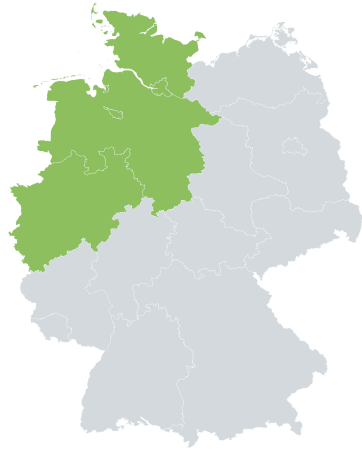




## Apartment Block



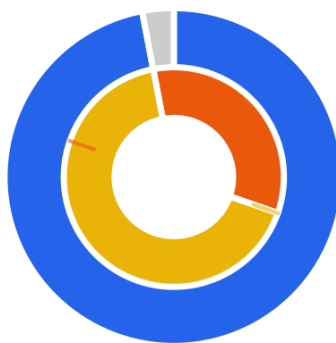
|                      |           |
|----------------------|-----------|
| Region               | north     |
| Age Class            | 1958-1968 |
| Net leased area [m²] | 830.2     |
| Storey Height [m]    | 2.7       |
| Storeys a.g.         | 4.0       |



## Building Performance (KPIs)

| KPI                                                                         | Mean       | 95% CI     | Unit                            | CV   | n <sub>Sim</sub> |
|-----------------------------------------------------------------------------|------------|------------|---------------------------------|------|------------------|
| Final heat energy demand - per year                                         | 102146.98  | ± 2665.17  | kWh/a                           | 0.18 | 90               |
| Final heat energy demand - per m² net leased area and year                  | 123.06     | ± 1.08     | kWh/m²a                         | 0.06 | 90               |
| Carbon footprint (GWP) from heat energy - per year                          | 25520.81   | ± 665.88   | kgCO <sub>2</sub> eq,B6/a       | 0.18 | 90               |
| Carbon footprint (GWP) from heat energy - per m² net leased area and year   | 30.74      | ± 0.27     | kgCO <sub>2</sub> eq,B6/m²a     | 0.06 | 90               |
| Life Cycle Carbon footprint (GWP) - over 50 years                           | 1473919.43 | ± 38277.43 | kgCO <sub>2</sub> eq,full/50a   | 0.17 | 90               |
| Life Cycle Carbon footprint (GWP) - per m² net leased area and for 50 years | 1775.61    | ± 14.87    | kgCO <sub>2</sub> eq,full/m²50a | 0.06 | 90               |

## ABC

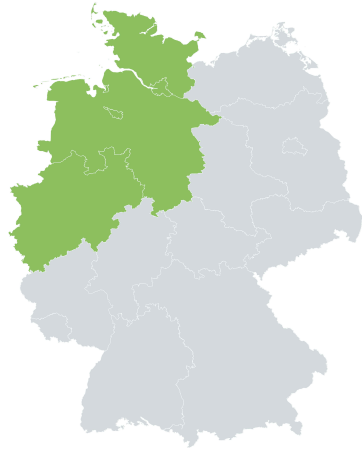


- Operational (97.0%)
- Exterior walls (1.00%)
- Foundation (0.00%)
- Windows (2.00%)
- Roof (0.00%)

| Building element | D [kgCO <sub>2</sub> eq/50a] |
|------------------|------------------------------|
| Exterior walls   | -302.8                       |
| Roof             | -620.8                       |
| Foundation       | 249.8                        |
| Windows          | -2,063                       |



