SmarterEPC

D2.1 Assessment of Existing Tools for EPC & SRI Calculation at the European Level

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Glossary

CA	Consortium Agreement	EPC	Energy Performance Certificate
EC	European Commission	SRI	Smart Readiness Indicator
GA	Grant Agreement	WP	Work Package

List of Acronyms and Abbreviations

Term	Description
BIM	Building Information Modelling
CAD	Computer-aided design
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Certificate
EU	European Union
EUP	Euphyia-Tech Ltd (Cyprus)
MS	Member States
OPS	OPSIS Research (Romania)
R2MF	R2M Solution (France)
R2MI	R2M Solution (Italy)
SRI	Smart Readiness Indicator
TRL	Technology Readiness Level

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EXECUTIVE SUMMARY

This deliverable, D2.1 - Assessment of Existing Tools for EPC and SRI Calculation at the European Level, represents a pivotal component of Work Package 2 within the SmarterEPC project. The primary aim of this deliverable is to provide a comprehensive overview and critical evaluation of the current tools used for calculating Energy Performance Certificates (EPC) and Smart Readiness Indicators (SRI) across Europe. This evaluation is foundational to enhancing the effectiveness and user-friendliness of these tools, aligning with the project's goal to integrate smart readiness aspects into buildings' energy certification processes.

The scope of Deliverable 2.1 includes:

- An extensive documentation of existing EPC and SRI calculation tools, focusing on methodologies, data collection practices, user interfaces, and interoperability features.
- An in-depth analysis highlighting the gaps and deficiencies in current tools, with special emphasis on areas for improvement and potential integration with next-generation tools developed under the NextGenEPC projects.
- To engage with a wide array of stakeholders, including assessors, building owners, facility managers, public authorities, and design/engineering firms, ensuring that their insights and feedback are integrated into the development and validation of the tools.

The methodology adopted for this task incorporates a combination of field research, literature reviews, interviews, and roundtable discussions. This multifaceted approach ensures a well-rounded and detailed assessment, incorporating various perspectives and expertise within the field.

Key Findings:

- **EPC Tools:** Documented and analysed 85 distinct EPC tools across 27 EU member states, evaluating aspects such as data input methods, deployment models, and compliance with regulatory standards.
- **SRI Tools:** Reviewed and documented seven SRI tools, each contributing uniquely to smart building assessments. Key features and technological readiness levels were assessed to provide a comprehensive understanding of the tools' functionalities.

Deliverable 2.1 was meticulously prepared by the consortium partner Euphyia, with valuable contributions from associated technical partners and market actors. This collaborative effort underscores the commitment of all involved stakeholders to advance the state-of-the-art in building energy performance certification.

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Specific disclaimers:

- ***The methodologies and assessments presented are aligned with the overarching objectives of the SmarterEPC project and reflect a consensus among the consortium partners.***
- ***Access to detailed documentation and data supporting the analyses is restricted to consortium partners, in accordance with the project's data sharing policies and agreements.***

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1. INTRODUCTION

The SmarterEPC project aims to improve the transparency, accessibility, and effectiveness of Energy Performance Certificates (EPC) and Smart Readiness Indicators (SRI) across the European Union. Task 2.1 is dedicated to identifying and addressing the barriers to market uptake for these tools by documenting and critically assessing the existing digital calculation tools for EPC and SRI used across Europe. By identifying the current capabilities, gaps, and deficiencies of these tools, Task 2.1 supports the project's broader goal of integrating smart readiness aspects into building energy certification processes. This integration is crucial for promoting energy efficiency, sustainability, and user engagement in the European building sector.

Deliverable 2.1 offers a comprehensive overview and evaluation of the existing EPC and SRI tools used across Europe. The scope includes:

- Extensive documentation of the current EPC and SRI calculation tools, focusing on methodologies, data collection practices, user interfaces, and interoperability features.
- An in-depth analysis highlighting gaps and deficiencies in current tools, with an emphasis on areas for improvement and potential integration with next-generation tools developed under the NextGenEPC projects.
- Engaging with various stakeholders, including policymakers, developers, building owners, and occupants, to gather insights and feedback on the tools' effectiveness and areas for enhancement.

The methodology integrates several research methods to ensure a thorough examination of EPC and SRI tools:

- Direct engagement with tool users and stakeholders to gather practical insights and feedback.
- Analysis of existing studies and reports to understand the historical development and current state of the tools.
- Interviews with experts and stakeholders to gather diverse perspectives and in-depth knowledge.

This approach ensures a well-rounded and detailed assessment, incorporating various perspectives and expertise within the field. The findings of this deliverable will support the development of an interactive digital atlas that provides a comprehensive overview of EPC and SRI tools, promoting transparency and harmonization of energy performance assessment practices across the EU.

The outcomes of this study include an inventory of 85 distinct EPC tools used across 27 EU member states and the documentation of seven SRI tools. The analysis identifies key features, technological readiness levels, and areas for improvement in these tools. The

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findings provide strategic insights and recommendations for enhancing the effectiveness and user-friendliness of EPC and SRI tools. This foundational work supports the development of an interactive digital atlas, serving as a valuable resource for stakeholders aiming to improve building energy efficiency and smart readiness.

The results of Task 2.1, documented in Deliverable D2.1, are crucial to the success of other tasks within the SmarterEPC project. This task focused on assessing the existing tools used for calculating EPC and SRI throughout Europe. The detailed evaluation provided in this deliverable forms a crucial foundation for subsequent development work in the project. Specifically, it directly supports Work Package 3, which aims to develop the SmarterEPC hub to promote the uptake of EPC and SRI. By identifying current gaps and deficiencies, Task 2.1 ensures that the new platform addresses these issues effectively. This includes improvements in data collection practices, user interfaces, and overall tool interoperability, making the new platform more user-friendly and comprehensive.

Additionally, the insights gained from Task 2.1 are vital for Work Package 4, focused on demonstrating the practical application of the developed tools and methodologies. The thorough analysis and recommendations from Deliverable D2.1 guide the selection of case studies and pilot sites for these demonstrations. Understanding the current landscape of EPC and SRI tools allows for the standardization of on-site assessment procedures, ensuring that the demonstrations reflect real-world conditions accurately. Furthermore, by identifying user needs and market requirements, Task 2.1 helps tailor these demonstrations to better engage stakeholders and end-users, facilitating smoother adoption and greater impact of the SmarterEPC tools across the European Union. This interconnected approach ensures that the project's outcomes are cohesive, targeted, and aligned with the overarching goals of improving energy performance certification and smart readiness assessment in buildings.

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2. METHODOLOGY

The methodology adopted for Task 2.1 of the SmarterEPC project aimed to conduct a comprehensive assessment of Energy Performance Certificates (EPCs) and Smart Readiness Indicators (SRIs) digital calculation tools across EU member states. The primary objective was to present the findings in a detailed report, documenting existing EPC and SRI calculation tools, along with their respective gaps and deficiencies. This methodology integrated various research methods, including field research, literature review, and questionnaires, to ensure a thorough examination of the current state of EPCs and SRIs.

For EPC tools, the methodology included field research, literature reviews, and roundtable discussions. These activities led to the development of a questionnaire designed to collect specific data on key aspects of EU EPC tools in relation to the EPBD. Following the receipt of responses, the data underwent processing, analysis, and synthesis to pinpoint shortcomings and deficiencies in the digital calculation tools for EPCs. Subsequently, the data analysis informed the development of an interactive digital atlas, featuring a user-friendly interface for presenting the collected data.

The documentation of SRI tools involved a detailed literature review for data collection, followed by systematic organization and analysis of the gathered information. This process resulted in a comprehensive understanding of the functionalities and potential implications of each SRI tool. The information was systematically organized and synthesized to create a detailed overview of the SRI digital calculation tools ecosystem.

In the following sections, further analysis of the steps followed is provided to ensure a thorough and comprehensive assessment of EPC and SRI tools across the EU.

2.1 Documentation of EPC Digital Calculation Tools

Central to this methodology was the development of a questionnaire to document the current state of EPC calculation tools. The questionnaire was instrumental in gathering data and enabling stakeholders to share insights into crucial aspects such as functionality, user experience, and overall quality of EPC calculation tools. Through a comprehensive approach, the questionnaire was structured to address essential elements such as data input compatibility, accessibility and usage, additional features, and support.

Each question within the questionnaire was crafted to address specific criteria and elicit relevant information from stakeholders. Clear instructions and response options were provided to ensure consistency and accuracy in the data collected. Additionally, provisions were made for open-ended questions to capture nuanced feedback and specific observations from respondents.

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The iterative process of questionnaire development involved rigorous testing and refinement to enhance clarity, relevance, and effectiveness. Pilot testing with a sample group of stakeholders was conducted to identify any potential issues or ambiguities and make necessary adjustments to the questionnaire's structure and content.

The distribution of the questionnaire was a critical phase aimed at ensuring broad participation and comprehensive coverage across EU member states. Leveraging the strategic allocation of member states, as delineated in Table 1, the distribution process was thoroughly planned to optimize engagement and data collection efforts.

The strategic allocation of member states was informed by considerations of expertise and geographical proximity of project partners. This facilitated targeted outreach to stakeholders within each allocated region, maximizing the likelihood of participation and enhancing the representativeness of the data collected. The allocation table, presented in Table 1, provided transparency and guidance throughout the distribution process. It served as a reference point for project partners, facilitating coordination and collaboration in engaging stakeholders within their allocated regions.

The questionnaire used for assessing EPC tools is provided in **Appendix B**. Additionally, the EPC tool assessment forms collected per country and EPC tool are available in **Appendix C**.

Table 1 Strategic Distribution: Allocation of Questionnaire Distribution among SmarterEPC Partners across EU Member States

	Partners				
EU Member States	**EUP**	**R2MF**	**R2MI**	**CAV**	**OPS**
Austria				X	
Belgium		X			
Bulgaria					X
Croatia	X				
Czech Republic			X		
Cyprus	X				
Denmark				X	
Estonia				X	
Finland				X	
France		X			
Germany				X	
Greece					X
Hungary	X				
Ireland			X		
Italy			X		
Latvia	X				
Lithuania	X				

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Luxembourg		X			
Malta			X		
Netherlands	X				
Poland					X
Portugal		X			
Romania					X
Slovakia			X		
Slovenia	X				
Spain			X		
Sweden				X	

2.1.1 Processing Questionnaire Responses

Following the distribution of questionnaires, data analysis and evaluation ensued. This phase aimed to extract valuable insights into the functionality, user experience, and overall quality of EPC calculation tools. Systematic organization of data facilitated a structured approach to understanding stakeholders' perspectives, ultimately contributing to advancing energy efficiency practices within the EU building sector.

Initially, collected data were organized into structured formats, enabling systematic categorization according to predefined criteria established during the questionnaire development phase. This ensured consistency and coherence in data organization, laying the groundwork for meaningful analysis. Key findings and implications were identified, highlighting areas of strength, improvement, and further investigation. The comprehensive data on EPC digital calculation tools by EU country and key criteria can be found in **Appendix A**.

2.2 Documentation of SRI Digital Calculation Tools

The methodology employed for documenting SRI digital calculation tools involved thorough data collection, organization, and analysis following extensive research of existing literature. Information was systematically organized and synthesized to create a detailed overview of the SRI digital calculation tools ecosystem, documenting key features, functionalities, technological readiness levels (TRL), supported languages, and exploitation models for each tool. This process resulted in a comprehensive understanding of the functionalities and potential implications of each SRI tool.

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3. ANALYSIS OF EXISTING TOOLS

To address the need to analyse the features of the currently available tools, comprehensive documentation and analysis were undertaken. This process involved a detailed literature review and data collection for both EPC and SRI tools, employing methodologies such as field research, questionnaire distribution, and interviews to ensure thorough examination and accurate data collection.

The analysis of EPC and SRI digital calculation tools reveals a landscape marked by diversity and innovation. EPC tools across EU were thoroughly documented and analyzed, focusing on data input methods, deployment options, compliance with regulatory standards, and cost structures. In the SRI domain, the tools provided valuable insights into their key features, technological readiness, language support, and exploitation models.

This exploration underscores the dynamic nature of these domains and their critical role in shaping the future of energy-efficient and smart buildings. The findings provide a detailed overview of the current state of EPC and SRI tools, identifying gaps and opportunities for future development to better meet the needs of various stakeholders in the building sector.

3.1 Analysis of EPC Digital Calculation Tools Across the EU

In the comprehensive documentation of Energy Performance Certificate (EPC) digital calculation tools across the 27 EU member states, a total of 85 distinct tools were identified and thoroughly analysed. These tools were evaluated based on several essential criteria, including data input methods, supported building types, deployment models, cost, and utilization of both national and European EPC methods. The results of this extensive analysis are systematically presented in Table 11, located in the Appendix, which organizes the data collected from the questionnaire according to these defined criteria.

3.1.1 Data Input Methods

The evaluation of data input methods used by Energy Performance Certificate (EPC) digital calculation tools across the European Union reveals a diverse array of technical approaches. The methods identified include manual entry, BIM import, CAD integration, import from databases or other software, graphical input, plugins and extensions, and interface guides. In Table 2, all the documented EPC tools are presented according to the data input method.

This variety is essential for ensuring that the tools can seamlessly integrate into diverse user environments and technical infrastructures, thereby enhancing both usability and accuracy in EPC assessments. As presented in the following sections, each method contributes significantly to improving the precision and user-friendliness of these assessments, which are crucial for effective energy performance evaluations.

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Table 2 EPC tools listed, based on data input methods.

Country	EPC Tool	Description	Country	EPC Tool	Description
Austria	ArchiPHYSIK	Manual entry, CAD integration	**Italy**	Energetika 2000	Manual entry, CAD integration, Interface Guides
Austria	AX3000	Manual entry, BIM import	**Italy**	Euclide Certificazione Energetica	Manual entry, Graphical Input
Austria	GEQ	Manual entry	**Italy**	Mc4 Suite 2023	BIM import, CAD integration
Austria	Grüner pitCAD	Manual entry, CAD integration, BIM import	**Italy**	Namirial Termo	BIM import, Import from Databases or Other Software
Austria	Gebäudeprofi	Manual entry, CAD integration, BIM import, Graphical Input, Interface Guides	**Italy**	Termiko One	Manual entry, CAD integration
Belgium	PEB	Manual entry, Import from Databases or Other Software	**Italy**	TermiPlan	Manual entry, Graphical Input
Bulgaria	ENSI EAB	Manual entry	**Italy**	Termolog 14	Manual entry, BIM import
Croatia	ENCERT-HR3	Unclear	**Italy**	TerMus	BIM import
Croatia	KI EXPERT PLUS	Unclear	**Latvia**	IDA ICE	Unclear
Croatia	MGIPU_EC	Manual entry	**Latvia**	PassiveHaus	Unclear
Croatia	ThoriumA+	Unclear	**Lithuania**	NRG	Manual entry
Czech Republic	EC780 - Lombardy Region	Unclear	**Luxembourg**	Lesosai	Manual entry, BIM import
Cyprus	ECO – engine	Manual entry, Graphical Input	**Luxembourg**	LUXEEB-F (IBP)	Unclear
Cyprus	iSBEM-CY	Manual input	**Luxembourg**	LuxEeB-H	Manual entry, Plugins and Extensions
Denmark	Energy10	Manual entry, Import from Databases or Other Software	**Malta**	SBEMmt	Manual entry
Denmark	Be18	Manual entry	**Malta**	EPRDM	Manual entry
Estonia	PHPP	Manual entry, BIM import	**Netherlands**	Vabi	Manual entry, BIM import
Finland	Lamitor	Manual entry, Import from Databases or Other Software	**Netherlands**	Unie	Manual entry, BIM import
Finland	RIUSKA	CAD integration	**Netherlands**	BouwConnect	Manual entry, BIM import
Finland	IDA ICE	Manual entry, BIM import	**Netherlands**	Susteen	Manual entry, BIM import

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France	AnalysImmo	Unclear	**Poland**	Audytor OZC	BIM import
France	CLIMAWIN 2020	BIM import	**Poland**	ArCADia-Thermocad	BIM import
France	DPEWIN	Manual entry	**Poland**	Certo	Manual entry
France	EXPERTEC Pro V7.5	Manual entry	**Portugal**	Hab DL 101-D/2020	Manual entry
France	LICIEL	Manual entry	**Portugal**	C&S DL 101-D/2020	Manual entry
France	Pleiades	Graphical Input	**Portugal**	CYPETHERM SCE-CS Plus	Manual entry, BIM import
France	WINDPE	Manual entry	**Portugal**	casA+	Import from Databases or Other Software
France	DjeserDiag	Unclear	**Romania**	AllEnergy	Manual entry
Germany	GEG2023 XLSM tool	Manual entry, Import from Databases or Other Software	**Romania**	TermicG	Manual entry
Germany	DÄMMWERK	Manual entry, BIM import, Import from Databases or Other Software	**Romania**	Doset-PEC	Manual entry
Germany	GEG / EnEV	Manual entry	**Slovakia**	-	-
Germany	BBSR GEG Print	Manual entry	**Slovenia**	Calculation tool + EPC	Manual entry
Greece	3DR-KENAK	Unclear	**Spain**	CE3	Manual entry
Greece	4M-KENAK	Manual entry, BIM import	**Spain**	CE3X	Manual entry, Plugins and Extensions
Greece	Ecoline KENAK	Manual entry, BIM import	**Spain**	CERMA	Manual entry
Greece	TEE KENAK	Manual entry	**Spain**	CYPETHERM HE Plus	BIM import
Hungary	Auricon Energetic	Manual entry, CAD integration	**Spain**	LIDER-CALENER (HULC)	Manual entry, CAD integration
Hungary	Bausoft WinWatt	Unclear	**Spain**	SG SAVE	Manual entry
Ireland	NEAP	Import from Databases or Other Software	**Spain**	TeKton3D TK-CEEP	BIM Import
Ireland	DEAP4 Tool	Manual entry, Import from Databases or Other Software	**Sweden**	BIM Energy	Manual entry, Graphical Input
Italy	Blumatica Energy	Manual entry, CAD integration	**Sweden**	EnergyCalc	Manual entry
Italy	EC 780	Manual entry, Import from Databases or Other Software	**Sweden**	TMF Energi	Manual entry, Import from Databases or Other Software
Italy	Cypetherm C.E.	BIM import	**Sweden**	VIP-Energy	Manual entry

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Figure 1 presents the distribution of different data input methods used by EPC calculation tools. It depicts the percentage of tools that use each method, from the commonly used manual entry to more specialized options like plugins and interface guides. This graph highlights the range of capabilities among these tools and the diverse needs of users involved in energy performance certification.

