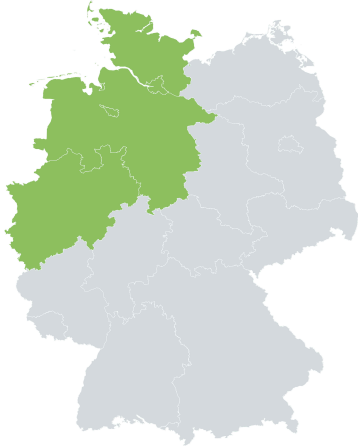




## Hospitality Building



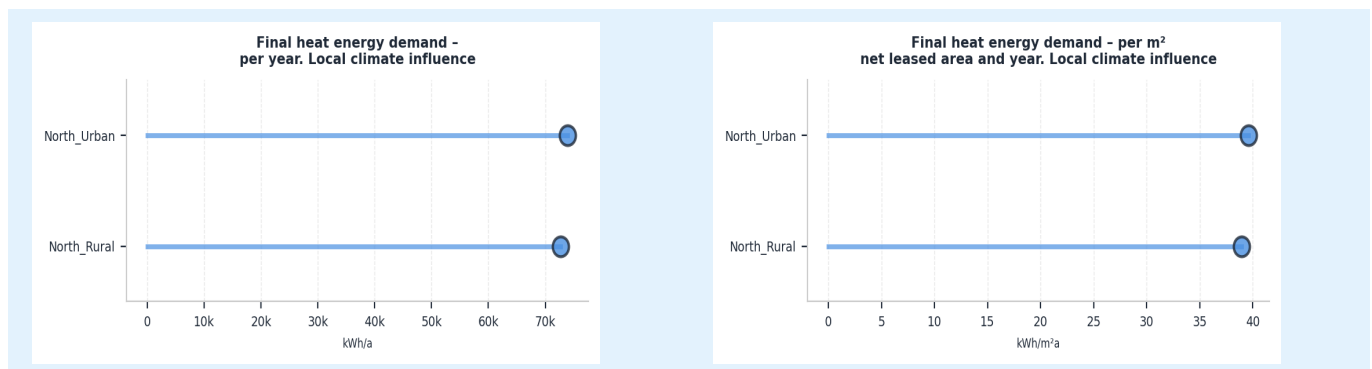
Region	north
Age Class	1995-2001
Net leased area [m <sup>2</sup> ]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8



## Building Performance (KPIs)

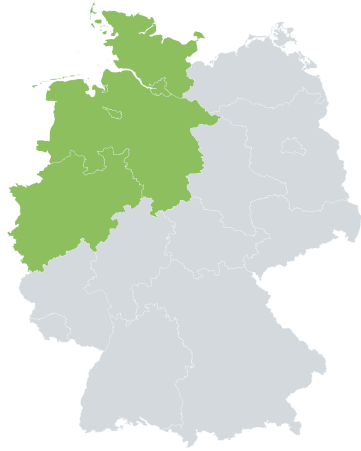
KPI	Mean	95% CI	Unit	CV	n <sub>Sim</sub>
Final heat energy demand - per year	73295.27	± 1514.11	kWh/a	0.42	810
Final heat energy demand - per m <sup>2</sup> net leased area and year	39.26	± 0.28	kWh/m <sup>2</sup> a	0.14	810
Carbon footprint (GWP) from heat energy - per year	18312.38	± 378.29	kgCO <sub>2</sub> eq,B6/a	0.42	810
Carbon footprint (GWP) from heat energy - per m <sup>2</sup> net leased area and year	9.81	± 0.07	kgCO <sub>2</sub> eq,B6/m <sup>2</sup> a	0.14	810
Life Cycle Carbon footprint (GWP) - over 50 years	1286844.35	± 26351.41	kgCO <sub>2</sub> eq,full/50a	0.41	810
Life Cycle Carbon footprint (GWP) - per m <sup>2</sup> net leased area and for 50 years	689.33	± 4.53	kgCO <sub>2</sub> eq,full/m <sup>2</sup> 50a	0.13	810

