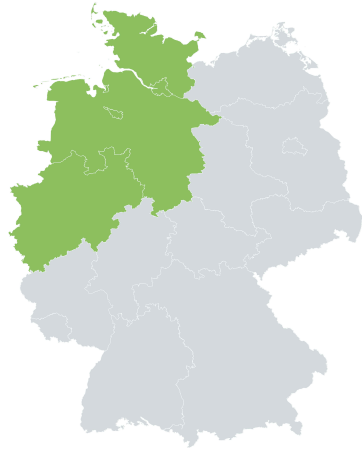




## Hospitality Building



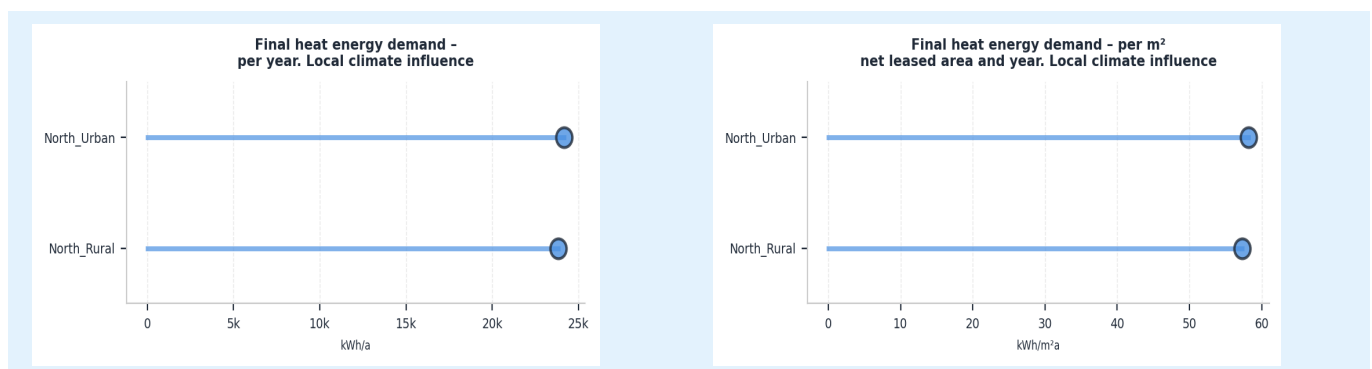
|                      |       |
|----------------------|-------|
| Region               | north |
| Age Class            | -1918 |
| Net leased area [m²] | 415.6 |
| Bldg Height [m]      | 8.0   |
| Storeys a.g.         | 1.9   |
| Storeys b.g.         | 0.3   |



## Building Performance (KPIs)

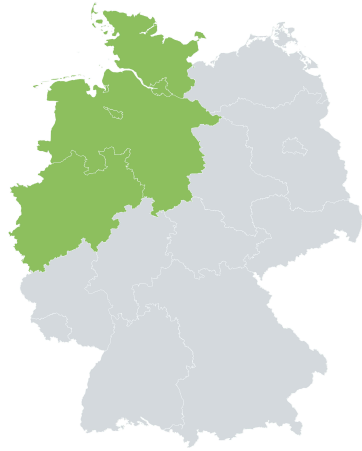
| KPI                                                                         | Mean      | 95% CI    | Unit                            | CV   | n <sub>Sim</sub> |
|-----------------------------------------------------------------------------|-----------|-----------|---------------------------------|------|------------------|
| Final heat energy demand - per year                                         | 23997.05  | ± 364.38  | kWh/a                           | 0.31 | 810              |
| Final heat energy demand - per m² net leased area and year                  | 57.75     | ± 0.27    | kWh/m²a                         | 0.09 | 810              |
| Carbon footprint (GWP) from heat energy - per year                          | 5995.52   | ± 91.04   | kgCO <sub>2</sub> eq,B6/a       | 0.31 | 810              |
| Carbon footprint (GWP) from heat energy - per m² net leased area and year   | 14.43     | ± 0.07    | kgCO <sub>2</sub> eq,B6/m²a     | 0.09 | 810              |
| Life Cycle Carbon footprint (GWP) - over 50 years                           | 363389.36 | ± 5505.14 | kgCO <sub>2</sub> eq,full/50a   | 0.30 | 810              |
| Life Cycle Carbon footprint (GWP) - per m² net leased area and for 50 years | 874.49    | ± 4.03    | kgCO <sub>2</sub> eq,full/m²50a | 0.09 | 810              |

