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	<h1>EASI ZERO</h1> <h2>GA n°101091531</h2>
Deliverable	ENVELOPE MATERIAL SYSTEM WITH LOW IMPACT FOR ZERO ENERGY RENOVATION AND CONSTRUCTION

Deliverable ID	D2.2
Deliverable name	Product requirement inputs database
Deliverable description	<p>This database will collect the most relevant product requirements for product groups covered by the EASI-ZERO project, as inputs for products' design within a specific template. For example, it includes physical properties (such as U-values or mass) and other characteristics (e.g., fire resistance or application potential) of the state-of-the-art thermal insulating solutions, as well as description of reference buildings. The database will be designed and populated to cover the project's target region (Germany, Sweden, Spain, Romania and selected 3 use cases countries).</p>

WP	2	Specification and validation of products requirements
Task	2	Development of the product requirement inputs database

Dissemination level¹	PU	Due delivery date	31/05/2023 → 31/07/2023
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¹ Dissemination level: **PU** = Public, fully open, **SEN** = Sensitive, limited under the conditions of the Grant Agreement

² Nature of the Deliverable: **R** = Report

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Glossary

NA: Not Applicable

EU: European Union

VOC: Volatile Organic Compounds

WP: Work Package

MB: Megabytes

DMP: Data Management Plan

CC: Creative Commons



1. Executive summary

1.1 *Description of the Deliverable content and objectives*

The product requirement inputs database sets the basis for the initial definition of product requirements, as input for product design. The database includes physical properties (e.g. U-values and mass) and other characteristics (e.g. fire resistance or application potential) tailored to individual products that are being developed in the project. The database includes a description of reference buildings needed for product requirements at the building level in the project's target geographical area (Germany, France, Italy, Poland, Spain and Sweden as proxy for Norway). Denmark was also considered.

The objective of the product requirement inputs database is bringing together the most relevant initial product requirements for each product group developed in the EASI ZERo project. Product requirements apply to the product level, but can also apply on system level, therefore reference building descriptions covering the target region of the project are included, that allow performance simulation on the whole-building level. The covered product groups are mycelium panels, bio-PUR foam, window frames (including exterior paint), wood fiber panel, insulation render, VOC paint, hollow bricks, photovoltaic wall systems.

This deliverable shows some screenshots of the database and the implementation of the database in the Data management Plan (DMP) of the project. A set of tables is presented to assess the FAIR principle (to easily access, understand, exchange and reuse data) of the data collected in this database.

1.2 *Deviation from objectives, corrective action*

This report is issued with a 2 months delay, as discussed with EU representative (see information message tracked in the portal).

1.3 *Technical progress*

The consortium will now make the collection and analysis of the data progress in the frame of the project implementation.

1.4 *Impact of the results*

Because the database has not been published yet, no related results have been achieved yet. The product development is still ongoing by the date of initializing the database template, and certain data (e.g., price, ease of installation, environmental impact) only become available in later phases of the product development. Partners leading different work packages might use the initial product requirements database.



1.5 *Dissemination activities carried out, planned*

The database described in this report will be made public by depositing the database file on a trusted repository, according to the DMP used in the EASI ZERo project. Access to the repository is described in the DMP and updated in the numerical version of the DMP related to open data (see D1.3 report). The objective of this deliverable is to support EASI ZERo work in WP2 and work in WP3 – WP7. Except internal communication with project partners, no scientific interest would make publication relevant at this stage without further analysis and development in the project.



2. Content of the database

2.1 Presentation of the dataset

The database is created in an Excel format and uses several datasheets:

- Description of database contents with purpose and objectives
- Parameters sheet for the reference building database for the target region
- Reference building database for the target region
- Product requirement sheets (one sheet for each product group):
 - o mycelium panels
 - o bio-PUR foam
 - o window frames (including exterior paint)
 - o wood fiber panels
 - o insulation render
 - o hollow bricks
 - o PV wall systems
 - o VOC paint

The present database is a dataset which is part of the global EASI ZERO Data Management Plan. The EASI ZERO DMP is implemented in the Argos tool, an open platform for data management planning. It shows the dataset with products requirement inputs and reference building data. The access has actually been granted to contributors.

