



Klimaat-adaptieve materialen

Climate-Adaptive Building Materials

een perspectief

a perspective

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09/2026

verleden

mitigatie

heden

adaptatie

toekomst

resiliëntie

mitigatie

adaptatie

resiliëntie

klimaat **adaptieve**

materialen

strategieën

gebouwen

omgevingen

mitigatie
materialen

adaptatie
strategieën gebouwen

resiliëntie
omgevingen



0

Step back in time

hoe zijn we met mitigatie omgegaan?

1



55%

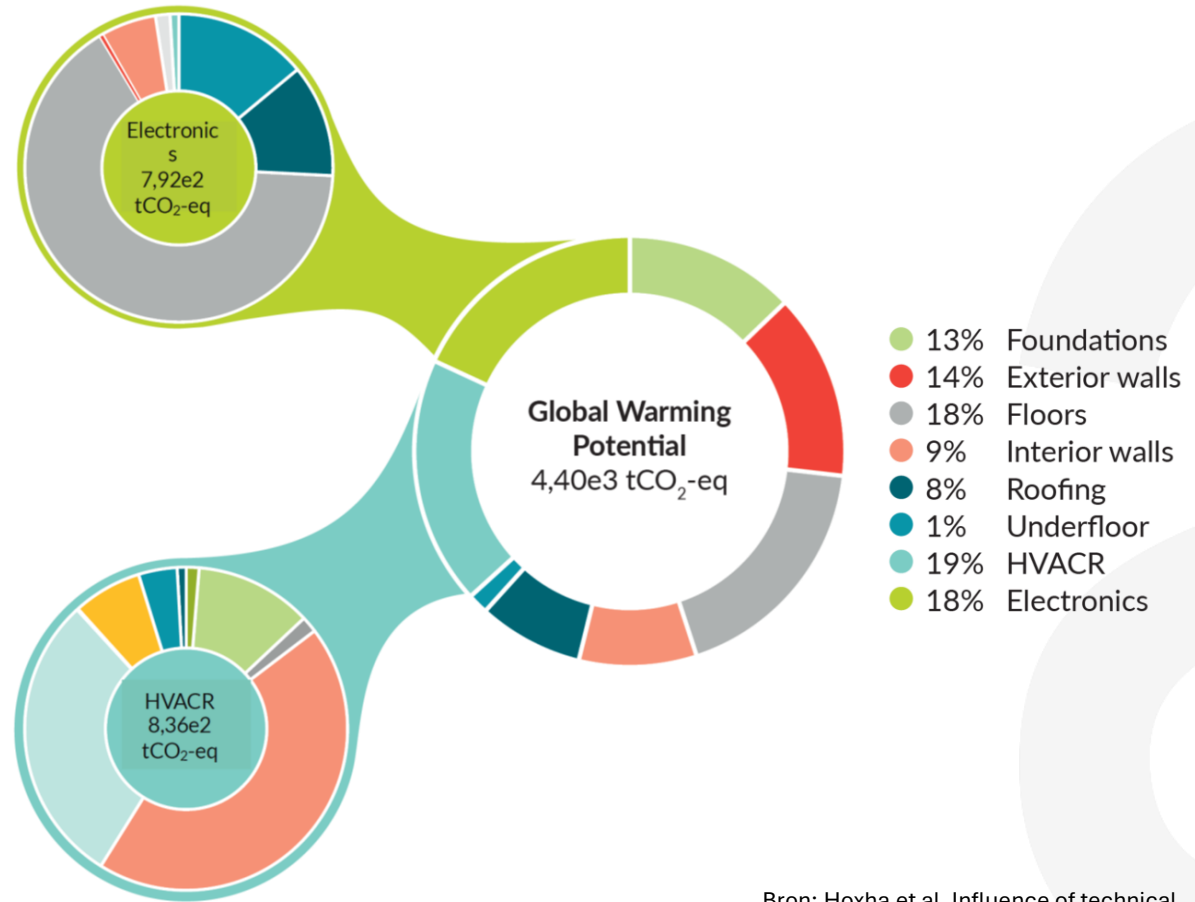
Stijging in globale
bouwkost sinds 2000



135%

Stijging in kost van technische
installaties sinds 2000

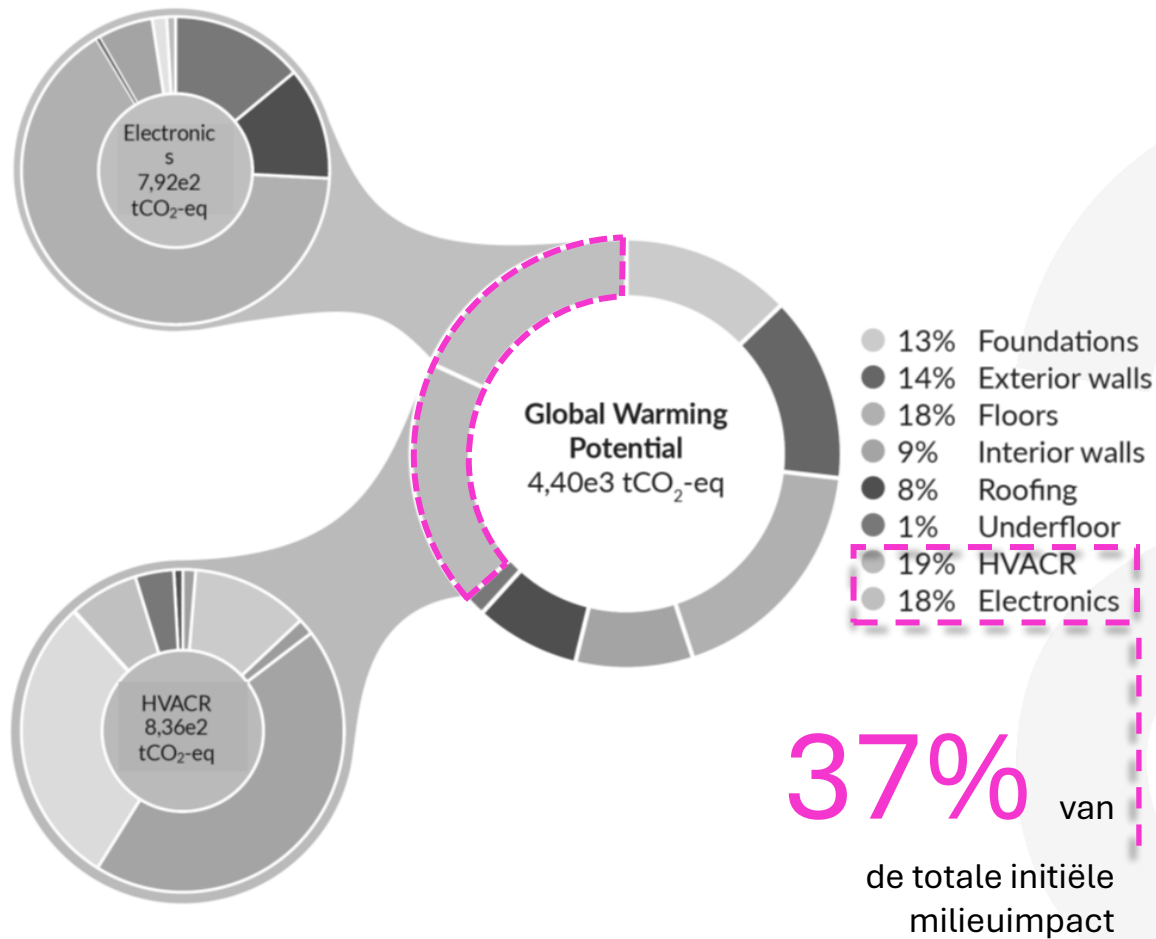
a



Bron: Hoxha et al. Influence of technical and electrical equipment in life cycle assessments of buildings: case of a laboratory and research building (2021)

