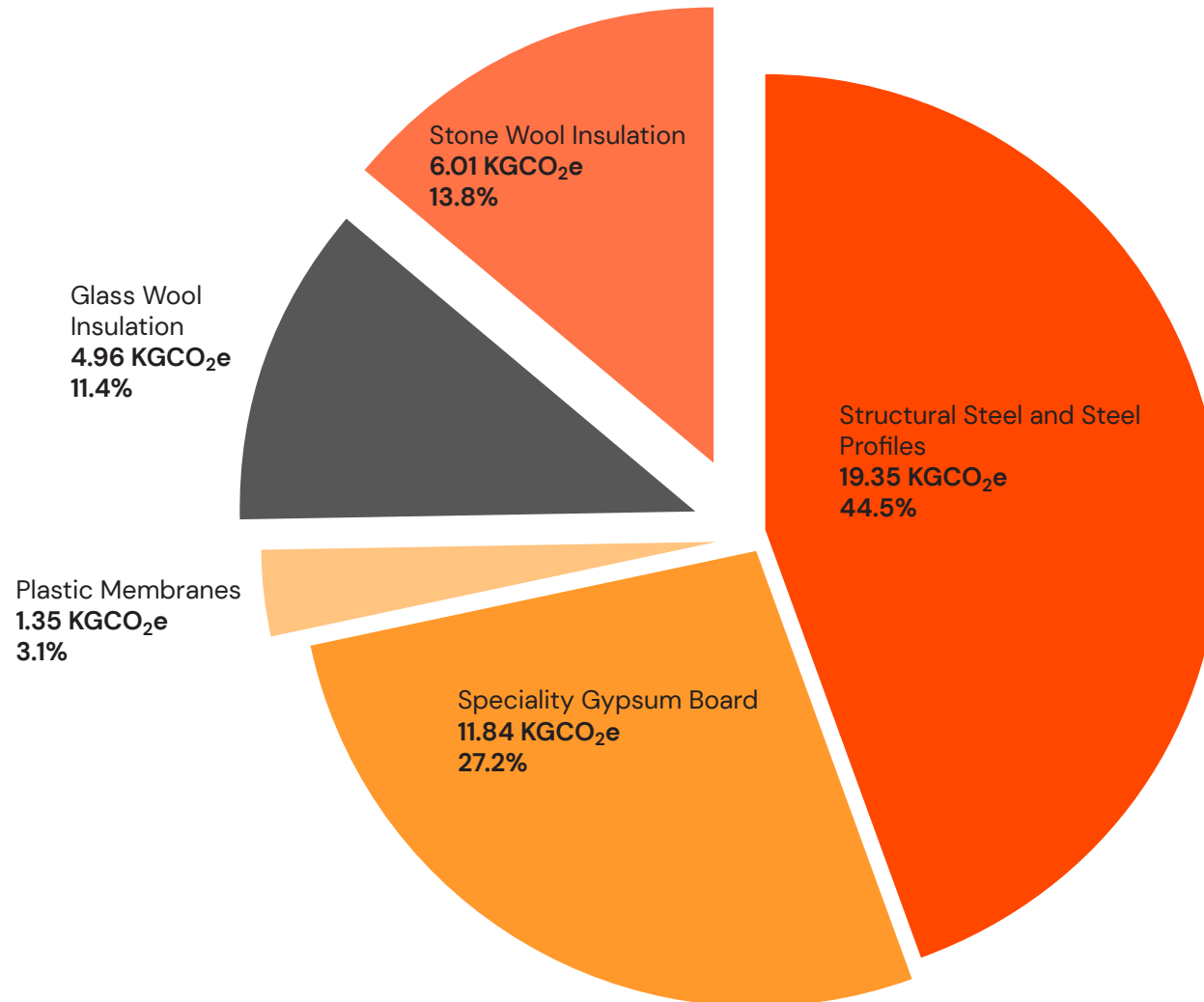
Share of **recycled** material in the product by mass. This information does not influence the LCA results, but is used to document material circularity. Some products may have a default value, which can be based either on the product or the type of product.

Wastage defines the construction site wastage for the material. Wastage default values are set based on typical wastages, and they will vary based on construction process, and building end design. If your inputs include the purchased gross quantities, you can set wastage to zero. Adjust values as necessary. Wastage is calculated in the A5 part of the lifecycle.