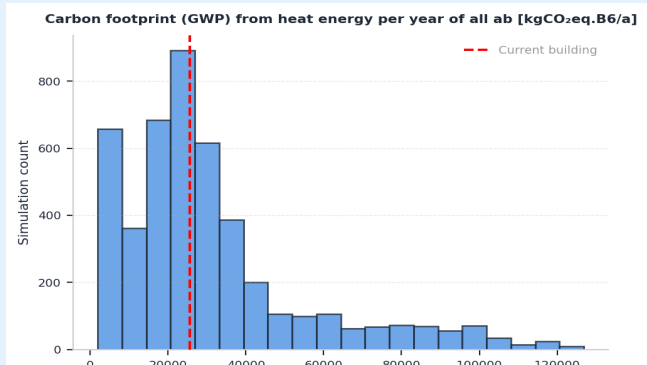
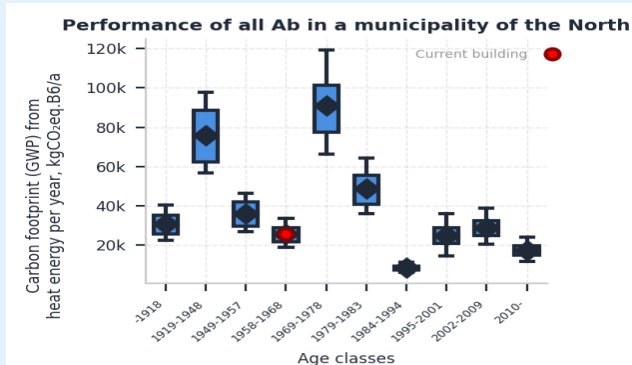
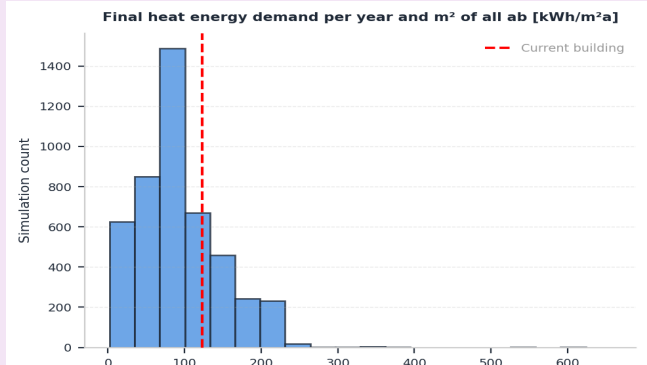
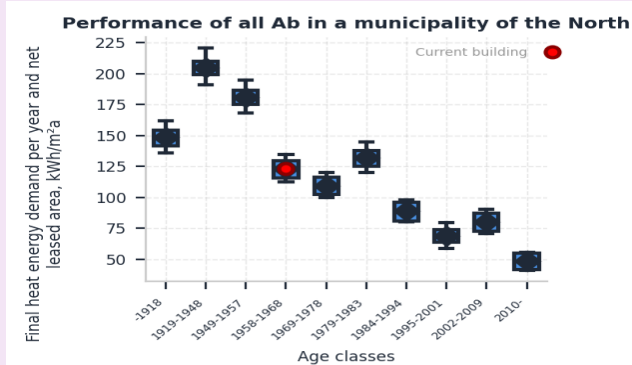
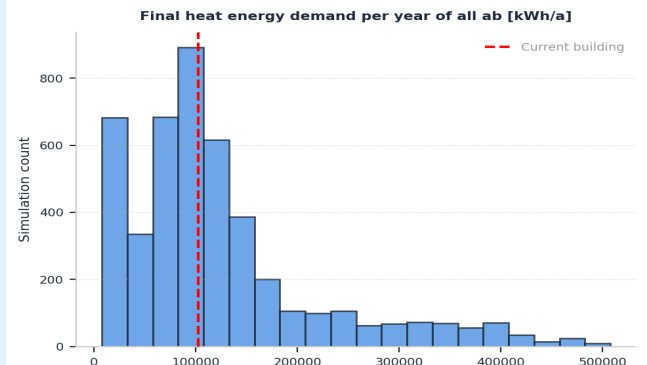
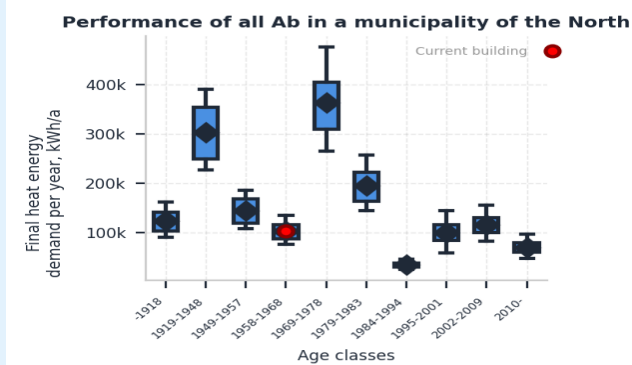
## Apartment Block



|                      |           |
|----------------------|-----------|
| Region               | north     |
| Age Class            | 1958-1968 |
| Net leased area [m²] | 830.2     |
| Storey Height [m]    | 2.7       |
| Storeys a.g.         | 4.0       |