a

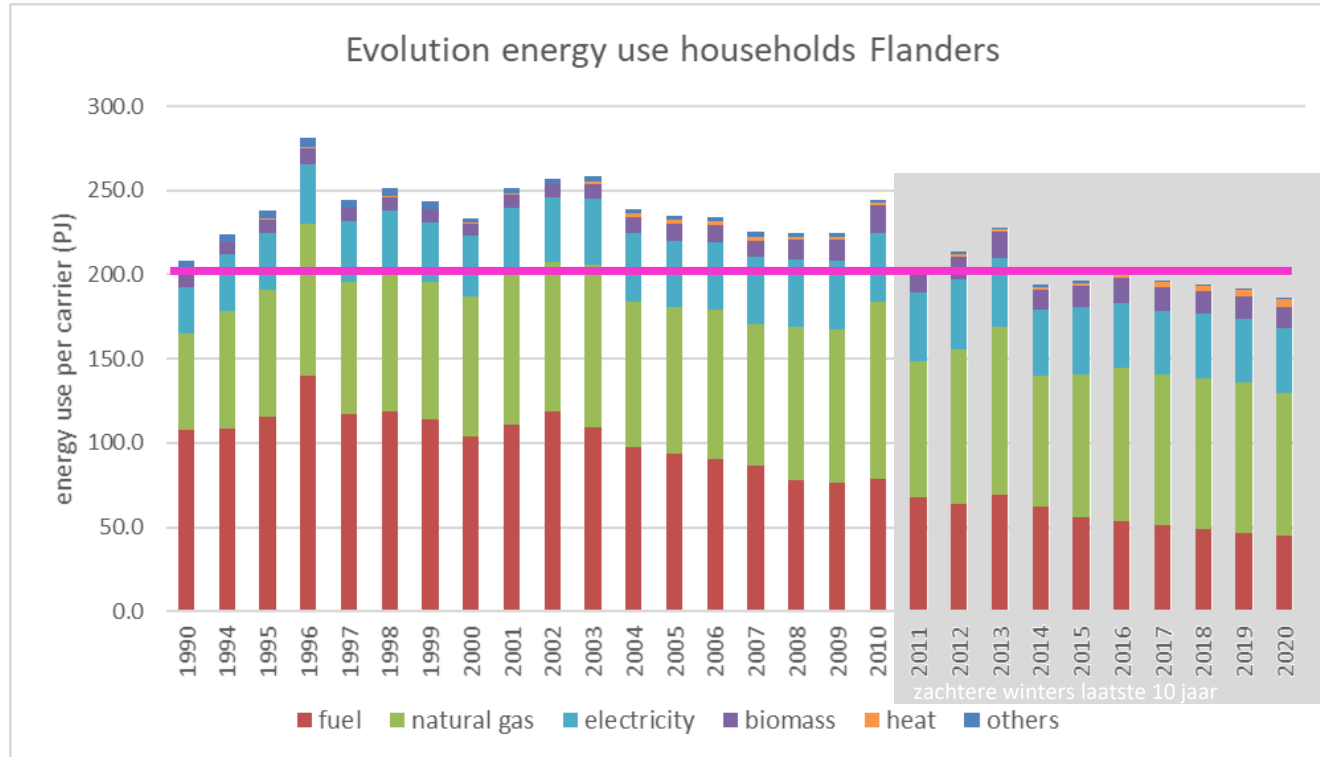
1,0 tCO₂e/m²NGF





energy efficiency – component driven





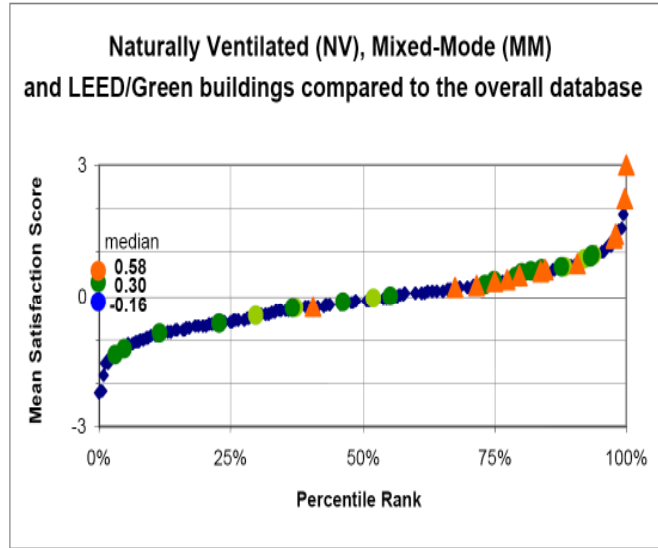
1990-2020

Gasoil	-61%
Gas	+48%
Electricity	+40%

2006-2020

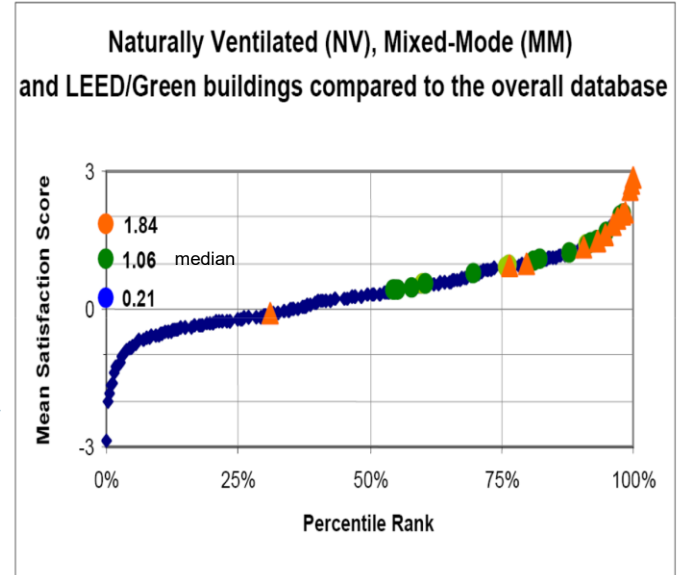
Gasoil	-54%
Gas	-4%
Electricity	-3%

