



HU-BES Platform - User Manual

*Sharing monitored data on indoor environmental quality and
roof performance from the LIFE SUPERHERO project*



LIFE SUPERHERO LIFE19 CCA/IT/001194

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1. The HU-BES platform

HU-BES (HUMAN-BEHAVIORS monitoring data SHaring) is an interactive web-based platform that shares monitored data on indoor environmental quality (IEQ), building components operations and roof performance from the LIFE SUPERHERO demonstrator buildings. The platform allows users to easily visualize differences and benefits before and after buildings renovation with the HEROTILE solution.

Different categories of users can access the platform with dedicated credentials, including:

- **Expert users** (e.g., engineers, facility managers, project partners, policymaker, company, researcher) who will have access to detailed trends and aggregated data visualizations.
- **Non-expert users** (e.g., tenants, external stakeholders) who will primarily see simplified, user-friendly data.

HU-BES presents data collected through a comprehensive monitoring activity, including:

- Indoor Environmental Quality (IEQ): indoor air temperature (°C); relative humidity (%); CO₂ concentration (ppm); light levels (lux).
- building components operations: cooling energy consumption (kWh), number of window openings.
- outdoor weather parameters: air temperature (°C); relative humidity (%); solar radiation (W/m²); wind direction and wind speed (°, m/s), rain (mm/h); atmospheric pressure (inHg).
- roof performance: roof external surface temperature (°C); ceiling surface temperature (°C); heat flux across the roof (W/m²).

Data are available across three distinct renovation phases of the building demonstrators, corresponding to dedicated summer monitoring periods (Fig. 1 and paragraph 3.3):

1. Original buildings with unventilated flat roofs – monitored during summer 2022;
2. Buildings renovated with external insulation and new windows – monitored during summer 2023;
3. Buildings renovated with HERO-TILES based roofs installation – monitored during summer 2025.

2022			2023	2025
Original state: Buildings with unventilated flat roofs (low thermal performance and comfort levels)			Renovation (external thermal insulation, windows, heating system)	Renovation with HBR
#1				
				
Monitoring before renovation			Monitoring after envelope renovation	Monitoring after HBR installation

Fig. 1 Renovation and monitoring phases of building demonstrators

The HU-BES platform was developed within the LIFE SUPERHERO project, which aims at promoting the adoption of ventilated and permeable clay-tiled roofs (HERO-TILES) as an innovative passive cooling strategy to improve the energy and environmental performance of buildings and occupant behaviour.

2. Accessing the platform

2.1 System requirements

The HU-BES platform can be accessed using any modern web browser (Chrome, Firefox, Edge) with a stable internet connection by visiting the following link:

[HU-BES Platform](#)

2.2 User registration and login

In order to access the HU-BES platform, users must register through the official LIFE SUPERHERO project webpage (<https://www.lifesuperhero.eu/hu-bes-data-sharing-platform/>).

After registration, they will be provided with a dedicated username and password based on their access level (i.e., expert users, non-expert users). Once received, the credentials must be entered on the login interface (Fig. 2).

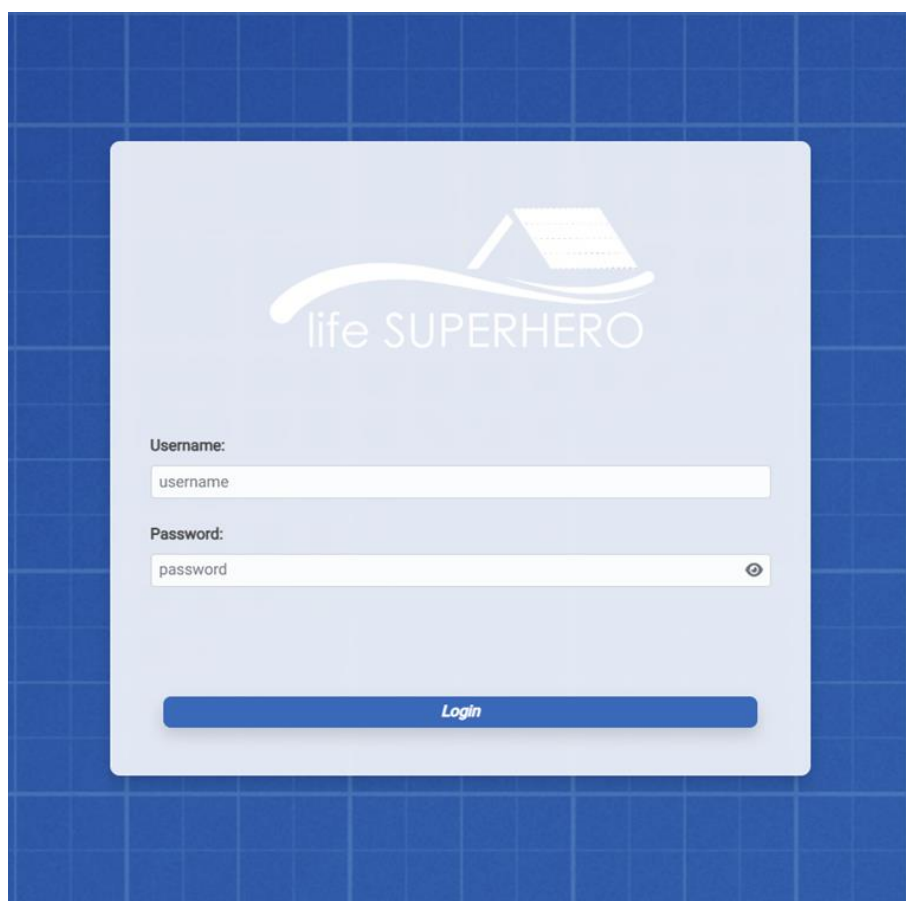
The login interface is a light blue rectangular box centered on a dark blue background with a subtle grid pattern. At the top of the box is the LIFE SUPERHERO logo. Below the logo are two input fields: "Username:" with a placeholder "username" and "Password:" with a placeholder "password" and a toggle icon. At the bottom is a blue "Login" button.