## Local Climate Influence

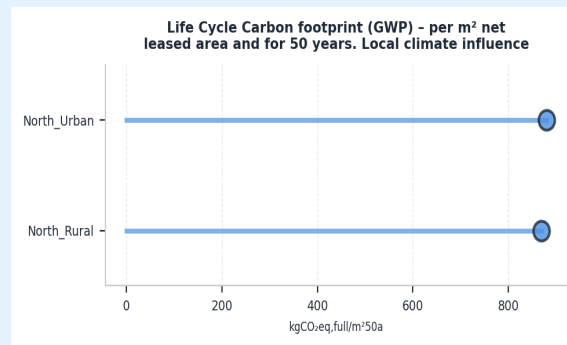
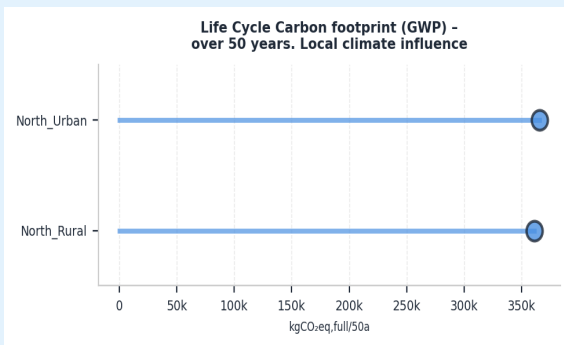
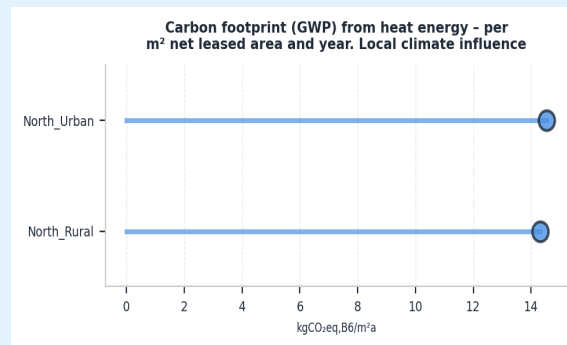
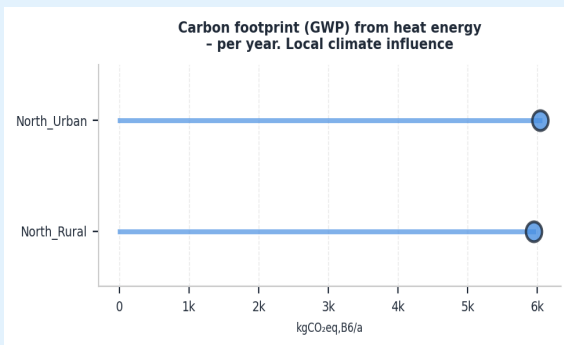




## Hospitality Building

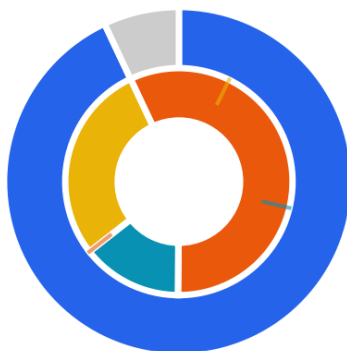


|                      |       |
|----------------------|-------|
| Region               | north |
| Age Class            | -1918 |
| Net leased area [m²] | 415.6 |
| Bldg Height [m]      | 8.0   |
| Storeys a.g.         | 1.9   |
| Storeys b.g.         | 0.3   |