Occupant survey results thermal satisfaction



◆ Database (n=267 bldgs)

Occupant survey results air quality satisfaction



◆ Database (n=267 bldgs)

7



1.650 kg

3

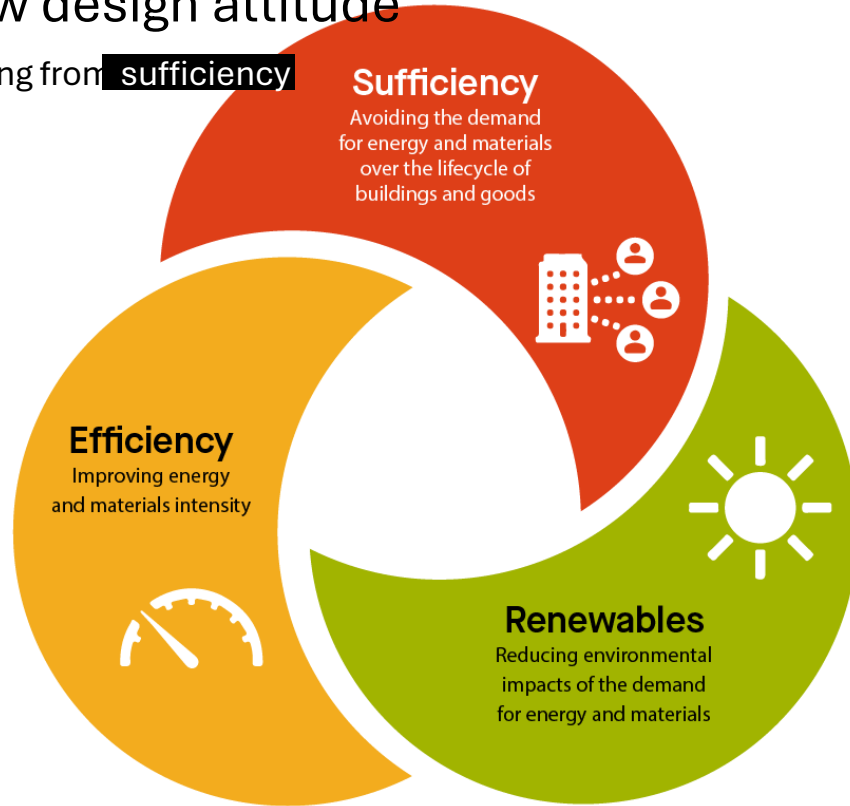


1.900 kg

Hoe **sufficiëntie** verenigen met **adaptatie** en **resiliëntie**?

