



Retail Building



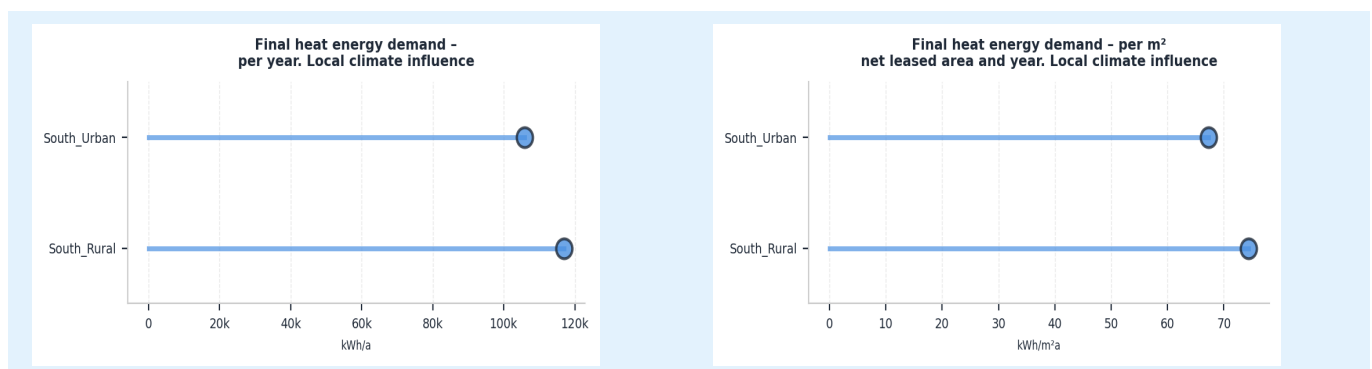
Region	south
Age Class	2002-2009
Net leased area [m²]	1574.1
Bldg Height [m]	4.5
Storeys a.g.	0.5
Storeys b.g.	0.8



Building Performance (KPIs)

KPI	Mean	95% CI	Unit	CV	n _{Sim}
Final heat energy demand - per year	111418.23	± 5787.30	kWh/a	0.70	360
Final heat energy demand - per m² net leased area and year	70.84	± 1.18	kWh/m²a	0.22	360
Carbon footprint (GWP) from heat energy - per year	27837.17	± 1445.92	kgCO ₂ eq,B6/a	0.70	360
Carbon footprint (GWP) from heat energy - per m² net leased area and year	17.70	± 0.30	kgCO ₂ eq,B6/m²a	0.22	360
Life Cycle Carbon footprint (GWP) - over 50 years	1688891.13	± 87600.91	kgCO ₂ eq,full/50a	0.70	360
Life Cycle Carbon footprint (GWP) - per m² net leased area and for 50 years	1073.65	± 17.75	kgCO ₂ eq,full/m²50a	0.22	360

Local Climate Influence

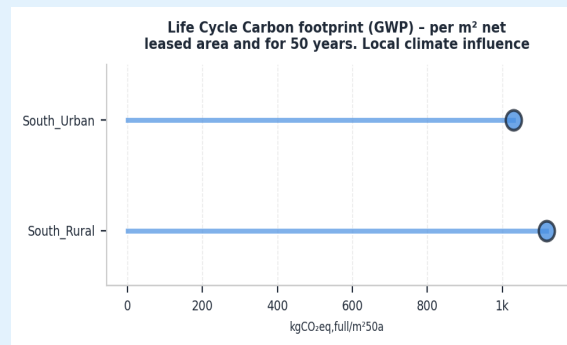
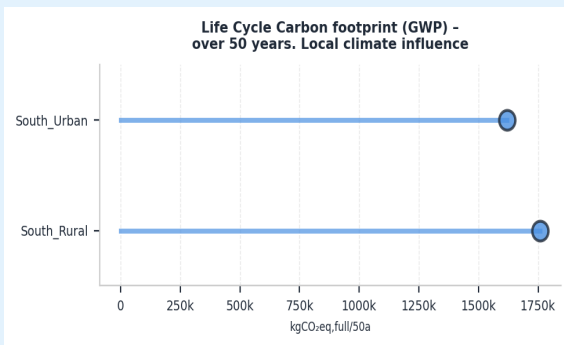
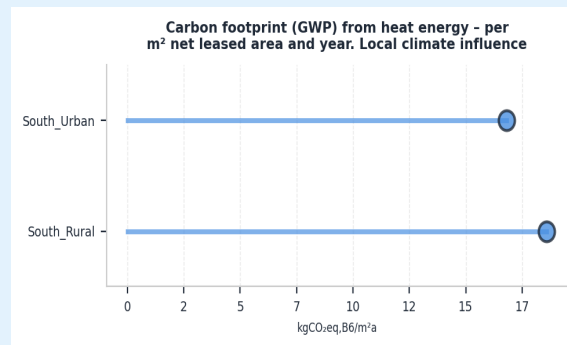
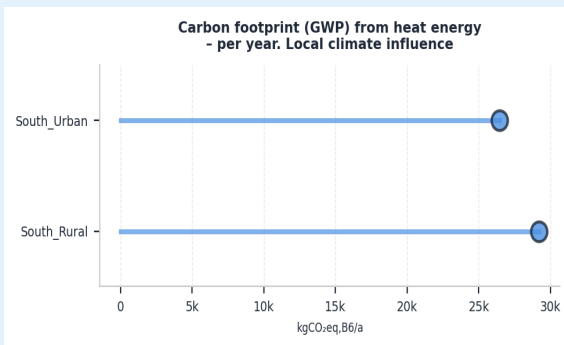