Fig. 2 Log-in page

3. Platform overview

3.1 Dashboard panel

The HU-BES platform interface is structured into four main components (Fig. 3):

1. **an expandable sidebar navigation** for accessing different contents;
2. **a top filtering banner** to select specific buildings, apartments, and time ranges;
3. **data visualization frame** where the selected information is displayed through interactive charts and synthetic data;
4. **language selector**, enabling users to choose between Italian and English for an optimal user experience;
5. **log off option** ensuring secure termination of the session.

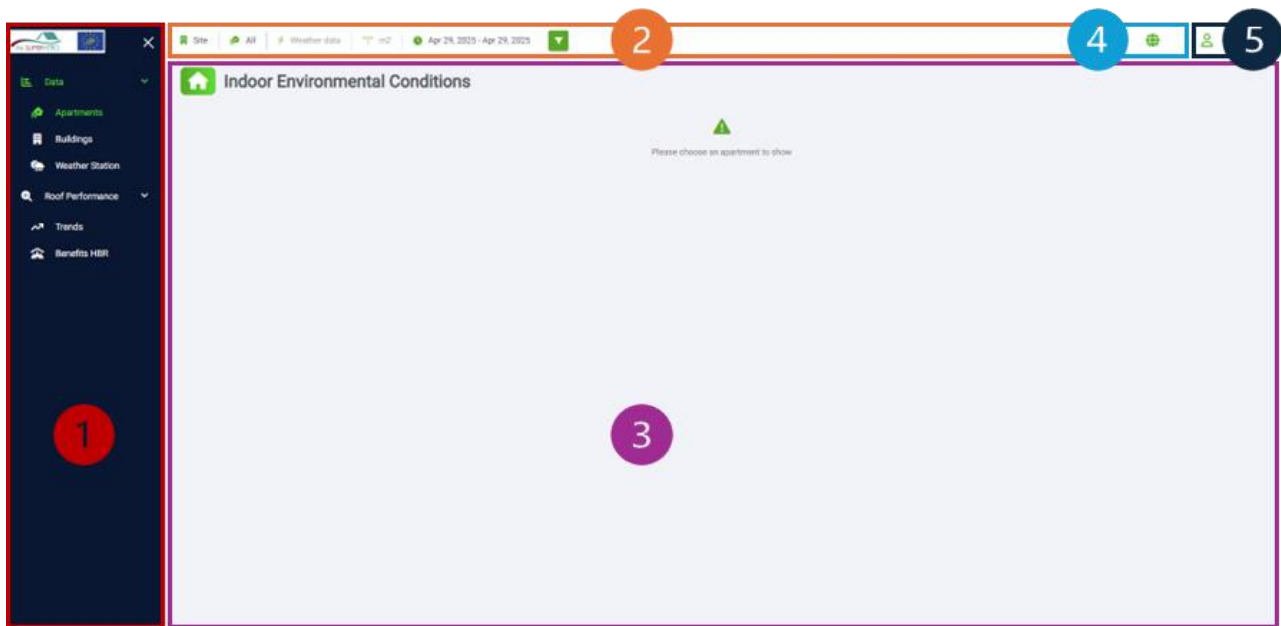


Fig. 3 HU-BES interface structure

3.2 Sidebar navigation

The sidebar navigation is organized into two main sections (Fig. 4): “Data” and “Roof Performance”.

Under the “Data” section, users can access data on Indoor Environmental Quality (at apartment and building level, depending on user’s category) and weather data collected from on-site weather stations.

The “Roof Performance” section provides access to roof performance data, including trends related to thermal properties and HEROTILES (HBR) benefits, presented through synthetic indicators.

