

COMPONENT AWARD 2014

Producers of certified Passive House windows were invited to make an offer for the windows of a single family home.

41 windows took part in the categories timber, timber-alu, alu and vinyl.

These offers were compared to each other and to a “standard window” according to German legal standard.

THE RESULT:

Passive House windows are profitable for building owners.

Hersteller zertifizierter Passivhaus-Fenster waren eingeladen, ein Angebot für die Fenster eines Einfamilienhauses zu machen.

41 Fenster nahmen in den Kategorien Holz, Holz-Alu, Alu und PVC teil.

Die Angebote wurden untereinander und mit einem “Standard-Fenster” nach EnEV verglichen.

DAS ERGEBNIS:

Passivhaus-Fenster sind profitabel für Bauherren.



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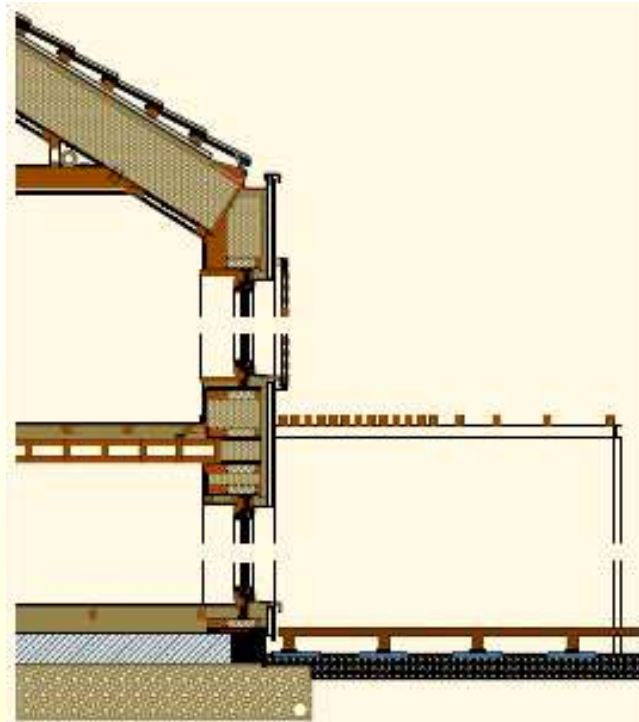
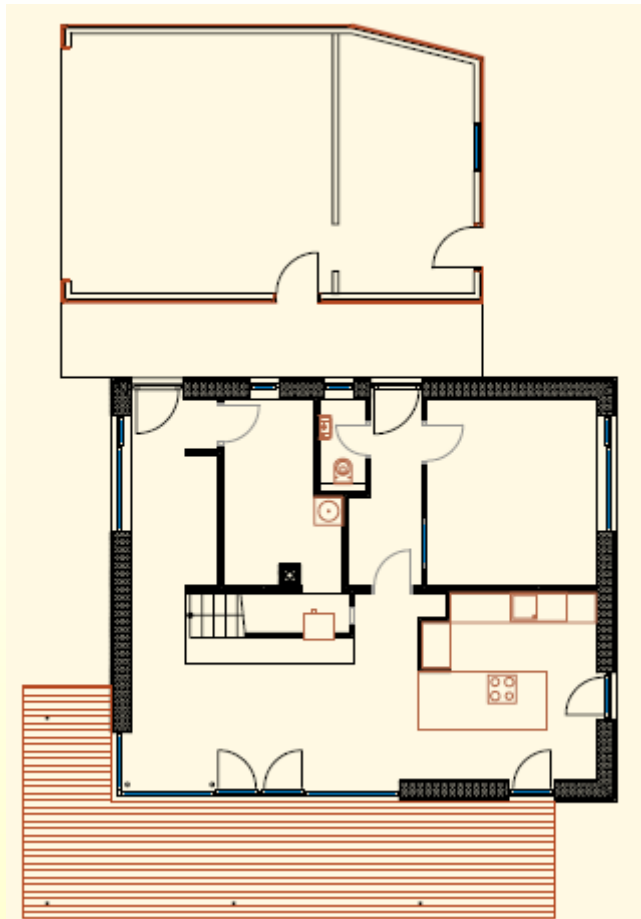
THE CHALLENGE



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Living area: 155 m²
Heating demand: 14 kWh/(m²a)
PE-demand: 61 kWh/(m²a)
Airtightness (n₅₀): 0.2 1/h
Architects: passivhaus-eco

www.passivehouse-database.org: ID 1200



Photos: passivhaus-eco®



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THE REFERENCE BUILDING

The competing windows were compared to a “standard window” according to German legal standard EnEV:

Die teilnehmenden Fenster wurden untereinander und mit einem “Standard-Fenster” nach EnEV verglichen.