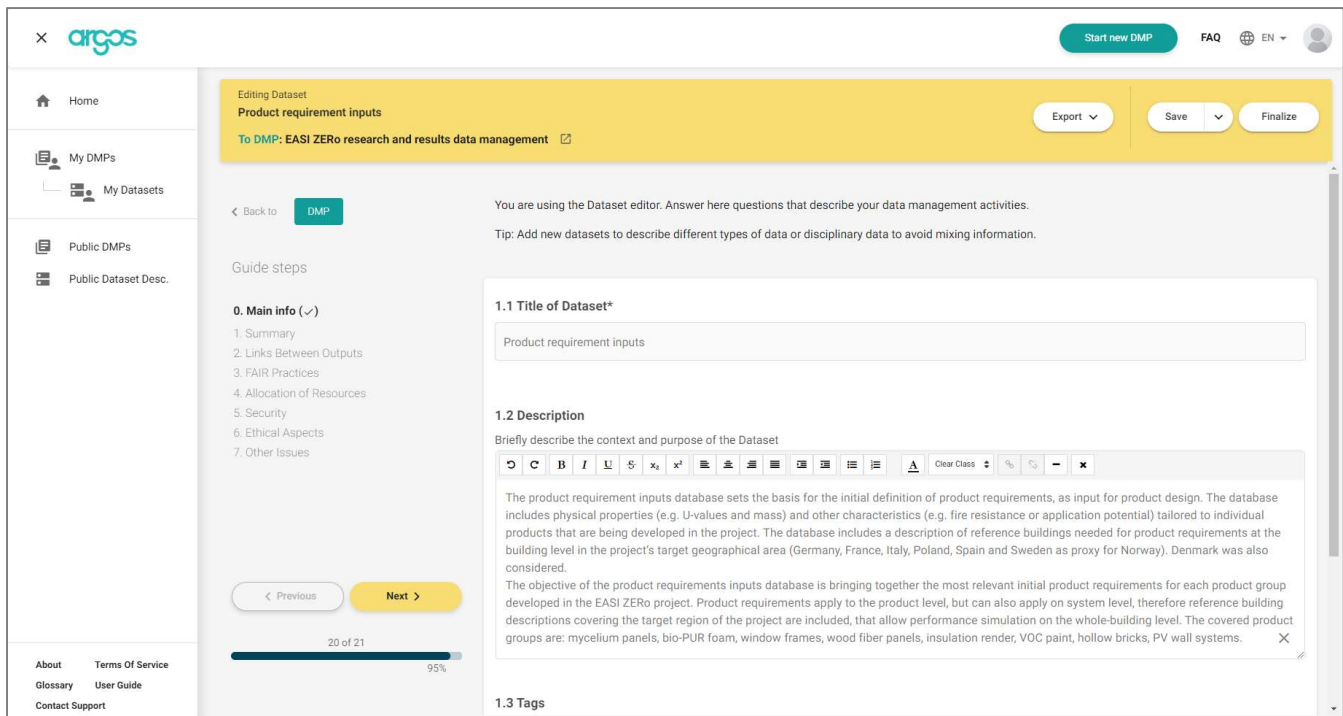


Figure 1: screenshot of the "Product requirement inputs" dataset in on-line EASI ZERO DMP in OpenAIRE ARGOS platform



1	What kind of research output?	Initial product requirement database with reference buildings data
2	Is it physical or digital?	Digital
3	Are you generating or re-using it?	Some data is generated from the own knowledge of the partners of the project, especially for materials and associated existing standards. The reference building data is re-used, coming from the Ambience project, the product data sheets are generated.
4	What is the type of the described dataset?	Description sheet, parameter sheet reference buildings, reference building database, product requirement sheets describing relevant required and optional product characteristics, units, tests/standards, minimum/maximum values, desired performance.
5	What is its format?	Microsoft Excel for Windows
6	What is its expected size?	1-3 MB
7	Why are you collecting/generating or re-using it?	Data will support the development of the various product groups developed in the project, it represents updated state of the art in various construction product classes and buildings typologies.
8	What is its origin / provenance?	Project consortium partners and Ambience project (https://ambience-project.eu/deliverables/#public-deliverables)
9	To whom might it be useful ('data utility')?	Researchers and industrials, as within the EASI ZERO consortium: WP leads of WP2 (BPIE) – and potentially other WPs (WP4: DTI, WP5: SINTEF, WP6: ELITHIS, WP7: LEITAT). Research communities

Table 1: description of dataset “Product requirement inputs”

Notes:

1- For some product sheets additional data will be included over the course of the project.