## Local Climate Influence

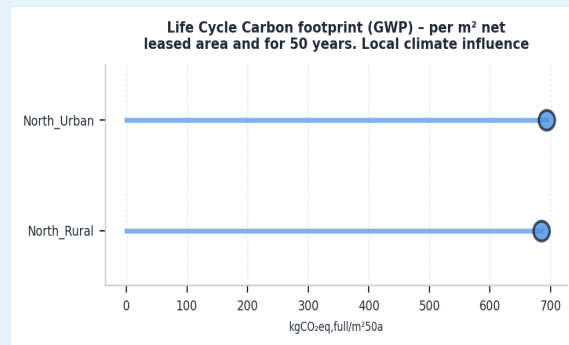
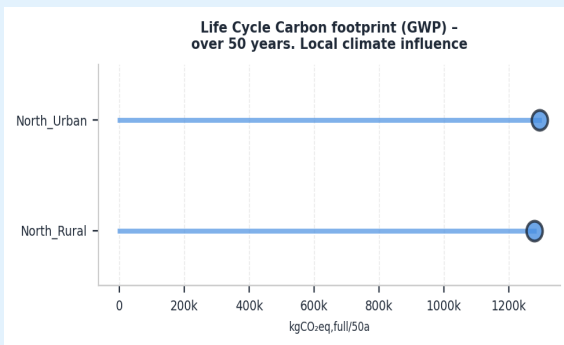
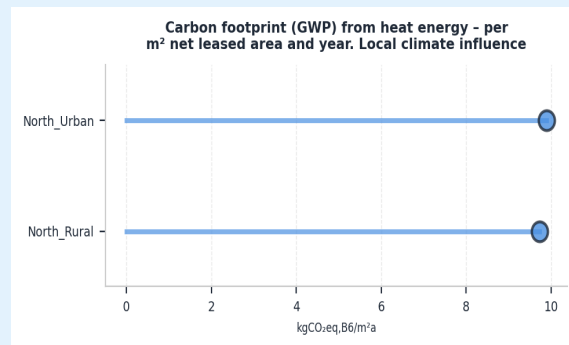
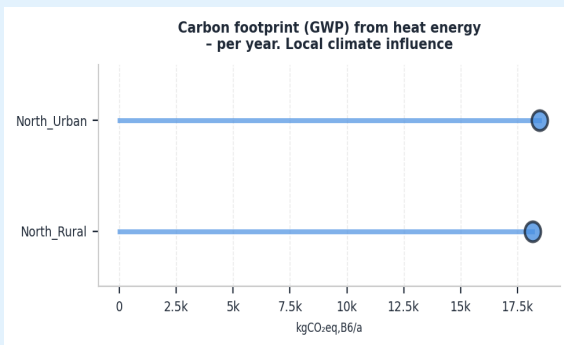




## Hospitality Building

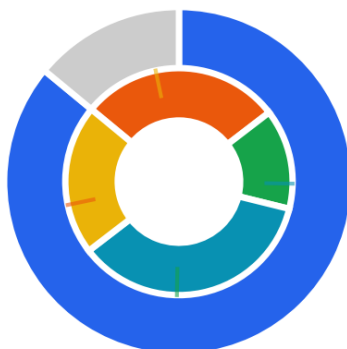


Region	north
Age Class	1995-2001
Net leased area [m <sup>2</sup> ]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8



## Mean Life Cycle GWP

ABC

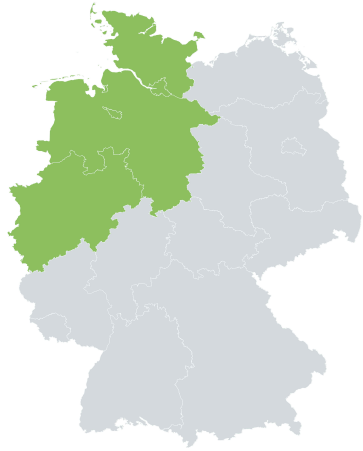


- Operational (86.0%)
- Exterior walls (4.00%)
- Roof (2.00%)
- Foundation (5.00%)
- Windows (3.00%)

Building element	D [kgCO <sub>2</sub> eq/50a]
Exterior walls	1,058
Roof	-2,017
Foundation	-3,103
Windows	-4,042



