



Multi Family House



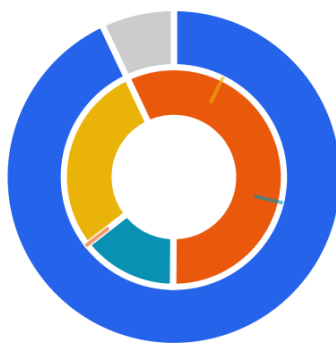
Region	south
Municipality Size	rural
Municipality Growth	growing
Age Class	2002-2009
Adjacency	detached
Net leased area [m²]	2190.0
Storey Height [m]	2.7
Storeys a.g.	3.0



Building Performance (KPIs)

KPI	Mean	95% CI	Unit	CV	n _{Sim}
Final heat energy demand - per year	187311.69	± 5097.12	kWh/a	0.18	45
Final heat energy demand - per m² net leased area and year	85.56	± 1.03	kWh/m²a	0.08	45
Carbon footprint (GWP) from heat energy - per year	46798.70	± 1273.48	kgCO ₂ eq,B6/a	0.18	45
Carbon footprint (GWP) from heat energy - per m² net leased area and year	21.38	± 0.26	kgCO ₂ eq,B6/m²a	0.08	45
Life Cycle Carbon footprint (GWP) - over 50 years	2858733.64	± 76107.01	kgCO ₂ eq,full/50a	0.18	45
Life Cycle Carbon footprint (GWP) - per m² net leased area and for 50 years	1305.73	± 13.86	kgCO ₂ eq,full/m²50a	0.07	45

ABC



- Operational (93.0%)
- Exterior walls (4.00%)
- Foundation (1.00%)
- Windows (2.00%)
- Roof (0.00%)

Building element	D [kgCO ₂ eq/50a]
Exterior walls	-1,013
Roof	-37.2
Foundation	-285.9
Windows	-4,340