Global Warming Potential

% KGCO₂e/M² RESOURCE TYPE



Health & Safety



SAFETY HANDLING

- > No specific handling measures. Store in original packaging in a dry place.
- > When manually handling plasterboards, use suitable manual handling techniques to limit risk, according to the Manual Handling Operations Regulations 1992.
- > The unit weight of boards is printed on them to facilitate risk assessment at the point of use.
- > Mechanical handling aids may be used to reduce the risk of injury.



ALLERGEN INFORMATION

- > In confined spaces and where dust emissions may occur, wear a face mask to BS EN 149 class FFP1. Wear gloves (to BS EN 388) and loose fitting clothing with closed sleeves. Wear safety goggles to BS EN 166 when working overhead, in confined spaces or where dust emissions might occur. After prolonged contact wash gently with warm water and soap.
- > To further reduce exposure to dust, use appropriate respiratory protection complying with BS EN Standards. A dust mask of at least FFP2 will be required (use type FFP3 for high concentrations of dust). Eye protection is recommended when dust and/or fibres are likely to be generated as irritation may be caused by contact.
- > Non Allergenic.



TOXICITY INFORMATION

- > Glass mineral wool is classified by IARC (the International Agency for Research on Cancer) in Group 3; not classified as a carcinogen for humans.
- > To further reduce exposure to dust, use appropriate respiratory protection complying with BS EN Standards. A dust mask of type at least FFP2 will be required (use type FFP3 for high concentrations of dust). Eye protection is recommended when dust and/or fibres are likely to be generated as irritation may be caused by contact.
- > Non Toxic



Circularity & Lifecycle

INFORMATION

Durability	60 years (except for the vapour membrane which has a planned life span of 30 years)
Expected Lifespan	60 years
End-of-Life Options (Recycling, Reuse, Disposal)	90.7% to be recycled, 9% to be disposed and 0.3% to be used as energy
Circularity score	80%
Input secondary	70.2%
Output recoverable	90.50%
Detachability	100%