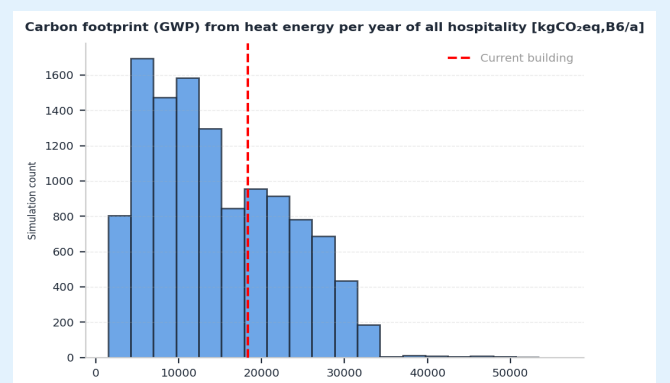
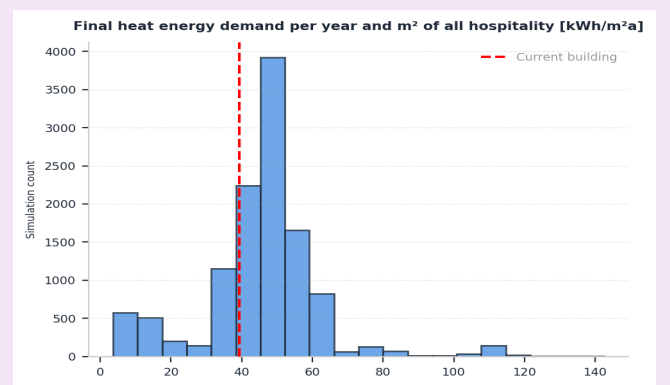
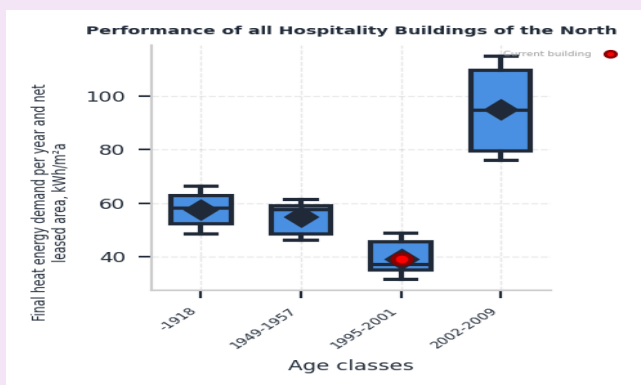
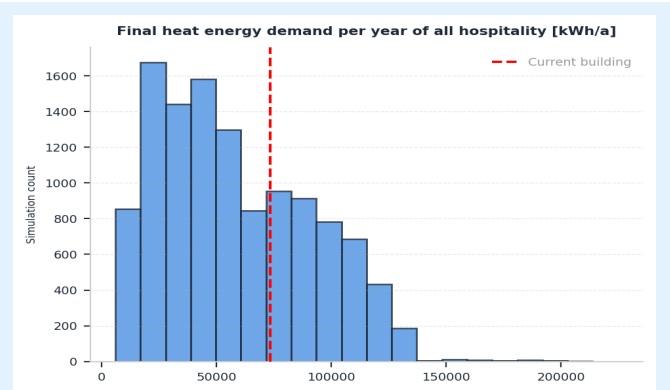
## Hospitality Building



Region	north
Age Class	1995-2001
Net leased area [m <sup>2</sup> ]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8