7- Ambience reference building data is useful for the product design baseline operational energy calculations over a buildings life-cycle in the product requirements tool (T2.3) and potentially work in other WPs (WP3 product development, WP4 (development & assembly), WP5 (performance evaluation in test environment) , WP6 (in-use cases), WP 7 (sustainability assessment).

When opening the data table, we can check these initial statements as illustrated in figure 2.





EASI ZERO Product requirement input database and reference building database	
	<p>This database was developed to establish a stakeholder group for the EASI ZERO project. This project is funded from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101091531.</p> <p>Project coordinator: Commissariat à l'énergie atomique et aux énergies alternatives (CEA)</p> <p>Project duration: December 2022 - May 2026 Date delivered: 31.07.2023 Accessibility: Public</p>
 Funded by the European Union	<p>This database contains information on the reference buildings that characterise the building stock of the target countries, comprising both residential and non-residential buildings. The target countries are Germany (DE), France (FR), Spain (ES), Italy (IT), Norway (NO), Denmark (DK) and Poland (PL).</p>
	<p>Authors: Rutger Broer, Julien Bonhomme, Mathil de Delliot, Xérome Fernández Álvarez Reviewers: Juergen Frick, Philippe Thony Contributors: Ashwinikumar Sharma, Pablo O. Outón, Emma Ben Mariem, Inger Gamme, Ralf Paustian, Tina Oertel, Ana-Maria Escobar, Silvia Gava, Guy Baret, Matthias Heigl, Marina Stipetic, Ivan Jankovic, Jelena Simjanovic, Hicham Lahmid</p>
CONTENT	
<p>0) Task description</p> <p>1) Sheet "PARAMETERS_TABLE_DB"</p> <p>2) Sheet "REF_BUILDINGS_DATABASE"</p> <p>3) Sheet individual products</p>	<p>This task will set the basis for initial definition of product requirements, as inputs for products' design. ELIT will carry out a benchmarking of existing databases, explore the needs for non-standard products and enhance the design of this product database by developing a database template. Product requirement inputs database will be filled with inputs needed for proper definition of individual product requirements. For example, it will include physical properties (such as U-values or mass) and other characteristics (e.g., fire resistance or application potential) of the state-of-the-art insulating solutions, as well as description of reference buildings needed for product requirements at the building level (such as requirement for reduction of the energy spent during the whole life cycle of a building). The database will be designed and populated to cover the project's target regions (Germany, France, Italy, Spain, Norway, Poland)</p> <p>This sheet provides a summary of the 56 data fields that the database covers for each reference building. These data fields are classified in for categories (<i>Reference building classification, Reference building geometry, Reference building thermal properties & Building stock segment metrics</i>). The main sources used for preparing the database are also mentioned here.</p> <p>It contains a single table where all the reference buildings (residential and non-residential) identified for each target country (DE, FR, ES, IT, NO*, DK** & PL) are listed. Reference buildings are defined according to three/four characteristics: Country, Building use, Construction period, and (if applicable) Specifics of construction methodology and/or materials used.</p> <p><i>*NO is represented by Sweden (SE), used as a proxy country as a solution to adress data availability gaps. **DK is included upon request from partners</i></p> <p>Contain product description, product characteristics, applicable standards and tests, and if relevant minimum/maximum values</p>

Figure 2: opening page presenting the table purpose and organization.

2.2 Metadata to provide findable data

Metadata are defined to make the table searchable and easily usable and re-usable.

- Title of the dataset
- Name of the project that worked out the database and funding acknowledgement
- Origin date of generation of the dataset
- Publication date
- Format (details on the file format)
- Authors, reviewers, contributors
- Access rights to the information in the dataset
- Parameters reference buildings
- Parameters of the product requirement sheet data: product name, product characteristics, units, EU/national standards, minimum/maximum performance, desired performance

At this point, no specific dedicated vocabulary for this database and metadata is considered. We will use usual keywords that the person of the art could easily understand.



