HUB4LCA

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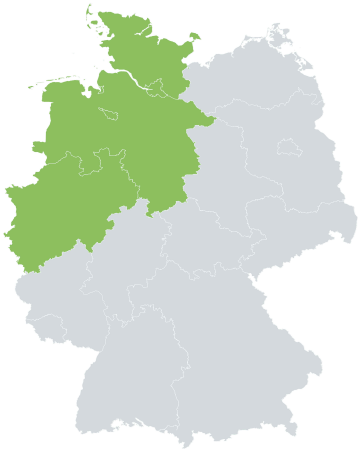
Hospitality Building

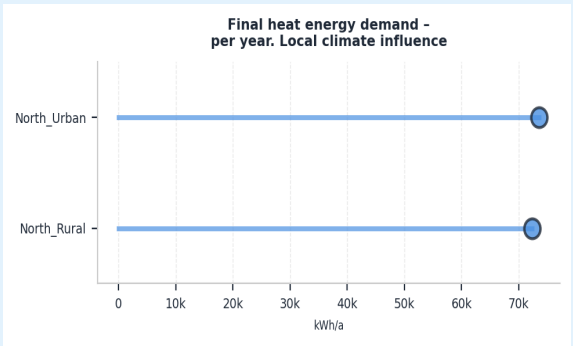


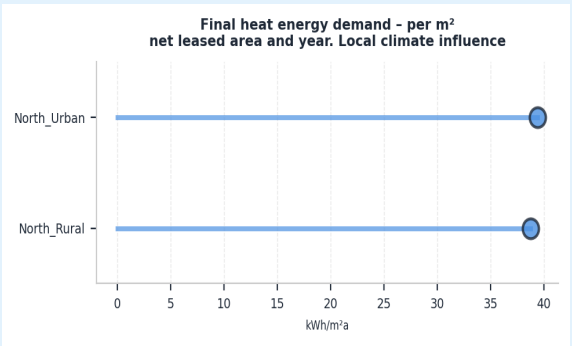
Region	north
Age Class	1995-2001
Net leased area [m²]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8

Building Performance (KPIs)

KPI	Mean	95% CI	Unit	CV	n_{Sim}
Final heat energy demand - per year	72954.87	± 1507.08	kWh/a	0.42	810
Final heat energy demand - per m² net leased area and year	39.08	± 0.28	kWh/m²a	0.14	810
Carbon footprint (GWP) from heat energy - per year	18227.34	± 376.54	kgCO₂eq,B6/a	0.42	810
Carbon footprint (GWP) from heat energy - per m² net leased area and year	9.76	± 0.07	kgCO₂eq,B6/m²a	0.14	810
Life Cycle Carbon footprint (GWP) - over 50 years	1282599.10	± 26263.94	kgCO₂eq,full/50a	0.41	810
Life Cycle Carbon footprint (GWP) - per m² net leased area and for 50 years	687.05	± 4.52	kgCO₂eq,full/m²50a	0.13	810

Local Climate Influence





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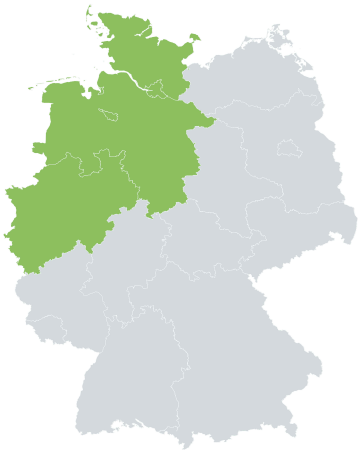