VIRGIN MATERIAL

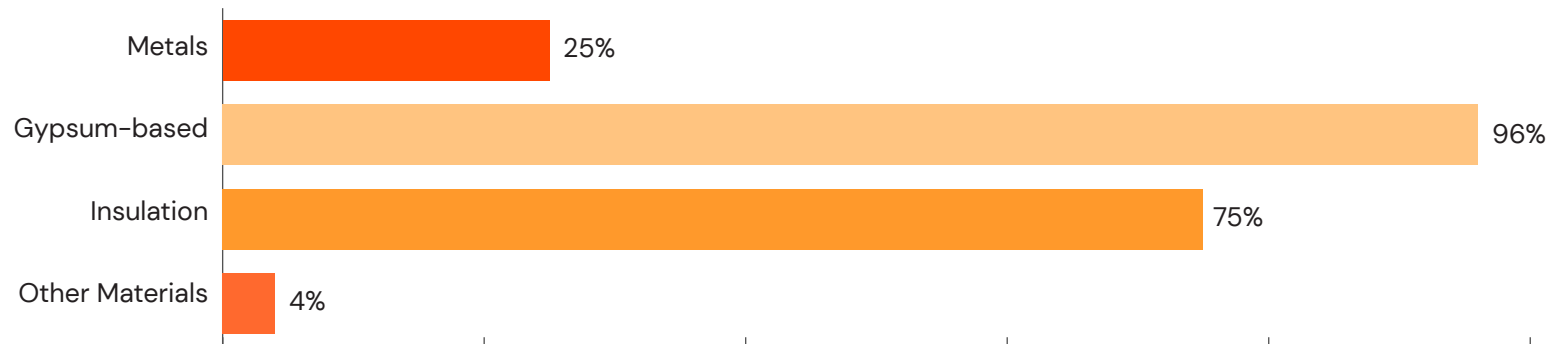


Circularity & Lifecycle

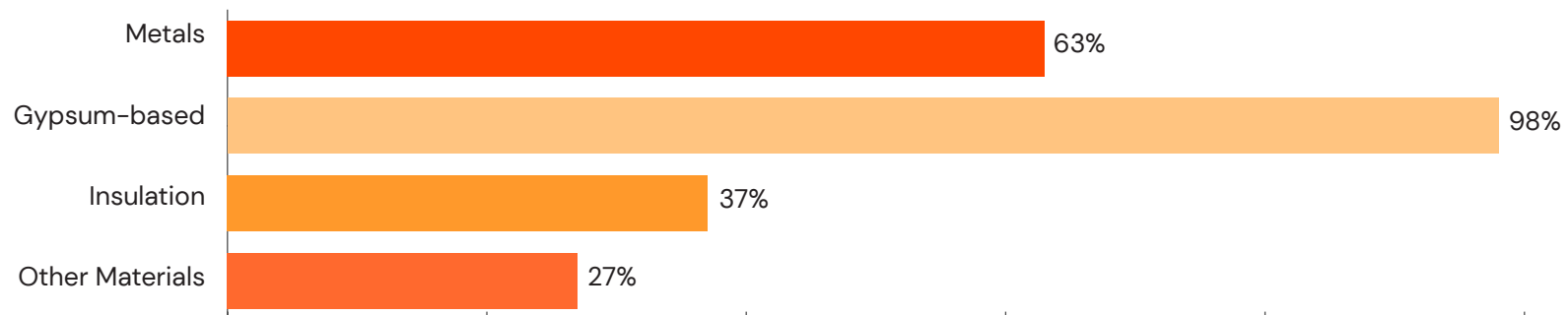


INFORMATION

Materials Recovered



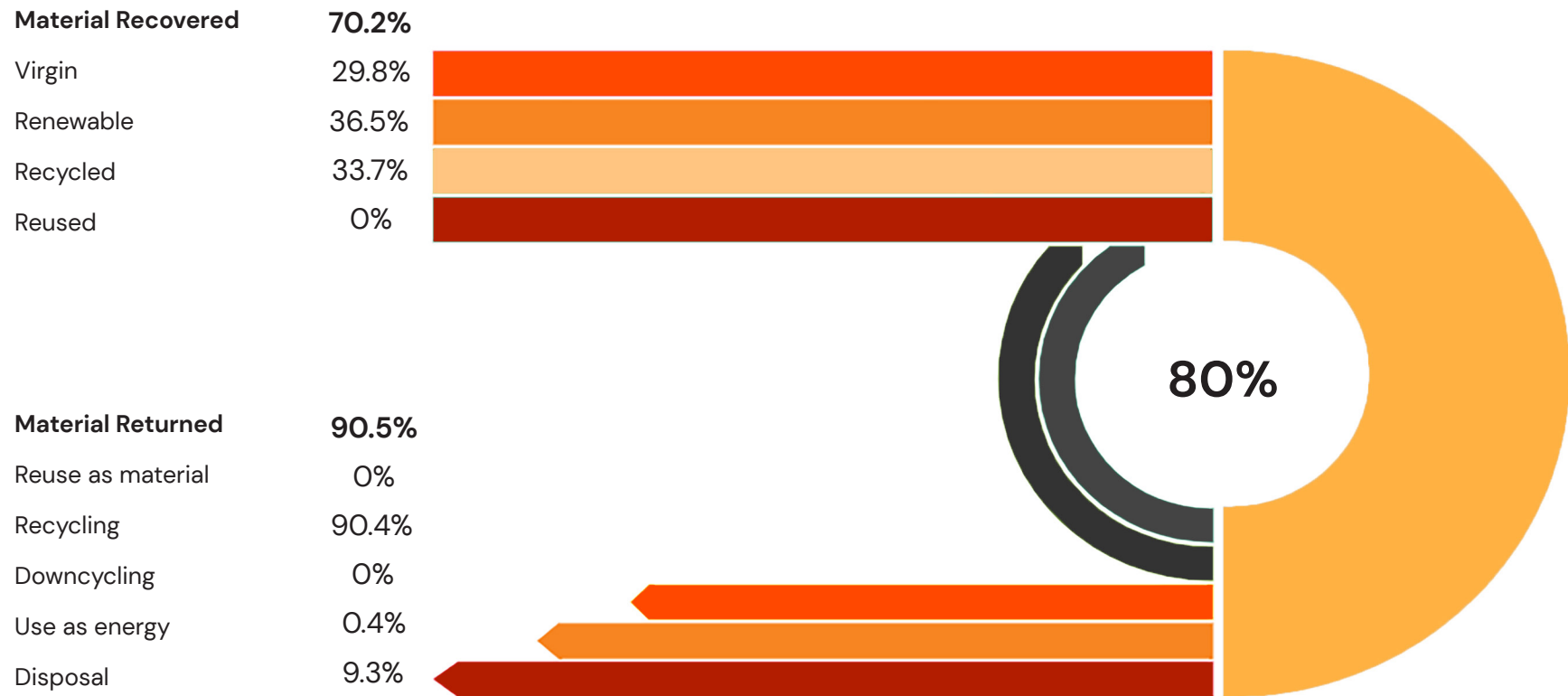
Circularity



Circularity & Lifecycle



BUILDING CIRCULARITY



Sourcing & Procurement



Origin of Materials European

Sourcing Practices Sourcing is done as locally as possible. All materials are sourced in Europe.

Supply Chain Information European

Resource Name	Glass wool Insulation	Gypsum Board, water resistant	Gypsum Board, fire resistant	Steel Frame	Stone wool Insulation	Vapour Control Membrane
Technical Specification	R=2.85 m ² K/W, L=0.035 W/mK, ép. 100 mm, 2.035 kg/m ² , Lambda=0.035 W/(m.K)	12.3kg/m ²	12.5 mm, 10.2 kg/m ² , 816 kg/m ³		L=0.032 W/mK, R=1.25 m ² K/W, 40 mm, 1.16 kg/m ² , 29 kg/m ³ , Lambda=0.032 W/(m.K)	0.1kg/m ²
Product	FACADE 35 R / UGW35VV	Les references commerciales couvertes par cette FDES sont: Weather Defence BD13, Aquaboard BA13, Defentex BD13	Siniat Fire Board		TERRA Wall P1203 / TER32KPI	ZOPERM PLUS
Manufacturer	URSA	ETEX France Building Performance: SINIAT - SALSJ	Etex Building Performance Ltd	Remagin	URSA Insulation SA	Partel
EPD Programme	INIES	INIES	EPD Hub	International EPD System	International EPD System	EPD Ireland
EPD Number	INIES_IURS20170517_162325, 6631	INIES_IFJU20210930_170652, 38172	HUB-0808	S-P-09767S	S-P-07760E	PDIE-22-83