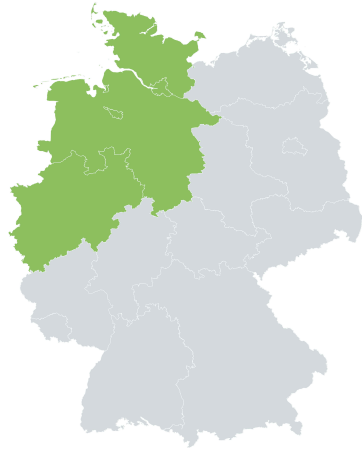


## Building Performance





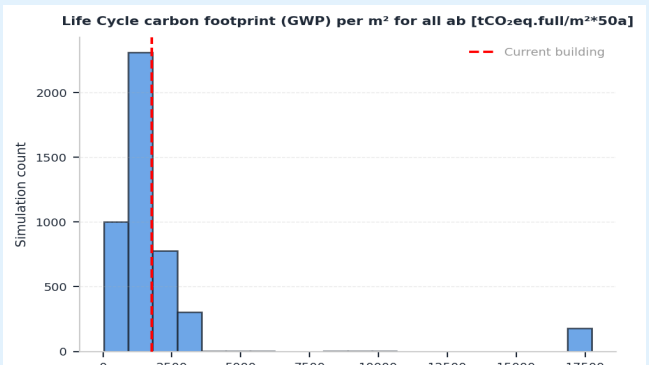
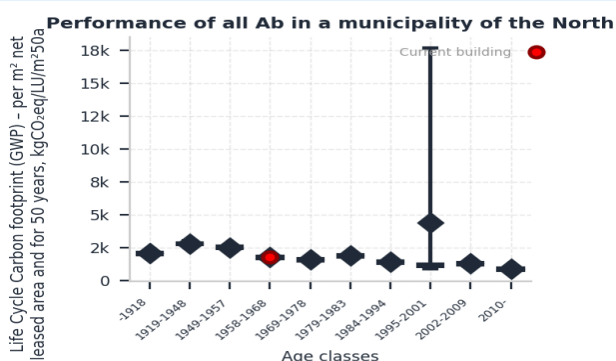
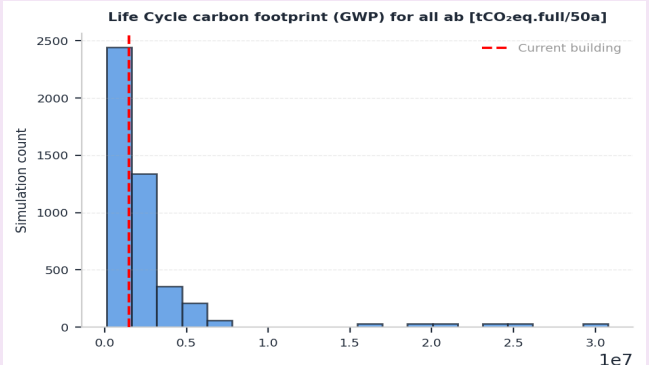
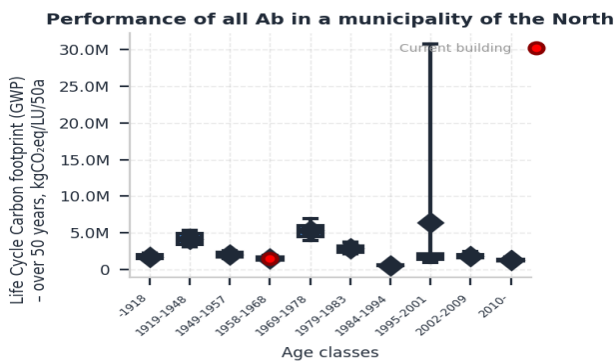
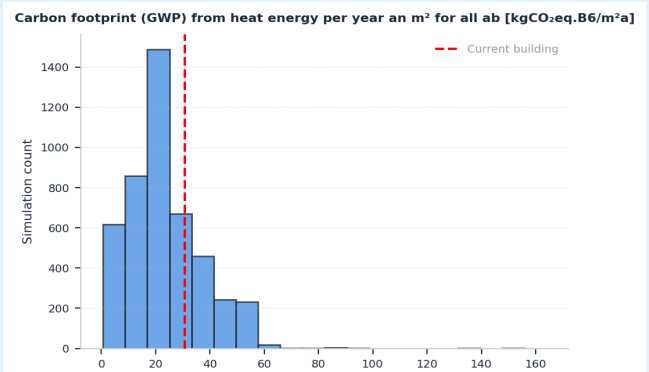
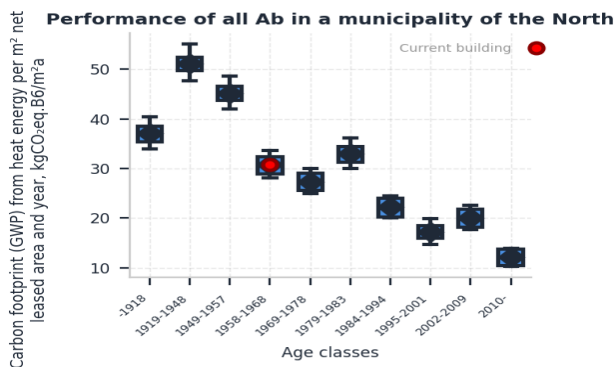
## Apartment Block