## Mean Life Cycle GWP

ABC

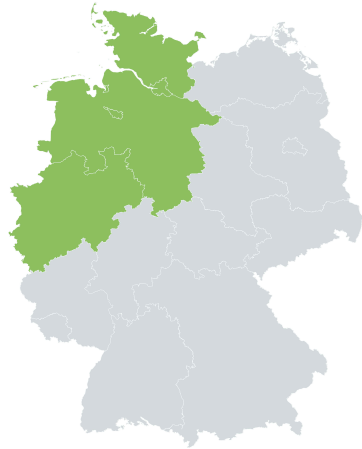


- Operational (93.0%)
- Exterior walls (4.00%)
- Roof (0.00%)
- Foundation (1.00%)
- Windows (2.00%)

| Building element | D [kgCO <sub>2</sub> eq/50a] |
|------------------|------------------------------|
| Exterior walls   | 232.1                        |
| Roof             | 28.4                         |
| Foundation       | 598.1                        |
| Windows          | -625.0                       |



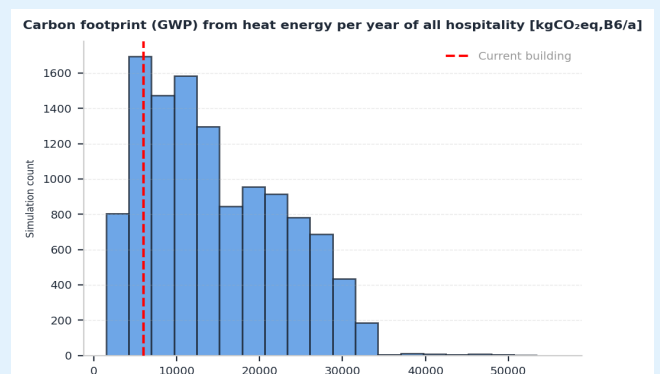
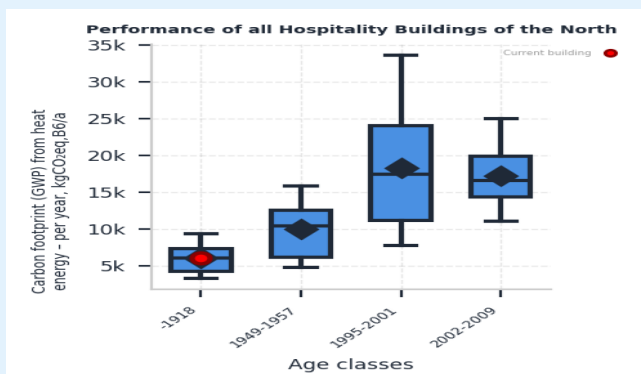
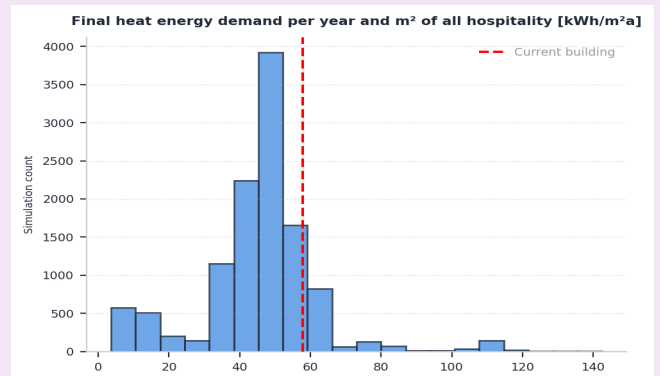
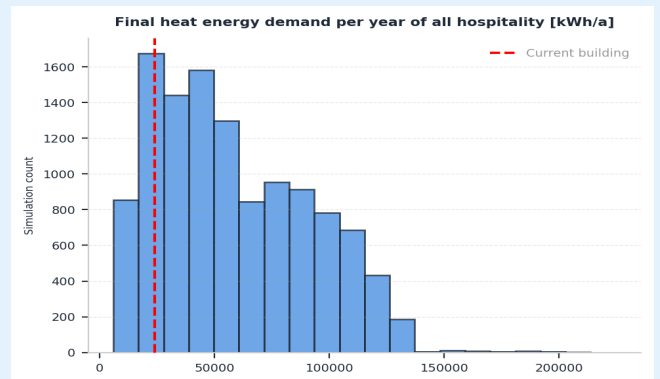
## Hospitality Building