A new design attitude

designing from **sufficiency**



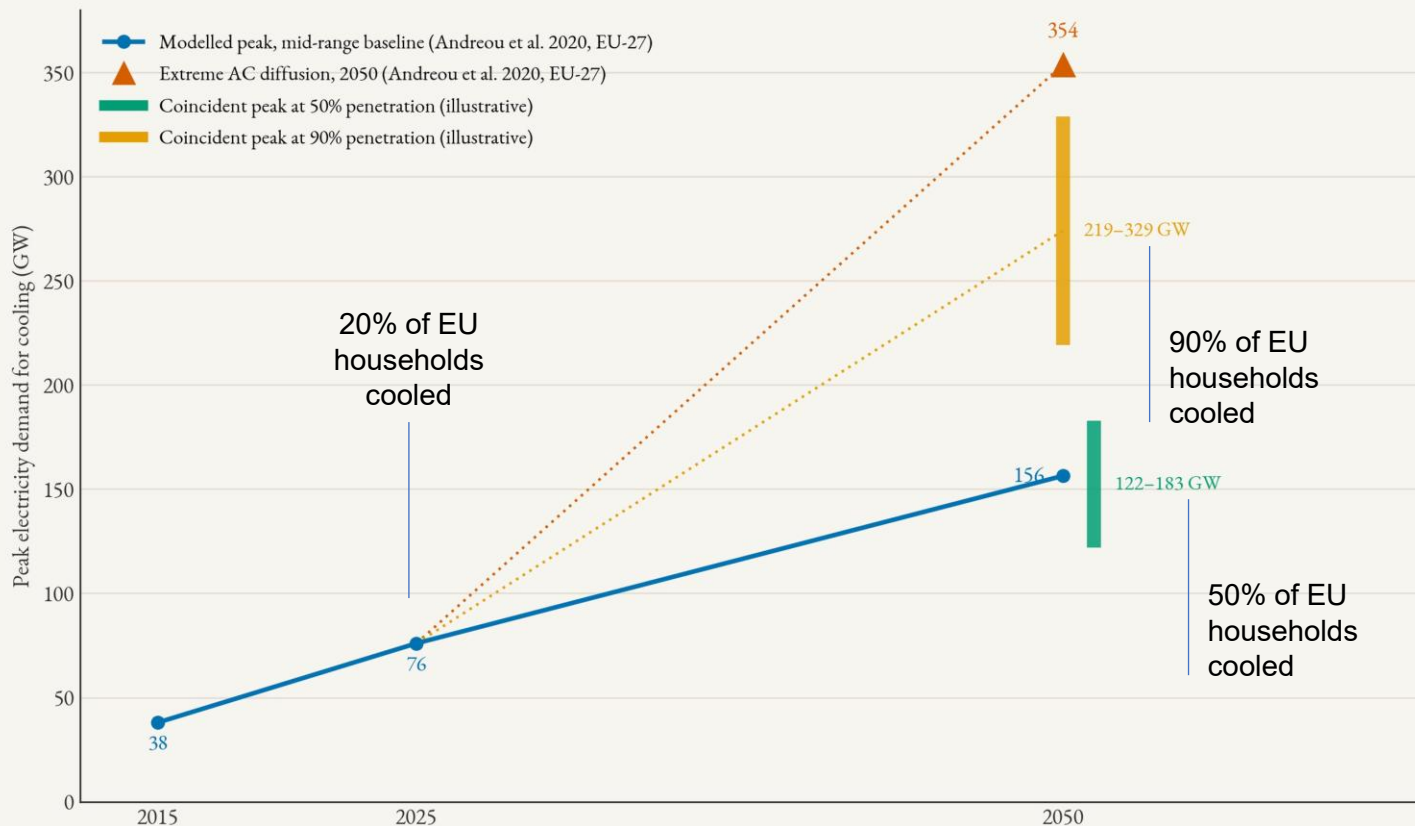
Source: European Environmental Bureau – coming paper
“Sufficiency and Circularity. The two overlooked decarbonisation
strategies in the ‘Fit For 55’ Package”. www.eeb.org



case summer comfort
an adaptation challenge

Residential cooling could push peak demand past 350 GW

Potential peak electricity demand for residential cooling, EU-27 (GW)