|                      |           |
|----------------------|-----------|
| Region               | north     |
| Age Class            | 1958-1968 |
| Net leased area [m²] | 830.2     |
| Storey Height [m]    | 2.7       |
| Storeys a.g.         | 4.0       |

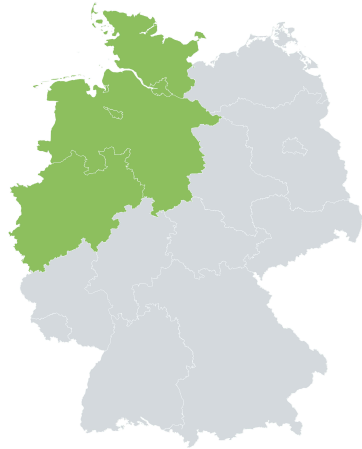


## Building Performance





## Apartment Block



|                                   |           |
|-----------------------------------|-----------|
| Region                            | north     |
| Age Class                         | 1958-1968 |
| Net leased area [m <sup>2</sup> ] | 830.2     |
| Storey Height [m]                 | 2.7       |
| Storeys a.g.                      | 4.0       |



### Exterior Wall

| Type: massive-monolithic | U [W/m <sup>2</sup> K] |            |            |
|--------------------------|------------------------|------------|------------|
|                          | Actual: 0.750          | Min: 0.180 | Max: 1.400 |

| Layer | Material Name     | t <sub>i</sub> [m] | ρ <sub>i</sub> [kg/m <sup>3</sup> ] | λ <sub>i</sub> [W/mK] | c <sub>i</sub> [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|-------------------|--------------------|-------------------------------------|-----------------------|------------------------|------------------|------------------|
| 0     | interior plaster  | 0.01               | 1400                                | 0.7                   | 850                    | 7                | -                |
| 1     | mineral wool      | 0.025              | 60                                  | 0.04                  | 850                    | 4                | -                |
| 2     | perforated bricks | 0.299              | 1400                                | 0.58                  | 850                    | 3                | -                |
| 3     | exterior plaster  | 0.015              | 1600                                | 0.87                  | 850                    | 1                | -                |