Standard window | Standard-Fenster

Glazing | Glas: Double, lowE coated | *2-fach Wärmeschutz*

U_g: 1.2 W/(m²K), **g:** 0.60

U_{w, installed}: 1.3 W/(m²K) (for a window size 1.23*1.48 m)

Prices (installed window, incl. VAT) | **Preise** (*eingebautes Fenster inkl. MwSt*)

Timber | Holz: 387 €/m²

Timber-Aluminium | Holz-Alu: 449 €/m²

PVC: 298 €/m²

Aluminium | Aluminium: 449 €/m²

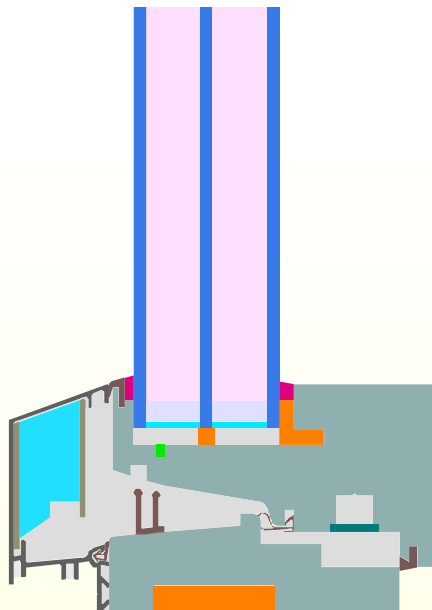


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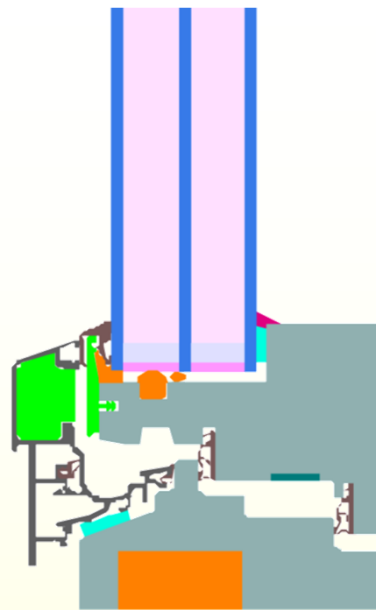
REFERENCE WINDOWS

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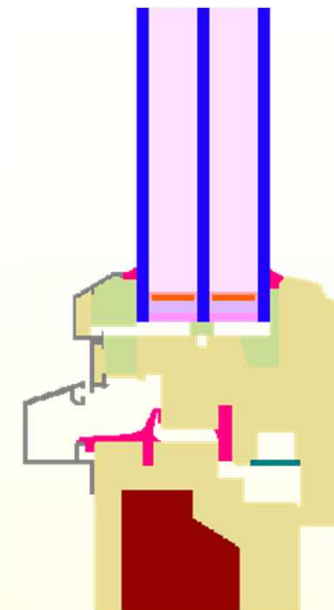
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1 Lorber I pro PHf.
smartwin compact



1 Bieber I OPTIWIN
FUTURA



2 Freisinger I OPTIWIN
Alu2Holz



Photo: passivhaus-eco®

	1 Lorber I pro PHf.	1 Bieber I OPTIWIN	2 Freisinger I OPTIWIN	Price, Company
	smartwin compact	FUTURA	Alu2Holz	Product name
	451	450	452	Price [€/m ² inst.w]
	24%	22%	20%	LCC savings [%]
	288	246	214	Oil savings [l/m ²]

Price: Investment costs for reference building [€/m² ins. Window]. Life-Cycle Cost savings: compared to ref. case [%]. Oil savings: per m² window compared to ref. window (life-cycle 40 a)