2.3 Access management

The table 2 disclose how access will be granted to the database. These statements are set according to the DMP of the project with no modification, mentioning that early access is provided to the project contributors on the secured website used to exchange data shared in the consortium.

1	How is the dataset / output shared?	See DMP
2	What is the reason of limiting access to the dataset / output?	NA
3	Are there any methods or tools required to access the dataset?	Microsoft Office, other tools working with .xls file format
4	Is the described dataset supported by a data access committee?	No, data access is automatically granted to the project consortium members. The General Assembly can be addressed for specific requests.
5	How the dataset will be accessed during and after the project?	Accessible for all partners through Sharepoint during the project for database development, also accessible on Zenodo repository through the ez0 project community during and after the project.
6	How long after the project has ended the dataset will be made accessible?	Depends on utility and data updates. The General Assembly will decide at the end of the project on this aspect.

Table 2: management of the access to the dataset

2.4 Re-use of the data

1	What internationally recognized license will you use for your dataset / output?	Creative Commons Attribution 4.0 (CC BY) <ul style="list-style-type: none"> • Share, copy and redistribute the material in any medium or format • Adapt, remix, transform, and build upon the material for any purpose, even commercially
2	What reusability and / or reproducibility methods are followed?	<ul style="list-style-type: none"> • Readme files • Data cleaning • Variable definitions • Units of measurement
3	Will you provide the described dataset / output in the public domain?	Under CC license as described in the DMP.
4	Do you intend to ensure (re)use by third parties after your project finishes?	Yes
5	Is provenance well documented?	No
6	What documented procedures for quality assurance do you have in place?	Set up of scientific and technical evaluators from the project consortium.

Table 3: rules and organization for use and re-use of the data



Notes:

6- Project partners carried out several rounds of verification before validation of dataset. The database was developed as described below.

The data in the database are simple numerical data that do not need any tools to be used and analyzed and to provide interoperability for data analysis.

3. Development process

The process/methodology that was implemented to develop the template and fill the database is presented hereafter. To develop the database, a process was suggested by the University of Stuttgart and confirmed by the project partners. This process included 1) listing the purpose of the product, 2) listing product requirements for existing products (or similar products in case innovative products are developed), 3) assessing the need for additional product requirements based on feedback of industry partners and the University of Stuttgart, and 4) establishing the product requirements and relevant product characteristics, units, tests/standards in the product requirement inputs database. The final step 5) required partners to provide values to populate the database. See process-chart below.