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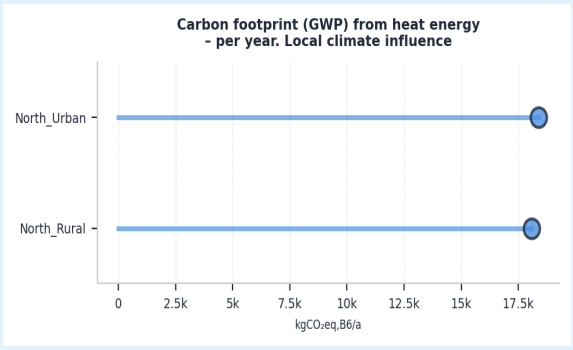
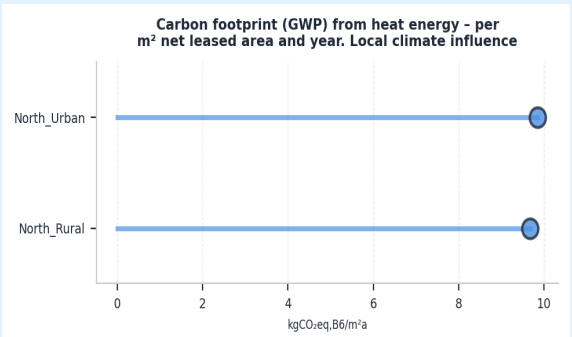
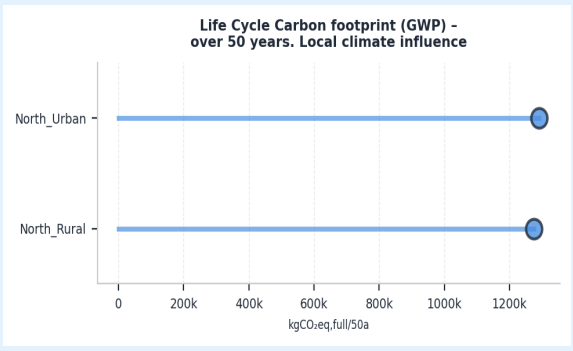
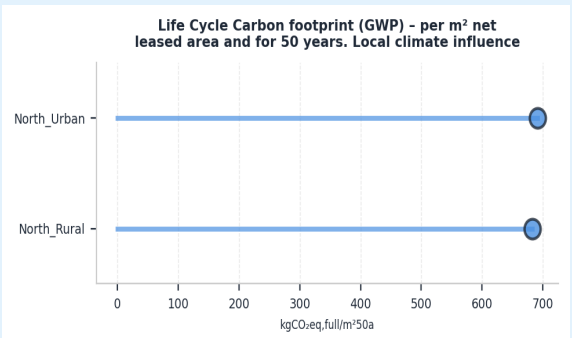
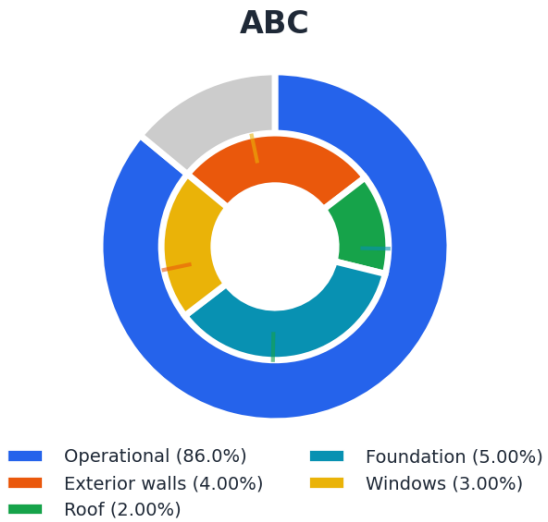








Mean Life Cycle GWP



Building element	D [kgCO₂eq/50a]
Exterior walls	1,058
Roof	-2,017
Foundation	-3,103
Windows	-4,042

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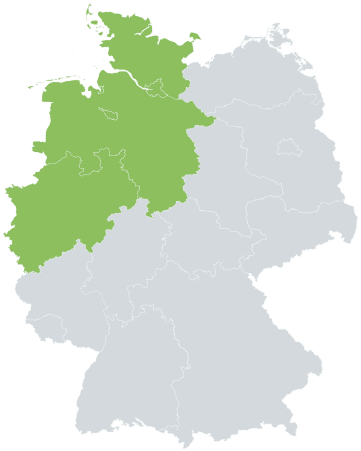

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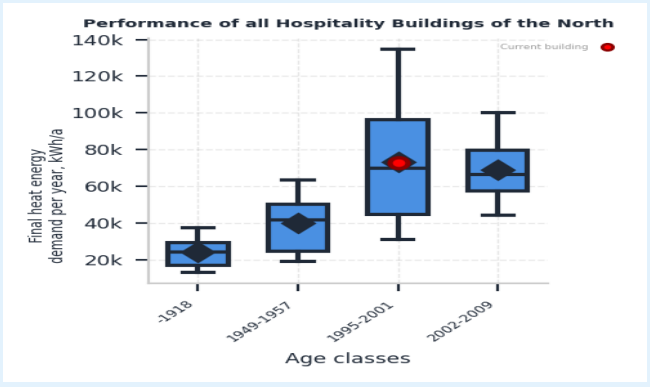