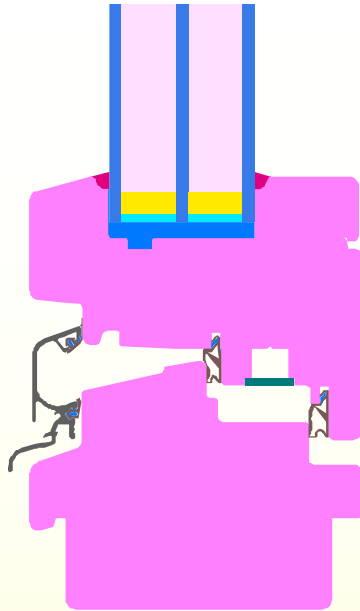


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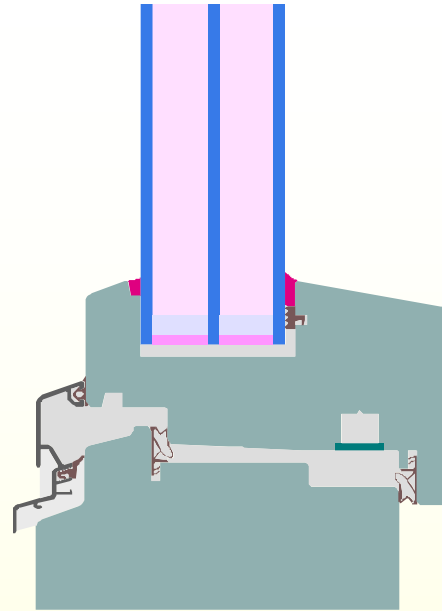
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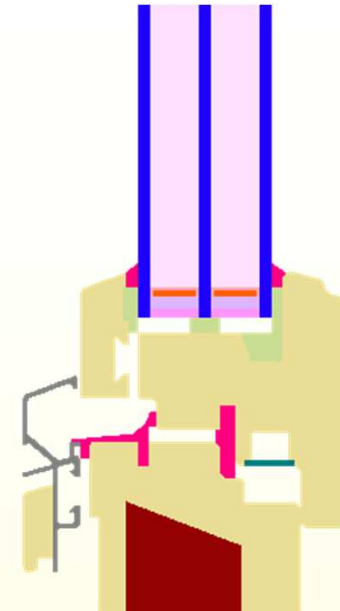
WINNERS: Timber-Aluminium (18 participants)



1 M SORA



1 Pfeffer Fenster



2 Freisinger I OPTIWIN



Photo: passivhaus-eco®

	1 M SORA	1 Pfeffer Fenster	2 Freisinger I OPTIWIN	Price, Company
	NATURA OPTIMO XLT	RPS	Holz2Holz	Product name
	384	396	452	Price [€/m ² inst.w]
	23%	22%	13%	LCC savings [%]
	228	222	201	Oil savings [l/m ²]

Price: Investment costs for ref. building [€/m² inst. window incl. VAT]. Life-Cycle Cost savings: compared to ref. case [%]. Oil savings: per m² window compared to ref. window (life-cycle 40 a)



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WINNERS: Timber (5 participants)

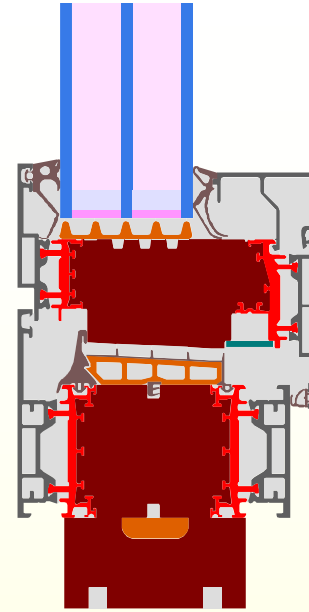
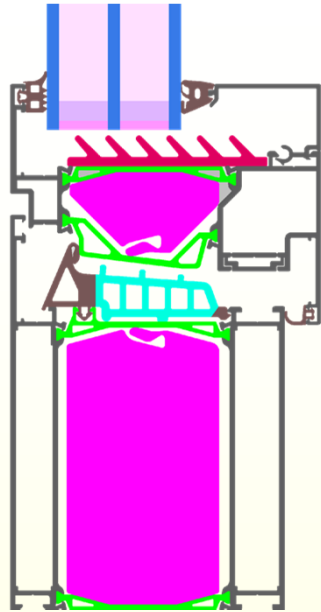