|                                   |       |
|-----------------------------------|-------|
| Region                            | north |
| Age Class                         | -1918 |
| Net leased area [m <sup>2</sup> ] | 415.6 |
| Bldg Height [m]                   | 8.0   |
| Storeys a.g.                      | 1.9   |
| Storeys b.g.                      | 0.3   |

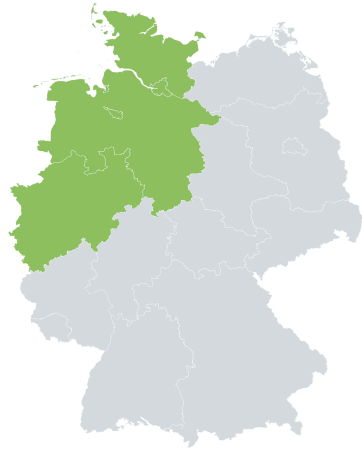


## Building Performance





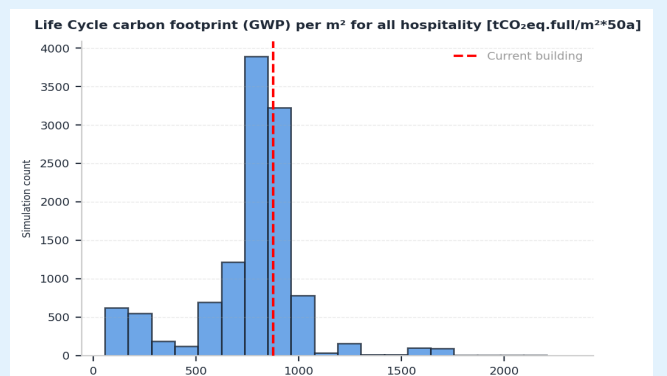
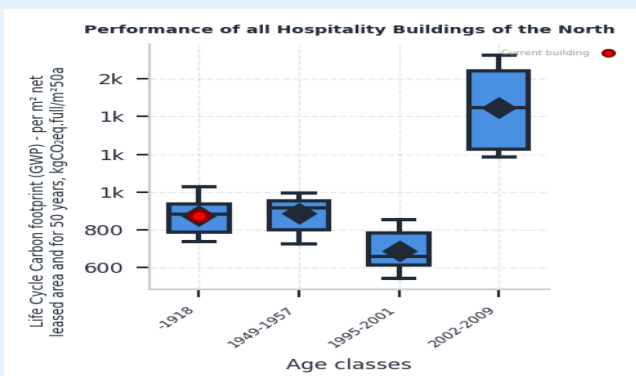
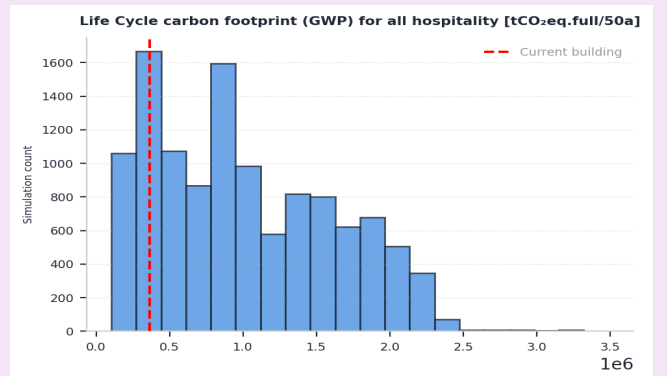
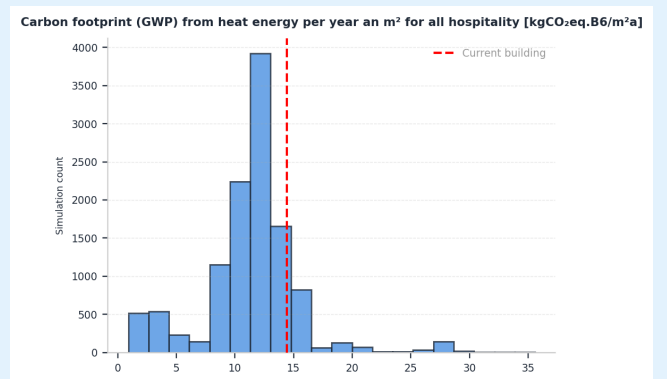
## Hospitality Building



