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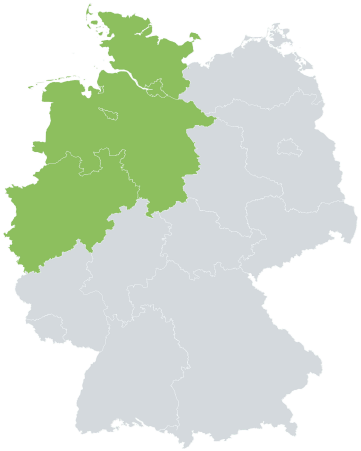
Hospitality Building

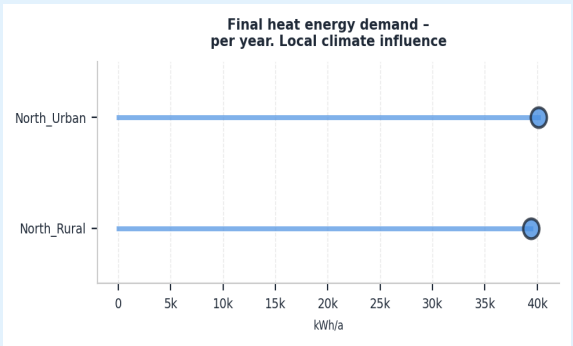


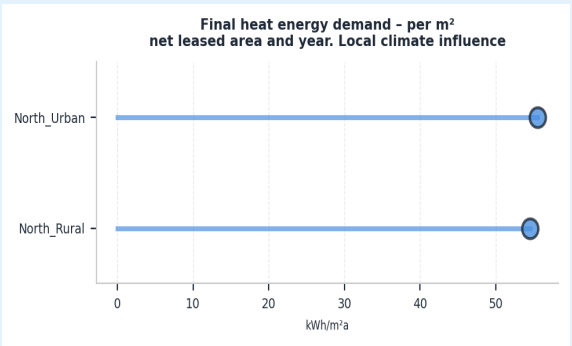
Region	north
Age Class	1949-1957
Net leased area [m²]	722.6
Bldg Height [m]	7.0
Storeys a.g.	2.2
Storeys b.g.	0.4

Building Performance (KPIs)

KPI	Mean	95% CI	Unit	CV	n_{Sim}
Final heat energy demand - per year	39774.40	± 717.02	kWh/a	0.36	810
Final heat energy demand - per m² net leased area and year	55.05	± 0.26	kWh/m²a	0.09	810
Carbon footprint (GWP) from heat energy - per year	9937.39	± 179.14	kgCO₂eq,B6/a	0.36	810
Carbon footprint (GWP) from heat energy - per m² net leased area and year	13.75	± 0.06	kgCO₂eq,B6/m²a	0.09	810
Life Cycle Carbon footprint (GWP) - over 50 years	640232.72	± 11512.72	kgCO₂eq,full/50a	0.36	810
Life Cycle Carbon footprint (GWP) - per m² net leased area and for 50 years	886.04	± 4.02	kgCO₂eq,full/m²50a	0.09	810

Local Climate Influence





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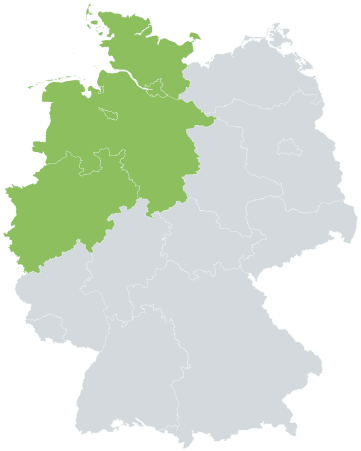