Photo: passivhaus-eco®

1 RAICO

1 PURAL

Price, Company

	FRAME 90 WI	eco90	Product name
	492	540	Price [€/m ² inst.w]
	14%	12%	LCC savings [%]
	185	230	Oil savings [l/m ²]

Price: Investment costs for ref. building [€/m² inst. window incl. VAT]. Life-Cycle Cost savings: compared to ref. case [%]. Oil savings: per m² window compared to ref. window (life-cycle 40 a)



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WINNERS: Aluminium (3 participants)

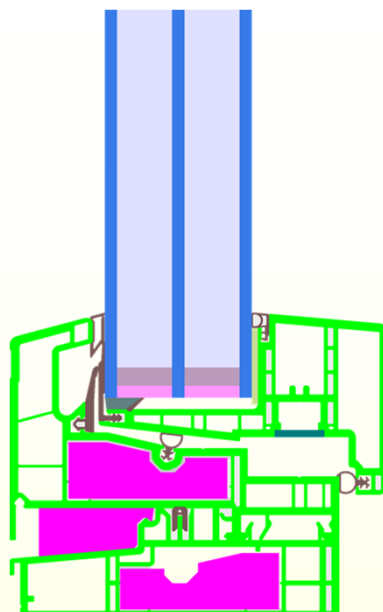


Photo: passivhaus-eco®

1 Hilzinger

Price, Company

VADB 550	Product name
296	Price [€/m ² inst.w]
28%	LCC savings [%]
257	Oil savings [l/m ²]

Price: Investment costs for ref. building [€/m² inst. window incl. VAT]. Life-Cycle Cost savings: compared to ref. case [%]. Oil savings: per m² window compared to ref. window (life-cycle 40 a)



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WINNER: PVC (3 participants)

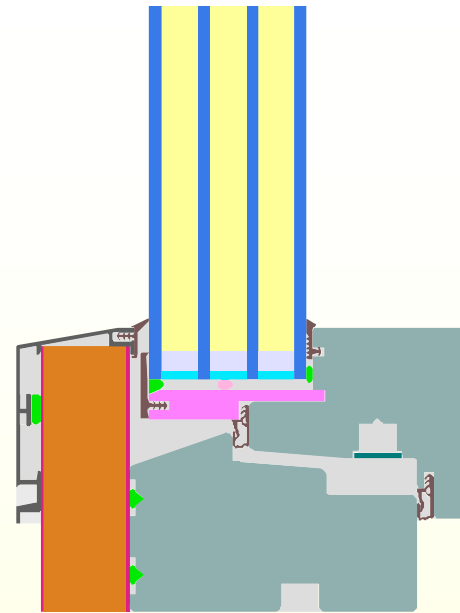
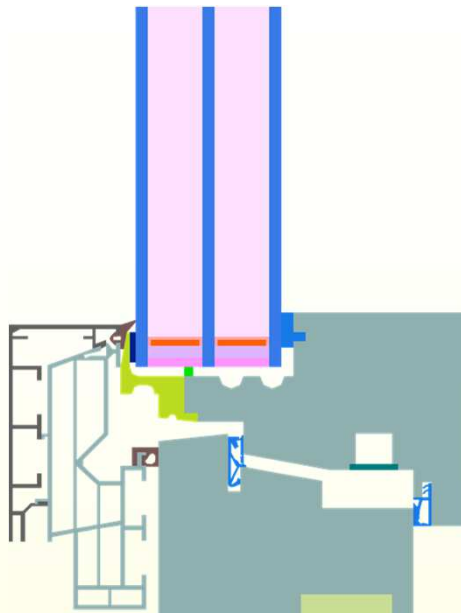


Photo: passivhaus-eco®

Glazing, Wiegand

U-value, Pazen

Price, Company

DWplus	ENERsign arctis*	Product
543	599	Price [€/m ² inst.w]
12%	8%	LCC savings [%]
237	276	Oil savings [l/m ²]

Price: Investment costs for ref. building [€/m² inst. window incl. VAT]. Life-Cycle Cost savings: compared to ref. case [%]. Oil savings: per m² window compared to ref. window (life-cycle 40 a)