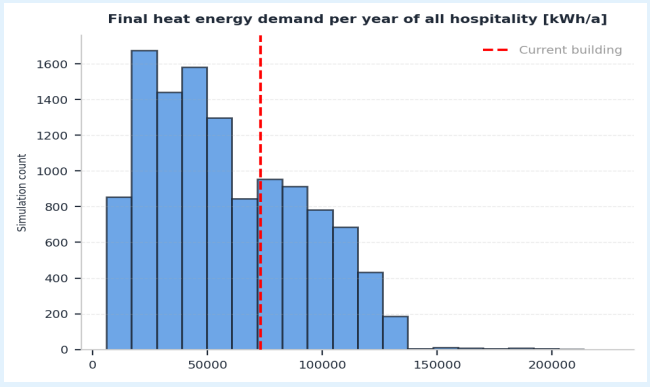

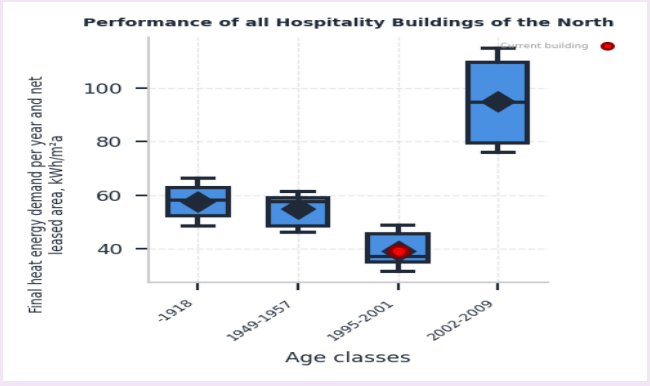

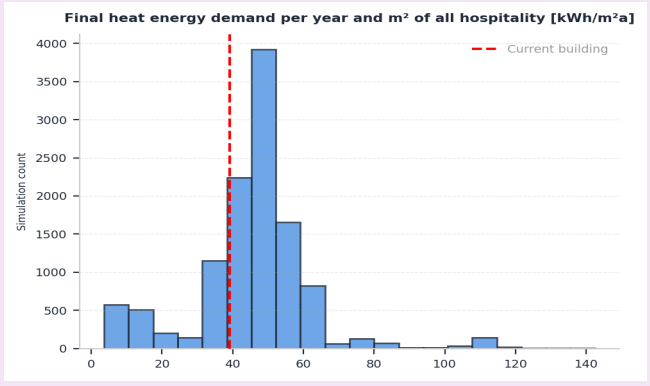

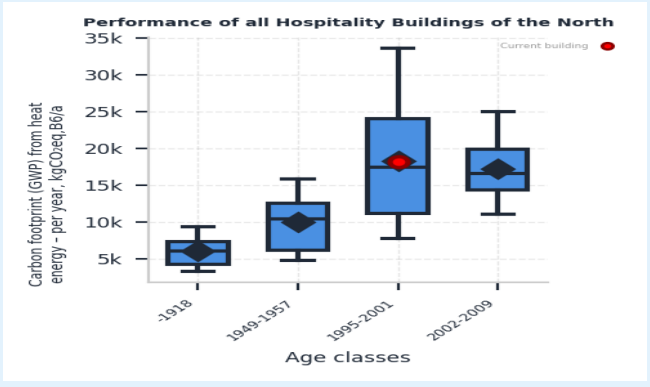

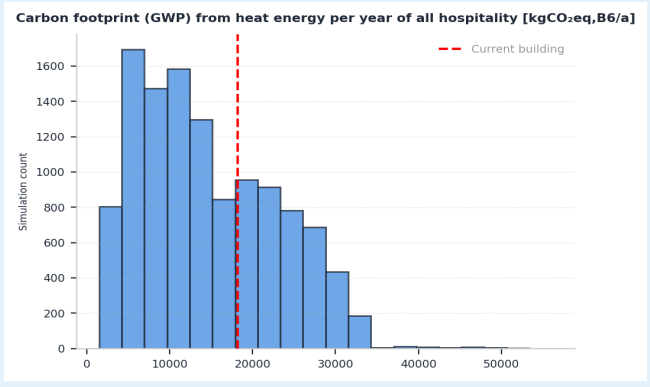

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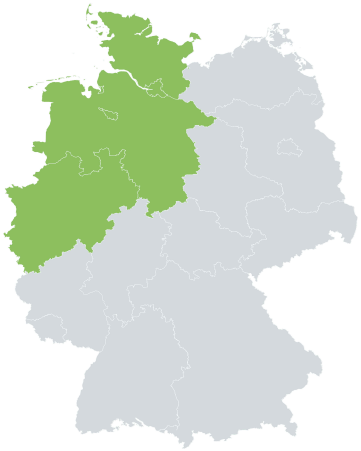