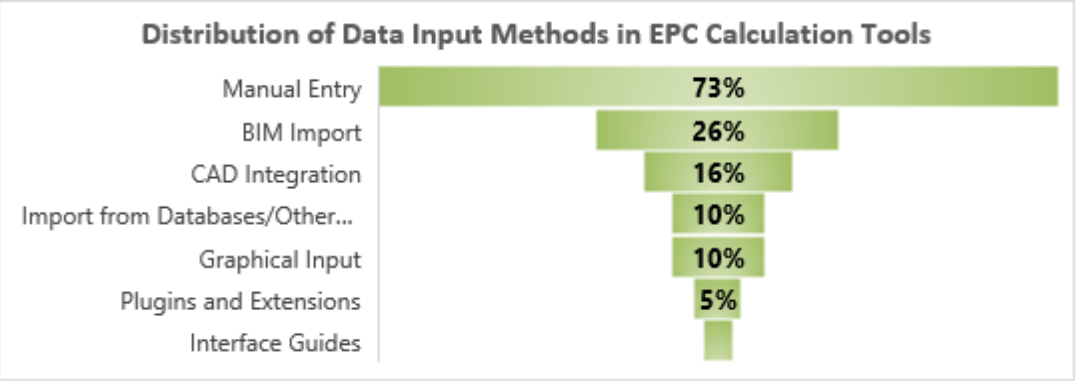

Figure 1 Distribution of Data Input Methods in EPC Calculation Tools

3.1.1.1 Manual Entry

As shown in Figure 1, manual data entry is the most prevalent method used by EPC calculation tools, appearing in about 73% of the tools analysed. Table 3 provides a detailed list of EPC tools that support manual data entry.

Table 3 EPC Tools Utilizing Manual Data Entry Across EU Countries

Country	Tool Name	Country	Tool Name	Country	Tool Name	Country	Tool Name
Austria	ArchiPHYSIK	**France**	EXPERTEC Pro V7.5	**Italy**	Mc4 Suite 2023	**Portugal**	CYPETHERM SCE-CS Plus
Austria	AX3000	**France**	LICIEL	**Italy**	Termiko One	**Romania**	AllEnergy
Austria	GEQ	**France**	WINDPE	**Italy**	TermiPlan	**Romania**	TermicG
Austria	Grüner pitCAD	**Germany**	GEG2023 XLSM tool	**Italy**	Termolog 14	**Romania**	Doset-PEC
Austria	Gebäudeprofi	**Germany**	DÄMMWERK	**Lithuania**	NRG	**Slovenia**	Calculation tool + EPC
Belgium	PEB	**Germany**	Bially Energiebedarfs	**Luxembourg**	Lesosai	**Spain**	CE3
Bulgaria	ENSI EAB	**Germany**	BBSR GEG Print	**Luxembourg**	LuxEeB-H	**Spain**	CE3X
Croatia	MGIPU_EC	**Greece**	4M-KENAK	**Malta**	SBEMmt	**Spain**	CERMA
Cyprus	ECO – engine	**Greece**	Ecoline KENAK	**Malta**	EPRDM	**Spain**	LIDER-CALENER (HULC)
Cyprus	iSBEM-CY	**Greece**	TEE KENAK	**Netherlands**	Vabi	**Spain**	SG SAVE

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Denmark	Energy10	**Hungary**	Auricon Energetic	**Netherlands**	Unie	**Sweden**	BIM Energy
Denmark	Be18	**Ireland**	DEAP4 Tool	**Netherlands**	BouwConnect	**Sweden**	EnergyCalc
Estonia	PHPP	**Italy**	Blumatica Energy	**Netherlands**	Susteen	**Sweden**	TMF Energi
Finland	Lamitor	**Italy**	EC 780	**Poland**	Certo	**Sweden**	VIP-Energy
Finland	IDA ICE	**Italy**	Energetika 2000	**Portugal**	Hab DL 101-D/2020		
France	DPEWIN	**Italy**	Euclide Certificazione Energetica	**Portugal**	C&S DL 101-D/2020		

Manual data entry is essential for ensuring accessibility to EPC calculation tools for users without advanced technical systems. This method involves entering various data types directly into the software, including:

- **Building Dimensions:** Measurements of rooms, windows, walls, and overall building geometry.
- **Material Properties:** Information on thermal properties of construction materials.
- **Usage Data:** Details on occupancy rates, operational hours, and appliance usage.
- **HVAC Systems:** Specifications of heating, ventilation, and air conditioning systems.
- **Lighting:** Types of lighting fixtures and usage patterns.
- **Renewable Energy Systems:** Details on solar panels, wind turbines, or geothermal systems.
- **Water Heating Systems:** Specifications and energy efficiency of water heating systems.

Manual data entry allows users full control over data input, making it integral for many systems due to its straightforward nature. Users typically enter data through software interfaces designed to capture detailed information about a building's characteristics. The process involves filling out forms or screens for different data types, such as building layout, insulation materials, and system specifications. The software may provide tooltips, dropdown menus, and validation checks to ensure accuracy.

While manual entry can be time-consuming and prone to errors, it enables detailed and specific data input that automated methods might miss. Some tools enhance efficiency with features like copy-paste functionality, data import capabilities, and templates for common building types.

Advantages of Manual Entry

- **Control:** Users have complete control over data accuracy and detail.

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- **Flexibility:** Capable of capturing unique architectural features and custom technologies.
- **Accessibility:** Suitable for users without advanced technical systems.

Disadvantages of Manual Entry

- **Time-Consuming:** Requires significant time, especially for complex buildings.
- **Prone to Errors:** Increases the risk of human error.
- **Efficiency Issues:** Less efficient than automated methods.
- **Labor-Intensive:** Requires substantial effort and attention to detail.

Overall, manual data entry remains prevalent due to its accessibility and the direct control it offers users over the data input process.

3.1.1.1.1 Interface Guides

Approximately 3% of EPC calculation tools feature interface guides, enhancing user interactions by providing step-by-step instructions, helpful tips, and contextual information within the software interface. These guides are an enhancement of the manual data entry process, designed to assist users in entering data accurately and efficiently. Table 9 presents in detail the EPC tools facilitating Interface Guides input data.

Table 4 EPC Tools Utilizing Interface Guides Data Entry, Across EU Countries.

Country	EPC Tool	Country	EPC Tool
Austria	Gebäudeprofi	**Italy**	Energetika 2000

Key Benefits of Interface Guides

1. **Step-by-Step Instructions:** Provide detailed guidance through the data entry process with pop-up windows or side panels.
2. **Helpful Tips and Contextual Information:** Offer explanations, examples, and best practices during data entry.
3. **Real-Time Guidance and Validation:** Include validation checks to ensure data accuracy and provide immediate feedback.
4. **Interactive Tutorials:** Simulate data entry processes to help users practice and become familiar with the software.

Advantages

- **Facilitating the Learning Curve:** Makes the software more accessible for new users with clear instructions.
- **Reducing Errors:** Real-time feedback and validation help ensure data accuracy.
- **Enhancing Efficiency:** Minimizes the need for external references, speeding up data entry and increasing productivity.

Disadvantages

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- **Over-Reliance on Guidance:** Users might not learn the software's underlying principles, becoming dependent on the guides.
- **Potential for Information Overload:** Excessive tips and instructions can overwhelm users.
- **Maintenance and Updates:** Requires continuous updates to stay relevant, which can be resource intensive.
- **Initial Setup Complexity:** Implementing real-time validation and dynamic content generation can be complex.

User Friendliness and Experience

Interface guides make EPC tools more intuitive and user-friendly by simplifying data entry and reducing the learning curve. Real-time guidance ensures users feel supported throughout the process.

Interoperability with Other Tools

These guides facilitate the integration of EPC tools with other software by providing clear instructions for importing and exporting data, ensuring seamless data transfer across various stages of the building lifecycle.

Backend Methodology

The backend must support real-time feedback and validation checks, involving advanced data processing and dynamic content generation to provide accurate and relevant guidance.

3.1.1.2 BIM Import

Building Information Modelling (BIM) import is a feature available in approximately 26% of EPC tools, highlighting its specialized role in scenarios requiring comprehensive building information for detailed energy assessments. Table 4 provides a detailed list of EPC tools that facilitate BIM data entry.

Table 5 EPC Tools Utilizing BIM Data Entry Across EU Countries

Country	Tool Name	Country	Tool Name	Country	Tool Name	Country	Tool Name
Austria	AX3000	**Greece**	Ecoline KENAK	**Netherlands**	Vabi	**Poland**	ArCADia-Thermocad
Austria	Grüner pitCAD	**Italy**	Cypetherm C.E.	**Netherlands**	Unie	**Spain**	CYPETHERM SCE-CS Plus
Estonia	PHPP	**Italy**	Mc4 Suite 2023	**Netherlands**	BouwConnect	**Spain**	CYPETHERM HE Plus
Finland	IDA ICE	**Italy**	Namirial Termo	**Netherlands**	Susteen	**Spain**	TeKton3D TK-CEEP
France	CLIMAWIN 2020	**Italy**	TerMus	**Poland**	Audytor OZC	**Switzerland**	Lesosai

Building Information Modeling (BIM) import is a feature used by approximately 26% of EPC tools, designed to streamline energy assessments by directly incorporating detailed building

models. This method allows for the integration of comprehensive BIM data into EPC calculation tools, enhancing accuracy and efficiency.

Key Stages of BIM Import

1. **Data Preparation:** Ensure the BIM model includes all necessary information about the building's geometry, materials, systems, and usage patterns.
2. **Data Export:** Export the BIM model in a compatible file format such as IFC, DWG, or XML, which supports interoperability across different software tools.
3. **Data Import:** Import the BIM file into the EPC tool using the software's import function.
4. **Data Mapping and Integration:** Map the imported BIM data to the EPC tool's database, associating building elements with the relevant parameters.
5. **Data Validation:** Perform validation checks to ensure the accuracy and completeness of the imported data.
6. **Analysis and Calculation:** Conduct energy performance calculations using the detailed BIM data.

Advantages of BIM Import

- **Accuracy and Detail:** Ensures all architectural and engineering details are accurately represented.
- **Efficiency:** Reduces the time and effort required for manual data entry.
- **Seamless Integration:** Maintains design intent throughout the energy assessment process.
- **Comprehensive Assessments:** Allows for thorough and accurate evaluations using a wide range of building attributes.

Disadvantages of BIM Import

- **Data Preparation Requirements:** Can be time-consuming and require specialized knowledge.
- **Complexity:** The process can be complex and prone to errors if not done correctly.
- **Software Compatibility:** Not all BIM software tools may export data in a compatible format for all EPC tools.
- **Cost:** Implementing and maintaining BIM software and training personnel can be expensive.

User Friendliness and Experience

BIM import simplifies the data entry process, allowing users to import comprehensive models with ease. This reduces the potential for human error and enhances user experience through clear visualization and easy navigation of imported data.

Interoperability with Other Tools

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BIM import ensures seamless integration with other BIM software and platforms, facilitating data transfer and use across different stages of the building lifecycle. Supporting standard file formats like IFC, DWG, and XML fosters a collaborative environment among stakeholders.

Backend Methodology

The backend systems for BIM import are designed to handle large and complex datasets, ensuring accurate mapping and integration of data. Automated validation checks and real-time processing provide immediate feedback to the user. While BIM import is designed to handle large and complex datasets, the availability of BIM varies across different building types. For example, BIM is more commonly used in commercial and industrial buildings, where detailed architectural and engineering data are essential for complex projects. In contrast, residential buildings, especially single-family homes, are less likely to use BIM due to cost and complexity. According to a 2023 survey by the European Construction Industry Federation (FIEC), approximately 70% of commercial and industrial buildings utilize BIM, whereas the adoption rate in residential buildings is around 30% (FIEC, 2023).

3.1.1.3 CAD Integration

Approximately 16% of EPC tools documented offer CAD integration, highlighting its specialized use in contexts where detailed architectural data is essential and readily available for energy assessments. For example:

- **Large Commercial Office Buildings**: These buildings often have detailed CAD models that include complex layouts and systems. Integrating these CAD models into EPC tools allows for precise energy performance calculations by accurately representing the building's architectural details and systems.
- **Modern Industrial Facilities**: Industrial buildings frequently utilize CAD models to manage complex machinery and systems. CAD integration in EPC tools ensures that all energy-consuming components are accurately accounted for, leading to comprehensive energy assessments.
- **Public Buildings (Schools and Hospitals)**: Schools and hospitals maintain detailed architectural drawings to manage space and functionality efficiently. These CAD models can be directly integrated into EPC tools, providing precise energy performance calculations and identifying potential energy-saving opportunities.
- **Museums and Cultural Institutions**: These buildings often have unique architectural features and detailed CAD drawings to preserve their historical and functional integrity. Integrating these CAD models into EPC tools helps in accurately assessing energy performance while maintaining the building's design.

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- **Retail Complexes**: Shopping malls and large retail spaces use CAD models to manage intricate layouts and various energy systems. CAD integration helps in optimizing energy use by providing detailed assessments based on accurate architectural data.

Table 6 EPC Tools Utilizing CAD Data Entry Across EU Countries

Country	Tool Name	Country	Tool Name	Country	Tool Name	Country	Tool Name
Austria	ArchiPHYSIK	**Austria**	Gebäudeprofi	**Italy**	Blumatica Energy	**Italy**	Termiko One
Austria	AX3000	**Finland**	RIUSKA	**Italy**	Energetika 2000	**Italy**	Termolog 14
Austria	Grüner pitCAD	**Hungary**	Auricon Energetic	**Italy**	Mc4 Suite 2023	**Poland**	ArCADia-Thermocad

Key Stages of CAD Integration

1. **Data Preparation:** Ensure the CAD model includes necessary building information, using software like AutoCAD, BricsCAD, or ALLPLAN.
2. **Data Export:** Export the CAD model in formats like DWG or DXF.
3. **Data Import:** Import the CAD file into the EPC tool using the software's import function.
4. **Data Mapping and Integration:** Map CAD data to the EPC tool's database, aligning building components with relevant parameters.
5. **Data Validation:** Perform validation checks to ensure accuracy and completeness.
6. **Analysis and Calculation:** Conduct energy performance calculations using the detailed CAD data.

Advantages of CAD Integration

- **Accuracy and Detail:** Ensures precise architectural representation, crucial for complex buildings.
- **Efficiency:** Reduces time and effort compared to manual data entry.
- **Seamless Integration:** Maintains design intent from CAD models throughout the assessment process.
- **Comprehensive Assessments:** Enables thorough and precise energy performance evaluations.

Disadvantages of CAD Integration

- **Complexity:** Requires specialized knowledge for preparing and importing CAD data.
- **Data Quality:** Accuracy of CAD data is essential for reliable assessments.
- **Software Compatibility:** Potential compatibility issues between different CAD software and EPC tools.
- **Resource Intensive:** Requires robust hardware and software to handle detailed CAD files.

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User Friendliness and Experience

CAD integration simplifies the data entry process, allowing users to import detailed models easily, reducing human error. User interfaces are designed for easy navigation and clear visualization, enhancing the overall experience.

Interoperability with Other Tools

CAD integration ensures seamless data transfer across different stages of the building lifecycle, supporting collaboration among stakeholders through standard file formats like DWG and DXF.

Backend Methodology

Backend systems for CAD integration are designed for robust data processing and validation, ensuring accurate mapping and integration of detailed datasets with real-time feedback.

3.1.1.4 Import from Databases or Other Software

Approximately 10% of EPC tools feature the ability to import data from databases or other software, streamlining the data entry process by utilizing centralized or standardized data. This integration enhances efficiency and reduces the need for manual input. Table 6 presents in detail the EPC tools facilitating data entry method, from Databases or Other Software.

Table 7 EPC Tools Utilizing Data Entry from Databases or Other Software, Across EU Countries.

Country	EPC Tool	Country	EPC Tool	Country	EPC Tool
Belgium	PEB	**Germany**	GEG2023 XLSM tool	**Italy**	Namirial Termo
Denmark	Energy10	**Ireland**	DEAP4 Tool	**Portugal**	casA+
Finland	Lamitor	**Italy**	EC 780	**Sweden**	TMF Energi

Key Stages of Data Import

1. **Data Preparation:** Organize and format data for compatibility with the EPC tool.
2. **Data Integration Setup:** Configure the EPC tool to connect with external databases or software, set up API connections, and map data fields.
3. **Data Import Process:** Initiate the import through the EPC tool's import function.
4. **Data Mapping and Integration:** Map imported data to the EPC tool's database structure.
5. **Data Validation:** Perform validation checks to ensure accuracy and completeness.
6. **Analysis and Calculation:** Conduct energy performance calculations using the imported data.

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Advantages

- **Efficiency:** Automates data transfer, reducing manual entry time and effort.
- **Accuracy:** Uses reliable external data, minimizing human error.
- **Real-Time Updates:** Ensures data is current and reflective of real-world conditions.

Disadvantages

- **Compatibility Issues:** Requires careful setup to ensure compatibility with external data sources.
- **Data Quality Control:** Relies on the quality of external data, which may vary.
- **Setup Complexity:** Initial configuration can be time-consuming and require technical expertise.
- **Ongoing Maintenance:** Requires regular updates to maintain functionality.

User Friendliness and Experience

Importing data from external sources simplifies data entry and reduces potential errors. User interfaces typically support easy navigation and clear visualization of imported data, enhancing the user experience.

Interoperability

This feature supports seamless data transfer across different stages of the building lifecycle, fostering collaboration among stakeholders through standard data formats and API connections.

Backend Methodology

Backend systems for importing data involve robust data processing and validation mechanisms, ensuring accurate mapping and integration of large datasets with real-time feedback.

3.1.1.5 Graphical Input

Graphical input is a feature available in approximately 10% of EPC tools, enhancing user experience by enabling intuitive and visual interaction with data. This method is particularly useful in environments where visual data manipulation leads to more accurate and efficient energy assessments. For instance:

- **Large Commercial Office Buildings**: Graphical input allows for precise spatial modeling and energy simulations by visually adjusting the layout and identifying energy-saving opportunities through interactive floor plans and 3D models.