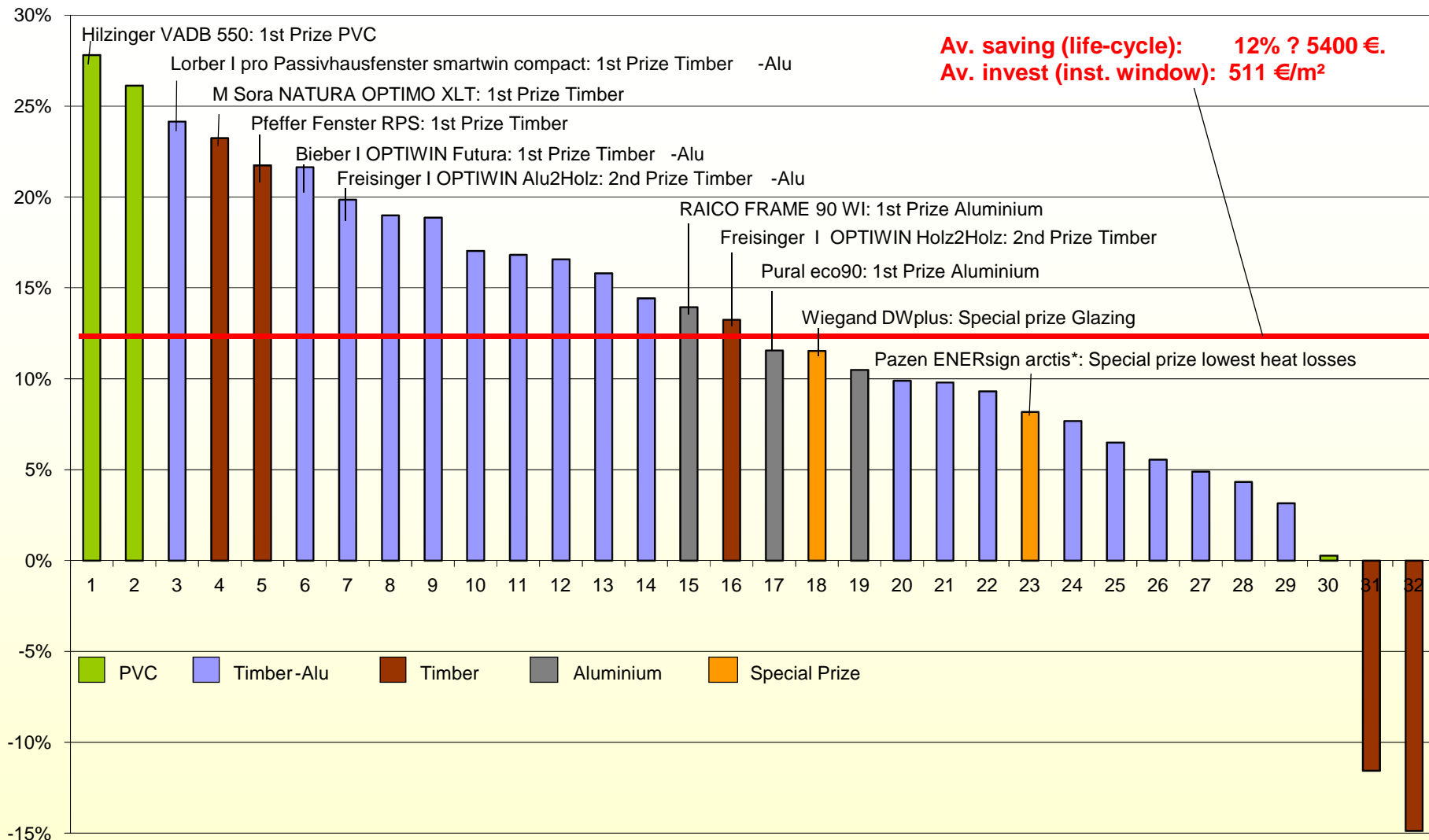


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SPECIAL PRIZES



Passive house windows are profitable for building owners

Passivhaus-Fenster sind profitabel für Bauherren



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RESULTS: Savings to reference

	Standard window* <i>Standardfenster</i>	Passive House Window** <i>Passivhausfenster</i>
Investment <i>Investition</i>	~ 16.920 €	~ 18.600 €
Credit <i>Kredit</i>	2% real interest, 20 years 2% Realzins, 20 Jahre	
Annual rate <i>Jährliche Rate</i>	~ 1.035 €/a	~ 1.137 €/a
Energy costs <i>Energiekosten</i>	~ 250 €/a	~ 3 €/a
Sum <i>Summe</i>	~ 1.285 €/a	~ 1.140 €/a

Savings | Einsparung: ~ 145 €/a (11%)

After 20 years | Nach 20 Jahren: 250 € - 3 € = 247 € (99%)

* Average over the standard windows of all categories.