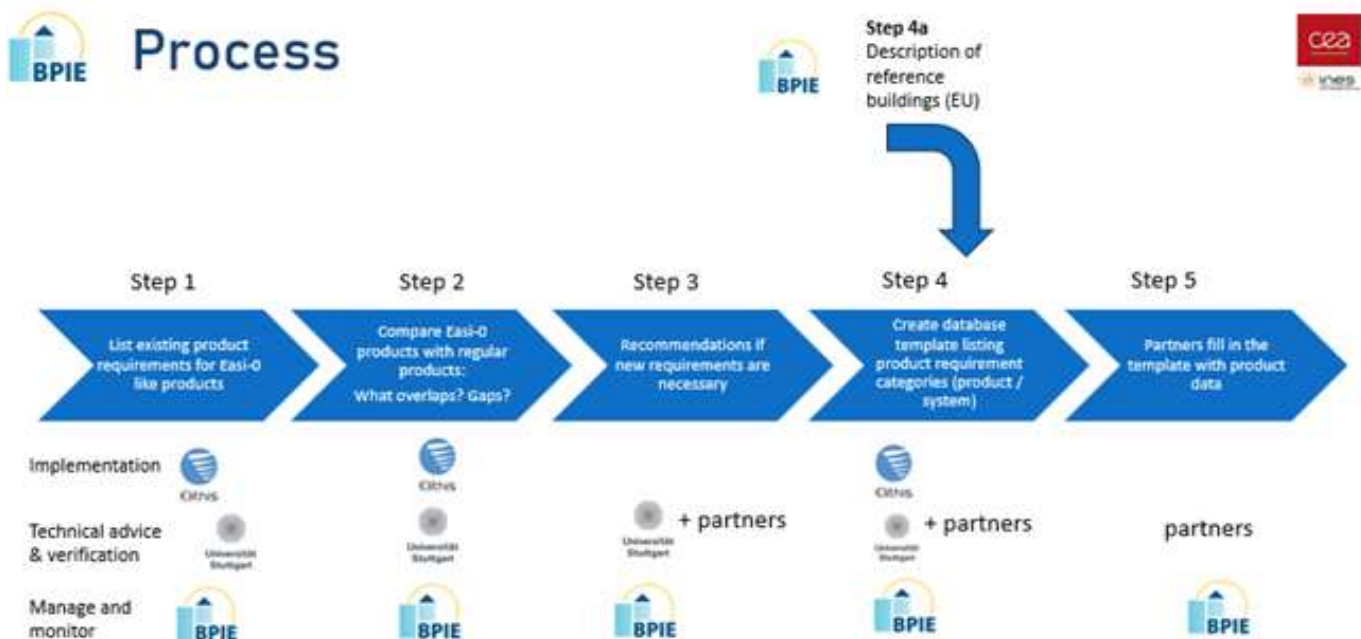


Figure 3: schematic of the development process

The product requirement inputs database is being developed at a point when product development is still ongoing and some relevant dimensions, such as environmental impact, costs, building integration, remain to be defined, especially during life cycle assessment in WP7 and performance



evaluation at system level in WP5 and WP6. As such, for certain product requirements related to such relevant dimensions, it is not yet possible to include values. The database will be improved by iterative inclusion of new data once it becomes available, and will be reviewed and evaluated by all relevant partners if new data is included. This work is expected to take place until the final product requirements are defined in T2.4 (M12) and the validation of the design results in WP5 and WP6 (M24-M32) when product design will be compared to the product requirements listed in the product requirement inputs database described in this report (T2.2).

Based on discussions with the partners, it has been decided to exclude intermediary products like phase-change materials (PCM) and aerogel that are included in other products like hollow-bricks or insulation render. Therefore, there is no separate sheet on these intermediary products. Moreover, the exterior paint developed by the window frame is included in the window frame tab, rather than the interior VOC paint tab, as the paint is specifically developed for application on the window frames.

For the BIPV panels a list of relevant product characteristics is included in the database. Due to the relatively complex nature of these products and their application on the building, collecting all relevant standards is challenging. The database will then be enriched as new knowledge and standards arise. The consortium will collect the remaining product requirements and upgrade the database for this specific product.

4. Database fields and extracts

4.1 *Fields and information*

The reference-building database contains 648 rows with reference buildings data for seven selected countries. Data re-used from Ambience project will be used as reference use-cases to develop materials in EASI ZERO. This dataset is referenced in the database with link to public available data from this former EU project (H2020 Grant n° 847054). Following table shows the field considered and reported in the Product requirement database. Each of this field is classified within four categories:

- General metrics of building stock reference
- Data for building identification and classification
- Figures related to building geometry
- Figures related to thermal properties of material and constructive system

The list of parameters is displayed in annex 1. There is no other hierarchy in this dataset. More information on the dataset in the report issued from the project findable at:

https://ambience-project.eu/wp-content/uploads/2022/02/AmbIENCe_D4.1_Database-of-grey-box-model-parameter-values-for-EU-building-typologies-update-version-2-submitted.pdf.

Beside reference buildings, the table contains several sheets corresponding to product categories as shown in paragraph 2.1. In total eight product requirement sheets are included in the database.



For each product categories, various entry fields are filled-in and updated. Here is the list of considered fields, with illustration of the hierarchy in the data with three levels:

- Product identification
- Description of characteristics (as name, units, relevant applicable standards...)
- Parameters (not represented in following table for clarity)

<i>Product or system</i>		contains the name of the product's category (text)
<i>Name</i>		recall the name used in the project and by the concerned partners to identify the product, could be a commercial name if the product is in the state of the art (text)
<i>Required for testing</i>	Product characteristics	is a list of characteristics of the product, this list depends on each product and product category (list of text)
	Unit	is the relevant unit for each characteristics (text)
	Test standard EU / European Assessment Document (EAD) / Declaration of Performance	mention the relevant standard actually used at European level for evaluation of the product characteristics (text)
	Minimum / Maximum performance	states value range for the considered characteristics, as stated in standards whenever these values exist
	Desired performance / link to KPI	when applicable, we report the value of the characteristics that will allow to achieve the KPIs set in the project
	Test standard national (if applicable) – country 1	mention the relevant standard actually used at national level for evaluation of the product characteristics
	Minimum / Maximum performance	states value range for the considered characteristics, as stated in standards whenever these values exist
	Desired performance / link to KPI	when applicable, we report the value of the characteristics that will allow to achieve the KPIs set in the project
	Test standard national (if applicable) – country 2	
	Minimum / Maximum performance	
Desired performance / link to KPI		