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- **Residential Complexes**: Users can visually inspect and modify building components, ensuring that energy assessments account for unique architectural features and variations in occupancy patterns.
- **Educational Institutions**: Schools and universities benefit from graphical input by enabling detailed analysis of energy usage across multiple buildings and identifying areas for improvement in energy efficiency.
- **Healthcare Facilities**: Hospitals and clinics can use graphical input to model complex systems like HVAC, lighting, and medical equipment, ensuring accurate energy performance assessments and optimization.
- **Retail Spaces**: Shopping malls and retail stores can leverage graphical input to manage energy usage more effectively by visually mapping out lighting, heating, and cooling requirements based on foot traffic patterns.

Table 7 presents in detail the EPC tools facilitating Graphical input data.

Table 8 EPC Tools Utilizing Graphical Input Data Entry, Across EU Countries.

Country	EPC Tool	Country	EPC Tool	Country	EPC Tool
Austria	Gebäudeprofi	**France**	Pleiades	**Italy**	TermiPlan
Cyprus	ECO – engine	**Italy**	Euclide Certificazione Energetica	**Sweden**	BIM Energy

Key Graphical Input Techniques

1. **2D and 3D Modelling Tools:** Allow users to create and modify building structures visually.
2. **Interactive Floor Plans:** Enable precise adjustments and layout changes through a graphical interface.
3. **Drag-and-Drop Functionality:** Facilitate easy placement and modification of building components.

Advantages of Graphical Input

- **Accuracy and Detail:** Ensures precise representation of architectural details, enhancing reliability.
- **User Engagement:** Makes data entry more intuitive and engaging.
- **Efficiency:** Streamlines the data entry process, reducing time and effort.

Disadvantages of Graphical Input

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- **Complexity and Learning Curve:** May require training for users unfamiliar with design software.
- **Resource Intensive:** Requires robust hardware and software.
- **Data Integration Challenges:** May face compatibility issues with other systems.
- **Potential for Over-Reliance:** Users might overlook validating underlying data.

User Friendliness and Experience

Graphical input simplifies data entry, making it more intuitive and reducing cognitive load. The user interface supports easy navigation and clear visualization, enhancing the overall user experience.

Interoperability with Other Tools

Graphical input supports integration with other design and modelling software, enabling seamless data transfer across different stages of the building lifecycle.

Backend Methodology

The backend involves robust data processing and visualization capabilities, ensuring accurate and up-to-date graphical representations. This includes real-time processing, validation checks, and high-quality rendering.

3.1.1.6 Plugins and Extensions

Plugins and extensions are used by about 5% of EPC calculation tools, enhancing their functionality by adding features tailored to specific needs. These tools expand the capabilities of EPC software, integrating with other systems, customizing interfaces, and automating tasks. Table 8 presents in detail the EPC tools facilitating Plugins and Extensions input data.

Table 9 EPC Tools Utilizing Plugins and Extensions Data Entry, Across EU Countries.

Country	EPC Tool	Country	EPC Tool	Country	EPC Tool
Austria	Gebäudeprofi	**France**	Pleiades	**Italy**	TermiPlan
Cyprus	ECO – engine	**Italy**	Euclide Certificazione Energetica	**Sweden**	BIM Energy

Key Benefits of Plugins and Extensions

1. **Feature Expansion:** Adds new capabilities like advanced energy modelling, compliance with new standards, and additional data analysis.

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2. **Integration with Other Software:** Connects with external databases, weather services, and simulation tools, enhancing data comprehensiveness and accuracy.
3. **Customization of User Interface:** Improves usability by tailoring the interface to user needs, streamlining processes, and making tasks more efficient.
4. **Automation of Tasks:** Reduces manual effort by automating repetitive or complex tasks, such as data validation and report generation.

Advantages

- **Flexibility:** Allows customization to meet specific user needs, ensuring the software remains relevant.
- **Enhanced Capabilities:** Significantly improves the software's functionalities, enabling more accurate energy assessments.
- **Improved Efficiency:** Streamlines processes and automates tasks, saving time and resources.

Disadvantages

- **Complexity:** Introduces a learning curve for installation and use.
- **Compatibility Issues:** Requires careful setup to ensure compatibility with the core software and other systems.
- **Resource Intensive:** May increase hardware and software requirements.
- **Potential Over-Reliance:** Users might depend too much on plugins, neglecting core software validation.

User Friendliness and Experience

Plugins and extensions enhance the user experience by allowing customization, making the tool more intuitive and tailored to specific workflows. This personalization boosts productivity and ease of use.

Interoperability with Other Tools

They enable EPC tools to connect seamlessly with other software and data sources, fostering a collaborative environment. This ensures data can be easily transferred and integrated, enhancing energy assessments' comprehensiveness.

Backend Methodology

The backend must support modularity and scalability, ensuring smooth integration and function of plugins. This includes managing plugins, API gateways, and real-time data processing to provide immediate feedback.

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3.1.2 Supported Building Types

The EPC tools documented in this analysis show significant diversity in their ability to handle various building types, from residential and non-residential to specialized categories like public and commercial buildings. Figure 2 illustrates the percentage of tools that cover different building types: Residential and Non-Residential Buildings, Specific Building Types (public, commercial, industrial), and Tools with Exceptions (e.g., historic buildings). This diversity highlights the tools' adaptability to different architectural and usage requirements, essential for comprehensive energy assessments across various sectors.

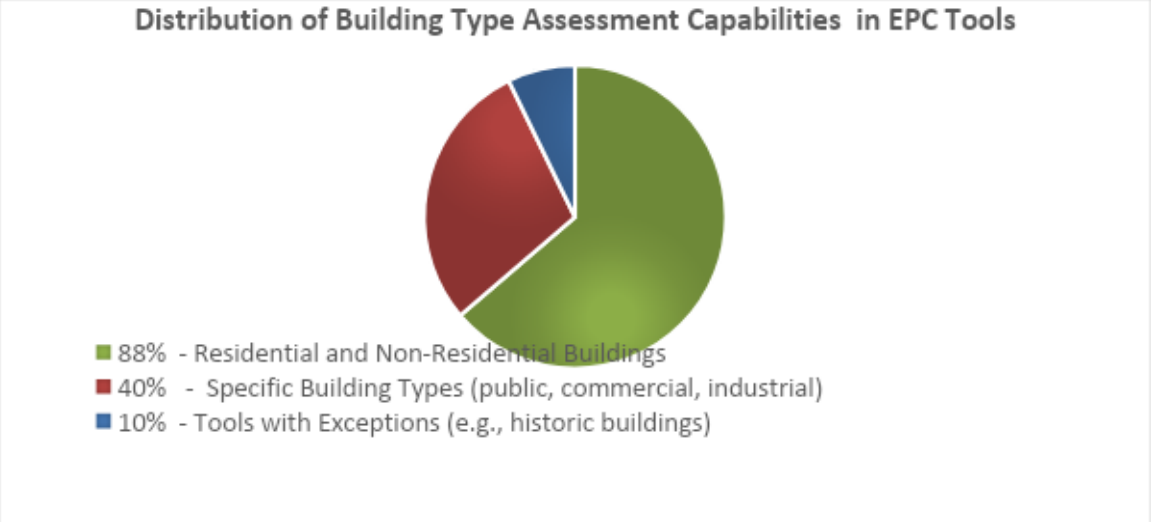

Figure 2 Illustration of Building Type Assessment Capabilities in EPC Tools

Key Findings

- **Residential and Non-Residential Buildings:** Approximately 88% of tools assess both residential and non-residential buildings, reflecting a universal approach to energy performance calculations. This dual capability supports energy efficiency improvements across a range of constructions, from homes to office buildings.
- **Specific Building Types:** Around 40% of tools offer specialized features for public, commercial, or industrial buildings. These tools include functionalities catering to unique needs such as higher occupancy dynamics and different HVAC requirements, providing tailored energy performance assessments for non-standard uses.
- **Tools with Exceptions:** Approximately 10% of tools specify exceptions, excluding certain building types due to regulatory or technical reasons, such as historic buildings. Understanding these exceptions is crucial for stakeholders to select the right tool for their specific needs and ensure compliance with local regulations.

Implications and Future Directions

The varied capabilities of EPC tools indicate a robust framework but also highlight areas for development. To support the EU's directives on energy efficiency, there is a need to enhance these tools to cover more building types, especially those currently listed as exceptions.

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Future Enhancements: Developers should focus on enhancing the adaptability of EPC tools to cover a broader range of building types, including those with unique architectural features. Integrating advanced data analytics and machine learning can help manage the complexities of various building types more effectively, aligning with the SmarterEPC project's objectives to standardize and improve energy performance assessments across Europe.

The co-existence of several specialized tools allows different software providers to offer tailored solutions that meet specific needs. This diversity fosters innovation and competition, driving the overall improvement of EPC tools. A balanced approach that enhances the capabilities of EPC tools while maintaining a diverse market will ensure comprehensive coverage and continuous advancement in energy performance assessment methodologies.

By continuously updating EPC tools to cover more building types and refining their features for specific characteristics, the SmarterEPC project can significantly contribute to the EU's sustainable energy goals. This alignment not only enhances tool functionality but also supports regulatory compliance and promotes energy efficiency across diverse building portfolios.

3.1.3 Deployment Models

There is a clear distinction in deployment models among EPC digital calculation tools in the EU, crucial for assessing their accessibility and integration capabilities. Our data shows that approximately 65% of tools are deployed on-premise, 20% are cloud-based, and 15% offer both models.

- **On-Premise Solutions:** Around 65% of tools are on-premise, preferred by organizations with stringent data security needs. These solutions provide enhanced control over data and ensure compliance with specific regulatory requirements, keeping sensitive information within the organization's infrastructure.
- **Cloud-Based Solutions:** Approximately 20% of tools are cloud-based, ideal for organizations prioritizing accessibility and scalability. Cloud solutions enable remote access, beneficial for large organizations with multiple sites or consultants needing access from various locations. They also offer easier updates and maintenance, managed by the service provider.
- **Hybrid Models:** About 15% of tools are available in both cloud and on-premise models, catering to a broader range of user preferences. Hybrid solutions balance data control and remote accessibility, allowing customization to meet specific organizational needs, such as storing sensitive data on-premise while leveraging cloud capabilities for less critical operations.

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The diversity in deployment models highlights the importance of considering user preferences and organizational requirements when selecting an EPC digital calculation tool. Organizations can choose the model that best aligns with their data security needs, accessibility priorities, and operational flexibility.

3.1.4 Cost Structures

The cost of EPC digital calculation tools in the EU varies widely, from free options to licenses costing up to €97,500. This range reflects diverse pricing structures and licensing models, including free tools, per-report fees, daily rates, and high-cost licenses.

- **Free Options:** Free tools can be attractive for budget-conscious organizations but may lack advanced features and support necessary for comprehensive energy assessments.
- **High-Cost Licenses:** Expensive licenses, justified by their advanced features and capabilities, may offer benefits like automated data analysis, compliance with EPC methods, and integration with building management systems.

Evaluating the correlation between cost and features is crucial. Higher costs might be warranted by rich features, compliance, and vendor support, but organizations must ensure these align with their specific needs and objectives for optimal resource utilization.

Understanding the cost spectrum is vital for selecting the right EPC tool. Organizations should weigh the benefits of advanced features against their specific requirements to make informed decisions.

3.1.5 Compliance with National and European EPC Methods

Compliance with both National and European EPC methods is a critical benchmark for EPC digital calculation tools in the EU. The analysis shows that while almost all tools comply with National methods, a significant majority also adhere to European methods.

National EPC Method Compliance:

- **98% Compliance:** Most tools meet specific national requirements, ensuring their applicability and legality within individual EU member states.
- **2% Unclear Status:** A small percentage have uncleared compliance, necessitating further investigation.

European EPC Method Compliance:

- **85% Compliance:** These tools align with broader European standards, facilitating cross-border compatibility.
- **15% Unclear/Non-Compliant:** Some tools either lack clear compliance or are non-compliant, indicating a need for improvement.

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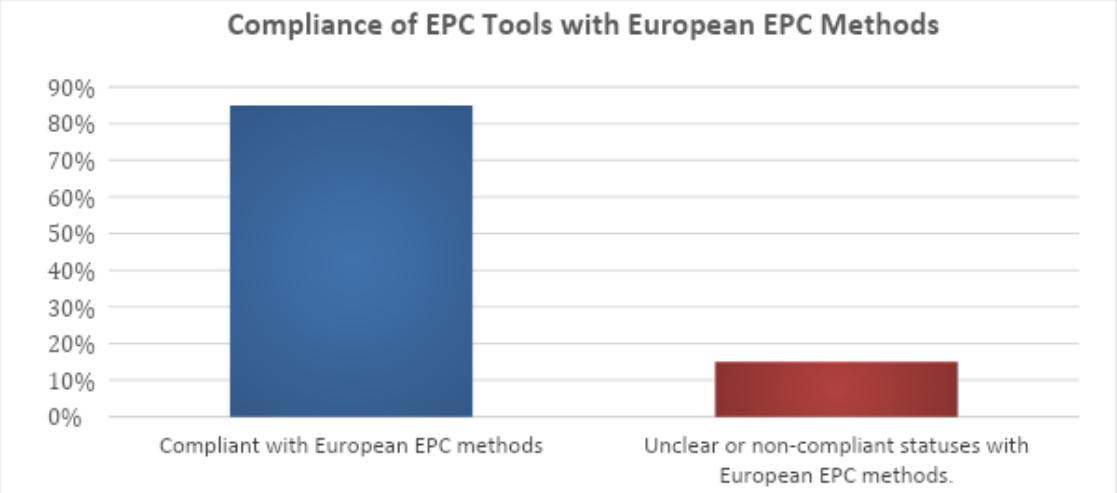

Figure 3 Illustration of Compliance Levels with European EPC Methods

Implications and Future Directions

- **Enhanced Utility and Market Reach:** Compliant tools can be used across different EU member states without modification, broadening market appeal.
- **Regulatory Alignment:** Adherence to both National and European standards simplify the regulatory landscape, promoting efficiency.
- **Cross-Border Compatibility:** European compliance ensures energy performance assessments are compatible across borders, supporting an integrated energy market.
- **Trust and Consistency:** Standardized compliance builds trust among stakeholders, ensuring reliable and comparable energy performance assessments.

Addressing Non-Compliance:

- **Targeted Updates:** Update non-compliant tools to meet European standards through software upgrades and enhanced support.
- **Support for EU Initiatives:** Full compliance aligns with the EU's energy efficiency and sustainability goals.
- **Integration into the European Digital Agenda:** Compliance supports seamless integration of digital solutions in energy management.
- **Futureproofing:** Continuous updates ensure tools remain relevant and effective as regulations evolve.

Compliance with National and European EPC methods is crucial for regulatory alignment and market utility. Addressing gaps in European compliance will support the EU's energy efficiency goals and foster a more integrated and sustainable energy market. This aligns with the SmarterEPC project's objectives to streamline and standardize EPC assessments across Europe, ultimately contributing to a more energy-efficient future.

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3.2 Analysis of SRI Digital Calculation Tools

In the rapidly evolving field of Smart Readiness Indicator (SRI) digital calculation tools, a comprehensive literature review highlights significant innovation and progress. Documenting the current state of eight distinct SRI tools, each designed to enhance smart building assessments and optimizations, provides valuable insights into this field's development [1]&[3]. The data collected covers various aspects, including tool diversity, target users, key features, technological readiness(TRLs), language support, and exploitation models, as detailed in Table 10.

Technology Readiness Levels (TRLs) are a systematic metric developed to assess the maturity of a particular technology. Originally conceived by NASA, the TRL scale is now widely used across various industries, including aerospace, defence, and energy sectors, to evaluate and track the development progress of new technologies. The TRL scale ranges from 1 to 9, with each level representing a different stage of technology development, from initial concept to fully operational systems [4],[5],[6].

The TRL scale serves several critical functions:

1. **Standardization**: Provides a common framework for comparing the maturity of different technologies.
2. **Risk Management**: Helps identify and mitigate risks associated with technology development and deployment.
3. **Decision-Making**: Informs investment and resource allocation decisions by highlighting the current stage and future needs of the technology.
4. **Communication**: Facilitates clear and consistent communication among stakeholders, including researchers, developers, investors, and regulators.

The detailed breakdown of the TRL scale is as follows:

TRL = 1. *Basic principles observed*:
- The initial scientific research begins, and basic principles are observed and reported

TRL = 2. *Technology concept formulated:*
- Invention begins, and practical applications are identified. The technology concept and potential applications are formulated.

TRL = 3. *Experimental proof of concept:*
- Active research and development are initiated, including analytical and laboratory studies to validate the predictions and concepts.

TRL = 4. *Technology validated in the lab:*
- The basic technological components are integrated and tested in a laboratory environment to verify that they work together.

TRL = 5. *Technology validated in the relevant environment:*

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- The technology is validated in a simulated environment that mimics real-world conditions.

TRL = 6. *Technology demonstrated in the relevant environment:*

- A prototype system is demonstrated in an operational environment that is similar to the final application.

TRL = 7. *System prototype demonstration in an operational environment:*

- The prototype system is demonstrated in an actual operational environment, often at a pilot scale.

TRL = 8. *System complete and qualified:*

- The technology system is completed and fully qualified through tests and demonstrations.

TRL = 9. *Actual system is proven in an operational environment:*

- The technology has been proven to work in its final form and under real-world operational conditions.

Understanding the TRL scale is essential for stakeholders to effectively evaluate the maturity and potential of emerging technologies. This evaluation facilitates informed decision-making, promotes innovation, and supports the practical implementation of new solutions, ensuring that investments are directed towards technologies that are ready for deployment and can deliver tangible benefits [4],[5],[6].

Table 10 Overview of Smart Readiness Indicator (SRI) Tools.