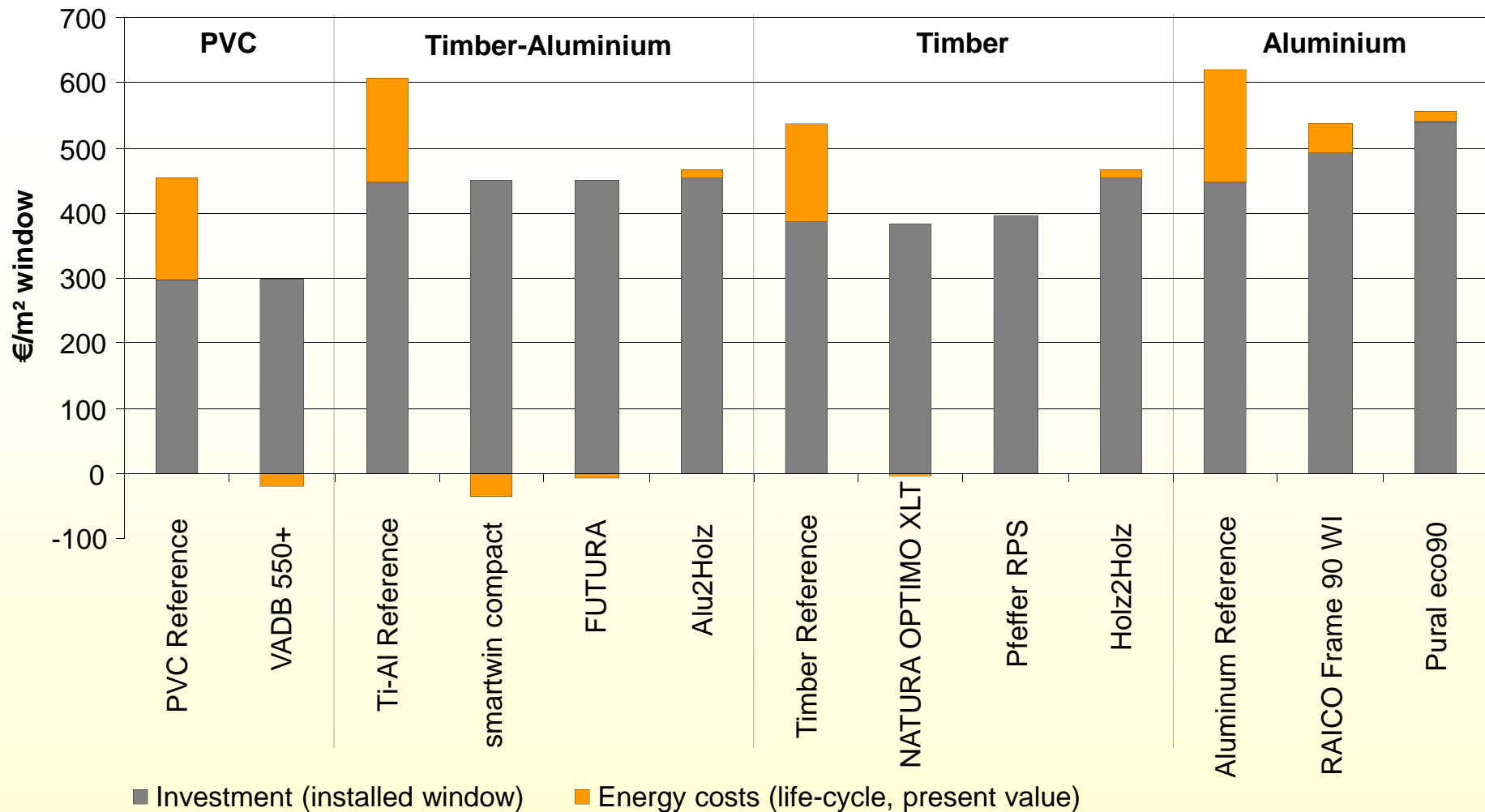
** Average over all winners excepted special prices.