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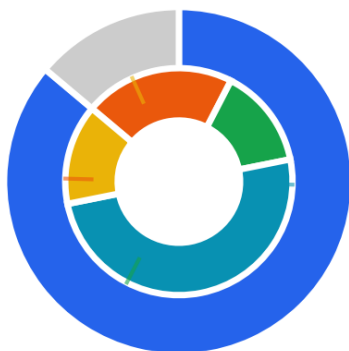


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Mean Life Cycle GWP

ABC



- Operational (87.0%)
- Exterior walls (3.00%)
- Roof (2.00%)
- Foundation (7.00%)
- Windows (2.00%)

Building element	D [kgCO ₂ eq/50a]
Exterior walls	-5.6
Roof	564.2
Foundation	-1,464
Windows	-6,242

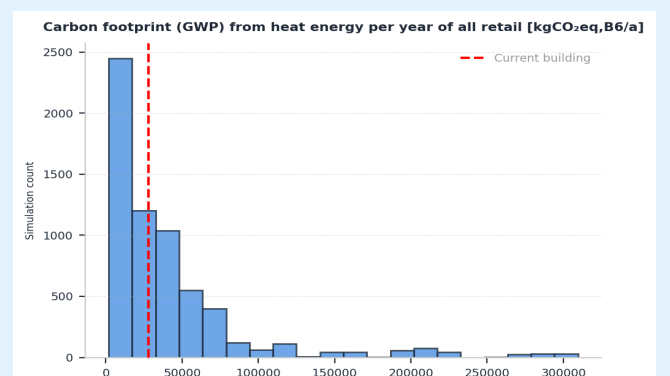
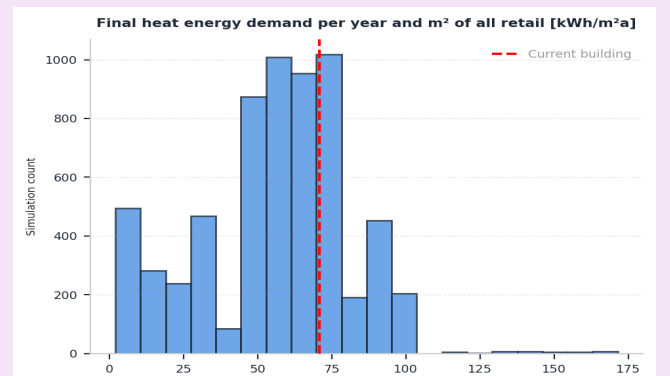
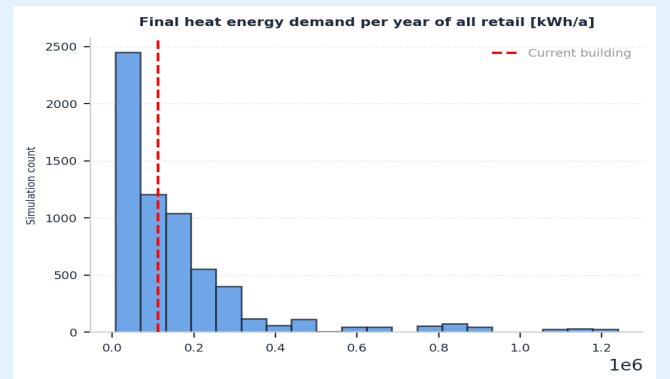