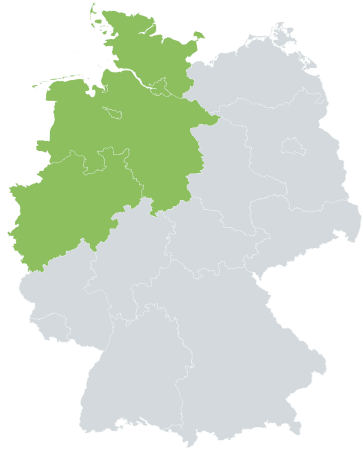


## Building Performance





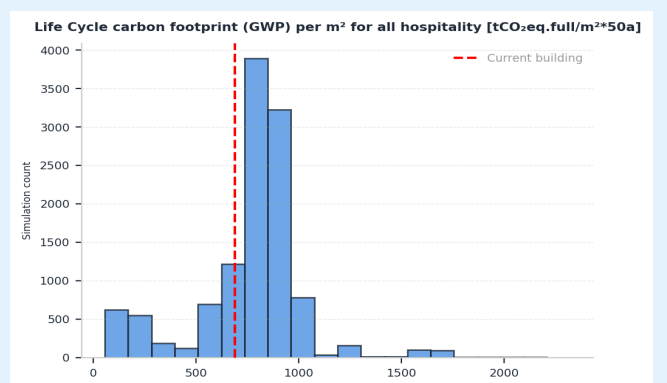
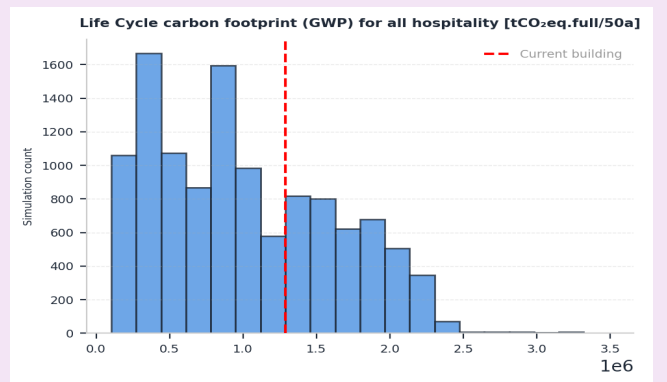
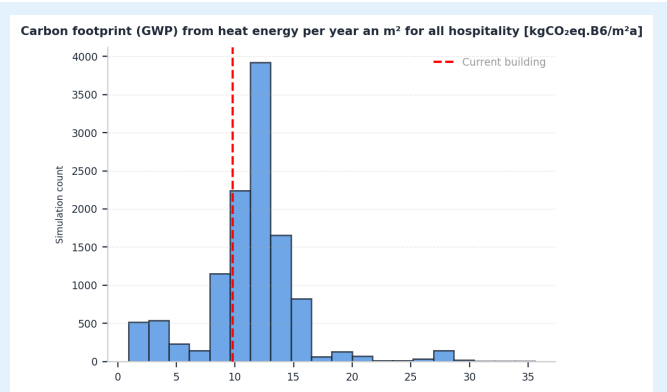
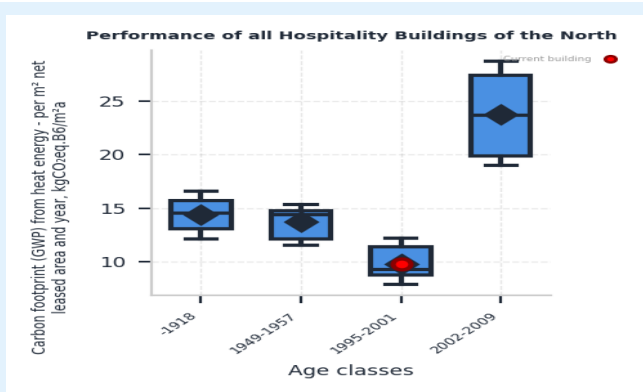
## Hospitality Building



Region	north
Age Class	1995-2001
Net leased area [m <sup>2</sup> ]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8

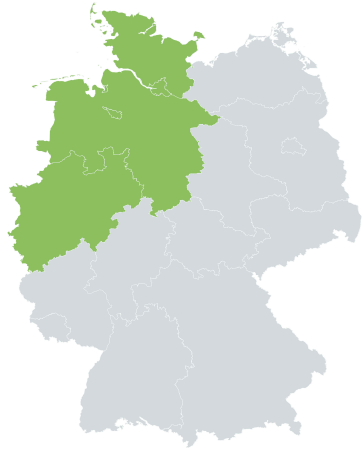


## Building Performance





## Hospitality Building



Region	north
Age Class	1995-2001
Net leased area [m <sup>2</sup> ]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8



### Exterior Wall

Type: massive

U [W/m<sup>2</sup>K]: 0.55

Layer	Material Name	$t_i$ [cm]	$\rho_i$ [kg/m <sup>3</sup> ]	$\lambda_i$ [W/mK]	$c_i$ [J/kgK]	EPD <sub>1</sub>	EPD <sub>2</sub>
0	interior plaster	1	1400	0.7	850	7	-
1	reinforced concrete	15	2400	2.1	776	8	-
2	mineral wool	6.08	60	0.04	850	4	-
3	concrete	6	2400	2.1	776	8	-
4	exterior plaster	2	1800	0.87	850	1	-

### Interior Wall

U [W/m<sup>2</sup>K]: 4.04

Layer	Material Name	$t_i$ [cm]	$\rho_i$ [kg/m <sup>3</sup> ]	$\lambda_i$ [W/mK]	$c_i$ [J/kgK]	EPD <sub>1</sub>	EPD <sub>2</sub>
0	lime plaster	1	1600	0.7	850	7	-
1	reinforced concrete	10	2100	2.04	776	8	-
2	lime plaster	1	1600	0.7	850	4	-