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RESULTS: Profits right from the start!

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Investment and energy costs | Investitions- und Energiekosten

No energy costs for Passive House windows | Keine Energiekosten für Passivhausfenster

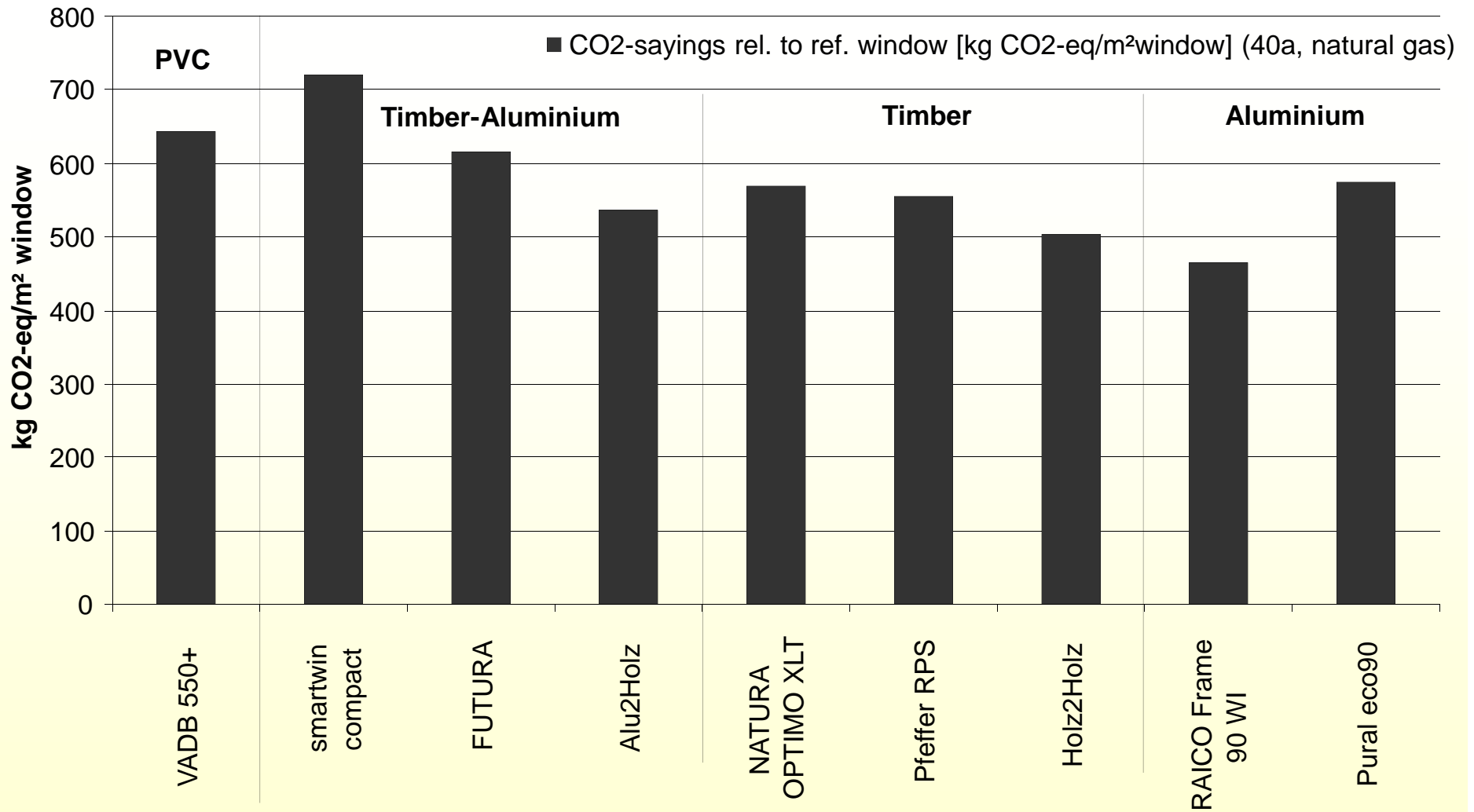


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RESULTS: The winners