|                      |       |
|----------------------|-------|
| Region               | north |
| Age Class            | -1918 |
| Net leased area [m²] | 415.6 |
| Bldg Height [m]      | 8.0   |
| Storeys a.g.         | 1.9   |
| Storeys b.g.         | 0.3   |

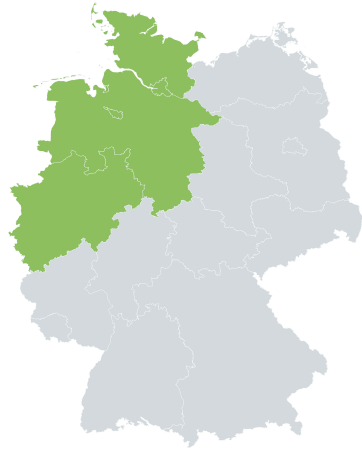


## Building Performance





## Hospitality Building



|                      |       |
|----------------------|-------|
| Region               | north |
| Age Class            | -1918 |
| Net leased area [m²] | 415.6 |
| Bldg Height [m]      | 8.0   |
| Storeys a.g.         | 1.9   |
| Storeys b.g.         | 0.3   |



### Exterior Wall

Type: massive

U [W/m²K]: 0.55

| Layer | Material Name       | $t_i$ [cm] | $\rho_i$ [kg/m³] | $\lambda_i$ [W/mK] | $c_i$ [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|---------------------|------------|------------------|--------------------|---------------|------------------|------------------|
| 0     | gypsum              | 1.5        | 850              | 0.3                | 1000          | 9                | -                |
| 1     | reinforced concrete | 15         | 2400             | 2.1                | 776           | 4                | -                |
| 2     | mineral wool        | 6.08       | 60               | 0.04               | 850           | 2                | -                |
| 3     | exterior plaster    | 1.5        | 1600             | 0.87               | 850           | 1                | -                |

### Interior Wall

U [W/m²K]: 4.04

| Layer | Material Name       | $t_i$ [cm] | $\rho_i$ [kg/m³] | $\lambda_i$ [W/mK] | $c_i$ [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|---------------------|------------|------------------|--------------------|---------------|------------------|------------------|
| 0     | lime plaster        | 1          | 1600             | 0.7                | 850           | 9                | -                |
| 1     | reinforced concrete | 10         | 2100             | 2.04               | 776           | 4                | -                |
| 2     | lime plaster        | 1          | 1600             | 0.7                | 850           | 2                | -                |