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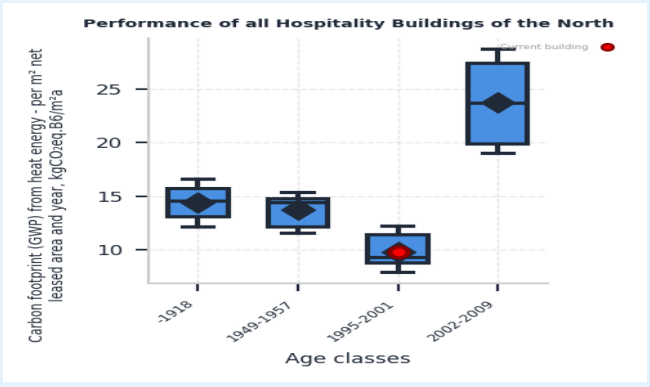

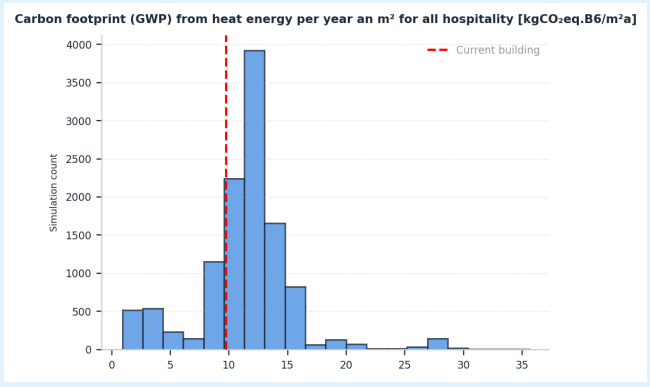

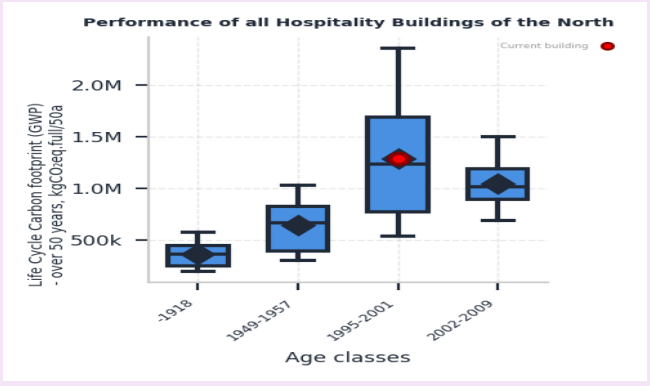

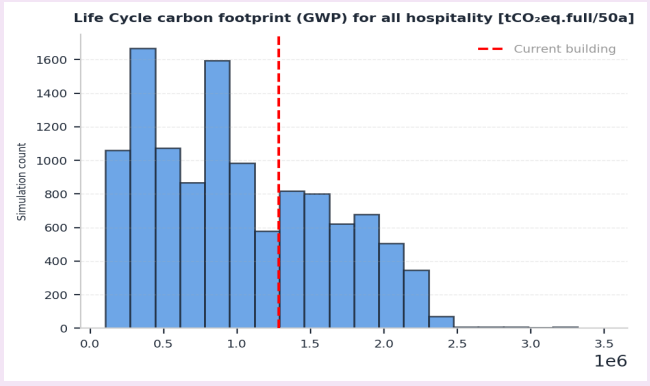

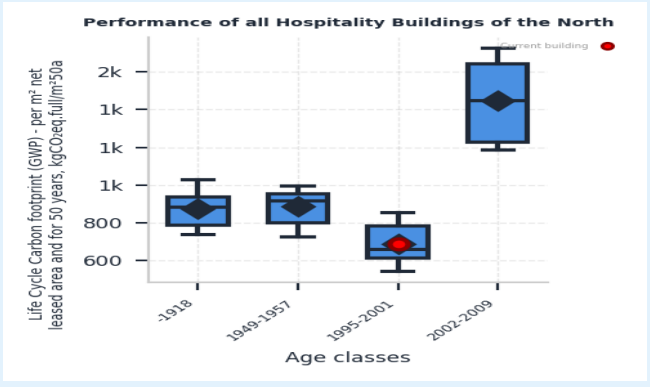

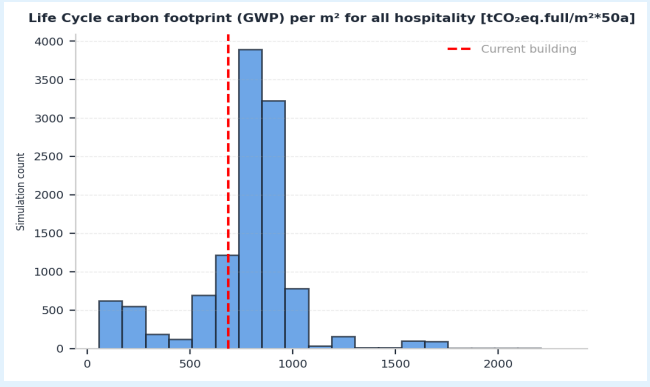

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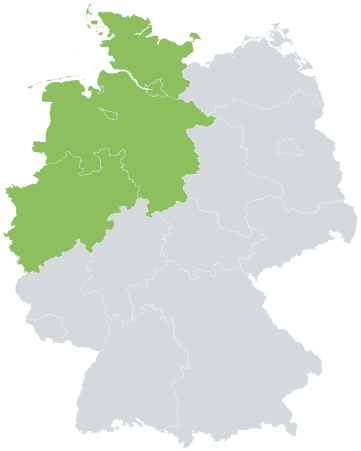

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Exterior Wall

Type: massive | U [W/m²K]: 0.55

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD_1	EPD_2
0	interior plaster	1	1400	0.7	850	6	-
1	reinforced concrete	15	2400	2.1	776	7	-
2	mineral wool	6.08	60	0.04	850	3	-
3	concrete	6	2400	2.1	776	7	-
4	exterior plaster	2	1800	0.87	850	1	-

Interior Wall

U [W/m²K]: 4.04

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD_1	EPD_2
0	lime plaster	1	1600	0.7	850	6	-
1	reinforced concrete	10	2100	2.04	776	7	-
2	lime plaster	1	1600	0.7	850	3	-

Roof

U [W/m²K]: 0.16

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD_1	EPD_2