Tool Name	Targeted Users	Key Features	TRL*	Supported Languages	Exploitation Model
D^2EPC	Assessors, Building Owners, Facility Managers, Occupants	- Evaluates smart-readiness and performance - Integrates with rating tools	7	English	Not specified
EPC-RECAST	Assessors	- SRI evaluation using BIM models - Semantic model and IFC extractor	3	English	Not specified
Smart-Ready-Go!	Assessors, Building Owners, Facility Managers, Occupants, Public Authorities	- Real-time smart performance insights - Recommendations for enhancements	7	English, with plans for all 24 official EU languages	Commercial and Open Source
SPA&A	Building Owners, Facility Managers, Occupants	- Insights and recommendations - Economic and environmental impacts	7	English, Portuguese, Spanish, German	Commercial
SRI2MARKET	Assessors, Building Owners, Facility Managers	- Customisable interface for SRI assessments	N/A	English, French, Spanish, Greek, Portuguese,	Not specified

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		- Dynamic scorecard generation		German, Croatian	
IsZEB SRI Calculator	Assessors, Building Owners, Facility Managers, Building Occupants, Network Operators, TBS Manufacturers, Design/Engineering Firms, Public Authorities	- SRI assessments and certificate issuance - Smart technology upgrades	8	Greek, English	Commercial
U-CERT SRI Digital Tool	Assessors, Building Owners, Facility Managers	- Cloud-based assessment tool - Simplifies data input and result visualization	7	English, Dutch	Freemium
EasySRI	Assessors, Building Owners, Facility Managers, Occupants, Public Authorities	- SRI assessment and certification - Insights and recommendations for smart technology integration - Real-time performance monitoring - Integration with BIM models	N/A	English (potentially more languages	Freemium

** **TRL 1-3:** Early stages of development, proof of concept.*
***TRL 4-6:** Intermediate stages, technology validated and demonstrated in relevant environments.*
***TRL 7-9:** Advanced stages, prototype to fully operational systems.*

Tool Diversity and Features

Each of the seven SRI tools offers unique features and functionalities, enriching the ecosystem with diverse approaches.

Target Users

These tools cater to a wide range of stakeholders, including assessors, building owners, facility managers, public authorities, and design firms. This broad user base promotes inclusivity and accessibility.

Key Features

- **Real-Time Insights:** Provide immediate feedback on building performance, enabling quick action and continuous monitoring.
- **Performance Evaluations:** Assess energy efficiency, system performance, and occupant comfort, often including benchmarking against standards.
- **Semantic Models:** Facilitate data integration and contextual understanding, enhancing interoperability.
- **Dynamic Scorecards:** Offer visual representations of smart readiness levels, providing clear and actionable insights.

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- **Predictive Analytics:** Forecast future performance for proactive maintenance and optimization.
- **IoT Integration:** Enhance functionality through real-time data collection and automated system controls.
- **User-Friendly Interfaces:** Ensure intuitive navigation, customization options, and accessibility for all users.
- **Reporting and Compliance:** Generate detailed reports and ensure regulatory compliance, supporting decision-making processes.

Technological Readiness

The tools vary in technological maturity, from early development stages to advanced solutions, reflecting continuous innovation in the SRI landscape.

Language Support

Some tools offer multilingual support, enhancing accessibility for diverse user groups.

Exploitation Models

- **Commercial Ventures:** Provide comprehensive features and support, tailored for professional use.
- **Open-Source Initiatives:** Promote collaboration and transparency, allowing customization and community contributions.
- **Freemium Models:** Offer basic features for free, with premium options available for advanced functionalities.
- **Hybrid Models:** Combine various approaches, offering flexibility and broad accessibility.

Implications for Future Development

Enhancing Adaptability

1. **Modular Design:** Allows for easy updates and feature additions.
2. **Interoperability:** Ensures seamless integration with other systems.
3. **Scalability:** Accommodates buildings of various sizes and complexities.

Improving User-Friendliness

1. **Intuitive UI Design:** Reduces the learning curve with visual aids and clear navigation.
2. **Comprehensive Support:** Provides tutorials, help guides, and customer service.
3. **Customization Options:** Allows users to tailor the tool to their needs.

Accessibility and Inclusivity

1. **Multilingual Support:** Ensures accessibility for diverse linguistic backgrounds.

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2. **Affordable Pricing Models:** Maintains a range of options, including free or low-cost tools.
3. **Targeted Training:** Offers educational resources to enhance user competence.

Fostering Innovation

1. **R&D Investment:** Explores new technologies like AI and machine learning.
2. **Collaborations:** Encourages partnerships to integrate cutting-edge solutions.
3. **User Feedback:** Implements robust feedback mechanisms for continuous improvement.

Maintaining diversity in exploitation models and focusing on adaptability, user-friendliness, accessibility, and innovation will ensure SRI tools meet the evolving needs of stakeholders. This approach will support the widespread adoption of smart building assessments, contributing to more efficient and sustainable building management practices across the EU and beyond.

3.2.1 Detailed Example: Smart-Ready-Go! ® Platform

Smart-Ready-Go! ® is a state-of-the-art digital tool designed to enhance smart building assessments and optimizations. It stands out for integrating real-time performance insights, semantic models, and dynamic scorecard generation to provide a comprehensive view of a building's smart readiness. The platform caters to a wide range of users, including assessors, building owners, facility managers, and public authorities.

Backend Architecture

The Smart-Ready-Go! platform leverages a robust backend architecture guided by the ISO/IEC/IEEE 42010:2022 standard and principles of Service-Oriented Architecture (SOA). This architecture supports seamless data management and security, optimized through a cloud-based structured query service.

- **Initial Design**: Based on market analysis and stakeholder requirements, it includes components such as the assessment module, calculation engine, and data integration layers.
- **Simplified Method**: Utilizes a user-friendly questionnaire to gather information for issuing the Smart Readiness Indicator (SRI), enabling immediate certification upon survey completion.

Frontend Architecture

The frontend of Smart-Ready-Go!® features a user-friendly interface accessible via web, tablet, and mobile app. It includes forms, tables, and graphs for data input and analysis.

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- **User Interface**: The UI features user guides, video tutorials, secure login, and sections for performing SRI evaluations.
- **Dashboard**: Offers benchmarking features, providing aggregate data for all EU countries and detailed insights into SRI classes, impact scores, and domain scores.

Key Features

- **Real-Time Insights**: Immediate feedback on building performance.
- **Performance Evaluations**: Assessments of energy efficiency, system performance, and occupant comfort.
- **Dynamic Scorecards**: Visual representations of smart readiness levels.
- **User-Friendly Interfaces**: Intuitive navigation and customization options.
- **Reporting and Compliance**: Detailed reports supporting decision-making processes.

Assessment Methods

- **Method A**: Simplified assessment for smaller buildings, using a basic service selection.
- **Method B**: Detailed assessment for buildings with a modular, adaptable framework.
- **Call Centre Method**: Quick SRI assessment through a streamlined checklist approach.

Results and Reporting

- **Assessment Results**: Total SRI score, impact scores, and detailed scores.
- **Export Options**: Certificates can be printed or emailed; results accessible anytime.

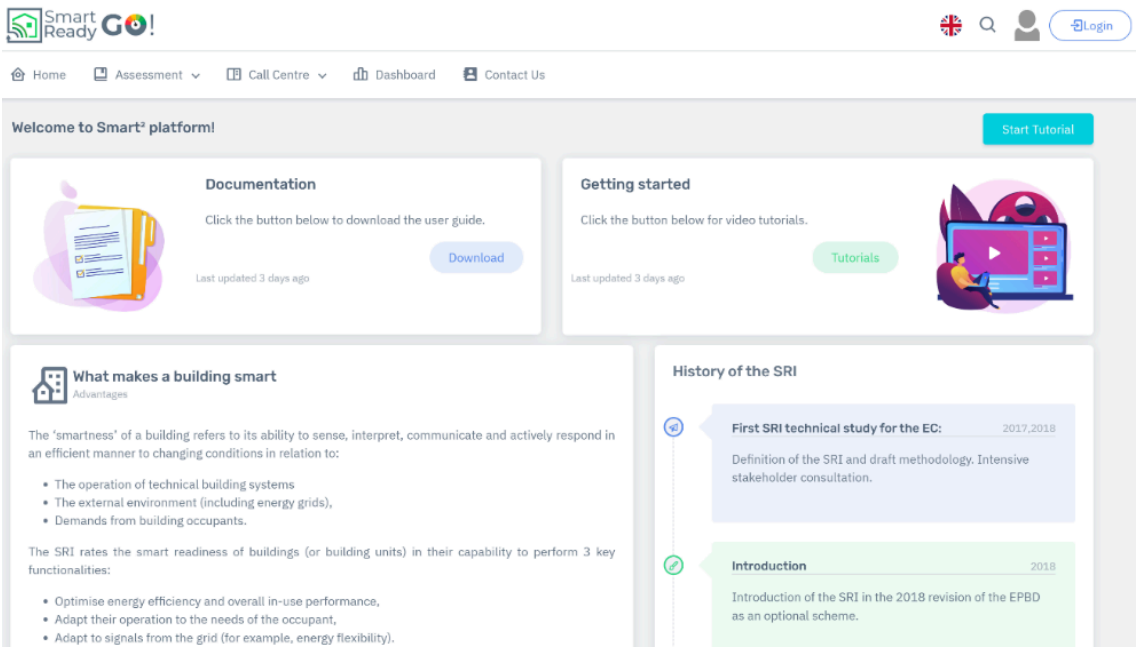

Figure 4 Smart-Ready-Go! - Home page.

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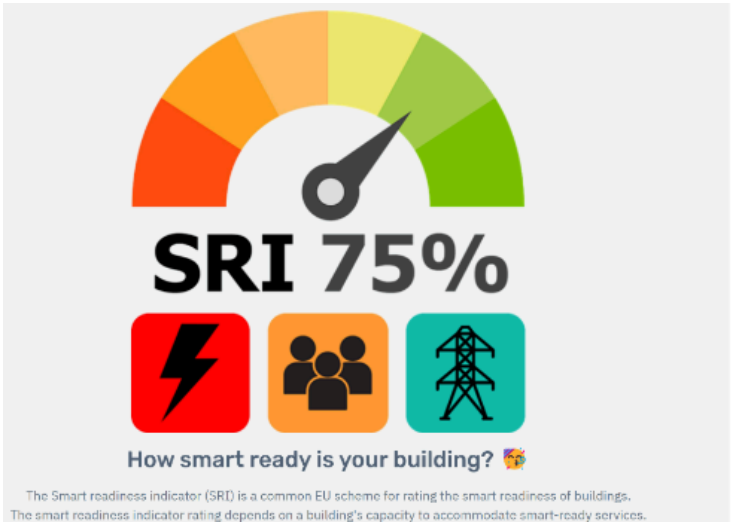

Figure 5 Smart-Ready-Go! - Login page.

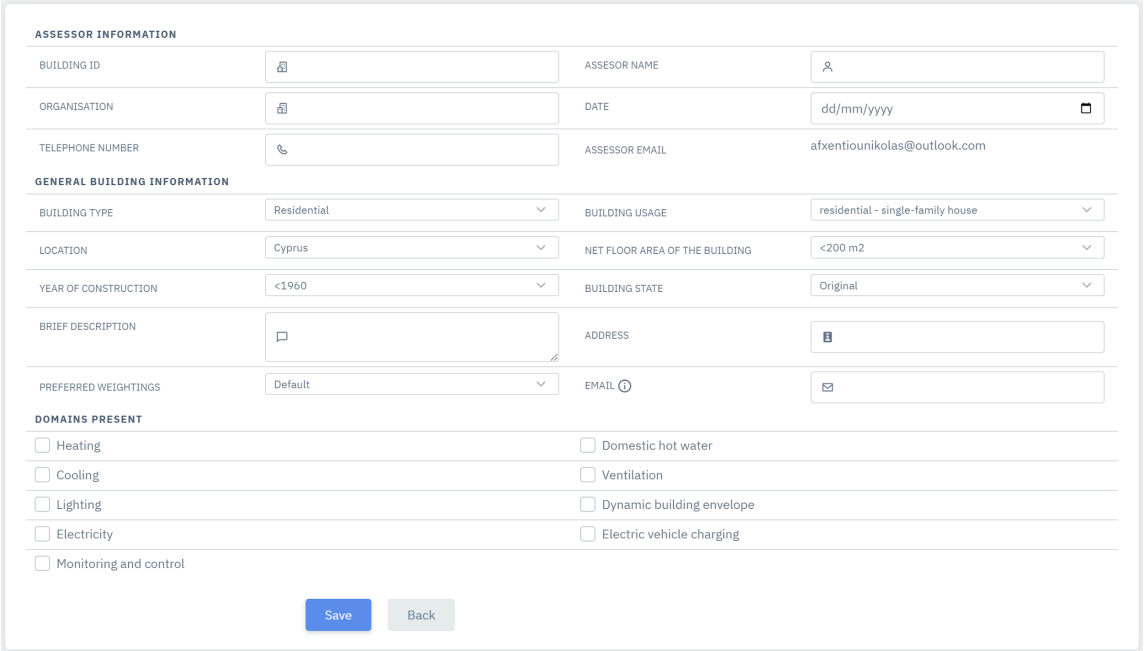

Figure 6 Smart-Ready-Go! UI – Assessment input data.

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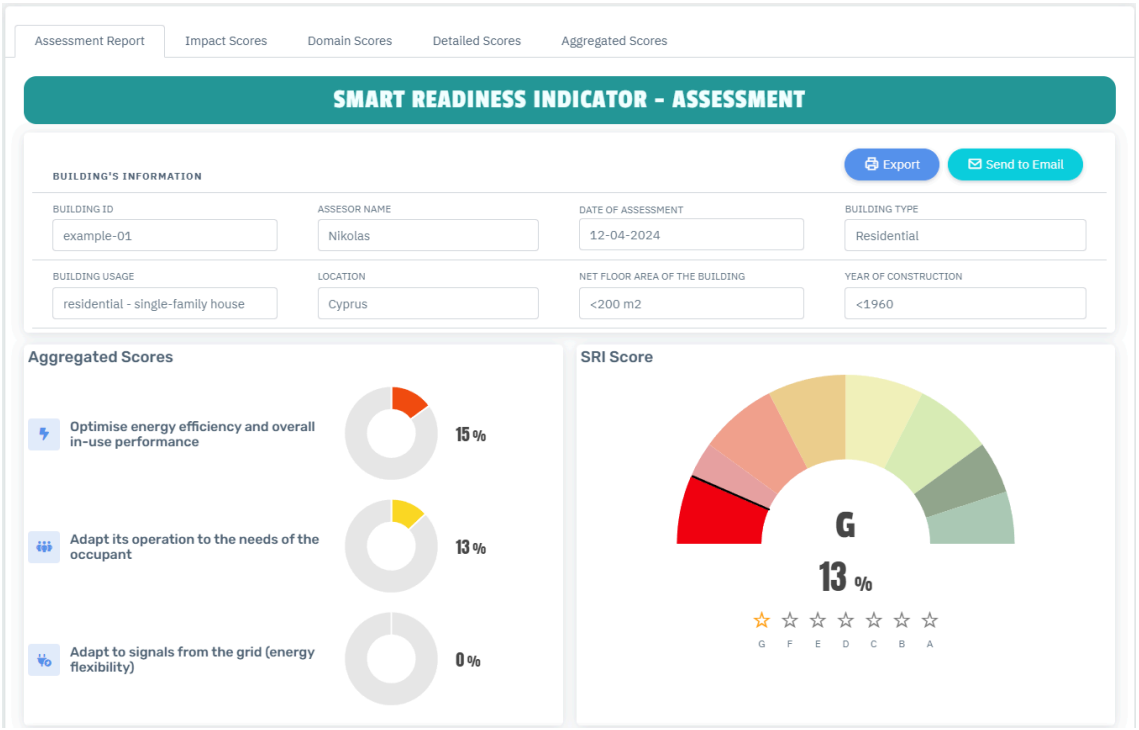

Figure 7 Smart-Ready-Go! UI – Assessment report and analytical results

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4. COMPREHENSIVE ATLAS OF EPC TOOLS IN THE EU

In this task, an atlas of the European Union (EU) was created, encompassing all Energy Performance Certificate (EPC) tools across Europe. The project's ambition to develop a European atlas of EPC tools signifies a considerable advancement in enhancing the transparency, accessibility, and utility of these tools for a diverse range of stakeholders, including policymakers, developers, building owners, and occupants. This atlas not only promotes a deeper understanding of the available tools but also serves as a foundational step towards the harmonization of energy performance assessment practices across the EU.

Development and Architectural Framework

The development of the EPC Atlas benefits greatly from a comprehensive architectural approach guided by the ISO/IEC/IEEE 42010:2022 standard in conjunction with the principles of Service-Oriented Architecture (SOA). This standard outlines critical elements and their interconnections, establishes a foundational conceptual model, and details the necessary components for an architectural description. Furthermore, it encourages the adoption of architectural viewpoints, frameworks, and description languages to standardize and streamline the processes of architectural delineation. The principles of SOA are instrumental in shaping the design, deployment, and integration of the functional units within the EPC Atlas. These SOA principles foster strong communication across varied platforms, programming languages, operational settings, and development methodologies. The platform is hosted on a cloud-based structured query service, offering seamless data management and security. This harmonious integration of application and data services on the cloud optimizes the cutting-edge approach to providing reliable and accessible digital solutions. This architecture has been updated and customized to consider the needs of end-users and technology providers through interactions with related activities [2]. Figure 8 illustrates the initial architecture of the EPC Atlas platform.

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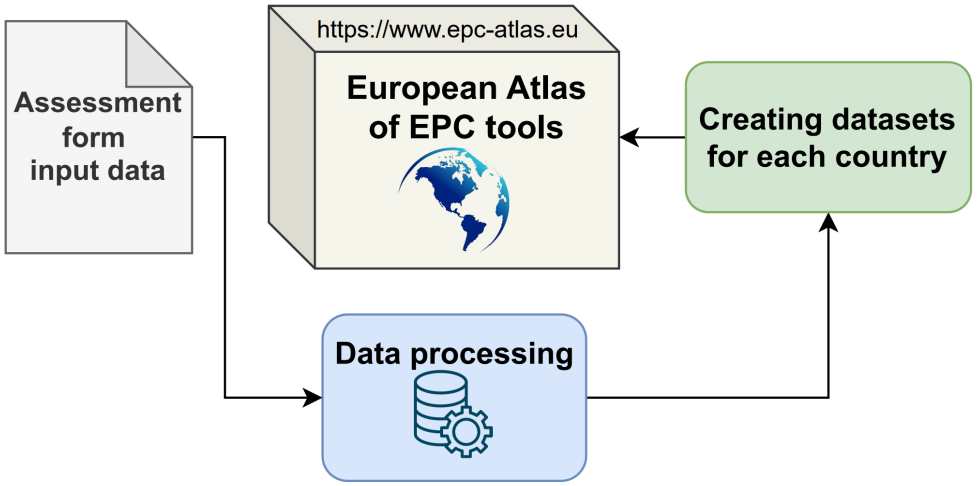

Figure 8 Atlas Flow diagram.