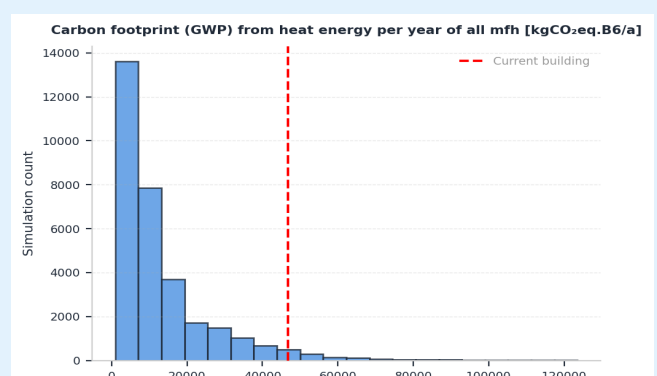
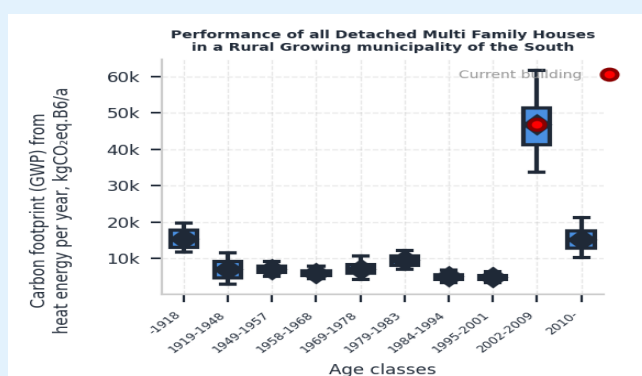
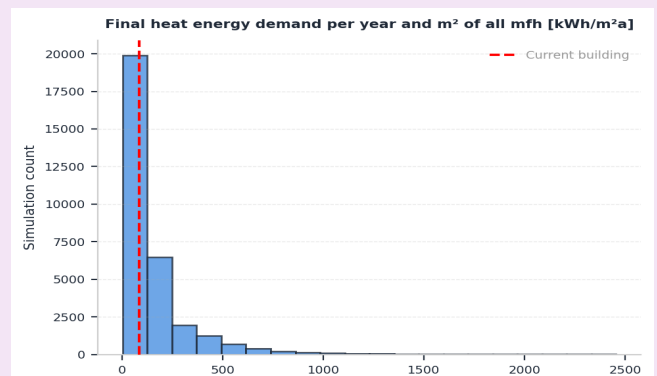
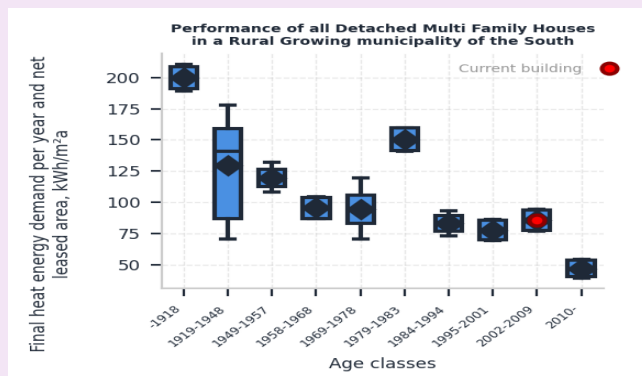
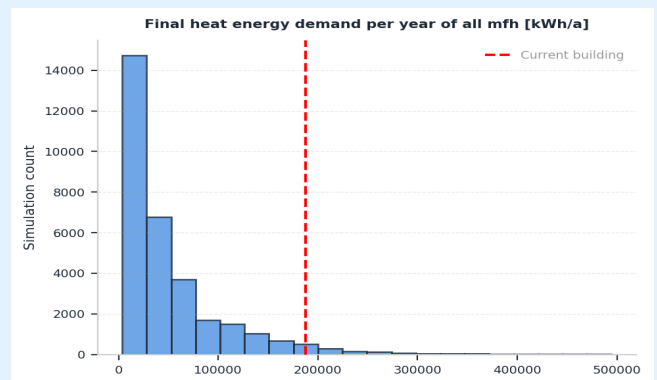
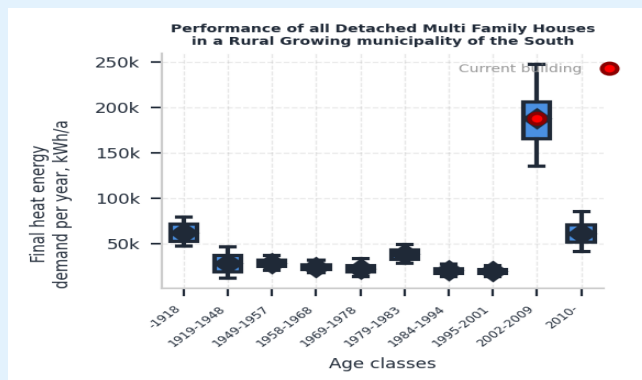
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Building Performance