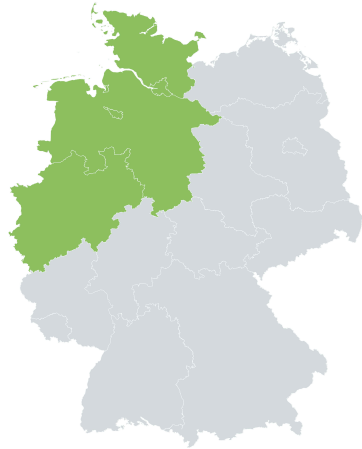
### Roof

U [W/m²K]: 0.34

| Layer | Material Name | $t_i$ [cm] | $\rho_i$ [kg/m³] | $\lambda_i$ [W/mK] | $c_i$ [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|---------------|------------|------------------|--------------------|---------------|------------------|------------------|
| 0     | hardwood      | 3          | 600              | 0.14               | 1500          | 8                | -                |
| 1     | concrete_wz05 | 15         | 2400             | 2.1                | 776           | 4                | -                |
| 2     | mineral wool  | 10         | 60               | 0.04               | 850           | 2                | -                |



## Hospitality Building



|                      |       |
|----------------------|-------|
| Region               | north |
| Age Class            | -1918 |
| Net leased area [m²] | 415.6 |
| Bldg Height [m]      | 8.0   |
| Storeys a.g.         | 1.9   |
| Storeys b.g.         | 0.3   |



### Foundation

U [W/m²K]: 0.31

| Layer | Material Name       | $t_i$ [cm] | $\rho_i$ [kg/m³] | $\lambda_i$ [W/mK] | $c_i$ [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|---------------------|------------|------------------|--------------------|---------------|------------------|------------------|
| 0     | hardwood            | 5          | 650              | 0.13               | 1500          | 8                | -                |
| 1     | mineral wool        | 10         | 60               | 0.04               | 850           | 2                | -                |
| 2     | reinforced concrete | 18         | 2400             | 2.04               | 776           | 5                | -                |

### Floor

U [W/m²K]: 4.04

| Layer | Material Name       | $t_i$ [cm] | $\rho_i$ [kg/m³] | $\lambda_i$ [W/mK] | $c_i$ [J/kgK] | EPD <sub>1</sub> | EPD <sub>2</sub> |
|-------|---------------------|------------|------------------|--------------------|---------------|------------------|------------------|
| 0     | hardwood            | 5          | 650              | 0.13               | 1500          | 8                | -                |
| 1     | reinforced concrete | 18         | 2104             | 1.94               | 776           | 4                | -                |

### Window System

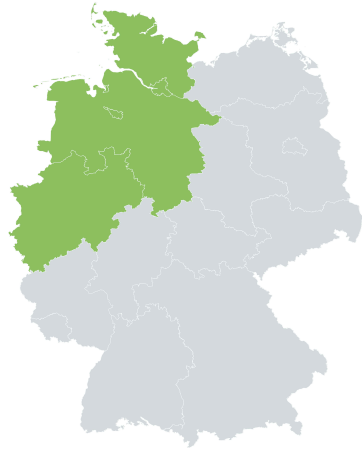
| Glazing | EPD <sub>Gl</sub> | Frame type | EPD <sub>Fr</sub> | Shading type | EPD <sub>Sh</sub> |
|---------|-------------------|------------|-------------------|--------------|-------------------|
| 2       | 7                 | wood       | 6                 | -            | -                 |

### Heating System

| Unit type | Generator                   | EPD <sub>HEG</sub> | Heating energy carrier | EPD <sub>HEC</sub> |
|-----------|-----------------------------|--------------------|------------------------|--------------------|
| per_bldg  | boiler_gas_large_condensing | 10                 | gas                    | 3                  |



## Hospitality Building



|                      |       |
|----------------------|-------|
| Region               | north |
| Age Class            | -1918 |
| Net leased area [m²] | 415.6 |
| Bldg Height [m]      | 8.0   |
| Storeys a.g.         | 1.9   |
| Storeys b.g.         | 0.3   |