Data Collection and Assessment Methodology

The procedure involved creating an assessment form and distributing it to all partners. The assessment form included sections to evaluate the Energy Performance Certificate (EPC) calculation tools. The feedback collected was vital for assessing the tool's effectiveness, user experience, and overall quality. Upon gathering all results from the partners, we clustered the data and created a dataset for each country. This dataset provided a comprehensive overview of the tools available in each EU member state, allowing for detailed analysis and comparison.

Key Features of the EPC Atlas

The User Interface (UI) serves as the system's graphical frontend, offering an interactive experience through web. The EPC Atlas includes several key features designed to enhance its utility and accessibility:

1. **User Interface and Experience:** The atlas features an intuitive user interface, allowing users to navigate through a European map to see the available EPC tools in each corresponding country. Figures 9-10 illustrates a visual representation of the tool's UI/UX design, where users can easily explore the data.
2. **Country-Specific Insights:** The atlas provides detailed insights into the EPC tools used in each EU member state, highlighting key features, compliance with national and European standards, and specific user feedback.
3. **Cost Structures:** The atlas documents the cost structures of various tools, ranging from free options to high-cost licenses. This allows users to evaluate the financial implications of adopting specific tools.
4. **Compliance Information:** Details on the compliance of each tool with national and European EPC methods are provided, ensuring users can select tools that meet regulatory requirements.

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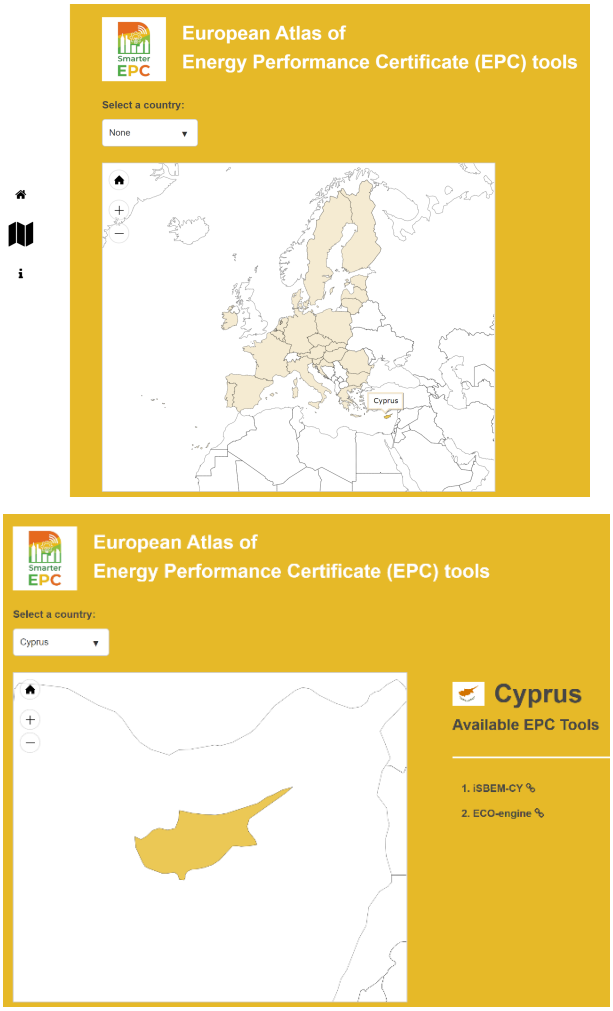

Figure 9 Screenshots from Atlas UI

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Figure 10 Screenshots from different countries.

Importance of the EPC Atlas

The creation of the EPC Atlas marks a significant milestone in energy performance assessment. By offering a centralized and comprehensive resource, the atlas enhances decision-making and policy development. It aligns with the EU's objectives of improving energy efficiency and sustainability in the building sector. Stakeholders, including policymakers, developers, and building owners, now have access to reliable and detailed information on EPC tools, enabling informed choices and driving improvements in building energy performance.

The EPC Atlas empowers users to evaluate and compare various EPC tools, ensuring they select the most suitable options for their specific needs. This resource promotes transparency, accessibility, and the harmonization of energy performance assessment practices across the EU. It is an invaluable tool for advancing the EU's energy efficiency goals and fostering a more sustainable future.

Users can explore the EPC Atlas and its extensive features at the following URL: https://www.epc-atlas.eu.

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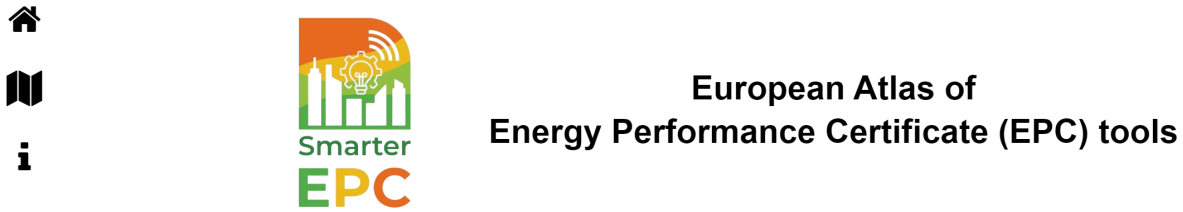

Figure 11 Front page of the App.

Challenges and Limitations

During the development and deployment of the European Atlas, several challenges and limitations emerged:

- **Design:** The initial UI design lacked intuitive elements. User feedback highlighted the need for a more streamlined interface for easier navigation and interaction.
- **Multilingual Support:** Offering multiple language options to cater to the diverse linguistic backgrounds of EU users required complex localization and translation processes.
- **Data Accuracy:** Ensuring data accuracy was critical for reliable assessments. Discrepancies in data sources and reporting standards necessitated a harmonized approach to verification.
- **Data Completeness:** More comprehensive data for EPC tools was needed to provide a fuller picture of energy performance capabilities across the EU.

Addressing these challenges is crucial for enhancing the atlas's effectiveness and meeting the diverse needs of stakeholders across the EU. Continuous improvements and user feedback are vital for overcoming these limitations.

Future Directions

The EPC Atlas is intended to be a dynamic resource, regularly updated to incorporate new developments and user feedback. This continuous improvement will ensure that the atlas remains relevant and valuable for stakeholders. Future enhancements will focus on several key areas:

- **Integration with Additional Data Sources:** Expanding the atlas to include data from additional sources, such as real-time energy usage statistics and environmental impact assessments, will provide a more comprehensive view of building performance. This integration will allow users to make more informed decisions based on a broader set of data.
- **Advanced Analytics:** Incorporating advanced analytics and machine learning capabilities will enable the atlas to offer deeper insights and predictive modeling. These tools can help users identify trends, forecast future performance, and optimize energy efficiency strategies.
- **Enhanced User Interaction:** Developing more interactive features, such as customizable dashboards and user-specific recommendations, will improve the user

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experience. These enhancements will allow users to tailor the atlas to their specific needs, making it more intuitive and accessible.

- **Continuous Updates:** Regular updates to the atlas will ensure that it reflects the latest developments in EPC tools and methodologies. This commitment to continuous improvement will help the atlas remain a valuable resource for assessing and enhancing building energy performance across the EU.

By focusing on these future directions, the EPC Atlas will continue to evolve in response to user needs and technological advancements, solidifying its role as an essential tool for stakeholders involved in building energy performance assessment and improvement.

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5. CONCLUSION

The comprehensive assessment of EPC and SRI digital calculation tools across the European Union reveals a diverse and evolving landscape, essential for advancing energy efficiency and smart readiness in buildings. This report provides key insights into the capabilities, deployment models, cost structures, and compliance levels of these tools, emphasizing their critical role in meeting the EU's energy performance and sustainability goals.

The documented EPC tools exhibit significant variation in their data input methods, ranging from manual entry to advanced BIM and CAD integrations. This diversity ensures that tools can cater to different user environments and technical requirements, enhancing the accuracy and usability of energy performance assessments.

The deployment models of EPC tools are split between on-premise, cloud-based, and hybrid solutions. On-premise models cater to organizations with stringent data security needs, while cloud-based and hybrid models offer enhanced accessibility and scalability, beneficial for larger organizations and consultants. The cost of EPC tools varies widely, from free options to licenses costing up to €97,500. This range underscores the different pricing structures and licensing models, reflecting the tools' features and capabilities. Organizations must carefully evaluate the cost against their specific needs to ensure optimal resource utilization.

Nearly all EPC tools comply with national methods, with a significant majority also adhering to European standards. This dual compliance is crucial for regulatory alignment and market utility, ensuring that the tools can be used across different EU member states without modifications. Tools that comply with both national and European standards can be used across various EU member states, broadening their market appeal and utility. Adherence to both sets of standards simplifies the regulatory landscape, promoting efficiency and consistency in energy performance assessments. Compliance with European standards facilitates cross-border compatibility and interoperability, supporting an integrated energy market.

SRI tools offer unique features that enrich smart building assessments, including real-time insights, performance evaluations, semantic models, and dynamic scorecards. These functionalities support a comprehensive understanding of building smartness and facilitate proactive energy management. The technological readiness levels of the SRI tools vary, with some in early development stages and others offering advanced solutions, reflecting ongoing innovation and the dynamic nature of the EPC and SRI landscapes.

Both EPC and SRI tools serve a wide array of stakeholders, including assessors, building owners, facility managers, occupants, public authorities, and design/engineering firms. This inclusivity ensures that the tools are accessible and beneficial to all relevant parties involved in building energy performance assessments. Language support is a critical factor in the

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accessibility of these tools, with several platforms offering multilingual support to cater to users from diverse linguistic backgrounds across the EU.

Targeted updates and support are needed to bring non-compliant tools up to European standards, aligning with the EU's energy efficiency and sustainability goals. Continuous updates and the integration of advanced technologies, such as AI and machine learning, are essential for future-proofing these tools and enhancing their capabilities to handle the complexities of various building types and regulatory changes.

In conclusion, the alignment of EPC and SRI tools with regulatory standards and technological advancements is pivotal for promoting energy efficiency and smart readiness across the EU. By addressing existing gaps and enhancing the tools' functionalities, the SmarterEPC project can significantly contribute to a more sustainable and energy-efficient future, supporting the EU's broader goals of reducing carbon emissions and fostering innovation in the building sector.

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APPENDICES

Appendix A: EPC Digital Calculation Tools Data by EU Country and Key Criteria

Table 11 EPC Digital Calculation Tools Data by Key Criteria

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
Austria	ArchiPHYSIK, Version: Standard	A-NULL Development GmbH	Both	€ 3,670	Yes	No	Residential, non-residential	Manual entry, CAD integration	Link
	AX3000, Version: AX3000 EPC	EDV-Software-Service GmbH & Co KG	On-premise	€1892 per license	Yes	No	Residential, non-residential	Manual entry, import BIM	Link
	GEQ	Zehntmayer Software GmbH	On-premise	€ 35,496	Yes	No	Residential, non-residential	Manual entry	Link
	Grüner pitCAD	Ing. Günter Grüner GmbH and pit-cup GmbH	On-premise	Contact for details	Yes	Yes	Residential, non-residential	Manual entry, import BIM, CAD integration	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	Gebäudeprofi, Version: Building Professional 6.9	ETU GmbH	On-premise	€999 or €1499 for duo	Yes	No	Residential and non-residential	Manual entry, import BIM, CAD integration, Graphical Input, Interface Guides	Link
Belgium	PEB, Version: 14.0.2	Wallonie énergie SPW	On-premise	Free	Yes	Yes	All buildings except exceptions in regulations	Manual Entry, import from database or other software	Link
Bulgaria	ENSI EAB, Version: UZB 8.1	Group Niras / Energy Saving International AS (ENSI TU-Sofia)	On-premise	Contact for details	Yes	Yes	New and existing buildings	Manual entry	Link
Croatia	ENCERT-HR3	Unclear	Unclear	free	Unclear	Unclear	Unclear	Unclear	Link
	KI EXPERT PLUS	Unclear	Unclear	free	Unclear	Unclear	Unclear	Unclear	Link
	MGIPU_EC, Version: Setup_v1803_x64	Faculty of Organization and Informatics, University of Zagreb	Both	Free for registered users	Yes	Yes	Residential, non-residential	Manual entry	Link
	ThoriumA+	Unclear	Unclear	€ 400 annual	Unclear	Unclear	Unclear	Unclear	Link
Czech Republic	EC780 - Lombardy Region	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
Cyprus	ECO – engine, Version: 2	MODECSOFT	On-premise	€2400 per activation key	Yes	Unclear	Residential and non-residential structures	Manual entry, Graphical Input	Link
	iSBEM-CY, Version: 3.4a	MCIT	On-premise	Free	Yes	Unclear	Residential and non-residential structures	Manual entry	Link
Denmark	Energy10	NRGi Systems A/S	Both	Per report pricing	Yes	Yes	Various, uses Danish national databases	Manual entry, Import from Databases or Other Software	Link
	Be18	Aalborg University	On-premise	€375 single user	Yes	Yes	Various	Manual entry	Link
Estonia	PHPP, Version: 10	Passive House Institute	On-premise	€ 270	Yes	Yes	Residential and non-residential	Manual entry, BIM import	Link
Finland	Lamitor	lamit.fi	Cloud-based	Subscription or per report	Yes	Yes	Various residential and commercial	Manual entry, Import from Databases or Other Software	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	RIUSKA, Version: Included in MagiCAD Comfort	MagiCAD	Both	€2250 on-premise license	Yes	Yes	Various, with regional weather data	BIM import	Link
	IDA ICE, Version: 4.8, also 5.0	EQUA	On-premise	Starts at €2500 for a single license	Yes	Yes	Various	Manual entry, BIM import	Link
France	AnalysImmo, Version: V4.1.1	Atlibitum	Probably on-premise	No purchase necessary	Yes	Unclear	Unclear	Unclear	Link
	CLIMAWIN 2020	BBS Logiciels	On-premise	Paid, subscription/license	Yes	Unclear	All residential buildings	BIM import	Link
	DPEWIN, Version: V5	Logiciel Perrenoud	On-premise	€990 for 5 users	Yes	Unclear	Various types, including public buildings	Manual entry	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	EXPERTEC Pro V7.5	Office Expert	Unclear	Contact for prices	Yes	Unclear	Houses, flats, buildings, commercial	Manual entry	Link
	LICIEL	LICIEL Environnement	Both	Varies by package	Yes	Yes	Various residential and public buildings	Manual entry	Link
	Pleiades	IZUBA Energies	On-premise	Starting at €500	Yes	Unclear	Commercial and residential buildings	Graphical import	Link
	WINDPE V3	BBC Development	On-premise	€45 - €348	Yes	Yes	Various residential and commercial buildings	Manual entry	Link
	DjeserDiag, Version: 0.9	TEKIMMO SARL	Unclear	Contact for details	Unclear	Unclear	Unclear	Unclear	Link
Germany	GEG2023 XLSM tool, Version: 4	Universität Kassel	On-premise	Free	Yes	Yes	Residential buildings without cooling technologies	Manual entry, Import from Databases or Other Software	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	DÄMMWERK	KERN ingenieurkonzepte	On-premise	Starts at €350 for basic module	Yes	Yes	Residential and non-residential buildings	Manual entry, BIM import, Import from Databases or Other Software	Link
	GEG / EnEV	Bially Engineering Office	On-premise	€199 - €499	Yes	Yes	Various types, including residential and commercial	Manual entry	Link
	BBSR GEG Print, Version: 5	Bundesintitut für Bau- Stadt- und Raumforschung	On-premise	Free	Yes	Yes	Residential and non-residential buildings	Manual entry	Link
Greece	3DR-KENAK, Version: 23.0.7.0	3DR Engineering Software Ltd	NA	NA	NA	NA	NA	NA	Link
	4M-KENAK24	4M company	On-premise	€1,600 plus VAT	Yes	Yes	Various types, including residential and public	Manual entry, BIM import	Link
	Ecoline KENAK, v.1.2.4.16	Ace-Hellas	On-premise	€78,000 plus VAT	Yes	Yes	Various types, including residential and non-residential	Manual entry, BIM import	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	TEE KENAK, Version: 1.31.1.9	TEE, IEPBA	On-premise	€10,000 plus VAT	Yes	Yes	Various types, including public and private	Manual entry	Link
Hungary	Auricon Energetic	Auricon Mérnöki Kft.	On-premise	Starts at €13.97/day	Yes	Unclear	Various types, including residential and non-residential	Manual entry, CAD integration	Link
	Bausoft WinWatt	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Link
Ireland	NEAP	SEAI	On-premise	Free	Yes	Yes	Non-domestic buildings	Import from Databases or Other Software	Link
	DEAP4 Tool, V 4.2.4	SEAI	On-premise	Free	Yes	Yes	Residential buildings	Manual entry, Import from Databases or Other Software	Link
Italy	Blumatica Energy	Blumatica Srl	On-premise	Starts at €155	Yes	Yes	Various types, particularly residential	Manual entry, CAD integration	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	EC 780, v4.0	Edilclima Srl	On-premise	162	Yes	Unclear	General use	Import from Databases or Other Software	Link
	Cypetherm C.E., v. 2016	Cype Ingenieros SA	On-premise	1000	Yes	Yes	All types	BIM import	Link
	Energetika 2000, v. 13	Topoprogram & Service	On-premise	€450 for new customers	Yes	Yes	General use	Manual entry, CAD integration, Interface Guides	Link
	Euclide Certificazione Energetica, v14.01b	Geo Network Srl	On-premise	€ 379	Yes	Yes	Residential and non-residential	Manual entry, Graphical input	Link
	Mc4 Suite 2023, v2014-2.0	Mc4Software Italia Srl	On-premise	Paid, various modules available	Yes	Yes	General use	BIM import, CAD integration	Link
	Namirial Termo, v6.0	Namirial SpA	On-premise	Paid, modular pricing	Yes	Yes	All types	BIM Import, Import from Databases or Other Software	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	Termiko One, v2.1.3	Italsoft Group	On-premise	Paid, not specified	Yes	Yes	General use, includes various components	Manual entry, CAD integration	Link
	TermiPlan, v2024	Analist Group Srl	On-premise	€97/year	Yes	Yes	All types	Manual entry, Graphical input	Link
	Termolog 14, v2023.1	Logical Soft Srl	On-premise	Contact manufacturer	Yes	Yes	All types, BIM-focused	BIM Import, CAD integration, Import from Databases or Other Software	Link
	TerMus, v.30	Acca Software SpA	On-premise	€699 (full), €399 (certification)	Yes	Yes	All types	BIM Import, CAD Integration	Link
Latvia	IDA ICE	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Link
	PassiveHaus	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Link
Lithuania	NRG, Version: 7	SSVA	Both	Free for certified experts	Yes	No	All buildings	Manual entry	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
Luxembourg	Lesosai, Version: 2023	E4tech Software SA	On-premise	Paid license required	Yes (SIA)	Yes (RGD 2021)	All buildings	Manual entry, BIM import	Link
	LUXEEB-F (IBP)	Unclear	Unclear	Paid	Unclear	Unclear	Unclear	Unclear	Link
	LuxEeB-H, Version: 1.7	Ministère de l'Economie et du Commerce extérieur	On-premise	€800 per activation	Yes	Unclear	Residential (existing, extensions, new)	Manual entry, Plugins and Extensions	Link
Malta	SBEMmt, v4.2c	BRE UK	On-premise	Provided free by the state	Yes	Yes	Non-residential buildings	Manual entry	Link
	EPRDM	CASAingeniera	Both	Not specified	Yes	Unclear	Residential	Manual entry	Link
Netherlands	Vabi	Various	Both	Varies	Yes (BRL9501)	Yes (NTA 8800)	Residential and non-residential, new and existing	Manual entry, BIM import	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	Unie	Various	Both	Varies	Yes (BRL9501)	Yes (NTA 8800)	Residential and non-residential, new and existing	Manual entry, BIM import	Link
	BouwConnect	Various	Both	Varies	Yes (BRL9501)	Yes (NTA 8800)	Residential and non-residential, new and existing	Manual entry, BIM import	Link
	Susteen	Various	Both	Varies	Yes (BRL9501)	Yes (NTA 8800)	Residential and non-residential, new and existing	Manual entry, BIM import	Link
Poland	Audytor OZC, Version: 7.0 pro	Sancom	On-premise	3,410 PLN plus VAT	Yes	Yes	Residential, non-residential	BIM import	Link
	ArCADia-Thermocad, Version: 10	Intersoft	On-premise	1,350 PLN plus VAT	Yes	Yes	All types	BIM Import	Link
	Certo, Version: 2015	D.A.E.S.	On-premise	1,700 PLN plus VAT	Yes	Unclear	Various types	Manual entry	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
Portugal	Hab DL 101-D/2020, Version: 1.06	Itecons	Both	€250 for XML generation	Yes	No	Residential buildings	Manual entry	Link
	C&S DL 101-D/2020, Version: 1.03	Itecons	Both	€250 for XML generation	Yes	No	Commercial and services buildings	Manual entry	Link
	CYPETHERM SCE-CS Plus, Version: 2024.e	Cype	On-premise	€ 2,100	Yes	Unclear	Commercial and service buildings	Manual entry, BIM import	Link
	casA+	ADENE	Cloud-based	Free for homeowners	Yes	No	Residential buildings	Import from Databases or Other Software	Link
Romania	AllEnergy, Version: PEC v1.1	Algorithm+ SLR	On-premise	€1,100 (plus VAT) annually	Yes	Unclear	Buildings and apartments	Manual entry	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	TermicG	Ideal Rocod SLR	On-premise	1,000 lei (plus VAT) annually	Yes	Unclear	Buildings, parts of buildings, apartments	Manual entry	Link
	Doset-PEC, Version: 2023	Dosetimpex SRL	Unclear	€97,500 for 3 years	Yes	Yes	Apartment	Manual entry	Link
Slovakia	-	-	-	-	-	-	-	-	-
Slovenia	Calculation tool + EPC	University of Ljubljana	On-premise	Free	Yes	Yes	Residential, office, educational, tertiary	Manual entry	Link
Spain	CE3, Version: v20160906	APPLUS + Seville University	On-premise	Free	Yes	Yes	Various types	Manual entry	Link
	CE3X, v2.3	CENER and EFINOVATIC	On-premise	Free	Yes	Yes	Various types	Manual entry, Plugins and extensions	Link
	CERMA, v5.11	INSTITUTO VALENCIANO EDIFICACIÓN and ATECYR	On-premise	Free	Yes	Yes	Various types	Manual entry	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	CYPETHERM HE Plus, v2024.b	CYPE Ingenieros	On-premise	NA	Yes	Yes	Various types	BIM import, Import from Databases or Other Software	Link
	LIDER-CALENER (HULC), Version: DB-HE 2019	Public initiative - Spanish Government	On-premise	Free	Yes	Yes	Various types	Manual entry, CAD Integration	Link
	SG SAVE, v3.5.0.2	Isover Saint Gobain Group	On-premise	Free	Yes	Yes	Various types	Manual entry	Link
	TeKton3D TK-CEEP, v1.7.94.8	iMventa ingenieros	On-premise	NA	Yes	Yes	Various types	BIM Import	Link
Sweden	BIM Energy	StruSoft AB	Cloud-based	€250/month	Yes	Yes	All types	Manual entry, Graphical Input	Link