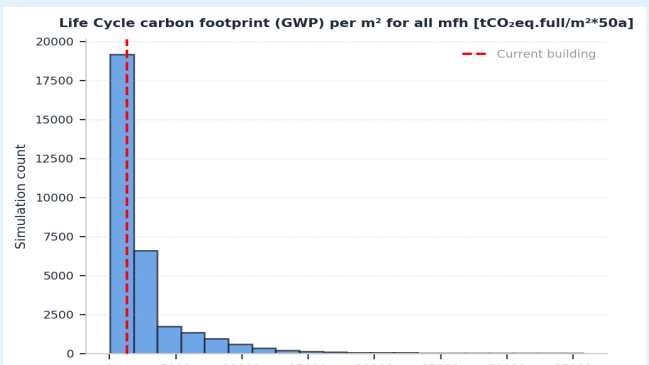
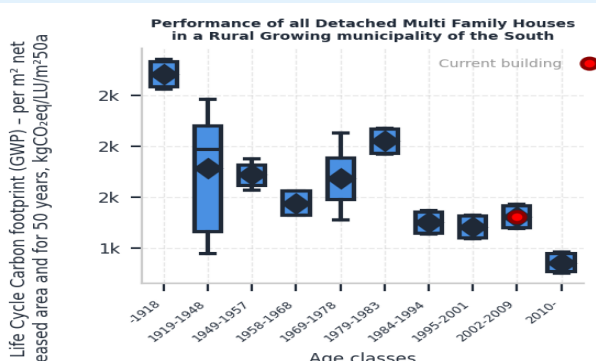
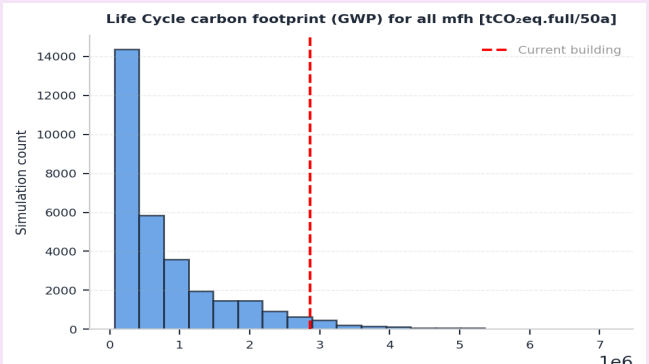
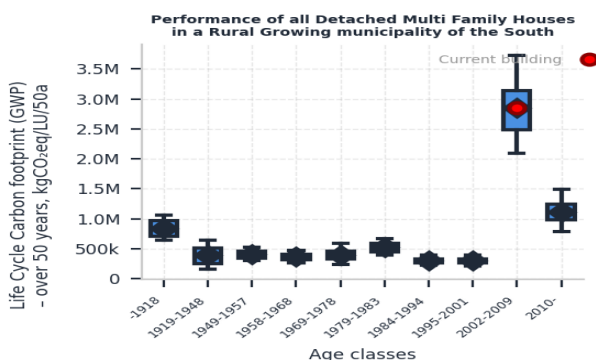
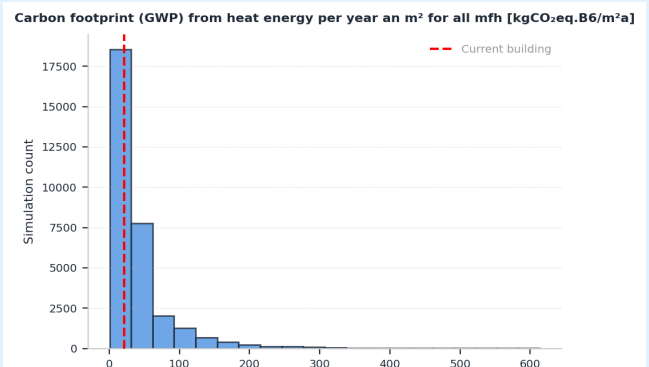
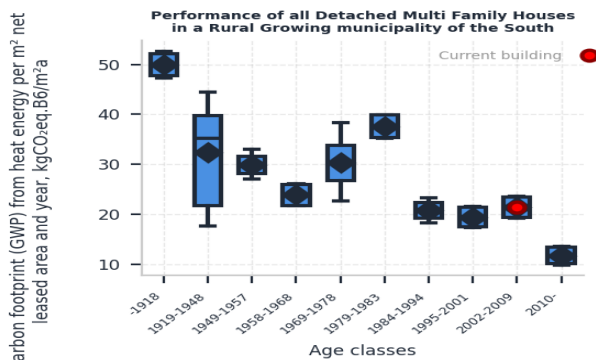
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Exterior Wall

Type: massive	U [W/m²K]		
	Actual: 0.490	Min: 0.160	Max: 0.600

Layer	Material Name	t _i [m]	ρ _i [kg/m³]	λ _i [W/mK]	c _i [J/kgK]	EPD ₁	EPD ₂
0	insulating plaster	0.02	1291	0.39	1291	5	-
1	concrete_CEM_II_BS325R_wz05	0.175	2420	2.1	1000	7	-
2	EPS_040_15	0.07	15	0.04	1500	2	-

Interior Wall

U [W/m²K]		
Actual: 2.420	Min: 0.140	Max: 0.300

Layer	Material Name	t _i [m]	ρ _i [kg/m³]	λ _i [W/mK]	c _i [J/kgK]	EPD ₁	EPD ₂
0	lime plaster	0.01	1600	0.7	850	5	-
1	solid brick	0.15	1800	0.7	850	7	-
2	lime plaster	0.01	1600	0.7	850	2	-

Roof

Type: wooden	U [W/m²K]		
	Actual: 0.210	Min: 0.140	Max: 0.300

Layer	Material Name	t _i [m]	ρ _i [kg/m³]	λ _i [W/mK]	c _i [J/kgK]	EPD ₁	EPD ₂
0	plasterboard	0.0125	732	0.21	1384	1	-
1	rafters	0.08	455	0.14	1500	12	-
2	mineral wool	0.15	60	0.04	850	3	-
3	roof battens	0.02	600	0.14	1500	11	-
4	gravel	0.03	750	0.19	920	8	-