### Interior Wall

| U [W/m <sup>2</sup> K] |            |            |
|------------------------|------------|------------|
| Actual: 2.170          | Min: 0.190 | Max: 2.100 |

| Layer | Material Name | t <sub>i</sub> [m] | ρ <sub>i</sub> [kg/m <sup>3</sup> ] | λ <sub>i</sub> [W/mK] | c <sub>i</sub> [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|---------------|--------------------|-------------------------------------|-----------------------|------------------------|------------------|------------------|
| 0     | gypsum        | 0.015              | 850                                 | 0.3                   | 1000                   | 7                | -                |
| 1     | solid brick   | 0.15               | 1800                                | 0.79                  | 850                    | 4                | -                |
| 2     | gypsum        | 0.015              | 850                                 | 0.3                   | 1000                   | 3                | -                |

### Roof

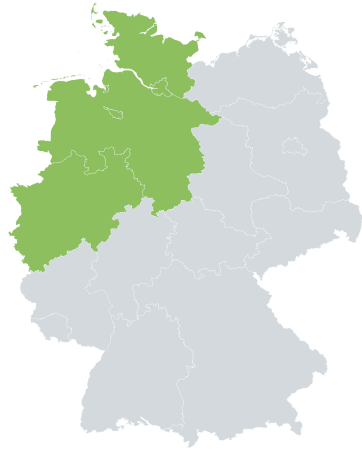
| Type: wooden | U [W/m <sup>2</sup> K] |            |            |
|--------------|------------------------|------------|------------|
|              | Actual: 0.280          | Min: 0.180 | Max: 1.400 |

| Layer | Material Name       | t <sub>i</sub> [m] | ρ <sub>i</sub> [kg/m <sup>3</sup> ] | λ <sub>i</sub> [W/mK] | c <sub>i</sub> [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|---------------------|--------------------|-------------------------------------|-----------------------|------------------------|------------------|------------------|
| 0     | lime gypsum plaster | 0.01               | 1900                                | 0.7                   | 850                    | 1                | -                |
| 1     | rafters             | 0.08               | 455                                 | 0.14                  | 1500                   | 17               | -                |
| 2     | moving air layer    | 0.06               | 1.184                               | 0.0261                | 1.005                  | 10               | -                |
| 3     | wood wool           | 0.025              | 469                                 | 0.09                  | 1470                   | 16               | -                |
| 4     | roof battens        | 0.024              | 600                                 | 0.14                  | 1500                   | 15               | -                |
| 5     | roof tiles          | 0.02               | 1786                                | 0.55                  | 889                    | 11               | -                |





## Apartment Block



|                      |           |
|----------------------|-----------|
| Region               | north     |
| Age Class            | 1958-1968 |
| Net leased area [m²] | 830.2     |
| Storey Height [m]    | 2.7       |
| Storeys a.g.         | 4.0       |



### Foundation

| Type: massive | U [W/m²K]     |            |            |
|---------------|---------------|------------|------------|
|               | Actual: 2.370 | Min: 0.180 | Max: 1.500 |

| Layer | Material Name          | $t_i$ [m] | $\rho_i$ [kg/m³] | $\lambda_i$ [W/mK] | $c_i$ [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|------------------------|-----------|------------------|--------------------|---------------|------------------|------------------|
| 0     | floating cement screed | 0.04      | 1940             | 1.4                | 1000          | 18               | -                |
| 1     | mineral wool           | 0.01      | 60               | 0.09               | 850           | 12               | -                |
| 2     | in situ-concrete       | 0.149     | 2400             | 2.04               | 776           | 9                | -                |

### Floor

| U [W/m²K]     |            |            |
|---------------|------------|------------|
| Actual: 2.170 | Min: 0.190 | Max: 2.100 |

| Layer | Material Name          | $t_i$ [m] | $\rho_i$ [kg/m³] | $\lambda_i$ [W/mK] | $c_i$ [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|------------------------|-----------|------------------|--------------------|---------------|------------------|------------------|
| 0     | floating cement screed | 0.04      | 1940             | 1.4                | 1000          | 18               | -                |
| 1     | mineral wool           | 0.03      | 200              | 0.04               | 850           | 13               | -                |
| 2     | reinforced concrete    | 0.15      | 2104             | 2.04               | 776           | 8                | -                |