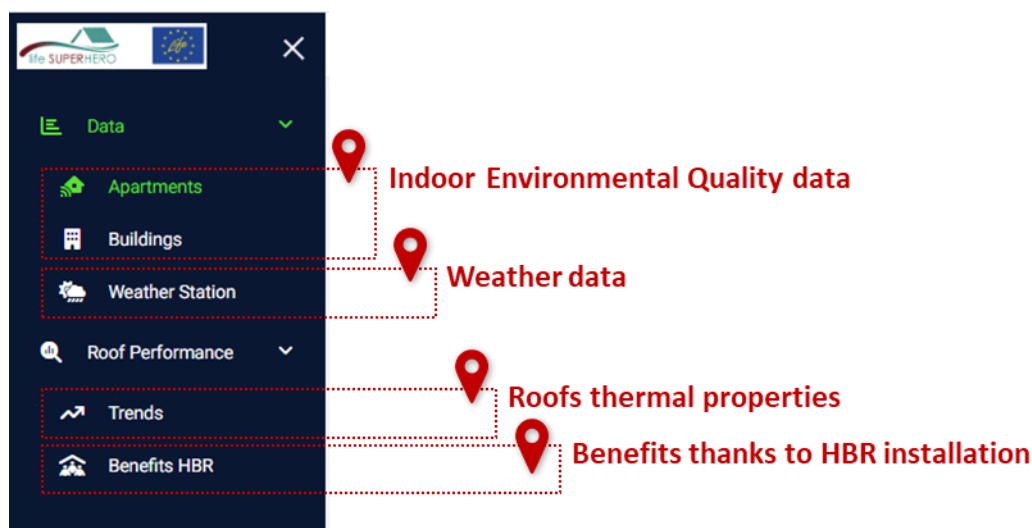


Fig. 4 Sidebar navigation content

3.3 Filtering banner

By clicking the funnel icon in the filtering banner, the “**Advanced Filters**” panel appears (Fig. 5).

Thanks to the drop-down menus, users can refine data selection based on the following parameters:

- **Building selection:** choose between *Building 1* and *Building 2*, which correspond to the two project demonstrator buildings.
- **Apartment selection:** if available, select a specific apartment within the chosen building.
- **Assessment period:** define the analysis period by selecting a start and end date.

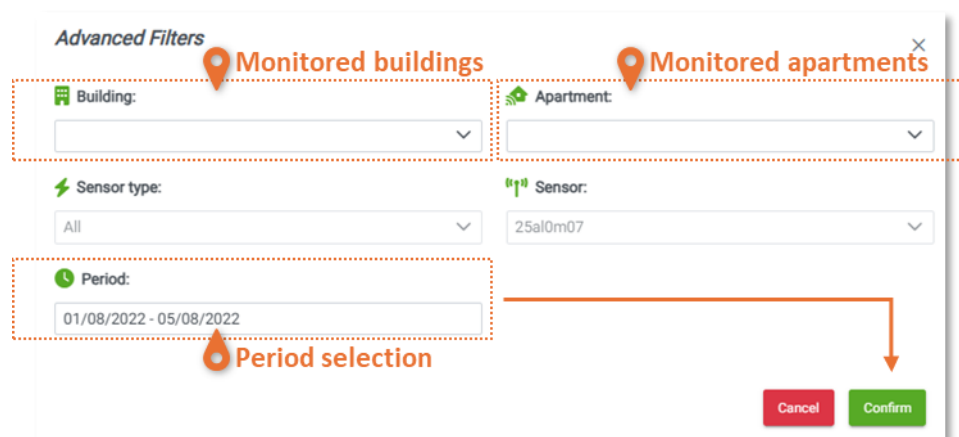


Fig. 5 Interface of the filtering banner. Click “Confirm” to display the filtered results

Within each HU-BES sub-section, the filtering panel allows users to select data from the following predefined monitoring periods (Tab. 1):

	Available filtering in HU-BES sub-sections					
	Data		Roof Performance – Trends		Roof Performance – Benefits HBR	
Buildings status						
Original	from	06/07/2022	to	from	06/07/2022	to
		30/09/2022			30/09/2022	

Renovated with external insulation and new windows	from 01/06/2023 to 30/09/2023	from 01/08/2023 to 30/09/2023	
Renovated with HBR	from 01/06/2025 to 30/09/2025	from 01/06/2025 to 30/09/2025	from 01/06/2025 to 30/09/2025

Tab. 1 Available monitoring periods for data visualization

For example, a user may choose to visualize data from *Building 2, Apartment 2_1*, during the period from *August 1 to August 5, 2022*, corresponding to the monitoring campaign before roof renovation with HERO-TILES.

3.4 Data visualization

Once a selection is made, the platform displays resulting data in two different formats (i.e., synthetic icon-based and trends) depending on user's category.

3.4.1 Non-expert users

Synthetic icon-based data are available showing average, maximum and minimum values for each monitored parameter. This format is especially designed to provides an intuitive overview of data (Fig. 6).