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Foundation

Type: massive	U [W/m²K]		
	Actual: 0.550	Min: 0.160	Max: 0.600

Layer	Material Name	t _i [m]	ρ _i [kg/m³]	λ _i [W/mK]	c _i [J/kgK]	EPD ₁	EPD ₂
0	floating cement screed	0.04	1940	1.4	1000	13	-
1	EPS_040_15	0.06	15	0.04	1500	2	-
2	concrete_CEM_II_BS325R_wz05	0.16	2420	2.1	1000	7	-

Floor

U [W/m²K]		
Actual: 2.420	Min: 0.140	Max: 0.300

Layer	Material Name	t _i [m]	ρ _i [kg/m³]	λ _i [W/mK]	c _i [J/kgK]	EPD ₁	EPD ₂
0	floating cement screed	0.04	1940	1.4	1000	13	-
1	EPS_040_15	0.06	15	0.04	1500	2	-
2	reinforced concrete	0.16	2104	1.94	776	7	-

Window System

Glazing	EPD _{Gl}	Frame type	EPD _{Fr}	window wall share
2	10	pvc	4	0.14096

Heating System

Generator 1	EPD	Heating energy carrier	EPD
boiler_gas_medium_condensing	9	gas	6



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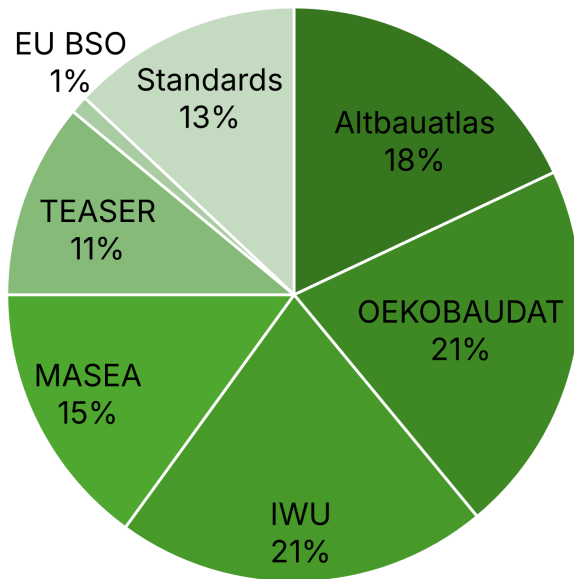


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EPD Summary Table

SPN	Full EPD ID	Material Title
1	0773f90c-78ef-4727-a966-3b005c1a1469	PLASTERBOARD / Tool
2	205b761d-e344-49c3-a3a9-bb1bfd59b916	Expanded Polystyrene (EPS) Foam Insulation (density 15 kg/m³)
3	50d421e2-3a7b-4659-92a4-f20d6a52fcf0	Mineral wool (facade insulation)
4	73de9e80-8ed2-47d8-b5b6-854c84166f24	Window sash PVC-U
5	7e8801e0-c0e4-4995-bf8a-883181f6aa20	ETICS gluing and coating mineral lightweight plaster
6	84aa7483-9824-49a9-a3e3-f9fb092ea7b7	Use - 1 kWh of final energy from gas calorific value (according to GEG)
7	Synthetic_2	Concrete C30/37 with reinforcement steel
8	a7bad3b6-2123-483b-99b5-2ec481254be7	Gravel 2/32 (dried)
9	ce333ecb-6cad-441c-9dae-70966acf9333	Gas condensing boiler 20-120 kW (upright unit)
10	dcf38066-e336-46a7-b0a8-b2453dd2872d	Window glass, single
11	e70d9027-5315-481c-92e2-7b7d8a02eaba	holzius ? solid wood slab elements
12	efa55966-4f29-4f15-bfec-8c08b3945923	Glued laminated timber
13	fe371be5-c72f-4203-8569-a085ef375ba4	CALCIUM SULPHATE FLOWING SCREED AND CONVENTIONAL CALCIUM SULPHATE SCREED



This archetype represents :

- 0.95% of all Multi-Family Houses
- 2.22% of all Multi-Family Houses of the specific region
- 3.92% of all Multi-Family Houses of the specific region and municipality type

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/