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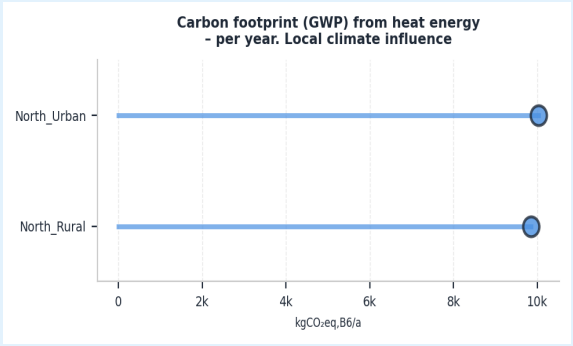
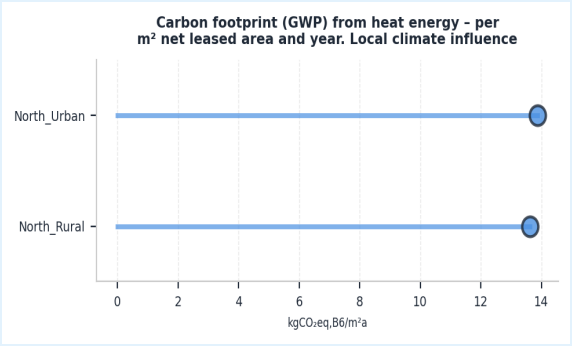
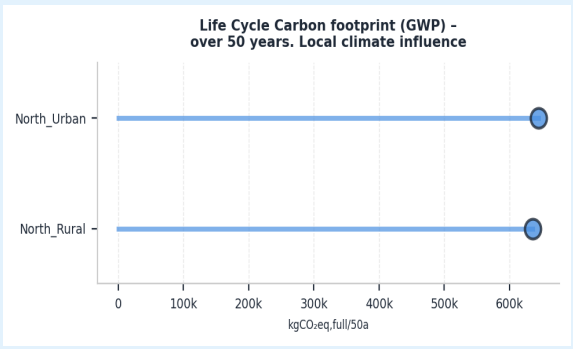
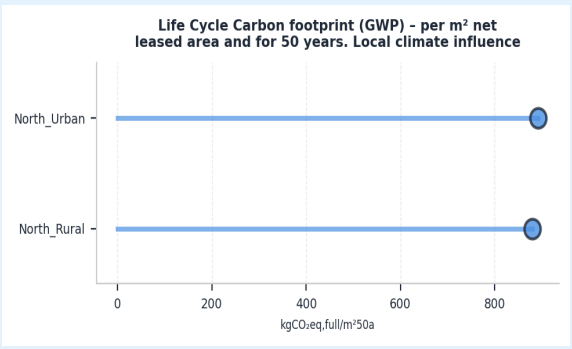
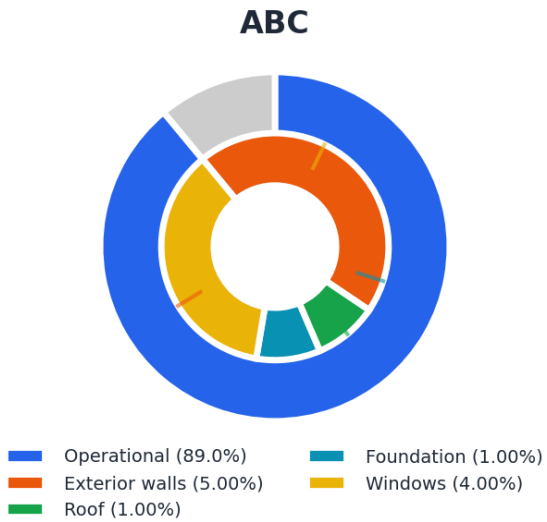








Mean Life Cycle GWP



Building element	D [kgCO₂eq/50a]
Exterior walls	669.2
Roof	102.3
Foundation	1,130
Windows	-2,244

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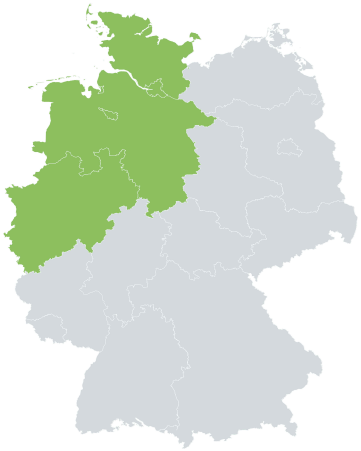