	<i>repeated</i>	<i>Several countries are considered the and the following block is repeated for each countries (France, Germany, Italy, Norway, Poland, Spain)</i>
<i>Optional for testing</i>	Product characteristics	is a list of characteristics of the product, this list depends on each product and product category (list of text)
	Unit	is the relevant unit for each characteristics (text)
	<i>Repeated as above</i>	optional tests are out of standards' scopes, but relevant for innovative products to be developed in the project
	<i>Repeated as above</i>	

Table 4: structure of the fields and entries in the database (two upper levels)

4.2 Extracts

Here we show some extracts of the database at the data of 25/07/2023. The table has been cleared and a unique ID is provided in the database that will be uploaded in Zenodo and described in ARGOS. Finally, we present hereafter:

- An impression of the reference buildings database, showing different German residential and non-residential building typologies in its rows
- An impression of a product requirement input sheet for the category of “window frames”
- An impression of a product requirement input sheet for the category of “wood fiber panel”



REFERENCE BUILDING CO	REFERENCE BUILDING COUNTRY CO	REFERENCE BUILDING FAMILY	REFERENCE BUILDING USE CO	REFERENCE BUILDING CONSTRUCTION YEAR LG	REFERENCE BUILDING CONSTRUCTION YEAR HIGH	REFERENCE BUILDING MATERIAL COMBIN
DE-ABL-1850-1918-00	DE	RES	ABL	1850	1918	00
DE-ABL-1919-1948-00	DE	RES	ABL	1919	1948	00
DE-ABL-1949-1957-00	DE	RES	ABL	1949	1957	00
DE-ABL-1958-1968-00	DE	RES	ABL	1958	1968	00
DE-ABL-1969-2021-00	DE	RES	ABL	1969	2021	00
DE-MFH-1850-1859-00	DE	RES	MFH	1850	1859	00
DE-MFH-1860-1918-00	DE	RES	MFH	1860	1918	00
DE-MFH-1919-1948-00	DE	RES	MFH	1919	1948	00
DE-MFH-1949-1957-00	DE	RES	MFH	1949	1957	00
DE-MFH-1958-1968-00	DE	RES	MFH	1958	1968	00
DE-MFH-1969-1978-00	DE	RES	MFH	1969	1978	00
DE-MFH-1979-1983-00	DE	RES	MFH	1979	1983	00
DE-MFH-1984-1994-00	DE	RES	MFH	1984	1994	00
DE-MFH-1995-2001-00	DE	RES	MFH	1995	2001	00
DE-MFH-2002-2009-00	DE	RES	MFH	2002	2009	00
DE-MFH-2010-2015-00	DE	RES	MFH	2010	2015	00
DE-MFH-2016-2021-00	DE	RES	MFH	2016	2021	00
DE-SFH-1850-1859-00	DE	RES	SFH	1850	1859	00
DE-SFH-1860-1918-00	DE	RES	SFH	1860	1918	00
DE-SFH-1919-1948-00	DE	RES	SFH	1919	1948	00
DE-SFH-1949-1957-00	DE	RES	SFH	1949	1957	00
DE-SFH-1958-1968-00	DE	RES	SFH	1958	1968	00
DE-SFH-1969-1978-00	DE	RES	SFH	1969	1978	00
DE-SFH-1979-1983-00	DE	RES	SFH	1979	1983	00
DE-SFH-1984-1994-00	DE	RES	SFH	1984	1994	00
DE-SFH-1995-2001-00	DE	RES	SFH	1995	2001	00
DE-SFH-2002-2009-00	DE	RES	SFH	2002	2009	00
DE-SFH-2010-2015-00	DE	RES	SFH	2010	2015	00
DE-SFH-2016-2021-00	DE	RES	SFH	2016	2021	00
DE-EDU-1850-1944-00	DE	NON_RES	EDU	1850	1944	00
DE-EDU-1945-1969-00	DE	NON_RES	EDU	1945	1969	00
DE-EDU-1970-1979-00	DE	NON_RES	EDU	1970	1979	00
DE-EDU-1980-1989-00	DE	NON_RES	EDU	1980	1989	00