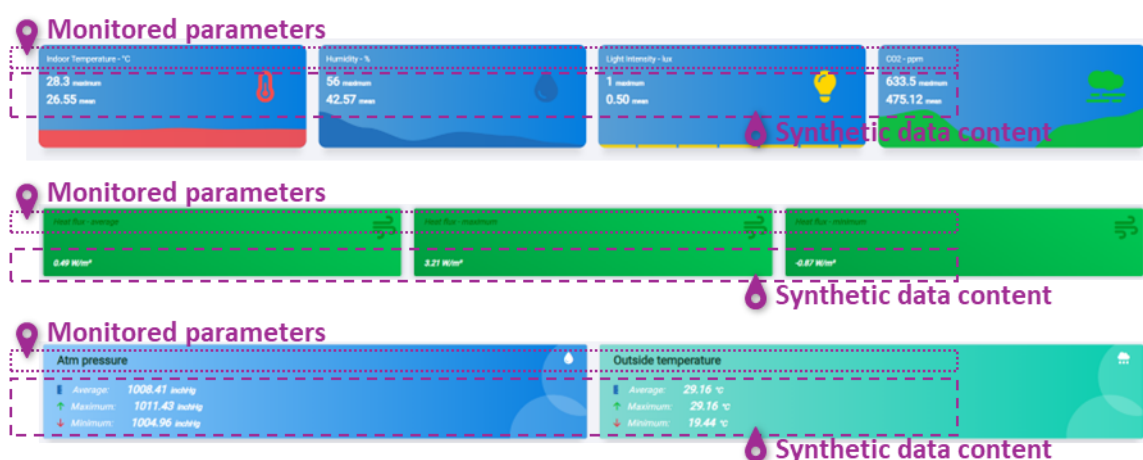


Fig. 6 Typical interface of synthetic icon-based data

3.4.2 Expert users

Synthetic icon-based data are available showing average, maximum and minimum values for each monitored parameter. This format is especially designed to provides an intuitive overview of data (Fig. 6).

Additionally, **interactive trend charts** offer detailed time series visualizations for expert users. These charts allow for a deeper analysis of how variables evolve over the selected period (Fig. 7). In this format, users can further customize the visualization mode. A drop-down menu enables the selection of the

specific monitored parameter to be displayed (e.g., indoor temperature, light, CO₂), as well as the preferred chart type (e.g., line, bar, area), supporting flexible and user-driven exploration of the monitored data.

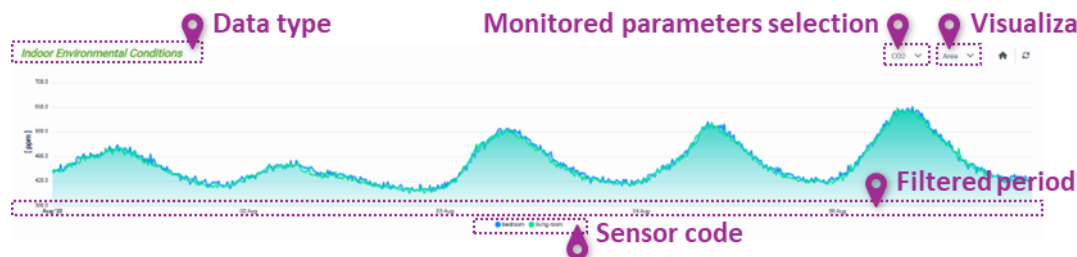


Fig. 7 Typical interface of charts

4. Content of HU-BES sections

4.1 Data

4.1.1 Non-expert users

For non-expert users, the “Data” section provides at building level (Fig. 8) aggregated summary statistics the Indoor Environmental Quality parameters including indoor air temperature ($^{\circ}\text{C}$), relative humidity (%), CO_2 concentration (ppm), and light levels (lux). calculated across all monitored apartments.

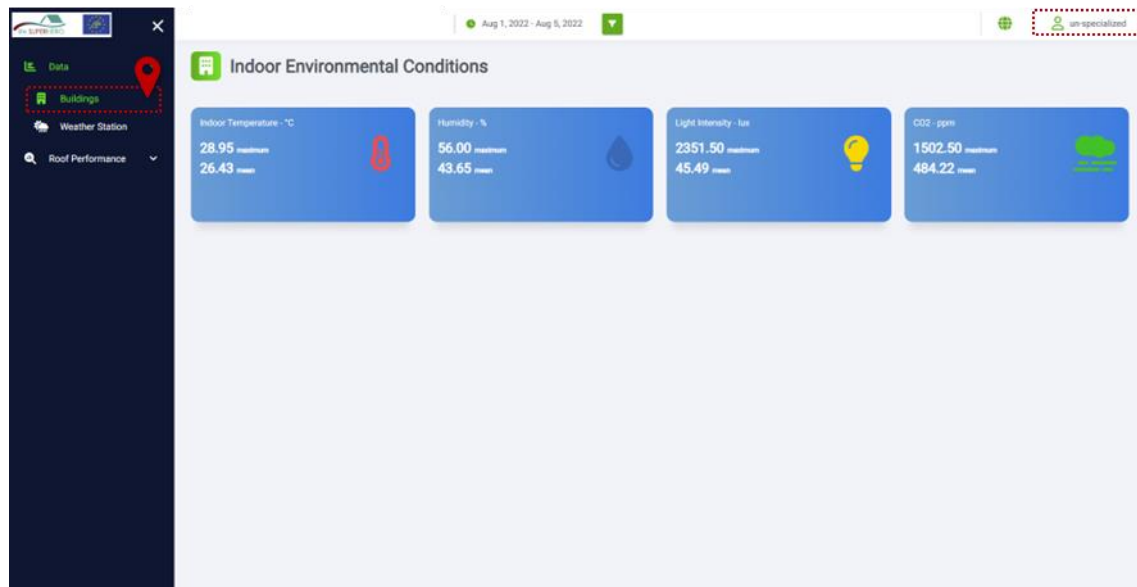


Fig. 8 Content of "Data" section at building level for un-expert users

The platform presents also summary statistics for outdoor environmental conditions (Fig. 9), including air temperature ($^{\circ}\text{C}$), atmospheric pressure (inchHg), solar radiation (W/m^2), UV index, relative humidity (%), rainfall (mm), rain rate (mm/h), wind speed (m/s), and wind direction ($^{\circ}$).