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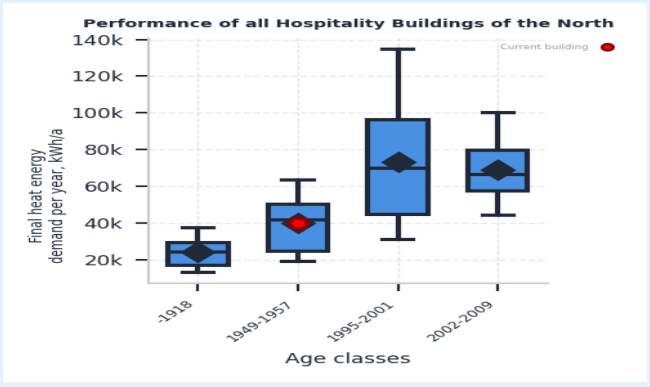

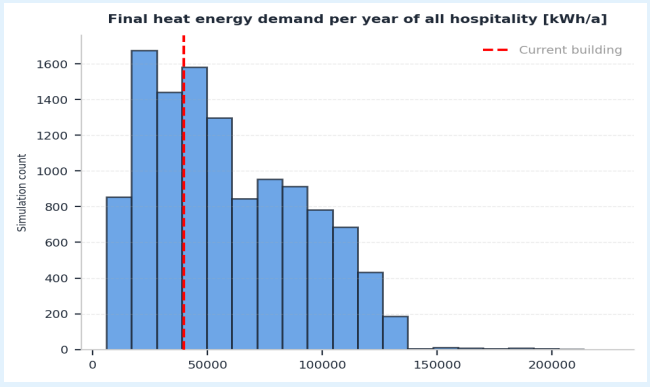

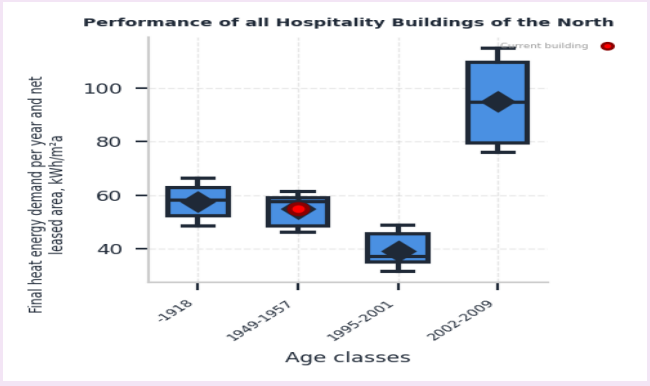

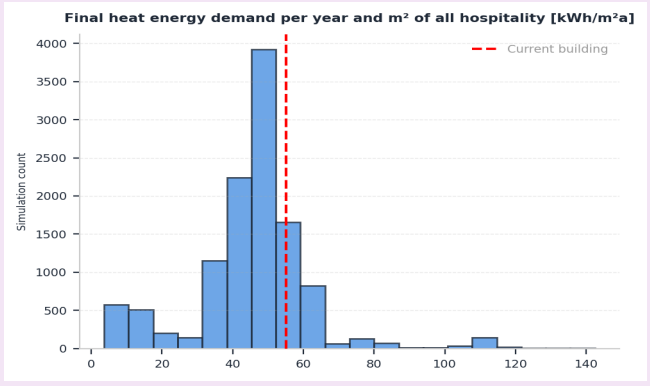

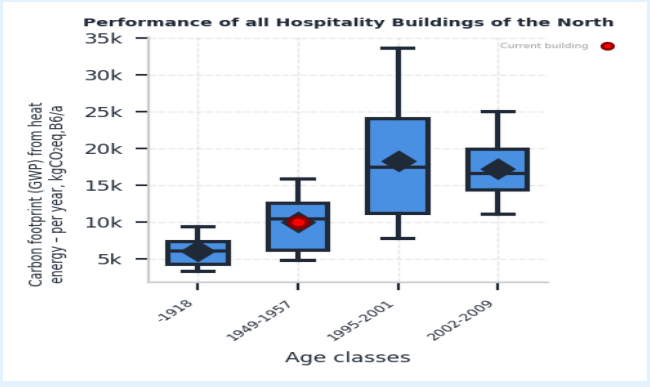