Figure 4: reference building database (re-use from Ambience project data)



Product or system	Name	Required for testing		- Test standard EU -European Assessment Document (EAD) -Declaration of performance (DOP)	Minimum / maximum performance	Desired performance / Link to KPI (if applicable)	Test standard national (if applicable) -France	Unit	Minimum / maximum performance (if applicable)	Desired performance (if applicable)	Test standard national (if applicable) Germany	Unit	Minimum / maximum performance (if applicable)
		Product characteristic	Unit										
Window Frame	Bio-KLIMA PUR	Hardness shore - D	/	ISO 48-4/DIN ISO 7619/DIN EN ISO 868/NF EN ISO 868/ASTM D2240/JISK 6253									
Window Frame	Bio-KLIMA PUR	CALCULATION OF THERMAL TRANSMITTANCE NUMERICAL METHOD (frame - profile)	W/(m2K)	Calculation Standard: EN ISO 10077-2:2017. Thermal performance of windows, doors and shutters – Calculation of thermal transmittance – Part 2: Numerical method for frames.	Uf = 0,81	0.8							
Window Frame	Bio-KLIMA PUR	CALCULATION OF THERMAL TRANSMITTANCE NUMERICAL METHOD (window)	W/(m2K)	EN ISO 10077-1:2017. Thermal performance of windows, doors and shutters – Calculation of thermal transmittance – Part 1: General.	1,3 - 1,4								
Window Frame	Bio-KLIMA PUR	TEST OF AIR PERMEABILITY, WATER TIGHTNESS AND RESISTANCE TO WIND LOAD	CLASS	Air permeability / EN 1026: 2017 EN 12207:2017 Water tightness / EN 1027: 2017 EN 12208:2000 Resistance to wind load / EN 12211: 2017 EN 12210:2017	Air permeability CLASS 3 Water tightness CLASS 8A Resistance to wind load CLASS C5								
Window Frame	Bio-KLIMA PUR	DETERMINATION OF RESISTANCE TO STATIC TORSION	CLASS	Test standards: EN 14609:2004. EN 14609:2004 ERRATUM: 2010. Windows. Determination of resistance to static torsion	350 N CLASS 4								

Figure 5: screenshot of product requirement database elaborated in EASI ZERo (window frames)



Annex 1: list of fields re-used from the database published in Ambience project

N°	Field name
1	REFERENCE BUILDING CODE (ID)
2	REFERENCE BUILDING COUNTRY CODE
3	REFERENCE BUILDING FAMILY
4	REFERENCE BUILDING USE CODE
5	REFERENCE BUILDING CONSTRUCTION YEAR LOW
6	REFERENCE BUILDING CONSTRUCTION YEAR HIGH
7	REFERENCE BUILDING MATERIAL COMBINATION CODE
8	REFERENCE BUILDING USEFUL FLOOR AREA
9	NUMBER OF REFERENCE BUILDINGS IN THE BUILDING STOCK SEGMENT
10	NUMBER OF REFERENCE BUILDING STOREYS
11	REFERENCE BUILDING GROUND FLOOR AREA
12	REFERENCE BUILDING WALL AREA
13	REFERENCE BUILDING WINDOW AREA (m2)
14	REFERENCE BUILDING ROOF AREA
15	REFERENCE BUILDING FLOOR MATERIAL
16	REFERENCE BUILDING FLOOR MATERIAL THICKNESS
17	REFERENCE BUILDING FLOOR MATERIAL THERMAL CONDUCTIVITY
18	REFERENCE BUILDING FLOOR MATERIAL DENSITY
19	REFERENCE BUILDING FLOOR MATERIAL SPECIFIC HEAT CAPACITY
20	REFERENCE BUILDING FLOOR INSULATION MATERIAL
21	REFERENCE BUILDING FLOOR INSULATION MATERIAL THICKNESS
22	REFERENCE BUILDING FLOOR INSULATION MATERIAL THERMAL CONDUCTIVITY
23	REFERENCE BUILDING FLOOR INSULATION MATERIAL DENSITY
24	REFERENCE BUILDING FLOOR INSULATION MATERIAL SPECIFIC HEAT CAPACITY
25	REFERENCE BUILDING FLOOR U-VALUE
26	REFERENCE BUILDING WALL MATERIAL
27	REFERENCE BUILDING WALL MATERIAL THICKNESS
28	REFERENCE BUILDING WALL MATERIAL THERMAL CONDUCTIVITY
29	REFERENCE BUILDING WALL MATERIAL DENSITY
30	REFERENCE BUILDING WALL MATERIAL SPECIFIC HEAT CAPACITY
31	REFERENCE BUILDING WALL INSULATION MATERIAL
32	REFERENCE BUILDING WALL INSULATION MATERIAL THICKNESS
33	REFERENCE BUILDING WALL INSULATION MATERIAL THERMAL CONDUCTIVITY
34	REFERENCE BUILDING WALL INSULATION MATERIAL DENSITY
35	REFERENCE BUILDING WALL INSULATION MATERIAL SPECIFIC HEAT CAPACITY
36	REFERENCE BUILDING WALL U-VALUE
37	REFERENCE BUILDING WINDOW TYPE
38	REFERENCE BUILDING WINDOW GLAZING TYPE
39	REFERENCE BUILDING FRAME MATERIAL
40	REFERENCE BUILDING WINDOW COATED