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Building Performance



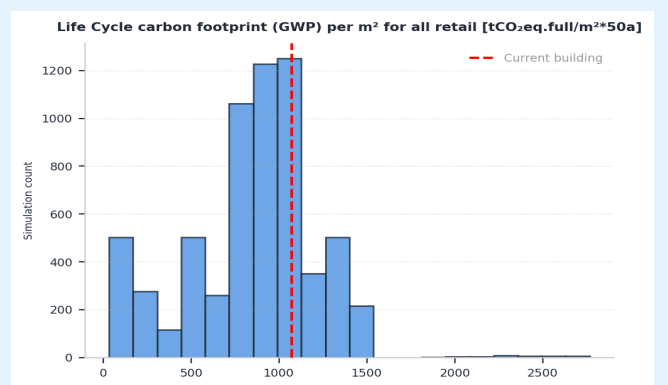
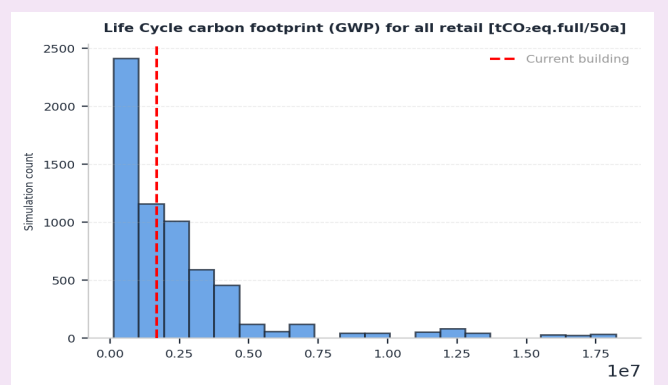
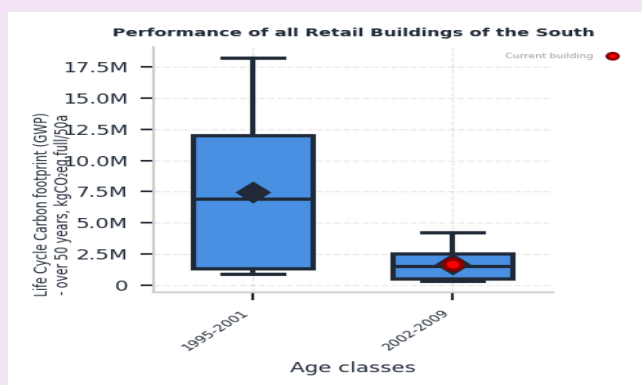
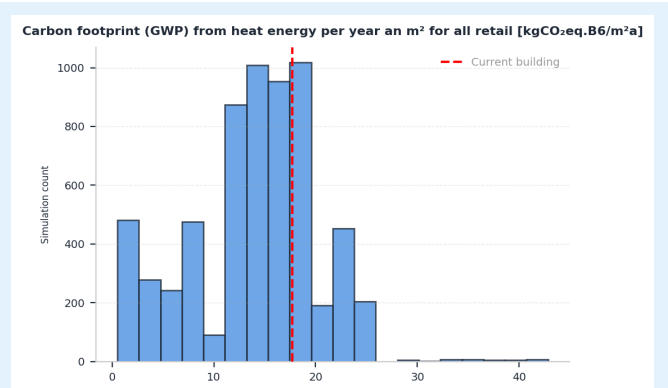


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Exterior Wall

Type: massive

U [W/m²K]: 0.56

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD ₁	EPD ₂
0	insulating plaster	2	1291	0.39	1291	2	-
1	concrete_CEM_II_B S325R_wz05	24	2420	2.1	1000	4	-
2	EPS_040_15	5.74	15	0.04	1500	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	2	-
1	reinforced concrete	10	2100	2.04	776	4	-
2	lime plaster	1	1600	0.7	850	1	-

Roof

U [W/m²K]: 0.31

Layer	Material Name	t_i [cm]	ρ_i [kg/m³]	λ_i [W/mK]	c_i [J/kgK]	EPD ₁	EPD ₂
0	concrete_CEM_II_B S325R_wz05	22	2420	2.1	1000	4	-
1	styrofoam	10	30	0.035	1500	8	-
2	gravel	3	750	0.19	920	5	-