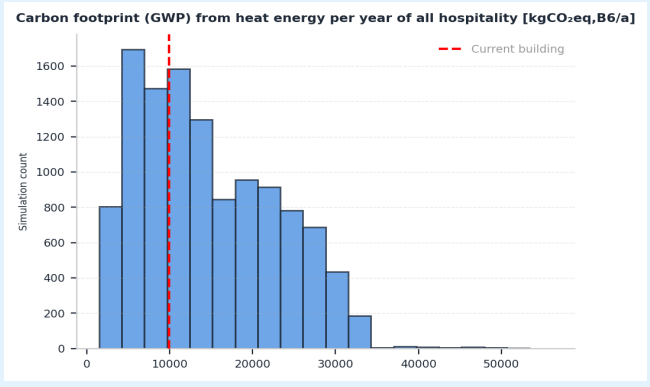

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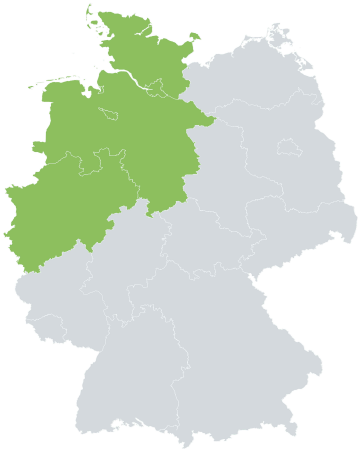

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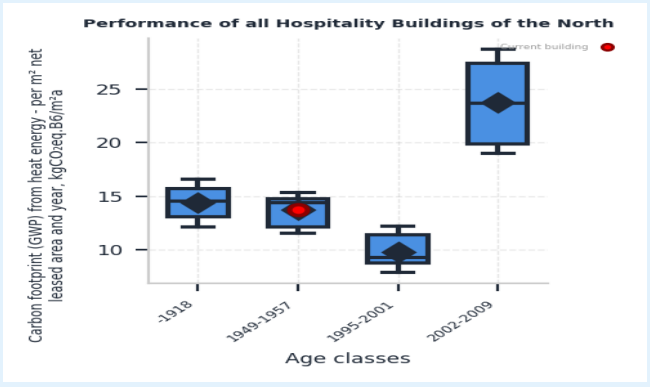