0	interior plaster	1	1400	0.7	850	6	-
1	reinforced concrete	22	2400	2.1	776	7	-
2	rafters	8	600	0.13	1500	11	-
3	mineral wool	11.78	60	0.04	850	3	-
4	moving air layer	6	1.184	0.026	1.005	8	-
5	roof tiles	2	1786	0.55	889	9	-

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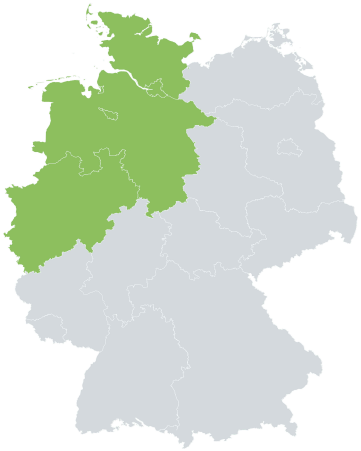

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Foundation

U [W/m²K]: 0.32

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD_1	EPD_2
0	floating cement screed	4	2000	1.4	1000	12	-
1	polystyrene	10	40	0.035	1380	2	-
2	reinforced concrete	16	2400	2.1	776	7	-

Floor

U [W/m²K]: 4.04

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD_1	EPD_2
0	reinforced concrete	20	2400	2.1	778	7	-
1	mineral wool	4	60	0.04	850	3	-

Window System

Glazing	EPD_{Gl}	Frame type	EPD_{Fr}	Shading type	EPD_{Sh}
2	10	pvc	4	-	-

Heating System

Unit type	Generator	EPD_{HEG}	Heating energy carrier	EPD_{HEC}
per_bldg	boiler_gas_large_condensing	13	gas	5

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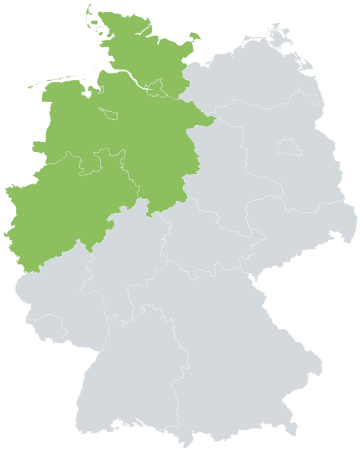