41	REFERENCE BUILDING WINDOW FILLING GAS
42	REFERENCE BUILDING WINDOW U-VALUE
43	REFERENCE BUILDING ROOF MATERIAL
44	REFERENCE BUILDING ROOF MATERIAL THICKNESS
45	REFERENCE BUILDING ROOF MATERIAL THERMAL CONDUCTIVITY
46	REFERENCE BUILDING ROOF MATERIAL DENSITY
47	REFERENCE BUILDING ROOF MATERIAL SPECIFIC HEAT CAPACITY
48	REFERENCE BUILDING ROOF INSULATION MATERIAL
49	REFERENCE BUILDING ROOF INSULATION MATERIAL THICKNESS
50	REFERENCE BUILDING ROOF INSULATION MATERIAL THERMAL CONDUCTIVITY
51	REFERENCE BUILDING ROOF INSULATION MATERIAL DENSITY
52	REFERENCE BUILDING ROOF INSULATION MATERIAL SPECIFIC HEAT CAPACITY
53	REFERENCE BUILDING ROOF U-VALUE
54	BUILDING STOCK SEGMENT USEFUL FLOOR AREA
55	BUILDING STOCK SEGMENT NUMBER OF BUILDINGS
56	BUILDING STOCK SEGMENT USEFUL ENERGY DEMAND HEATING



Annex 2: metadata of product requirement inputs database

This annex show the metadata and keywords actually defined to ensure findability of the database itself. Uploading the database in Zenodo will provide additional data that will be generated by the repository on a standard basis.

Title of the dataset	Product requirement inputs
Name of the project that worked out the database and funding acknowledgement	EASI ZERo
	Horizon Europe Grant Agreement N°101091531
Origin date of generation of the dataset	28/07/2023
Publication date	<i>to be determined</i>
Format (details on the file format)	Microsoft Excel (xlsx)
Authors	Rutger Broaer (BPIE) Xerome Fernandez Alvarez (BPIE) Julien Bonhomme (Elithis Solutions) Mathilde Delliott (Elithis Solutions)
Reviewers	Juergen Frick (Ustutt) Philippe Thony (CEA)
Contributors	<i>to be completed</i>
Access rights to the information in the dataset	public
Embargo date	31/05/2024
Parameters reference buildings 1	building identification
Parameters reference buildings 2	building geometry
Parameters reference buildings 3	thermal properties of material
Parameters reference buildings 4	thermal performance of system
Parameters of product requirement sheet data 1	product name
Parameters of product requirement sheet data 2	product characteristics
Parameters of product requirement sheet data 3	units
Parameters of product requirement sheet data 4	EU standards
Parameters of product requirement sheet data 5	national standards
Parameters of product requirement sheet data 6	performance range
Parameters of product requirement sheet data 7	target performance