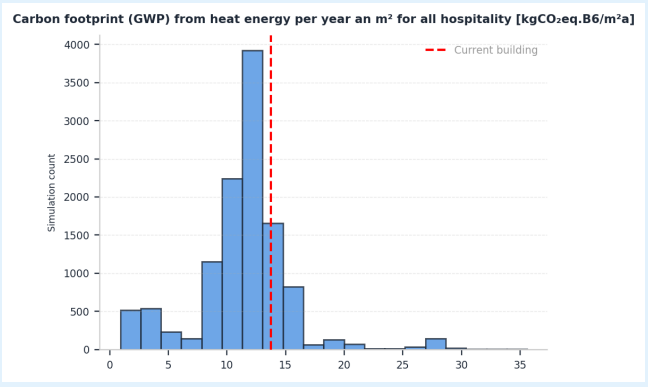

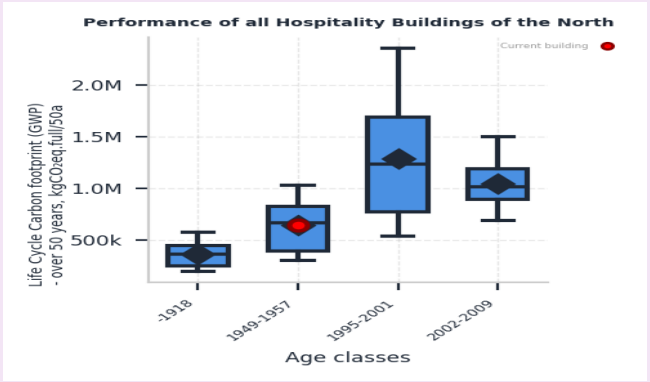

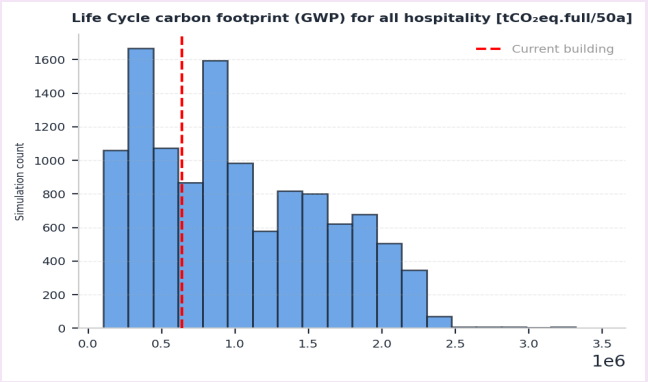

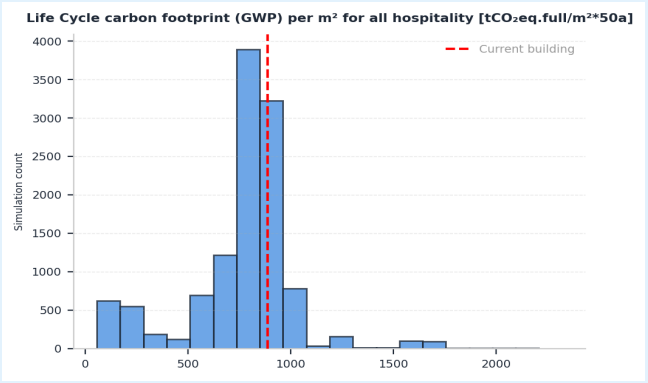

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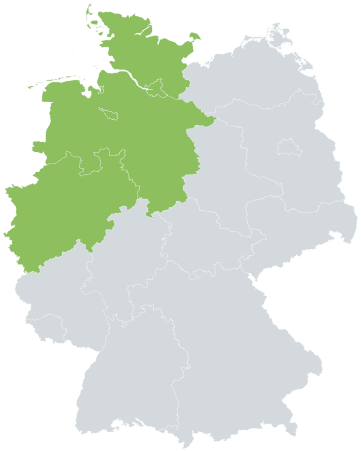

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Exterior Wall

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]: 0.36

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD_1	EPD_2
0	oak	3	685	0.3	1500	2	-
1	concrete_wz05	15	2400	2.1	776	7	-
2	mineral wool	10	60	0.04	850	3	-

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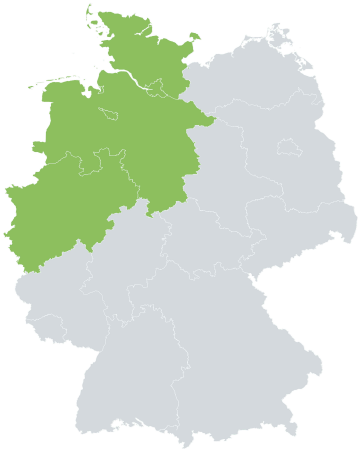

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Foundation

U [W/m²K]: 0.33

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	1940	1.4	1000	11	-
1	mineral wool	10	60	0.04	850	3	-
2	aerated concrete blocks	19	1100	0.66	1050	8	-

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	floating cement screed	5	1940	1.4	1000	11	-
1	mineral wool	1	60	0.09	850	9	-
2	reinforced concrete	15	2400	2.04	777	7	-