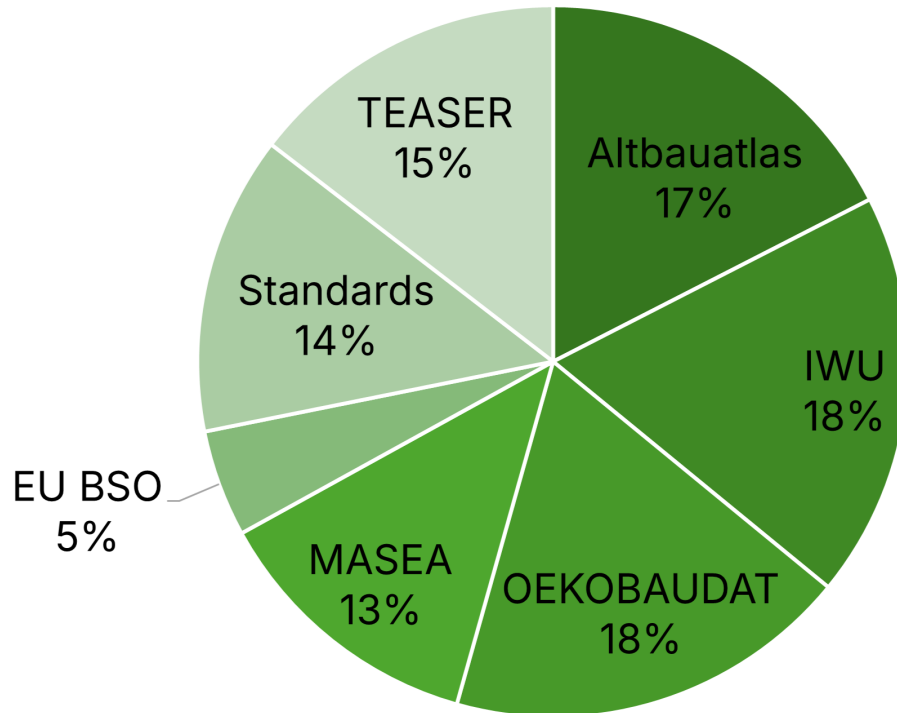


| Façade length [m] |    |       |      |      |      |      |     |
|-------------------|----|-------|------|------|------|------|-----|
| N                 |    | S     |      | E    |      | W    |     |
| Mean              | SE | Mean  | SE   | Mean | SE   | Mean | SE  |
| 11.71             | 2  | 10.31 | 1.95 | 9.26 | 3.09 | 8.18 | 3.6 |

| Façade area [m²] |       |       |       |       |       |       |       |
|------------------|-------|-------|-------|-------|-------|-------|-------|
| N                |       | S     |       | E     |       | W     |       |
| Mean             | SE    | Mean  | SE    | Mean  | SE    | Mean  | SE    |
| 102.72           | 15.45 | 99.22 | 17.32 | 80.01 | 25.65 | 77.34 | 26.94 |

## EPD Summary Table

| Serial No. | Full UUID                            | Material Name                                                           |
|------------|--------------------------------------|-------------------------------------------------------------------------|
| 1          | 004f3f4e-5bb8-4d9e-a104-6999a9e8ad5b | Gypsum lime plaster                                                     |
| 2          | 50d421e2-3a7b-4659-92a4-f20d6a52fcf0 | Mineral wool (facade insulation)                                        |
| 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          | Synthetic_7                          | Ready-mix concrete C30/37 with reinforcement steel                      |
| 6          | b0c75d7b-4cce-41cf-b785-1db434ee9c3f | Window sash (spruce)                                                    |
| 7          | dcf38066-e336-46a7-b0a8-b2453dd2872d | Window glass, single                                                    |
| 8          | e131431f-4d99-4d7a-ae0a-744a06de3524 | Hardwood lumber - kiln dried (German average)                           |
| 9          | e6c2de31-b1a6-4c5d-ba5e-df252391321b | Gypsum (CaSO4 alpha semihydrate)                                        |
| 10         | 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><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>                |

\* Building images are generated by AI