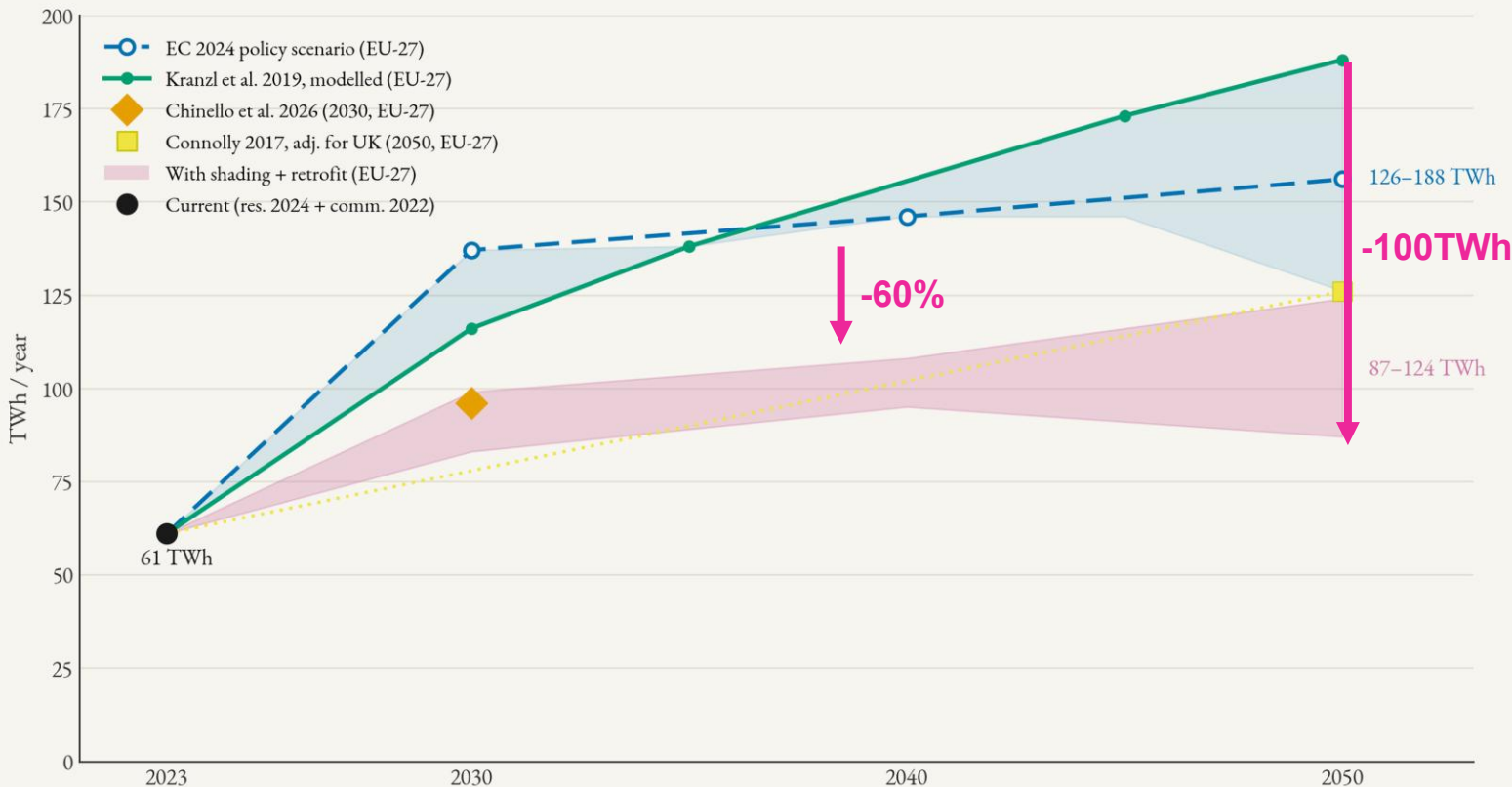


based on [Andreou et al. 2020](#); peak demand at 50% and 90% penetration assumes 203 million EU-27 households with a 3 kW single-split unit each, converted to coincident peak with a [0.4–0.6 diversity factor](#), giving 122–183 GW (50%) and 219–329 GW (90%). A 3 kW nameplate is toward the upper end relative to today's average system size but warmer climate will increase cooling demand in the future

Bron: Rosenow J. What happens when 90% of Europe has aircon? (2026)

Passive cooling could cut EU cooling demand growth by 60%

Potential for reducing EU electricity demand for cooling in buildings, residential + non-residential (TWh/year)



Baseline: EC 2024 Annex 8, Kranzl et al. 2019, Chinello et al. 2026, Connolly 2017, EU-27. Retrofit: 50–60% reduction (external shading + insulation), the same assumption used for residential buildings, applied here to the growth in demand across the whole building stock based on [Todeh Kharman et al. 2026](#) and simulation studies ([Vasaturo et al. 2018](#), [Perez-Carraminana et al. 2024](#)), not separately validated for non-residential buildings.

Bron: Rosenow J. What happens when 90% of Europe has aircon? (2026)





WOODlite

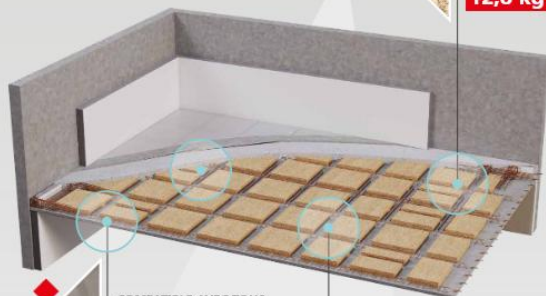
LA DALLE PRÉFABRIQUÉE BIOSOURCÉE DES CONSTRUCTIONS DURABLES