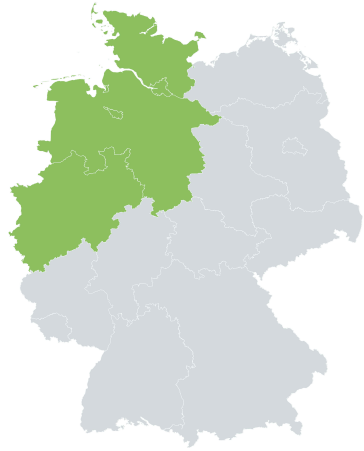
### Roof

U [W/m<sup>2</sup>K]: 0.18

Layer	Material Name	$t_i$ [cm]	$\rho_i$ [kg/m <sup>3</sup> ]	$\lambda_i$ [W/mK]	$c_i$ [J/kgK]	EPD <sub>1</sub>	EPD <sub>2</sub>
0	interior plaster	1	1400	0.7	850	7	-
1	reinforced concrete	22	2400	2.1	776	8	-
2	rafters	8	600	0.13	1500	13	-
3	mineral wool	10	60	0.04	850	4	-
4	moving air layer	6	1.184	0.026	1.005	9	-
5	roof tiles	2	1786	0.55	889	10	-



## Hospitality Building



Region	north
Age Class	1995-2001
Net leased area [m <sup>2</sup> ]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8



### Foundation

U [W/m<sup>2</sup>K]: 0.32

Layer	Material Name	$t_i$ [cm]	$\rho_i$ [kg/m <sup>3</sup> ]	$\lambda_i$ [W/mK]	$c_i$ [J/kgK]	EPD <sub>1</sub>	EPD <sub>2</sub>
0	floating cement screed	4	2000	1.4	1000	14	-
1	polystyrene	10	40	0.035	1380	3	-
2	reinforced concrete	16	2400	2.1	776	8	-

### Floor

U [W/m<sup>2</sup>K]: 4.04

Layer	Material Name	$t_i$ [cm]	$\rho_i$ [kg/m <sup>3</sup> ]	$\lambda_i$ [W/mK]	$c_i$ [J/kgK]	EPD <sub>1</sub>	EPD <sub>2</sub>
0	reinforced concrete	20	2400	2.1	778	8	-
1	mineral wool	4	60	0.04	850	4	-

### Window System

Glazing	EPD <sub>Gl</sub>	Frame type	EPD <sub>Fr</sub>	Shading type	EPD <sub>Sh</sub>
2	12	pvc	5	-	-

### Heating System

Unit type	Generator	EPD <sub>HEG</sub>	Heating energy carrier	EPD <sub>HEC</sub>
per_bldg	boiler_gas_large_condensing	15	gas	6

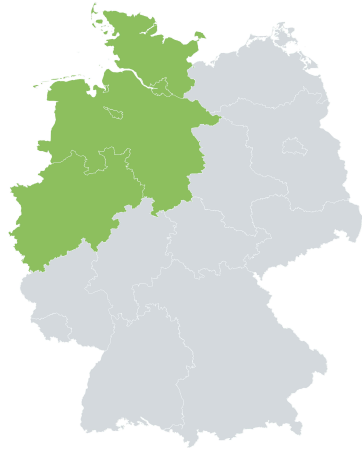
### HVAC System

Converter	EPD <sub>HEC</sub>	Ventilation heating	Ventilation cooling	Energy source	EPD <sub>HES</sub>
ventilation_heating_and_cooling_medium	2	yes	yes	R410a	11





## Hospitality Building



Region	north
Age Class	1995-2001
Net leased area [m <sup>2</sup> ]	1867.0
Bldg Height [m]	6.8
Storeys a.g.	2.1
Storeys b.g.	0.8