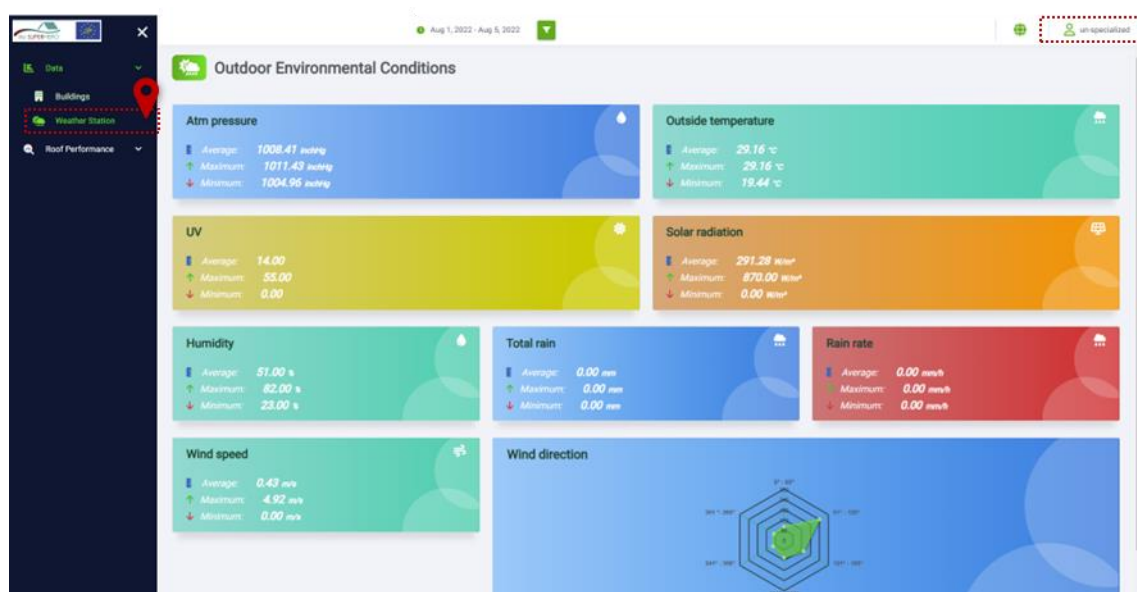


Fig. 9 Content of "Data" section at weather station level for un-expert users

4.1.2 Expert users

For expert users, the “Data” section provides summary statistics and trend visualizations for Indoor Environmental Quality, building components operations and weather parameters, organized as follows.

At apartment level (Fig. 10), the platform displays indoor air temperature (°C), relative humidity (%), CO₂ concentration (ppm), and light levels (lux).

In addition, building components operations (i.e., air conditioning activation and windows openings) are included, such as cooling energy consumption and the number of window openings.

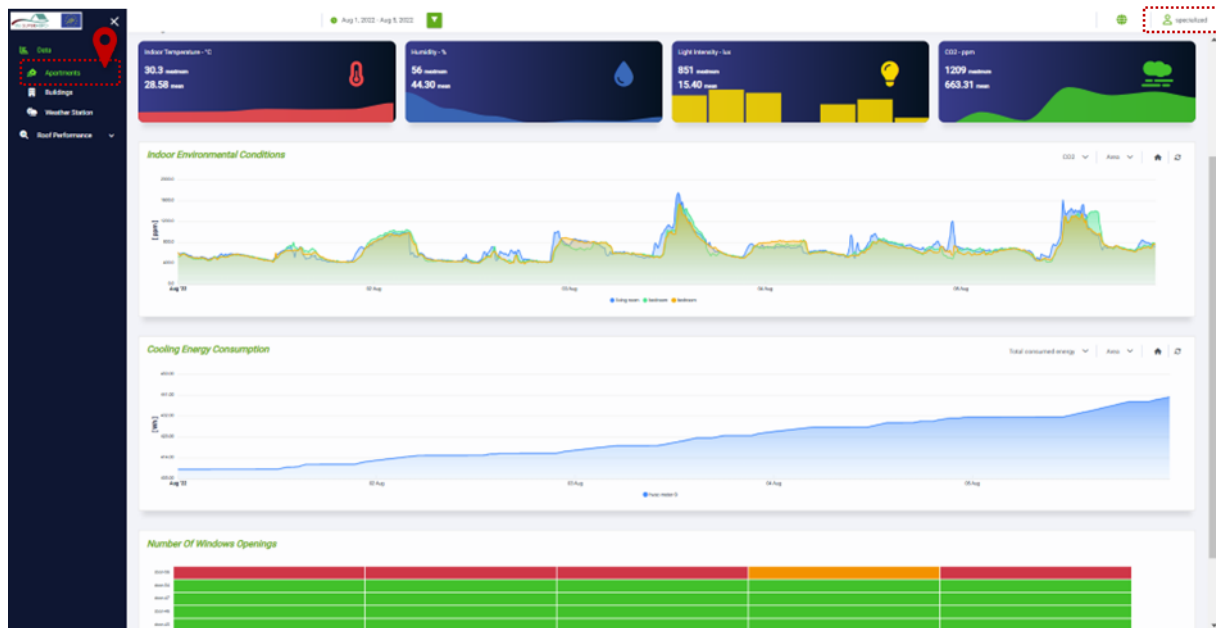


Fig. 10 Content of “Data” section at apartment level for expert users

At building level (Fig. 11), aggregated summary statistics are presented for the same Indoor Environmental Quality parameters (i.e., temperature, humidity, CO₂, light), calculated across all monitored apartments.