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Foundation

U [W/m²K]: 0.35

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	9	-
1	EPS_040_15	10	15	0.04	1500	1	-
2	concrete_CEM_II_B S325R_wz05	22.8	2420	2.1	1000	4	-

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	4	1940	1.4	1000	9	-
1	EPS_040_15	6	15	0.04	1500	1	-
2	reinforced concrete	22.8	2104	1.94	776	4	-

Window System

Glazing	EPD _{Gl}	Frame type	EPD _{Fr}	Shading type	EPD _{Sh}
2	7	aluminium	6	-	-

Heating System

Unit type	Generator	EPD _{HEG}	Heating energy carrier	EPD _{HEC}
per_bldg	boiler_gas_large_condensing	10	gas	3



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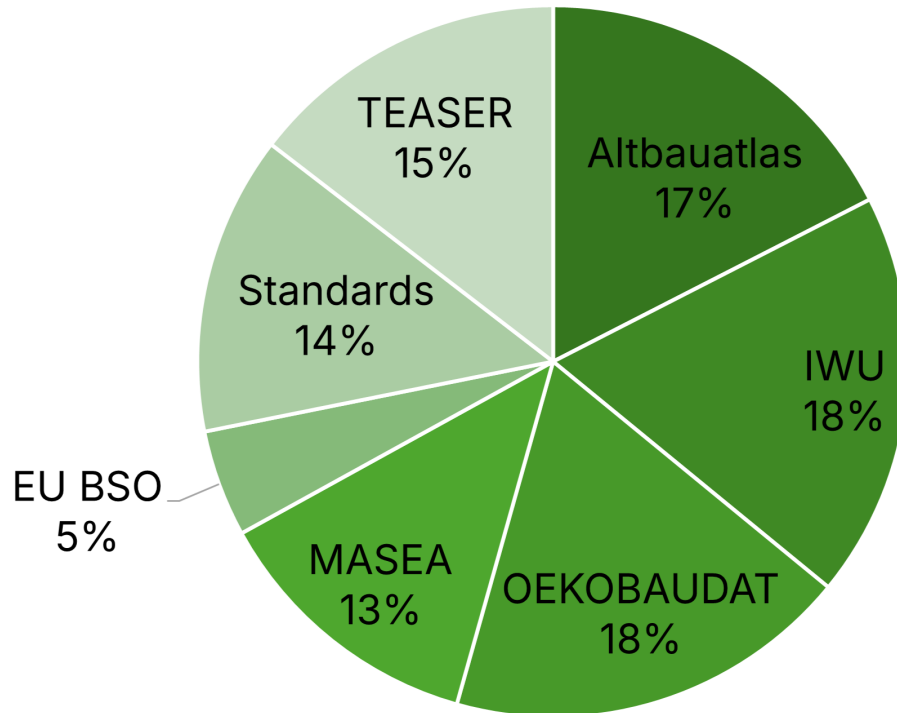


Façade length [m]							
N		S		E		W	
Mean	SE	Mean	SE	Mean	SE	Mean	SE
17.79	5.58	17.07	5.45	37.55	12.52	31.38	14.57

Façade area [m²]							
N		S		E		W	
Mean	SE	Mean	SE	Mean	SE	Mean	SE
91.1	37.92	88.16	37.35	193.2	84.72	169.64	92.49

EPD Summary Table

Serial No.	Full UUID	Material Name
1	205b761d-e344-49c3-a3a9-bb1bfd59b916	Expanded Polystyrene (EPS) Foam Insulation (density 15 kg/m³)
2	7e8801e0-c0e4-4995-bf8a-883181f6aa20	ETICS gluing and coating mineral lightweight plaster
3	84aa7483-9824-49a9-a3e3-f9fb092ea7b7	Use - 1 kWh of final energy from gas calorific value (according to GEG)
4	Synthetic_2	Concrete C30/37 with reinforcement steel
5	a7bad3b6-2123-483b-99b5-2ec481254be7	Gravel 2/32 (dried)
6	d0e0f205-2f4d-4c7f-b63a-23a9abd6e60a	Aluminium frame profile, powder coated
7	dcf38066-e336-46a7-b0a8-b2453dd2872d	Window glass, single
8	f2552bdf-c847-4ef8-9665-c37e8ef4d44d	Polystyrene foam filling (without binder)
9	fe371be5-c72f-4203-8569-a085ef375ba4	CALCIUM SULPHATE FLOWING SCREED AND CONVENTIONAL CALCIUM SULPHATE SCREED
10	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://wohngebaeuedaten2016.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