Country	EPC Tool	Developer/ Provider	Cloud/ On-premise	Cost	National EPC Method	European EPC Method	Building Types	Data Input Method	Website
	EnergyCalc	Control Engineering Sweden AB	On-premise	~424€/year	Yes	Yes	Residential, non-residential	Manual entry	Link
	TMF Energi, Version: 9.41	RISE	On-premise	~1320€ for combination subscription	Yes	Yes	Single-family and multifamily buildings	Manual entry, Import from Databases or Other Software	Link
	VIP-Energy	StruSoft AB	On-premise	€250/month	Yes	Yes	All types	Manual entry	Link

Appendix B. Questionnaire: EPC Tool Assessment Form

Please complete the following form to assess the Energy Performance Certificate (EPC) calculation tool. Your feedback is vital for evaluating the tool's effectiveness, user experience, and overall quality. Please give your input for each criterion and provide comments or specific observations in the space provided.

Tool Name:	
Version:	
Country:	
Regions that is applicable:	
Developer/Provider:	
Website:	

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐	**No**	☐

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

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Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

8) Provide a link for downloading the tool.

Link:	

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

For any queries, please contact me at:

Email: theoklitos@euphyia-tech.com

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Appendix C: EPC Tool Assessment Form Collected, per Country and EPC Tool

Austria

ArchiPHYSIK

Tool Name:	ArchiPHYSIK
Version:	Standard
Country:	Austria
Regions that is applicable:	
Developer/Provider:	A-NULL Development GmbH
Website:	https://archiphysik.at/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry and CAD software including ArchiCAD and Trimble SketchUp via Add-ons

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
The software supports calculation method for standard heating load for buildings that is compliant to ÖNORM H7500-1 and ÖNORM H 7500-3 and the tool uses OIB guideline 6 methodology for EPC calculation.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒
No mention of using any European standards for calculating and it seems that the tool is only to be used in Austria.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

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Yes	☐	**No**	☒
No mention about further integration possibilities other than for CAD software and Austrian epc databases WUKSEA, ZEUS and EAWZ.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☒
The tool offers single place and client/server licenses but also integrates to CAD software via Add-ons					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
3670€			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

One-time purchase per license. Also service packages for updates etc. starting from 920€/year for a 12 month minimum contract to 860€/year for 24 months and 760€/year for 36 month minimum contract.

8) Provide a link for downloading the tool.

Link:	https://archiphysik.at/software/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

OI3 index for buildings, material balance (LCA) for buildings, IFC viewer, APS viewer, BIM component finder, CAD interfaces for ArchiCAD and SketchUp Housing subsidies and building regulations for all federal states; Extensive library of building materials and tested superstructures; officially harmonized form printouts according to building regulations and housing subsidies.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

In person training in Austria, tutorials and tips & tricks, customer service, webinars and help center available on the website. Also possibility for a free license for educational institutions. The company also offers tailored training for 480€/person or 1590€ for 8 person training day. Also quite extensive manual available. https://dld.a0dev.com/archiphysik/doku/at-aph-manual20/

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AX3000

Tool Name:	AX3000
Version:	AX3000 Energy Performance Certificate
Country:	Austria, Germany
Regions that is applicable:	
Developer/Provider:	EDV-Software-Service GmbH & Co KG
Website:	https://www.ax3000-group.de/en/energy-performance-certificate/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non residential

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry and import from BIM software including. AutoCAD, BricsCAD and ALLPLAN

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

The tool is able to calculate the German energy performance certificate in accordance with the German Energy Saving Ordinance EnEV 2016 and the Austrian in accordance with OIB RL6 2019

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒

Energy certificate calculation is only based on German and Austrian standards. The non energy certificate side of the tool can however, be integrated with many different languages and common standards in the EU so technically the European EPC calculation methodology could be integrated into the tool.

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

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Yes	☐	**No**	☐
No information about possible integration other than CAD-software. Can be used to upload the EPC data to Austrian EPC database ZEUS			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
No mention of it being cloud-based.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
1892 € per license (client, USB or server)			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

One-time purchase with a possibility so subscribe for a monthly maintenance contract that includes updates, upgrades and hotline use for 60€/month

8) Provide a link for downloading the tool.

Link:	Upon request from the software provider

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Proof for structural analyses, mass determination with detailed results, visualization of energy gains and losses, calculation of photovoltaic systems and thermal solar systems, profitability calculator, renovation comparison

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Online support available

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GEQ

Tool Name:	GEQ
Version:	
Country:	Austria
Regions that is applicable:	
Developer/Provider:	Zehntmayer Software GmbH
Website:	geq.at

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
The software is able to calculate the Austrian energy certificate in accordance with OIB Guideline 2019			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒
Only available for Austria and calculations are based on Austrian ÖNORM standards			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
But can be used to upload the EPC data to Austrian EPC databases ZEUS/WUKSEA/EAWZ			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

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Cloud-based	☐	**On-premise**	☒	**Both**	☐
No mention of being cloud-based.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
3549,6€ including all extensions.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Per annual subscription with 20 energy certificates per year. The subscription is only available for 1 computer.
They also offer workplace licenses with unlimited energy certificates with a fixed price per user.
They also offer a free version with all of the functionalities and extensions of the paid version with the exception that the trial version cannot be used to submit project or create prints without a watermark

8) Provide a link for downloading the tool.

Link:	https://www.geq.at/download/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Vapor diffusion, economic efficiency according with ÖNORM 8110-4 and M 7 140, Heating load calculation according to ÖNORM H 7500, Summer overheat protection according to ÖNORM B 8810-3, Sound insulation calculation according to OIB guideline 5

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Online paid courses and an online help center

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Grüner pitCAD

Tool Name:	Grüner pitCAD

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Version:	
Country:	Austria / Germany
Regions that is applicable:	
Developer/Provider:	Ing. Günter Grüner GmbH and pit-cup GmbH
Website:	https://www.pit.de/en/software-and-products/cad-bim-tools/pitcad-ultimate/ and https://www.gruener.com/pit-cup/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

manual input or import from CAD applications. Also BIM import possibility with support for openBIM standards

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐	**No**	☐
Not stated specifically, but the software supports integration of standards which would make it align with the methodologies if integrated.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Not stated specifically, but the software supports integration of standards which would make it align with the methodologies if integrated.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Not stated specifically, but bidirectional interfaces can be done.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

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Cloud-based	☐	**On-premise**	☒	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Single user or network licence with one-time purchase

8) Provide a link for downloading the tool.

Link:	Only available after purchase

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Calculating, testing and verifying energy efficiency Lifecycle assessment Preparation and integration of existing CAD/BIM as-built plans Digitalization of planning documents Preparation of point clouds into a 3D model

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Support web service available for customers with a software service contract (maintenance contract)

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Gebäudeprofi

Tool Name:	Gebäudeprofi
Version:	Building Professional 6.9.

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Country:	Austria
Regions that is applicable:	
Developer/Provider:	ETU GmbH
Website:	https://www.etu.at/energie/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non residential buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

For the basic version data entry with entry wizard with default values and area calculation tools.
For the HottCAD version graphical capture of a building with all necessary components and information. Also reads and outpots DWG/DXF and IFC

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Energy cetification calculation in accordance with OIB Guideline 6 or ÖNORM

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒

Only available for Austria

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

With HottCAD version data exchange with different programs is possible.

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐

No mention of cloud-based functionalities.

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6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
Full version 999€ or duo full version for 1499€			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

One-time purchase

8) Provide a link for downloading the tool.

Link:	https://shop.etu.at/WebShop/Details/Gebaeudeprofi-Duo-Vollversion.html,9753

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Building physics calculation vased on OIB guideline 6-2015, Sound insulation, automatically generated energy advisory reports and profitability calculations Energy advice IFC import DWG export Room overview with Excel export

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Online learning videos, Seminars/webinars and presentations

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Belgium

PEB

Tool Name:	PEB (Performance Energétique du Bâtiment)
Version:	14.0.2
Country:	Belgium
Regions that is applicable:	(Wallonie, Bruxelles-Capitale, Flandre)
Developer/Provider:	Wallonie énergie SPW - DIRECTION GÉNÉRALE OPÉRATIONNELLE DE L'AMÉNAGEMENT DU TERRITOIRE, DU LOGEMENT, DU PATRIMOINE ET DE L'ÉNERGIE
Website:	General webpage: https://energie.wallonie.be/fr/performance-energetique-des-batiments.html?IDC=6148 Software, files can be downloaded here: https://energie.wallonie.be/fr/logiciel-peb.html?IDC=9596 User manual, available here: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://document.environnement.bruxelles/opac_css/doc_num.php?explnum_id=4489

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

It applies to all buildings (apart from exceptions explicitly covered by the regulations) for all construction, reconstruction and conversion work requiring urban planning permission.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Data input are the administrative, geometric and technical characteristics of project volumes, walls and systems.

The initial project creation steps creates a starting energetic model that will be enriched and precised integrating the building characteristics.

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Manual entries, files can be attached, local and distant libraries can be connected to provide all types of building characteristics.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		☐
The tool aligns with the PEB regulation.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐		☐
https://www.cbre.be/fr-be/etudes-et-recherche/articles/evolution-du-peb-en-belgique-quel-impact-sur-vos-investissements-immobiliers			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐		☐
The distant library that the software can connect to when looking for building characteristics, it could be seen as a DBL.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

	☐	**On-premise**	☐		☐
Downloaded from a webpage, used locally on PC or MAC.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐		

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

8) Provide a link for downloading the tool.

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Link :	https://energie.wallonie.be/fr/logiciel-peb.html?IDC=9596

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Can realize a feasibility study, computing the impacts of building renovation measures.

Optimisation option is also available to try to find the best EE measures to implement. Recommendations for optimisation are made available.

Production of administrative forms is possible, forms can be sent from the platform to the destinaries.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

User manual:
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://document.environnement.brussels/opac_css/doc_num.php?explnum_id=4489

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Bulgaria

ENSI EAB

Tool Name:	ENSI EAB (Energy Auditing of Buildings)
Version:	ENSI EAB software UZB 8.1 exe (07/2023)
Country:	Bulgaria
Regions that is applicable:	*Local (city or municipality)*
Developer/Provider:	Group Niras (Norway) / Energy Saving International AS (ENSI, TU-Sofia)
Website:	http://www.ensi.no/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

New and existing buildings in different types.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Probable it is a manual entry tool.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
The energy calculation Software is prepared to be adjusted to include for instance local climatic data and reference values according to national regulations and standards.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
The software is based on the European standards EN ISO 13790 and EN 15217.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

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Yes	☐	**No**	☐
It is not specified about further integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
It is not clear but probable is on-premise tool					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐
It is not free by the state but it is not clear how much the tool costs			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

It is not clear

8) Provide a link for downloading the tool.

Link:	The software can be downloaded from the ENSI website or purchased from ENSI's local partners. https://ensi-eab-software-uzb.software.informer.com/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The certificate provides recommendations on how to improve the energy efficiency of the building.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

For more information on the software features and functions, please refer to the user guide or contact ENSI's support team. ensi@ensi.no

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Croatia

MGIPU_EC

Tool Name:	MGIPU_EC
Version:	Setup_v1803_x64
Country:	Croatia
Regions that is applicable:	Croatia
Developer/Provider:	The Faculty of Organization and Informatics is one of the constituent units of the University of Zagreb
Website:	https://mpgi.gov.hr/o-ministarstvu/djelokrug-50/energetsko-certificiranje-zgrada-8304/racunalni-program-za-odredjivanje-energetskog-svojstva-zgrade-8359/8359

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
Claimed to be updated after each regulatory update. This tool is official tool in Croatia requested by Ministry of Physical Planning, Construction and State Assets			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
Croatian regulation 244/2012 and guidelines 2012/C 115/01. Algorithm for calculating the required energy for heating and cooling the building according to HRN EN ISO 13790			

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Algorithm for determining energy requirements and efficiency of thermotechnical systems in buildings (Space heating systems and domestic hot water preparation) Algorithm for determining energy requirements and efficiency of thermotechnical systems in buildings (cogeneration systems, district heating systems, photovoltaic systems) Algorithm for determining the energy efficiency of lighting systems in buildings (Energy requirements for lighting) Algorithm for the calculation of the required energy for the application of ventilation and air conditioning systems for heating and cooling the premises of the building

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
Without integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☒
The tool offers single place and client/server licenses					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐
free access to registered users.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

8) Provide a link for downloading the tool.

Link:	https://mpgi.gov.hr/o-ministarstvu/djelokrug-50/energetsko-certificiranje-zgrada-8304/racunalni-program-za-odredjivanje-energetskog-svojstva-zgrade-8359/8359

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

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Software can import data and results of other similar software developed with defined protocol. Other software has to be also approved by Ministry of Physical Planning, Construction and State Assets in Croatia.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Authorized energy certifiers must use this program and receive training for it. There are tutorials and technical support.

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Cyprus

ECO – engine

Tool Name:	ECO – engine
Version:	2
Country:	Cyprus
Regions that is applicable:	
Developer/Provider:	MODECSOFT
Website:	https://www.modecsoft.com/site/eco-engine/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

ECO -engine can assess a range of buildings, including both existing and new buildings, residential and non-residential structures.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

ECO-Engine is an easy-to-use 3D building designer, which enables the fast and accurate energy calculations.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

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ECO-engine has been approved by the Energy Service of the Ministry of Energy.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Local installation					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
2400 Euros per activation key.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

-

8) Provide a link for downloading the tool.