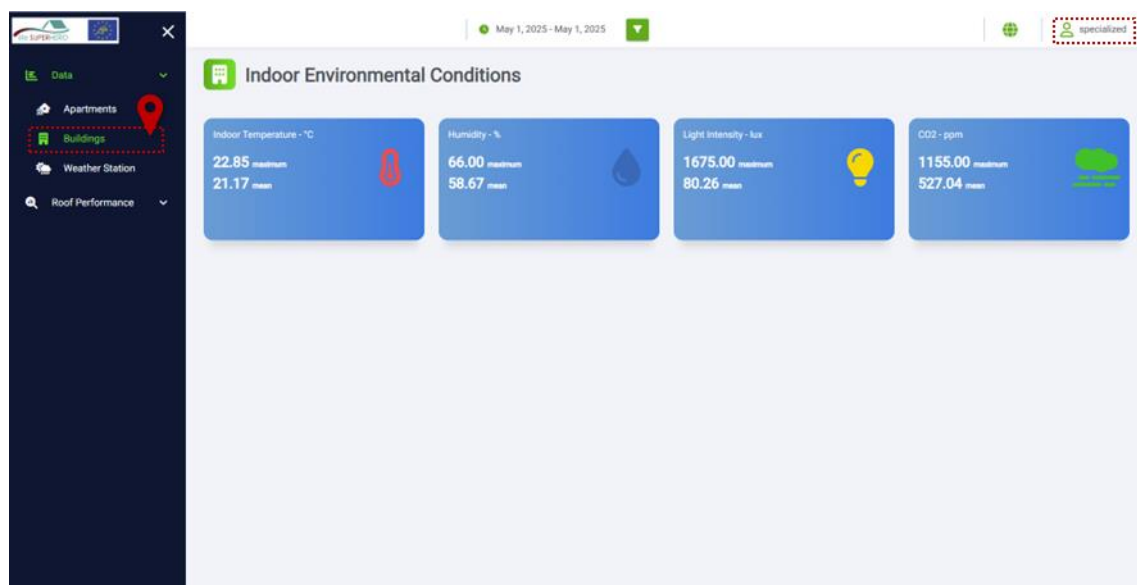


Fig. 11 Content of “Data” section at building level for expert users

The platform presents also summary statistics and trends for outdoor environmental conditions (Fig. 12), including air temperature ($^{\circ}\text{C}$), atmospheric pressure (inchHg), solar radiation (W/m^2), UV index, relative humidity (%), rainfall (mm), rain rate (mm/h), wind speed (m/s), and wind direction ($^{\circ}$).



Fig. 12 Content of "Data" section at weather station level for expert users

4.2 Roof Performance

This section provides access to roof performance data into two main subsections: **"Trends"** and **"Benefits HBR"**.

4.2.1 Non-expert users

In the "Trends" subsection, non-expert users can explore summary statistics illustrating average, maximum, and minimum values of roof thermal properties, including heat flux through the roof (W/m^2), ceiling surface temperature ($^{\circ}\text{C}$) and roof covering surface temperature ($^{\circ}\text{C}$) (Fig. 13). It is possible to filter and compare data from all monitored summer periods — 2022 and 2023 (original roof) and 2025 (renovated roof with HERO-TILES) — as well as by roof slope orientation, selecting either the north-facing or south-facing side.