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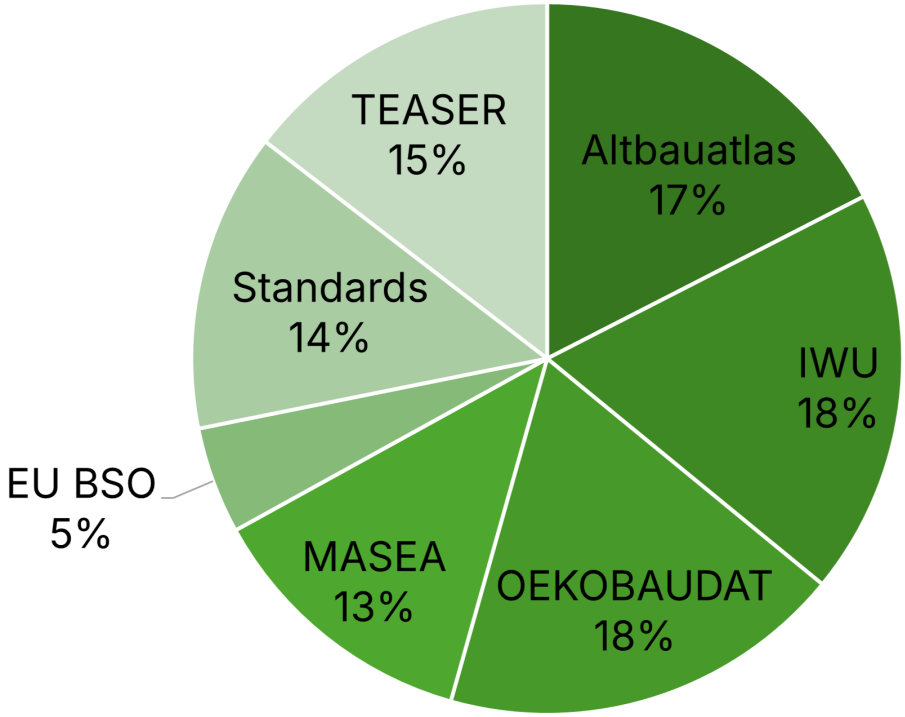
Façade length [m]							
N		S		E		W	
Mean	SE	Mean	SE	Mean	SE	Mean	SE
32.8	12.05	31.67	11.39	32.28	5.01	33.13	5.45

Façade area [m²]							
N		S		E		W	
Mean	SE	Mean	SE	Mean	SE	Mean	SE
303.14	148.21	283.62	138.32	237.04	60.35	250.33	69.34

EPD Summary Table

Serial No.	Full UUID	Material Name
1	004f3f4e-5bb8-4d9e-a104-6999a9e8ad5b	Gypsum lime plaster
2	4e83c488-bb36-40b0-bfd4-b2aa7f1c0f04	Expanded Polystyrene (EPS) Foam Insulation (density 30 kg/m³)
3	50d421e2-3a7b-4659-92a4-f20d6a52fcf0	Mineral wool (facade insulation)
4	73de9e80-8ed2-47d8-b5b6-854c84166f24	Window sash PVC-U
5	84aa7483-9824-49a9-a3e3-f9fb092ea7b7	Use - 1 kWh of final energy from gas calorific value (according to GEG)
6	9a670d29-efb9-4fde-95ab-182a0b1e7280	Lime gypsum interior plaster
7	Synthetic_2	Concrete C30/37 with reinforcement steel
8	Synthetic_8	Air layer
9	a6d60a75-7a4e-4dfc-87cc-fd40f68d279a	Roofing tiles (including accessories)
10	dcf38066-e336-46a7-b0a8-b2453dd2872d	Window glass, single
11	efa55966-4f29-4f15-bfec-8c08b3945923	Glued laminated timber
12	fe371be5-c72f-4203-8569-a085ef375ba4	CALCIUM SULPHATE FLOWING SCREED AND CONVENTIONAL CALCIUM SULPHATE SCREED
13	fe91b985-60da-45dc-b3fd-29b9e632d49f	Gas condensing boiler120-400 kW (upright unit)



Data source	Link
Altbauatlas	https://www.altbauatlas.de/index.php
OEKOBAUDAT	https://www.oekobaudat.de/en.html
IWU	https://datenbasis.iwu.de/ https://wohngebaeudedaten2016.iwu.de/
MASEA	https://www.masea-ensan.de/
TEASER	https://ebc-tools.eonerc.rwth-aachen.de/en/teaser
EU BSO	https://building-stock-observatory.energy.ec.europa.eu/database/

** Building images are generated by AI*