Link:	https://www.modecsoft.com/site/dl/CoreDesigner_ECO-engine_2.exe

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

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10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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iSBEM-CY

Tool Name:	iSBEM-CY
Version:	3.4a
Country:	Cyprus
Regions that is applicable:	
Developer/Provider:	MCIT
Website:	https://energy.gov.cy/secondary-menu/%CE%84%CE%BF%CE%BC%CE%B5%CE%AF%CF%82-%CF%80%CE%BF%CE%BB%CE%B9%CF%84%CE%B9%CE%BA%CE%AE%CF%82/%CE%B5%CE%BD%CE%B5%CF%81%CE%B3%CE%B5%CE%B9%CE%B1%CE%BA%CE%AE-%CE%B1%CF%80%CF%8C%CE%B4%CE%BF%CF%83%CE%B7-%CE%BA%CF%84%CE%B9%CF%81%CE%AF%CF%89%CE%BD/346/%CE%BB%CE%BF%CE%B3%CE%B9%CF%83%CE%BC%CF%B9%CF%BA%CF%8C-isbemcy.html

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

SBEM-CY can assess a range of buildings, including both existing and new buildings, residential and non-residential structures.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual input of various factors such as building structure zones, thermal characteristics, building orientation, location, indoor climatic conditions, HVAC systems, hot water systems, and renewable energy sources

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☒	**No**	☐
Is the software provided by the Ministry of Energy			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Local installation					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐
The Energy Agency provides the SBEMcy software tool free of charge, through its website			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

-

8) Provide a link for downloading the tool.

Link:	https://energy.gov.cy/assets/entipo-iliko/iSBEMcy_v3.4.a.zip

Additional Features and Support:

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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Denmark

Be18

Tool Name:	Be18
Version:	

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Country:	Denmark
Regions that is applicable:	
Developer/Provider:	Aalborg University
Website:	https://www.build.aau.dk/til-byggebranchen/software/be18

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Be18 is a program for calculating the energy demands of buildings according to the Danish Building Regulations (BR15)

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐

The Be18 uses monthly quasi-steady state calculations and is developed to use for compliance check and energy certification of Danish buildings. The building regulations contain requirements for the building's energy performance. The overall, general approach is based on requirements in EU directive 2010/31/EU on the energy performance of buildings.

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

No mention.

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

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Cloud-based	☐	**On-premise**	☒	**Both**	☐
No mention of cloud-based functionalities					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
Single user license 375€ (2800 DKK) for the installation and first year of license and 160€(1200 DKK) for consecutive years after first year. Multi-user license 295€ (2200 DKK) for the installation and first year and 160€ (1200 DKK) for consecutive years after first year Educational license (unlimited users for the educational institution) 375€ (2800 DKK) for the installation and first year of license and 160€(1200 DKK) for consecutive years after first year.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription to license.

8) Provide a link for downloading the tool.

Link:	https://be18.sbi.dk/be/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The tool is sold together with a guide. FAQ available on the website

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Energy10

Tool Name:	Energy10
Version:	
Country:	Denmark
Regions that is applicable:	
Developer/Provider:	NRGi Systems A/S
Website:	https://nrgisystems.dk/energy10/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry and import from Danish national databases using EM number, address or BBR number

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
EPC calculation is done according to Danish Building regulations.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
Calculation based on asset-rating			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☒	**No**	☐
The tool is able to withdraw information from the Danish national database.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

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Cloud-based	☐	**On-premise**	☐	**Both**	☒
The tool can be used remotely via Energy10 mobile app.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The use of the software is free and there is no fixed subscription when using energy10. However, you must pay a charge when you complete or extract a report from Energy10. The amount charged is based on the type of building and number of reports: Single family houses: 11€ (125 NOK) for first building / unit 5,5€ (63 NOK) for subsequent buildings / units in the same report 8€ (90 NOK) per building / residential unit carried out as an automatic label Multi-family houses and commercial buildings: 30€ (343 NOK) per building up to and including 1500 m2 35€ (399 NOK) per building over 1500 m2			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Per report

8) Provide a link for downloading the tool.

Link:	https://nrgisystems.dk/energy10/opret-firmakonto/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Energy 10 mobile app Automatic calculation Built-in quality assurance

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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Estonia

PHPP

Tool Name:	PHPP (Passive House Planning Package)
Version:	10
Country:	Estonia
Regions that is applicable:	Globally
Developer/Provider:	Passive House Institute
Website:	https://passivehouse.com/04_phpp/04_phpp.htm

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non-residential

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry or import data from a drawn building from designPH2. It is also possible to use: • Revit 2017 • Archicad 20 • Vectorworks 2018 • Rhinoceros 6 + VisualARQ v.2.1.050 with the new bim2PH tool, to import data/values. (https://passivehouse.com/04_phpp/06_bim2ph/06_bim2ph.html)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☐	**No**	☐

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
In the PHPP website it is said that all calculations in the PHPP are based strictly on the laws of physics. And wherever possible, specific algorithms resort to current international standards.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Interface for import/export of data from/into other programs			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Excel-based					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The English PHPP version 10 (2021) costs 270€.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Single-user license includes manual. With the license the PHPP user obtains a registration code which is used to register the PHPP license. Based on this registration, the user will receive access to the download of PHPP, the online flipbook manual, and to updates of the calculation tool, or upgrade discounts for new versions of PHPP or designPH.

8) Provide a link for downloading the tool.

Link:	https://passivehouse.com/05_service/01_literature_online-order/00_literature-links/02_phpp.htm

Additional Features and Support:

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9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The Passive House Planning Package provides reliable results for the following:

- Heating demand per year [kWh/(m^2a)] and maximum heating load [W/m^2]
- Cooling demand per year [kWh/(m^2a)] and maximum cooling load [W/m^2] (in case of active cooling)
- Summer comfort in case of passive cooling: frequency of overheating [%]
- Demand for renewable primary energy (PER) per year and primary energy demand (PE) of all energy services in the entire building [kWh/(m^2a)]
- Assessment of the annual renewable energy gains [kWh/(m^2ground a)]

The Passive House Planning Package (PHPP) is available in a variety of languages.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

User manual, courses

(https://cms.passivehouse.com/en/training/courses/phpp-expert/)

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Finland

IDA ICE

Tool Name:	IDA ICE
Version:	4.8. Also 5.0 available.
Country:	Finland, Sweden, Estonia
Regions that is applicable:	Globally
Developer/Provider:	EQUA
Website:	https://www.equa.se/en/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Building frames can be imported from BIM software or modeled manually. The software provides some default values for different building types for schedule, heating, ventilation, lighting, occupancy and U-values which can be changed to model the real building. Weather data can be downloaded from software provider database for cities around the world. More detailed localizations available for Austria, Estonia, Finland, France, Germany, Sweden and Switzerland.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
It can be used to provide official Finnish energy performance certificates.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
The most recent validation tests performed for IDA ICE: ASHRAE 140			

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CEN Standard EN15255 and EN15265
CEN Standard EN13791
International Energy Agency SHC Task 34
Technical Memorandum 33 (TM33)
LEED and BREEAM
DGNB

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
No mention.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Software is used on-premise with either a web license or a license key.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒

Product	**License**	**Price (€)**	**Annual Maintenance (€)**
IDA ICE 5 Standard	single user, 1 lic.	2 500	750
IDA ICE 5 Standard Network	network, 1 lic.	5000	1500
IDA ICE 5 Expert	single user, 1 lic.	6000	1800
IDA ICE 5 Expert Network	network, 1 lic.	12 000	3600
IDA ICE 5 Educational Department	network, 25 lic.	4000	1200
IDA ICE 5 Educational Classroom	network, 25 lic.	2000	600
IDA ICE 5 Educational Single User	single user, 1 lic.	1000	300

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EQUA also offers extensions packages, project licenses and localizations.

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription or limited time license keys

8) Provide a link for downloading the tool.

Link:	https://www.equa.se/en/ida-ice/trial-version

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

IDA ICE can be used in modeling the whole building and its heating, ventilation, cooling systems. It can be used as a tool to determine the most energy efficient renovation solutions and run optimization scripts to determine the best options for given variables.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Equa provides support by arranging tutorial courses for simulation and modeling. Customer service is available by email and a community forum.

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Lamitor

Tool Name:	Lamitor
Version:	
Country:	Finland
Regions that is applicable:	Finland
Developer/Provider:	lamit.fi
Website:	https://www.lamit.fi/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

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Lamitor is suitable for different sizes and types of buildings, residential and commercial.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry or import through interface

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
The tool allows to create energy calculations in accordance with Finnish energy regulation.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Has been validated some years ago according to ISO 13790			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
No mention.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☒	**On-premise**	☐	**Both**	☐
It is on the company's website.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
Creating a user account and testing the tool is free, but accessing the calculations results requires a paid subscription.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

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There are two options, monthly subscriptions or payment per report.

8) Provide a link for downloading the tool.

Link:	https://www.lamitor.fi/login/signup_form (Link for signup)

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Temperature calculation

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

https://lamitor.fi/files_libraries/pdf/manuals/lamitor_u_kayttoopas.pdf Link for the user manual (Finnish).

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RIUSKA

Tool Name:	RIUSKA, it is included in MagiCAD Comfort & Energy software
Version:	
Country:	Finland
Regions that is applicable:	Approx. 40 countries
Developer/Provider:	MagiCAD
Website:	https://www.magicad.com/en/mc_software/magicad-comfort-energy/#features-for-autocad

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

RIUSKA is applicable for those regions of which weather data can be found in the software. In addition to Finland, there are weather data for selected cities from approx. 40 countries.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Riuska supports IFC file format. MagiCAD supports only IFC files produced with MagiCAD Room because it is based on standards.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
MagiCAD Comfort & Energy is compatible with the new energy performance certificate regulations that entered into force at the beginning of 2018.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
The program is validated according to Ashrae 140.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
No mention.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☒
MagiCAD offers on-premise licenses and cloud-based licenses.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
On-premise license 2250 €/ one-time purchase + 250€ software maintenance/ year Cloud-based license 2500€/ one-time purchase + 250€ software maintenance/ year			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

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One-time purchase

8) Provide a link for downloading the tool.

Link:	https://portal.magicad.com/Download/GetProductCategoryList?categoryId=1

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Riuska can be used for the following: To ensure compliance with the objectives Temperatures of premises in summer and winter Comparison of indoor climate quality levels Comparison of architectural solutions (windows, window protection, façade solutions) Comparison and dimensioning of systems Analysis of problematic spaces Energy consumption of buildings and building systems Projected consumption of maintenance

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

MagiCAD offers support contacts, software training and webinars

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

France

AnalysImmo

Tool Name:	AnalysImmo
Version:	V4.1.1
Country:	France
Regions that is applicable:	All regions in Fance
Developer/Provider:	Atlibitum
Website:	https://www.atlibitum.com/logiciel-dpe/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Very little information available on the webpage.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

NA

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		
Claimed to be updated after each regulatory update.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Alignment between tool and EU level is unclear.

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Not specified			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
Probably on-premise.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐
No purchase of a License necessary.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Not clear, probably one purchase + one payment per update

8) Provide a link for downloading the tool.

Link:	NA, you must contact the company to access the tool. 04 92 29 15 14 04 93 21 97 15 assistance@analysimmo.com

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Not clear, the company offer other diagnosis.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

You must contact the company to access the tool.

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CLIMAWIN 2020

Tool Name:	CLIMAWIN 2020
Version:	Version post CLIMWIN 2005
Country:	France
Regions that is applicable:	All regions
Developer/Provider:	BBS Logiciels
Website:	https://www.bbs-logiciels.com/climawin-2020/#dpe https://www.bbs-logiciels.com/climawin-logiciel-dpe/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

All residential buildings, houses, flats, buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Thermic computations can be BIM based. https://www.bbs-logiciels.com/climabim/

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		
Tools validated by ADEME.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Not very clear.			

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Not clear.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
On-premise it seems.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

		No	☐
Tool sold by 'BBS Logiciels'			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Payment options are visible here:

Annual subscription / monthly subscription / License (training License, student License)

https://www.bbs-logiciels.com/tarifs/#climawin2020

8) Provide a link for downloading the tool.

Link :	Demonstration available here: https://www.bbs-logiciels.com/webconferences/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool proposes different works scenarios + estimation of the cost ranges of the works. Recommendations based on the Edibatec technical database integrated into ClimaWin.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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Guides and training material can be downloaded at the bottom of that page: https://www.bbs-logiciels.com/climawin-logiciel-dpe/

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DPEWIN

Tool Name:	DPEWIN
Version:	V5
Country:	France
Regions that is applicable:	All regions
Developer/Provider:	Logiciel Perrenoud
Website:	https://logicielsperrenoud.com/product/dpewin-v5-dpe-audits-energetiques-reglementaires/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Single-family homes Collective housing (individual and collective heating) Other buildings (tertiary, etc.) (invoice entry method) Public buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐	**No**	☐
Validated by ADEME.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

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Yes	☐	**No**	☐
Not clear.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Probably not.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

		On-premise	☐		
Local exploitation after purchase					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐
Sold by a private company, logiciel Perrenoud: €990.00 HT for 5 simultaneous users.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Yes, one-time purchase, 5 users.

8) Provide a link for downloading the tool.

Link:	NA

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

EPC + Thermal Audit for EPC F to G The audit module will be accessible in parallel with the ECD, and will enable the various regulatory scenarios to be entered in one or more stages. Using a list of pre-established modifications or direct input, the operator will be able to establish the various scenarios A specific costing module can be used to calculate the cost of the work and any related work, based on a database supplied by the operator. It can be used to separate renovation work from other work.

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10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Training available on demand: https://perrenoud.catalogueformpro.com More information, contact thierry@logicielsperrenoud.com

EXPERTEC

Tool Name:	EXPERTEC
Version:	Pro V7.5
Country:	France
Regions that is applicable:	All regions
Developer/Provider:	Office Expert
Website:	DPE EXPERT PLAN premium https://www.officeexpert.fr/nos-logiciels.html?anchor=dpe-expert-plan

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

EXPERTEC Pro V7.5 Office Expert House, flat, building DPE EXPERT PLAN: Version Light (gestion des ouvertures), Version Premium (Maisons, appartements) Version Platinium (Maisons, appartements, immeubles collectifs d'habitation).

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☐		
Validated by ADEME			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Not clear, but it should be since it is			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

		No	☐
Looks basic from the online description. Probably no.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
Unclear, on premise probably.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐
No, the private company OFFICE EXPERT sells it.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Can be requested: https://www.officeexpert.fr/contact-s.html.

8) Provide a link for downloading the tool.

Link :	http://www.planpourzero.com

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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LICIEL

Tool Name:	LICIEL
Version:	
Country:	France
Regions that is applicable:	All in France
Developer/Provider:	*LICIEL Environnement*
Website:	https://www.liciel.fr

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Houses, flats, apartment blocks, other buildings, public buildings over 1000 m2

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Suite Liciel Diagnostics, DPE option : - Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		
LICIEL's EPC module has been favourably evaluated for its compliance with regulations. See the evaluation sheet on the CSTB website: www.rt-batiment.fr			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

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Yes	☐	**No**	☐
No clear indication of its compatibility with the EU level but the tool is validated by the ADEME, ensuring adequation with the national policies.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
No mention of a possible connection to an external data storage to read info from it.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
Both options are possible, web-based (LICIEL BackOffice) or on premise: All options are described here https://www.liciel.fr/acheter.html					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

		No	☐
A private company developed and sells it, it is updated on a 'weekly basis' they say. Licenses can be purchased online, made available in 1h.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Different options possible, visible here: https://www.liciel.fr/acheter.html Depending the package you are interested in, you can buy or lease the modules.

8) Provide a link for downloading the tool.

Link :	Demonstration version available here: https://www.liciel.fr/telechargement-logiciel.html

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

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EPC modules (French 'DPE' validated by ADEME) + other modules available:

- asbestos diagnosis
- termite, parasite and merula conditions
- termite, parasite and merule surveys
- lead diagnosis
- Carrez/Boutin measurement
- Internal gas installations
- Digital Performance Diagnosis (DPN) ? Link with SRI?
- Electrical installation condition - ESRIS (formerly ERNMT)
- Sanitation
- Swimming pool
- Habitability (Pinel Law)
- Zero Rate Loan (PTZ)
- Condition of fixtures (EDL)
- Global Technical Diagnosis (DTG)
- Disabled access control for new buildings
- Lift
- Radon
- Fire

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Training webpage:

https://www.liciel.fr/formation.html

User manual for EPC assessment:

https://www.liciel.fr/wiki/article/view/3920?search=dpe

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Pleiades

Tool Name:	Pleiades
Version:	1
Country:	France
Regions that is applicable:	All
Developer/Provider:	IZUBA Energies
Website:	https://www.izuba.fr/logiciels/outils-logiciels/dpe-audit/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Existing commercial building on invoice (shopping centre, public building, etc)

New buildings in flats or commercial buildings (after importing or using your results in RE2020)

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Yes - The exterior geometry of the home is imported from Open Street Map or drawn. With geometric input, you can take advantage of automatic calculations to improve speed and accuracy.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		
Validated by ADEME			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Should be since it is validated by ADEEM, to be doble checked			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

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Exist libraries of walls, joinery and renovation work shared with the other Pleiades modules and customisable. So might be possible to connect to a DBL.

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

		On-premise	☐		
Configuration recommandée : Windows 8, 8.1 ou 10 (64 bits) Processeur > 2 Ghz RAM ≥ à 4 Go					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

		No	☐
Commercialized by IZUBA Energies			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

500 € (DPE seul) ou 600 € (intégré dans la licence RTex + DPE)

8) Provide a link for downloading the tool.

Link :	More information available through the questionnaire: https://www.izuba.fr/logiciels/contact-devis-logiciel/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

A library of renovation works, fed by a database of prices and customisable, is available for modelling renovation recommendations.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Documentation in preparation (mention visible on the webpage).