LOGEMENTS COLLECTIFS ET BÂTIMENTS TERTIAIRES



QUANTITÉ DE BIOSOURCÉ :
(Béton de bois)

12,8 kg / m²



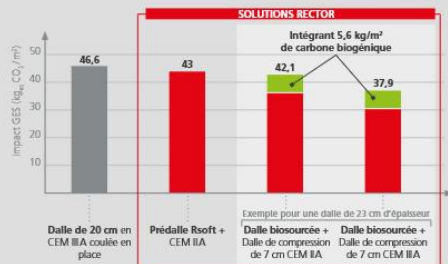
COMPATIBLE AVEC TOUS
LES REVÊTEMENTS DE SOLS
CLASSIQUES
et sans faux plafond

QUANTITÉ DE MATIÈRE BIOGÉNIQUE :
(Béton de bois)

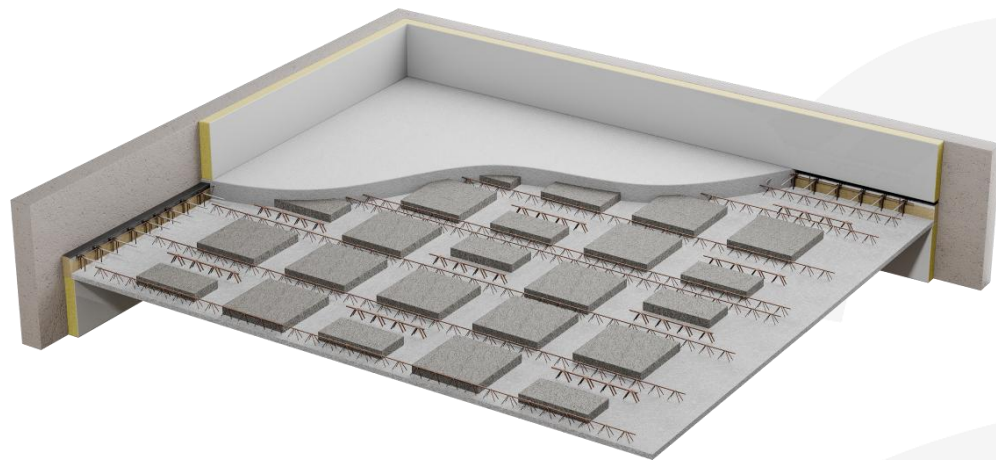
5,6 kg C / m²

IMPACT CARBONE RÉDUIT

Dans la continuité de la technologie Rsoft (la prédalle la plus décarbonée du marché), la dalle biosourcée Rector vous permettra de répondre aux enjeux de plus en plus exigeants de la Réglementation Environnementale et des contraintes des aménageurs.



Valeurs calculées selon la RE2020 (ACV Dynamique).