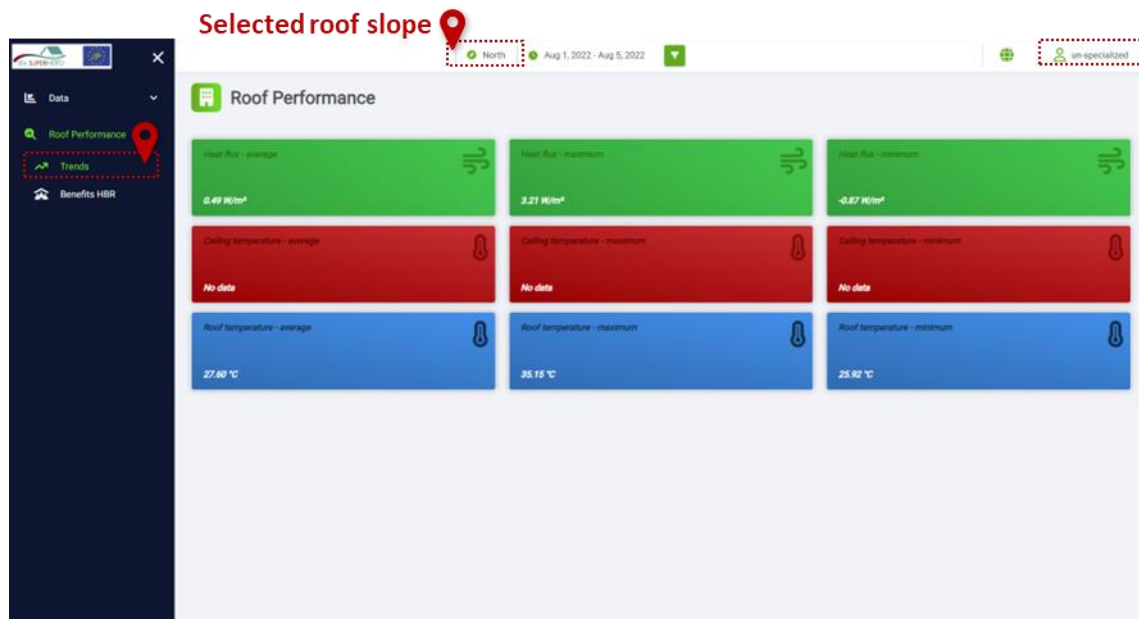


Fig. 13 Content of "Roof Performance: Trends" section for un-expert users

The “**Benefits HBR**” subsection (Fig. 14) provides access to synthetic indicators highlighting the effectiveness of HERO-Tiles Based Roofs.

Non-expert users can visualize key performance indicators, such as percentage reduction in maximum roof surface temperature, percentage reduction in maximum ceiling temperature and percentage reduction in cooling energy use and CO₂ emissions.

Additionally, the platform provides detailed data from the 2025 summer monitoring period, focusing on maximum roof covering surface temperature with HBR (°C), maximum ceiling surface temperature with HBR (°C) and maximum daily value of total heat flux entering through the HBR (Wh/m²). These indicators help assess the thermal and environmental benefits achieved after the HBR installation.

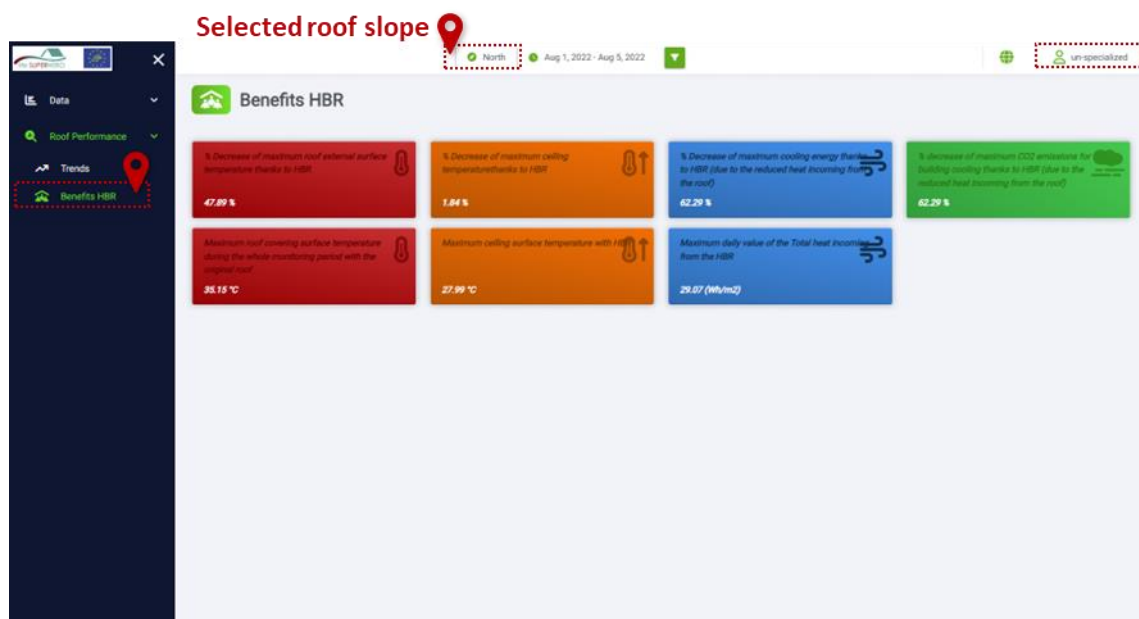


Fig. 14 Content of "Roof Performance: Benefits HBR" section for un-expert users

4.2.2 Expert users

In the “Trends” subsection (Fig. 15), expert users can explore charts and summary statistics illustrating average, maximum, and minimum values of roof thermal properties, including heat flux through the roof (W/m^2), ceiling surface temperature ($^{\circ}\text{C}$) and roof covering surface temperature ($^{\circ}\text{C}$). It is possible to filter and compare data from all monitored summer periods — 2022 and 2023 (original roof) and 2025 (renovated roof with HERO-TILES) — as well as by roof slope orientation, selecting either the north-facing or south-facing side.



Fig. 15 Content of "Roof Performance: Trends" section for expert users

The “**Benefits HBR**” subsection (Fig. 16) provides access to synthetic indicators highlighting the effectiveness of HERO-Tiles Based Roofs.