Environment Date Source	FDES	FDES	EPD Siniat Fire Boards	EPD S-P-09767 Remagin Light Gauge Steel Frame	EPD URSA TERRA Mur P1203 / TER32KP 40, 50, 60, 80, 100, 120, 140 mm R= 1.25, 1.55, 1.85, 2.50, 3.10, 3.75, 4.35 m ² K / W	EPD Vapour Control Membranes IZOPERM PLUS VARA PLUS

Sourcing & Procurement



Standard	EN15804+A1	EN15804+A1E	EN15804+A1, EN15804+A2E	EN15804+A1, EN15804+A2E	EN15804+A2E	EN15804+A2
Verification	Third-Party Verified as per ISO14025					
Year	2017	2021	2023	2022	2022	2022
Country	France	France	United Kingdom, OCLEPD	Ireland	Spain	Ireland
Upstream Database	Ecoinvent					
Density	20.35		816			

Conclusion

REMAGIN LOADBEARING EXTERNAL WALL

The Remagin Load bearing external wall panel shows a high circularity score reflecting the 100% ability to be disassembled and the long life span of the materials.

Design for disassembly (DfD) allows the non-destructive separation of products at their end-of-life. DfD uses remountable connections with the aim of preserving material quality and allowing their re-use.

The materials also have a substantial degree of recycled content although there is room to improve on that front.

Wastage from site is low as the majority of the work happens in an off-site controlled environment.

This element contributes also to the degree of adaptability of the buildings where it is used, through its lightweight and disassembly features.

Future Improvement Points:

- > increase the recycled content
- > develop take back program
- > increase the lifespan of the vapour layer



REMAGIN

THE FUTURE OF OFFSITE CONSTRUCTION

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