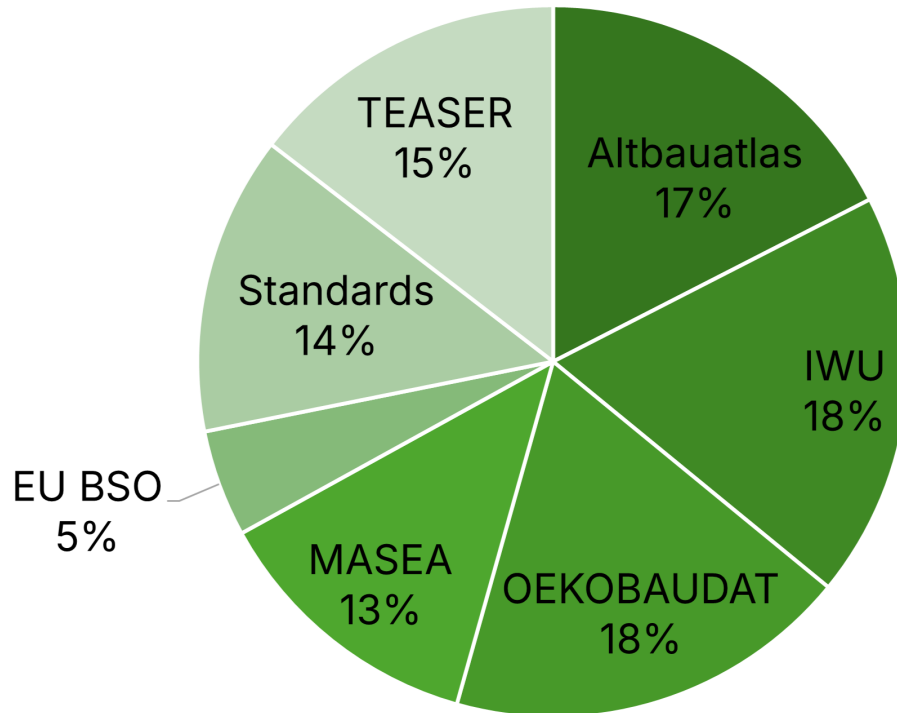


Façade length [m]							
N		S		E		W	
Mean	SE	Mean	SE	Mean	SE	Mean	SE
32.8	12.05	31.67	11.39	32.28	5.01	33.13	5.45

Façade area [m <sup>2</sup> ]							
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	32448dea-291a-44df-9fe6-955187c75959	Ventilation centralized per 10000 m <sup>3</sup> /h
3	4e83c488-bb36-40b0-bfd4-b2aa7f1c0f04	Expanded Polystyrene (EPS) Foam Insulation (density 30 kg/m <sup>3</sup> )
4	50d421e2-3a7b-4659-92a4-f20d6a52fcf0	Mineral wool (facade insulation)
5	73de9e80-8ed2-47d8-b5b6-854c84166f24	Window sash PVC-U
6	84aa7483-9824-49a9-a3e3-f9fb092ea7b7	Use - 1 kWh of final energy from gas calorific value (according to GEG)
7	9a670d29-efb9-4fde-95ab-182a0b1e7280	Lime gypsum interior plaster
8	Synthetic_2	Concrete C30/37 with reinforcement steel
9	Synthetic_8	Air layer
10	a6d60a75-7a4e-4dfc-87cc-fd40f68d279a	Roofing tiles (including accessories)
11	a9ab7d02-744c-4269-b3e1-a9fc7304e95e	Refrigerant R410a
12	dcf38066-e336-46a7-b0a8-b2453dd2872d	Window glass, single
13	efa55966-4f29-4f15-bfec-8c08b3945923	Glued laminated timber
14	fe371be5-c72f-4203-8569-a085ef375ba4	CALCIUM SULPHATE FLOWING SCREED AND CONVENTIONAL CALCIUM SULPHATE SCREED
15	fe91b985-60da-45dc-b3fd-29b9e632d49f	Gas condensing boiler120-400 kW (upright unit)



Data source	Link
Altbauatlas	<a href="https://www.altbauatlas.de/index.php">https://www.altbauatlas.de/index.php</a>
OEKOBAUDAT	<a href="https://www.oekobaudat.de/en.html">https://www.oekobaudat.de/en.html</a>
IWU	<a href="https://datenbasis.iwu.de/">https://datenbasis.iwu.de/</a> <a href="https://wohngebaeuedaten2016.iwu.de/">https://wohngebaeuedaten2016.iwu.de/</a>
MASEA	<a href="https://www.masea-ensan.de/">https://www.masea-ensan.de/</a>
TEASER	<a href="https://ebc-tools.eonerc.rwth-aachen.de/en/teaser">https://ebc-tools.eonerc.rwth-aachen.de/en/teaser</a>
EU BSO	<a href="https://building-stock-observatory.energy.ec.europa.eu/database/">https://building-stock-observatory.energy.ec.europa.eu/database/</a>

\* Building images are generated by AI