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	12	gas	5

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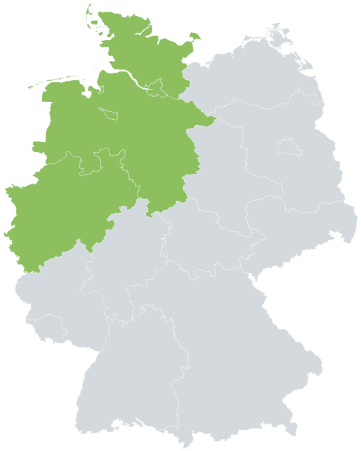

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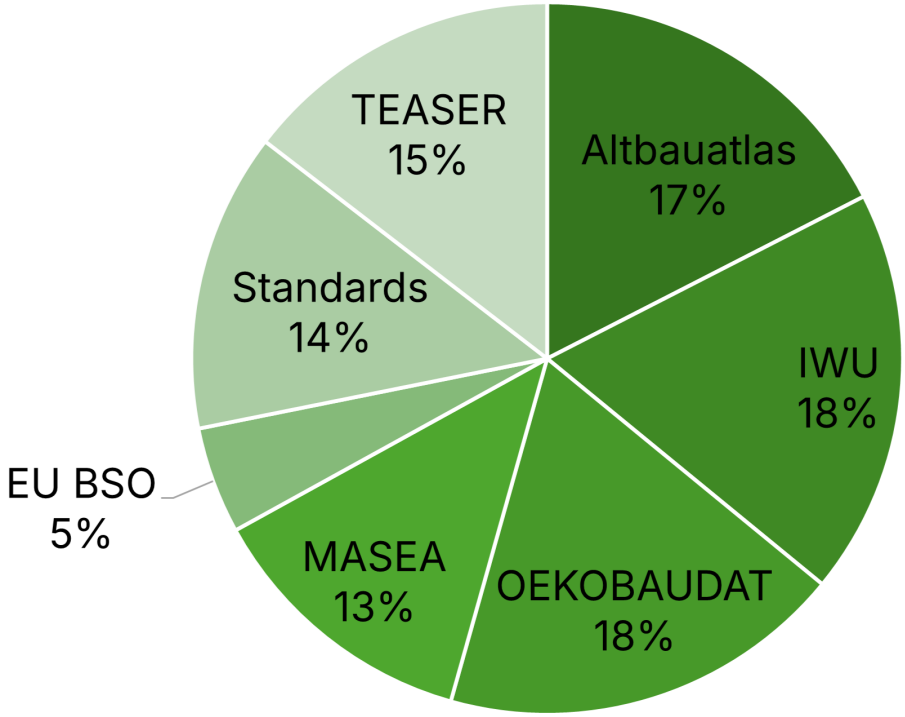
Façade length [m]							
N		S		E		W	
Mean	SE	Mean	SE	Mean	SE	Mean	SE
22.08	7.92	22.01	7.96	16.6	7.59	22.76	6.45

Façade area [m²]							
N		S		E		W	
Mean	SE	Mean	SE	Mean	SE	Mean	SE
181.75	73.35	181.59	73.52	154.33	73.83	176.54	69.39

EPD Summary Table

Serial No.	Full UUID	Material Name
1	004f3f4e-5bb8-4d9e-a104-6999a9e8ad5b	Gypsum lime plaster
2	17bcb2ce-39fd-400b-baf9-370c63589efd	Timber oak (generic, 12% moisture / 10.7% H2O content)
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_6	Autoclaved aerated concrete elements with reinforcement steel
9	ac779922-219f-4730-9aef-a7da84d334c1	Mineral wool (floor insulation)
10	dcf38066-e336-46a7-b0a8-b2453dd2872d	Window glass, single
11	fe371be5-c72f-4203-8569-a085ef375ba4	CALCIUM SULPHATE FLOWING SCREED AND CONVENTIONAL CALCIUM SULPHATE SCREED
12	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/

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