### Window System

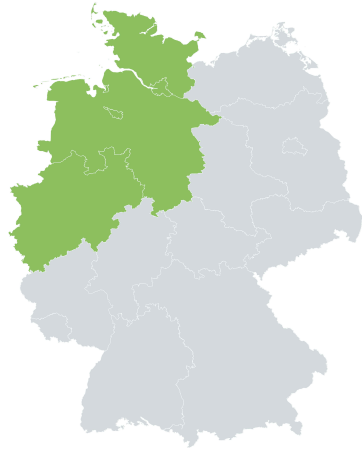
| Glazing | EPD <sub>Gl</sub> | Frame type | EPD <sub>Fr</sub> | window wall share |
|---------|-------------------|------------|-------------------|-------------------|
| 2       | 14                | pvc        | 5                 | 0.17674           |

### Heating System

| Generator 1                       | EPD | Heating energy carrier | EPD |
|-----------------------------------|-----|------------------------|-----|
| boiler_gas_medium_low_temperature | 2   | gas                    | 6   |



## Apartment Block

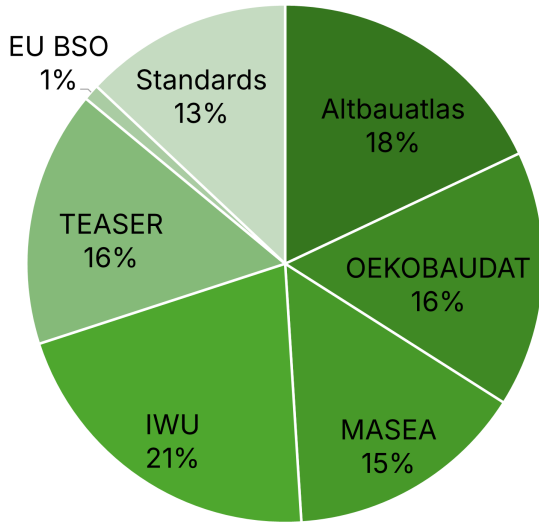


|                      |           |
|----------------------|-----------|
| Region               | north     |
| Age Class            | 1958-1968 |
| Net leased area [m²] | 830.2     |
| Storey Height [m]    | 2.7       |
| Storeys a.g.         | 4.0       |



## EPD Summary Table

| SPN | Full EPD ID                          | Material Title                                                           |
|-----|--------------------------------------|--------------------------------------------------------------------------|
| 1   | 004f3f4e-5bb8-4d9e-a104-6999a9e8ad5b | Gypsum lime plaster                                                      |
| 2   | 230155d8-a5df-4b32-b6e9-46bdbcf526b3 | Gas low temperature boiler 20-120 kW (upright unit)                      |
| 3   | 30514538-fcb4-483b-b5d5-c108d2037536 | Brick (unfilled)                                                         |
| 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_7                          | Ready-mix concrete C30/37 with reinforcement steel                       |
| 10  | Synthetic_8                          | Air layer                                                                |
| 11  | a6d60a75-7a4e-4dfc-87cc-fd40f68d279a | Roofing tiles (including accessories)                                    |
| 12  | ac779922-219f-4730-9aef-a7da84d334c1 | Mineral wool (floor insulation)                                          |
| 13  | d3661bd8-0107-4081-987b-4bdd5cfc68d  | Mineral wool (pitched roof insulation)                                   |
| 14  | dcf38066-e336-46a7-b0a8-b2453dd2872d | Window glass, single                                                     |
| 15  | e70d9027-5315-481c-92e2-7b7d8a02eaba | holzius ? solid wood slab elements                                       |
| 16  | ee0c4b18-f9c9-44d1-8766-36db08856a2f | Wood fiber insulation - dry process (German average)                     |
| 17  | efa55966-4f29-4f15-bfec-8c08b3945923 | Glued laminated timber                                                   |
| 18  | fe371be5-c72f-4203-8569-a085ef375ba4 | CALCIUM SULPHATE FLOWING SCREED AND CONVENTIONAL CALCIUM SULPHATE SCREED |



This archetype represents :

- 6.42% of all Apartment Blocks
- 16.62% of all Apartment Blocks of the specific region

| 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><br><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>                |