Expert users can visualize key performance indicators, such as percentage reduction in maximum roof surface temperature, percentage reduction in maximum ceiling temperature and percentage reduction in cooling energy use and CO_2 emissions.

Additionally, the platform provides detailed data from the 2025 summer monitoring period, focusing on maximum roof covering surface temperature with HBR ($^{\circ}\text{C}$), maximum ceiling surface temperature with HBR ($^{\circ}\text{C}$) and maximum daily value of total heat flux entering through the HBR (Wh/m^2). These indicators help assess the thermal and environmental benefits achieved after the HBR installation.

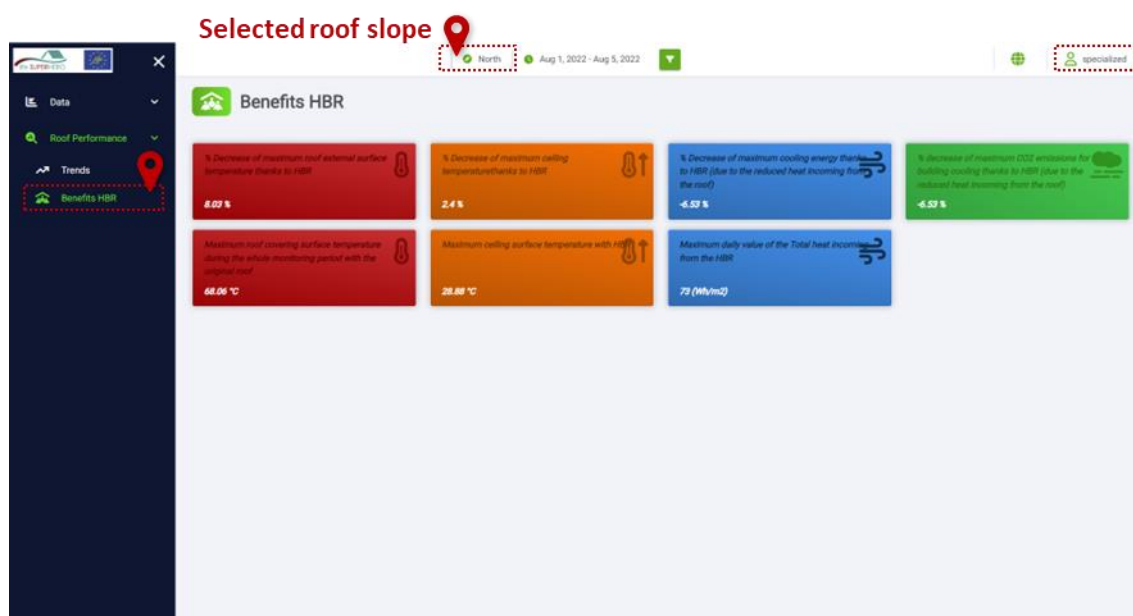


Fig. 16 Content of "Roof Performance: Benefits HBR" section for expert users

5. FAQ & troubleshooting

Q1: How can I register to access the HU-BES platform?

A: Registration is handled through the LIFE SUPERHERO project team. Please refer to the project website to request credentials (<https://www.lifesuperhero.eu/hu-bes-data-sharing-platform/>).

Q2: Where do I enter my username and password?

A: Use the login page shown in the platform interface (see Fig. 2, paragraph 2.2). Enter your dedicated credentials to access the dashboard.

Q3: I forgot my login credential. What should I do?

A: Contact the project team via the official mailing list at lifesuperhero.project@gmail.com to request login credential or password recovery. Include your full name and the user category (see Section 1 for the definition). Your request will be processed, and new login credentials will be sent to you as soon as possible.

Q4: “How can I see the benefits of HEROTILE-based roofs?”

A: You can use the “Roof Performance: Benefits HBR” section of the platform (see paragraph 4.2), which shows synthetic indicators such as the percentage reduction in roof and ceiling temperatures, cooling energy use, and CO₂ emissions thanks to the HBR installation.

Q5: Can I filter data for specific buildings or time periods?

A: Yes. Use the filtering banner to select the building, apartment, and desired date range. Advanced filters can be accessed by clicking the funnel icon (see paragraph 3.4).

Q6: I can’t see detailed trend charts. Why?

A: as mentioned in paragraph 3.4, detailed charts are available to expert users. If you are a non-expert, your view is limited to simplified data summaries.

Q7: Can I download data?

A: Only admin users have access to raw data downloads. For other users, data can be visualized according to the content of paragraph 3.4.

Q8: Who do I contact for technical issues?

A: For support, contact the HU-BES technical team via the following email address

Elisa Di Giuseppe
Arianna Latini
Gabriele Bernardini

e.digiuseppe@staff.univpm.it
a.latini@staff.univpm.it
g.bernardini@staff.univpm.it

6. Acknowledgement

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7. Privacy Policy

Data collected through the HU-BES Platform.

The HU-BES Platform does not directly collect personal information such as name, surname, or personal email addresses through forms or newsletter subscriptions in its current version and the website does not use cookies and other tracking tools.

Privacy Policy Updates

We reserve the right to modify this privacy policy at any time, so please review it frequently. Changes and clarifications will take effect immediately upon their posting on the website.

[Read the Privacy Policy >>](#)