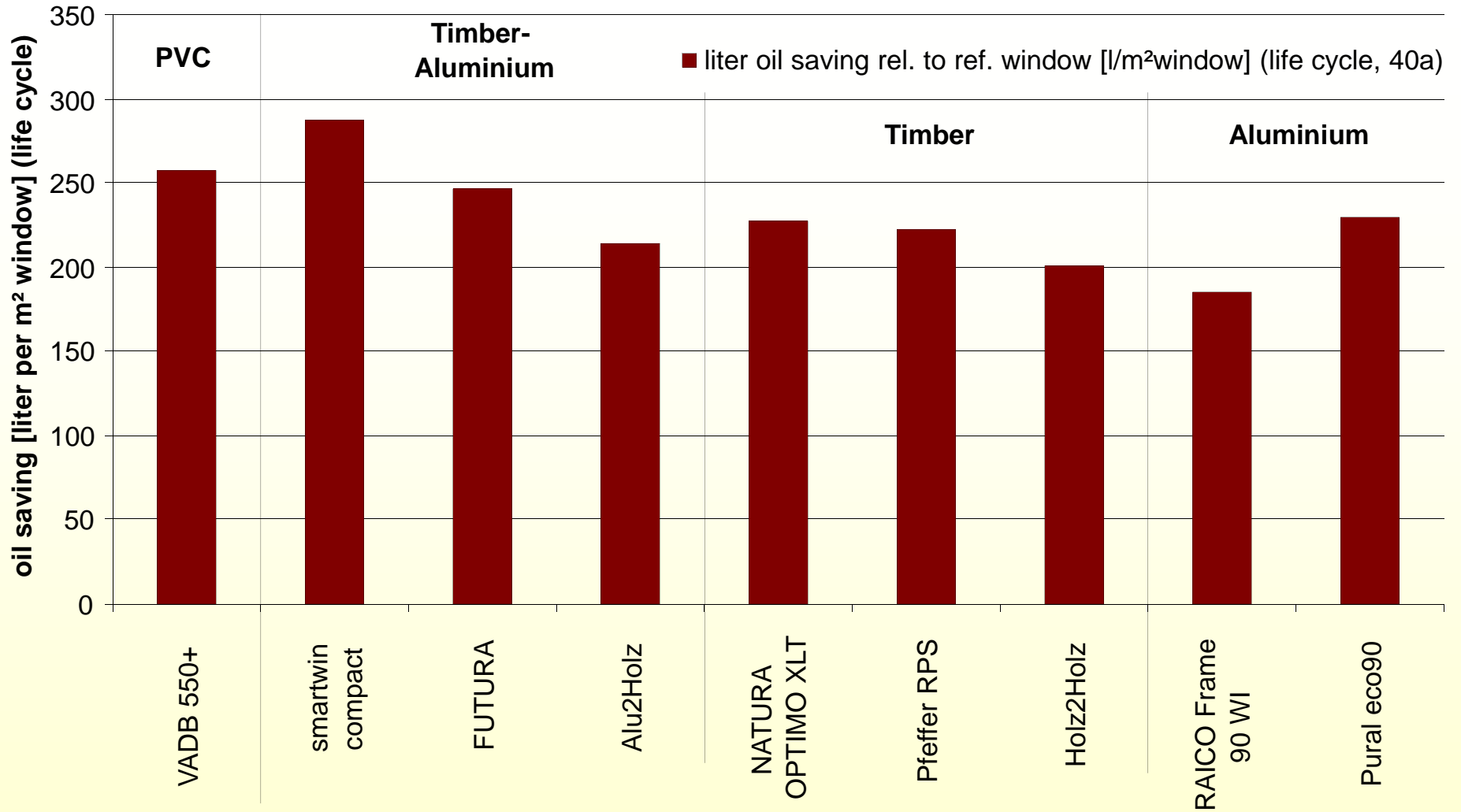


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RESULTS: The winners – CO₂ savings

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RESULTS: The winners – fuel savings

Passive House windows: *Passivhaus-Fenster:*

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Comfort | *Komfort*



Costs | *Kosten*



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