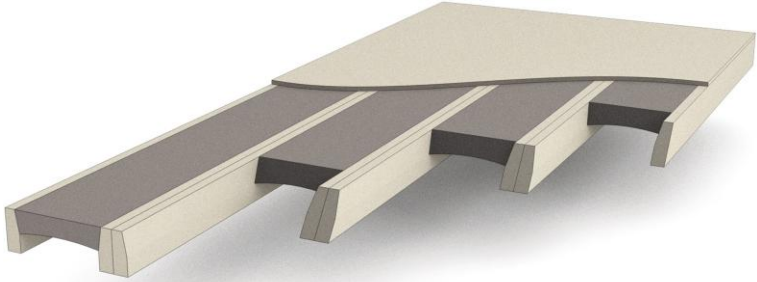


The right material in the right place

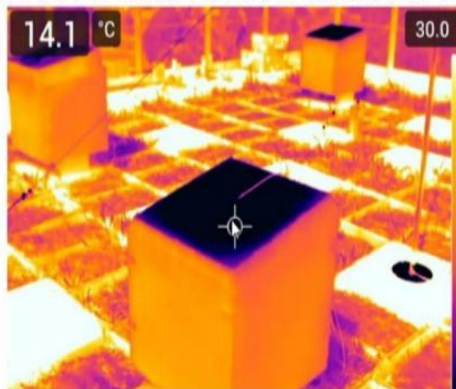


Holz-Lehm Decke

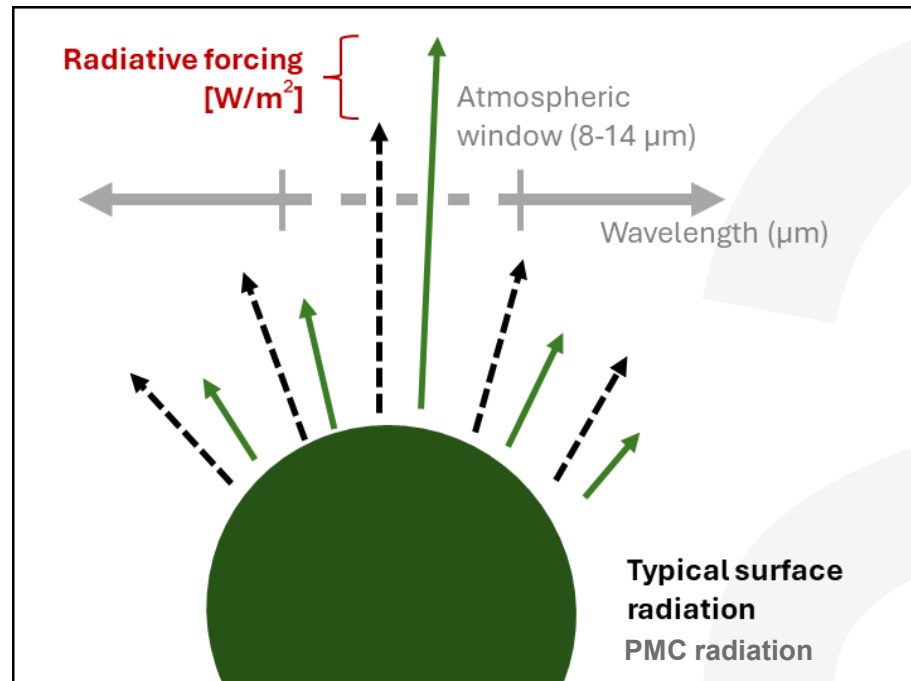
rematter Earth-Timber Floor Slab



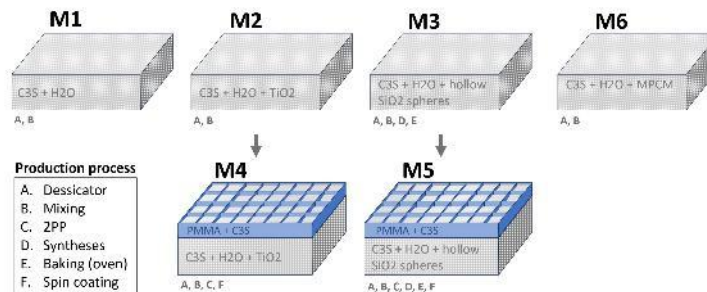
PHOTONIC META-CONCRETE



CONVENTIONAL CONCRETE



ENVIRONMENTAL PAYBACK PERIOD



$$\text{Payback period} = \frac{\text{Embodied impact/m}^2 \text{ floor}}{\text{Reduced annual operational impact/m}^2 \text{ floor}}$$

PMC composition		M1	M2	M3	M4	M5	M6
	Life cycle embodied impact [kg CO ₂ eq./m ² floor]	7.67	17.89	313.05	48.42	847.54	6.34
PHOENIX	Payback period life cycle embodied emissions [years]	1.72	4.00	88.43	9.74	170.53	1.30
SINGAPORE	Payback period life cycle embodied emissions [years]	0.96	2.23	56.00	4.48	78.48	0.57
FLANDERS AND BRUSSELS	Payback period life cycle embodied emissions [years]	9.54	22.25	389.41	60.23	1054.27	7.88

Key questions:

Hoe kunnen we **klimaatadaptieve** materialen ook laten bijdragen tot **klimaatmitigatie**?

Hoe kunnen we **klimaatresiliëntie** inbouwen zonder de upfront impact te verhogen?

Kan '*design for now and strengthen later*' een relevante strategie zijn?

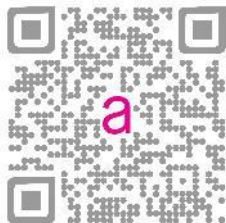
Menu board with four white pages displaying text, likely a menu or informational notice, mounted on a wooden frame.

TRATTORIA
LE CANTINE
DI ODDO
FRESCO
NATURALE
NATURAL COOL
AMBIENT

Thank you!

<https://www.vlaanderen.be/green-deal-klimaatbestendige-omgeving/klimaatbestendig-labo-architectenbureau-experimenteert-met-doordacht-totaalconcept>

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