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WINDPE

Tool Name:	WINDPE
Version:	WINDPE V3
Country:	France
Regions that is applicable:	All
Developer/Provider:	BBC Development
Website:	https://obbc.fr/product/windpev3/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

House, Single/apartment dwelling, Apartment block, New house, New flat, New building, New commercial building, Office, administrative or educational building…

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐	**No**	☐
Validated by			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐		
Software certified by DHUP and ADEME.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Unclear…Probably not.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

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		On-premise	☐		
Local installation it seems.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐		
45.00€ – 348.00€ HT			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Subscription: 3 months, 6 months or 1 year

1 License valid for 2 co-workers

8) Provide a link for downloading the tool.

Link :	

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Calculating recommendations has never been easier! Add one or more recommendations, and the other recommendations are automatically recalculated according to your choices.

The "automatic" function lets you generate recommendations effortlessly.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Some explanations and screenshots are displayed at the bottom of the webpage: https://obbc.fr/product/windpev3/#

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Germany

Bially Energiebedarfs

Tool Name:	Bially Energiebedarfs- und Verbrauchsausweis (GEG / EnEV)
Version:	
Country:	Germany
Regions that is applicable:	Hess, Saxony, Hanover, Middle Franconia, Bavaria
Developer/Provider:	Bially Engineering Office
Website:	https://energieausweis-bially.de/enev-energieausweis/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

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Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
Calculation according to GEG, EnEV 2014/2009/2007			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
Calculation can be done based on asset or operational rating.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
No mention of any integration capabilities with any external systems			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Tool is only available for windows 10/8/7 and xp					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
499€/license or 199€/license for the calculation of energy performance certificates based on actual consumption.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

One-time purchase license

8) Provide a link for downloading the tool.

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Link:	https://energieausweis-bially.de/downloadbereich/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Application for KfW funding programs grants via an additional tool.
Renovation/modernization calculation where renovation measures are implemented in accordance with KfW requirements.
Also possibility to issue energy passes and other regional passes.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Manual included with download.

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GEG2023 XLSM

Tool Name:	GEG2023 XLSM tool
Version:	4.0
Country:	Germany
Regions that is applicable:	
Developer/Provider:	Universität Kassel
Website:	www.uni-kassel.de

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential with normal indoor temperatures without cooling technologies

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry or import from previous .XML files

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☒	**No**	☐
Calculation is based on DIN V 4108-6 in conjunction with DIN V 4701-10 and fulfills the requirements of GEG 2023.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
Calculation based on asset rating.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
Import/export on via .XML files			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Only via excel					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

8) Provide a link for downloading the tool.

Link:	https://www.uni-kassel.de/fb06/institute/architektur/fachgebiete/bauphysik/downloads

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

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10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Only instructions available but since the tool has been made for educational use the instructions are really extensive

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DÄMMWERK Bauphysik

Tool Name:	DÄMMWERK Bauphysik + GEG-Software
Version:	
Country:	Germany
Regions that is applicable:	
Developer/Provider:	KERN ingenieurkonzepte
Website:	https://bauphysik-software.de/de-de/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non-residential buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry, or import via XML or IFC with additional module

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Calculation according to DIN V 18599 + DIN V 4108-6

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
No mention of integration possibilities with external systems			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
No mention of being cloud-based.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The cost of the tool is based on the amount of modules you purchase. All of the versions must have at least the basic module (350€). For Energy certificate calculation you can select a module for only residential buildings (420€) and for both non-residential and residential a module is available for 690€. IFC and XML import module is 200€			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

One-time purchase

8) Provide a link for downloading the tool.

Link:	https://bauphysik-software.de/de-de/downloads?format=html#version-english

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

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Hydraulic balancing, lifecycle assessment, Building simulation, energy advice, Fire protection, Thermal bridge, moisture protection, sound insulation

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Seminars, online training, Calculation examples + videos, FAQ, email support, Power support via telephone,

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BBSR GEG

Tool Name:	BBSR GEG Print application
Version:	5.0
Country:	Germany
Regions that is applicable:	
Developer/Provider:	Bundesintitut für Bau-, Stadt- und Raumforschung
Website:	https://www.bbsr-geg.bund.de/GEGPortal/DE/Energieausweise/Druckapplikation/Download/GEG-node.html#doc4053218bodyText1

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non-residential buildigs

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry only

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
the application is based on the requirements of the Building Energy Act (GEG).			

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
energy certification according to asset and operational ratings.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Excel-file					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

8) Provide a link for downloading the tool.

Link:	https://www.bbsr-geg.bund.de/GEGPortal/DE/Energieausweise/Druckapplikation/Download/GEG-node.html#doc4053218bodyText1

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Third-party calculation software that supports the data schema of the energy certificate registrar as of December 1, 2023 as well as calling the print application in "headless mode" can be used in conjunction with the print application to issue energy consumption certificates for residential and non-residential buildings.

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10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Support and explanations page available, FAQ, and support via email.

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Greece

3DR-KENAK

Tool Name:	3DR-KENAK
Version:	3DR-KENAK 2023 (23.0.7.0)
Country:	Greece
Regions that is applicable:	All regions in Greece
Developer/Provider:	3DR Engineering Software Ltd
Website:	https://www.3dr.eu/Proionta/kenak-energeiakes-meletes-epitheoriseis/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential (apartment, detached house), non residential (office, shop etc) and other private (hotel, bank etc) or public buildings (museum, hospital, school etc.)

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

You can import data from BIM software using a dwg file, dxf file, etc.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☒	**No**	☐
Calculation according to the laws of Ministry of Environment and Energy (YPEN) and the Technical Instructions of the Technical Chamber of Greece (TOTEE) with live updates.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
The calculation of the energy demand of the building is done by calculator of the Technical Chamber of Greece (TEE) with the semi-steady state method of monthly step according to ELOT European standard EN ISO 13790 E2 (2009).			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
It is not clear. Probable the tool is on-premise.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool costs 850,00€ plus Vat (24%) and 40,00€ plus Vat (24%) for the updates.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The tool is one-time purchase, but also you can lease it for 3 months (170,00€), 6 months (255,00€) or 12 months (390,00€).

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8) Provide a link for downloading the tool.

Link :	https://www.3dr.eu/e-shop/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

It is 100% compatible with *.DWG format or *.DXF architectural BIM software.

The tool is private software that has received a positive evaluation from Y.P.E.K.A. and has been approved as a suitable computational tool.
It has connection to the TEE KENAK software.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

They provide you manual, video presentation and live support (https://www.3dr.eu/livesupport/)

Also they provide full package support (telephone, email, member forum and all the updates) for 80,00€ plus Vat (24%)

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4M-KENAK

Tool Name:	4M-KENAK
Version:	4M-KENAK24
Country:	Greece
Regions that is applicable:	All regions in Greece
Developer/Provider:	4M company
Website:	https://www.4m.gr/en/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

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Residential (apartment, detached house), non residential (office, shop etc) and other private (hotel, bank etc) or public buildings (museum, hospital, school etc.)

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry but also compatible with IFC files(input-output): BIM architectural software (Archicad, Revit, Allplan etc)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
Calculation methodology is according to the laws of Ministry of Environment and Energy (YPEN) and the Technical Instructions of the Technical Chamber of Greece with live updates.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
It is not mentioned if the tool is compatible with the European EPC calculation methodology but as it is approved by the Ministry of Environment and Energy (YPEN) and follow the Technical Instructions of the Technical Chamber of Greece (TOTEE), the tool is based on the methodology of European standards (ELOT EN ISO 13790).			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
It is not clear but probable the tool is on-premise.					

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
1.600,00€ plus Vat (24%).			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The tool is one-time purchase.

8) Provide a link for downloading the tool.

Link :	You must contact the company to access the tool. You can order it from here: https://www.4m.gr/el/e-shop-2

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool: It is updated with the guide "Energy Savings in Households-SAVE 2023 (Eksikonomo2023)" subsidized national program of Ministry of the Environment, Energy and Climate Change (YPEKA). It provides live updates with the new laws, technical libraries and guidelines of Technical Chamber. It is 100% compatible with DWG format and IFC files of architectural BIM software. The tool is private software that has received a positive evaluation from Y.P.E.K.A. and has been approved as a suitable computational tool. It has connection to the TEE KENAK software.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Using the serial number of the product they provide you a support page. https://4m.gr/index.php?option=com_content&view=article&id=286&Itemid=398&lang=el

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Ecoline

Tool Name:	Ecoline
Version:	Ecoline 20 v.1.2.4.16
Country:	Greece
Regions that is applicable:	All regions in Greece
Developer/Provider:	Ace-Hellas
Website:	https://www.ace-hellas.gr/logismiko/energiakes-meletes/ecoline/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other private or public buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

There are three ways to enter the shell geometry data: 1. You can either have manual entry data into the tool, or 2. import data from BIM software using a dwg file with automatic recognition of dimensions and geometry of the shell for each thermal zone, or finally, 3. with automatic import of the data via xml file from any architecture or other application (Archline, Revit, Ecotect etc.)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Calculation according to the laws of Ministry of Environment and Energy (YPEN) and the Technical Instructions of the Technical Chamber of Greece (TOTEE) with live updates.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

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Yes	☒	**No**	☐
The calculation of the energy demand of the building is done by calculator of the Technical Chamber of Greece (TEE) with the semi-steady state method of monthly step according to ELOT European standard EN ISO 13790 E2 (2009).			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Tool is only available for windows 7 (Enterprise, Ultimate, Professional, or Home Premium) and windows 10 (Professional or Home).					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool costs 780,00€ plus Vat (24%)			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The tool is one-time purchase. Otherwise, if you want to borrow the tool for 3 months it will cost you 120,00€ plus Vat (24%).

8) Provide a link for downloading the tool.

Link :	https://www.ace-hellas.gr/ipostirixi/engrafi-gia-download/?product_id=123

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

The tool is private software that has received a positive evaluation from Y.P.E.K.A. and has been approved as a suitable computational tool.
It has connection to the TEE KENAK software.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

They provide you a manual (https://www.ace-hellas.gr/wp-down/pdf/Manual_Ecoline.pdf) and lessons in a video form.

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TEE KENAK

Tool Name:	TEE KENAK
Version:	TEE KENAK 1.31.1.9
Country:	Greece
Regions that is applicable:	All regions in Greece
Developer/Provider:	It is a co-operation with TEE (Technical Chamber of Greece) and Energy Conservation Group, Institute for Environmental Research and Sustainable Development (IEPBA)
Website:	https://web.tee.gr/kenak/logismiko-tee-kenak/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential (apartment, detached house), non residential (office, shop etc) and other private (hotel, bank etc) or public buildings (museum, hospital, school etc.)

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It is a manual entry tool.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☒	**No**	☐
Calculation methodology is according to the laws of Ministry of Environment and Energy (YPEN) and the Technical Instructions of the Technical Chamber of Greece with live updates.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
The tool is based on the methodology of European standards (ELOT EN ISO 13790). The core of the calculations is based on the pre-existing EPA-NR software (version 1.7.6.19), which was developed within the European Program Intelligent Energy – Europe which has been suitably modified to be in line with the national requirements, as provided for in the Building Energy Inspection Regulation and the relevant Technical Instructions of the Technical Chamber of Greece. Also the energy performance of buildings can be evaluated on the basis of the calculated (known as asset rating) or actual energy consumption (known as operational rating).			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
It is not clear. Probable the tool is on-premise.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
100,00€ plus Vat (24%)			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

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The tool has one-time purchase license.

8) Provide a link for downloading the tool.

Link :	https://web.tee.gr/kenak/logismiko-tee-kenak/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool is public software, so it is updated and upgraded simultaneously with the calculation core of the Special Service of Energy Inspector with any changes applied to the technical instructions and the issuance of relevant circulars. The tool has data base of Energy Materials in collaboration with Material Suppliers.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Technical issues of TEE KENAK application only with email (teekenak@tee.gr) and FAQs on the web site.

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Hungary

Auricon Energetic

Tool Name:	Auricon Energetic
Version:	5.0
Country:	Hungary
Regions that is applicable:	All regions in Hungary
Developer/Provider:	Auricon Mérnöki Kft.
Website:	https://energetic.auricon.hu/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Basically manual entry, with the possibility of CAD-import for some functions and modules

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		
Yes, the software complies with the newest national regulation (EKM 9/2023 V.25.)			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Not specified			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

		No	☐

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No mention of any integration capabilities with any external systems

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

		On-premise	☐		

On-premise, available for Windows Vista, 7, 8, 8.1 and 10.

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

		No	☐

220.98€/year; 28€/month; 13.97€/10 days; free for students and educators

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual, monthly and 10-day subscriptions

8) Provide a link for downloading the tool.

Link :	Request form for free demo version: https://energetic.auricon.hu/probaverzio-igenyles/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Analysis of inhomogeneous wall constructions with a CAD-editor; Calculation of thermal insulation with varying thickness; Thermal bridge simulation; Sunlight simulation; Condensation calculations

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Training videos (paid), Q&A for users with active license, customer service

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Ireland

DEAP4 Tool

Tool Name:	Domestic Energy Assessment Procedure (DEAP4 Tool)
Version:	V 4.2.4
Country:	Ireland
Regions that is applicable:	Ireland
Developer/Provider:	SEAI
Website:	https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/software/deap/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

New and existing dwellings, renovated dwellings, all residential building types.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry.

While there are a number of readily available sources for performance data entered into DEAP (such as HARP, NSAI Agrément Certificates or equivalent), assessors may occasionally need to use other sources to substantiate DEAP data entries.
The person carrying out the assessment should consider the factors that contribute to annual energy usage and associated CO2 emissions for the provision of space heating, space cooling, water heating, ventilation and lighting.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	X	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	**X**	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link :	It seems not possible - check here: https://berportal.seai.ie/identity/login?signin=301f6ba21183422ee91c0c4fb9763e0c

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

DEAP consists of a software tool and guidance manuals. BER Assessors use DEAP to publish Building Energy Rating (BER) certificates and advisory reports for homes. DEAP is also the compliance tool specified in Part L of the Irish Building Regulations. The DEAP software is web-based and used to calculate the annual delivered energy consumption, primary energy consumption (kWh/m2/year) and carbon dioxide emissions (kgCO2/m2/y) for standardized occupancy.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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A user guide is available on the web. https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/software/deap/DEAP-Manual.pdf

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NEAP

Tool Name:	NEAP
Version:	NEAP comes with a default calculation tool named iSBEMie. Currently, this tool has version v5.6a. Anyway, please consider that officially NEAP does not have any version (it is more the calculation tool which is updated).
Country:	Ireland
Regions that is applicable:	Ireland
Developer/Provider:	SEAI
Website:	https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/software/neap/#comp0000595123fe00000007db4f60

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

The NEAP software is used to calculate non-domestic building energy ratings.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

NEAP software calculates BERs and demonstrates compliance with Part L using the default calculation tool, the Simplified Building Energy Model (SBEM), or by other approved software packages.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

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3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	**X**	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link:	https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/software/neap/iSBEMie_v5.6.a.exe

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The NEAP software calculates the energy consumption and carbon dioxide emissions of a building. It considers space heating and cooling, water heating, ventilation and lighting information.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

It is possible to use the Simplified Building Energy Model (SBEMie) or other approved software to publish non-domestic BERs and demonstrate compliance with Part L.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The user manual is provided at
https://www.seai.ie/publications/NEAP_Modelling_Guide.pdf

Technical support is provided at
https://www.seai.ie/grants/supports-for-contractors/neap/Non-Domestic-Technical-Bulletins.pdf

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Italy

Blumatica Energy

Tool Name:	Blumatica Energy
Version:	v 6.2
Country:	Italy
Regions that is applicable:	Basilicata, Calabria, Friuli Venezia Giulia, Lazio, Marche, Puglia, Sicily, Tuscany, Abruzzo, Veneto, Piedmont, Trento, Emilia Romagna, Lombardy, Umbria, Liguria, Valle d'Aosta
Developer/Provider:	Blumatica Srl
Website:	https://www.blumatica.it/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

The software provides the possibility of carrying out energy certification for all types of buildings and for all intended uses according to the "tabled" methodologies of UNI TS 11300 as well as according to the "analytical" methodologies typical of a design phase.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Data entry is manual. The inputs for the traditional EPC certification are all the characteristics of the building, the systems, the reason why the certificate is drawn up and the owner's data. Outputs are the intermediate and final calculation results on energy performance, considering several criteria.

The data can be entered in a tabular way or via integrated CAD. By drawing or importing a floor plan, you automatically obtain, for each environment, the identification of surfaces and volumes, shading angles, orientations and surfaces of the dispersing elements (internal and external walls, floors and roofs, external and internal frames, etc.) , thermal bridges. The presence of a vectorizer allows you to use drawings of any format (DWG, DXF, BMO, PNG, JPEG, GIF, PDF).

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐

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It is applicable for several Italian regions.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
Software needs to be purchased and downloaded.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
Prices vary with the packages.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

It starts with 155 euros. Price increases as the features increase. The price is for Perpetual License Purchase and not for Annual Fee! The Annual Update Contract is different, optional, purchasable as an addition, to be covered by technical and regulatory updates. Details are given at https://www.blumatica.it/software-certificazione-energetica-degli-edifici-ape-ed-aqe/

8) Provide a link for downloading the tool.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Link :	https://www.blumatica.it/software-certificazione-energetica-degli-edifici-ape-ed-aqe/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Processes APE , AQE, technical and calculation report, manages the presence of air conditioners (split) in both the heating and cooling periods, manages the presence of hybrid systems, calculates building losses interactively. It also takes into account the bonuses and taxes if applicable.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Some videos are provided for help:

https://www.blumatica.it/software-certificazione-energetica-degli-edifici-ape-ed-aqe/

Overall, no user manual is available. It is understood that paid assistance will be provided if contacted.

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Cypetherm C.E.

Tool Name:	Cypetherm C.E.
Version:	v. 2016
Country:	Italy
Regions that is applicable:	Italy, Spain
Developer/Provider:	Cype Ingenieros SA
Website:	https://www.store.cype.com/it/cype-suite/416-cypetherm-ce.html

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

All kinds of buildings.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

CYPETHERM CE can import BIM models in the standard IFC format generated by the most popular BIM programs, such as Domus.Cad™, Revit™, ArchiCad™, AllPlan™ and others.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Registered by CTI.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
Paid tool.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

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The price of the tool is €1,000 as provided on https://www.store.cype.com/it/cype-suite/416-cypetherm-ce.html

8) Provide a link for downloading the tool.

Link :	https://store.bimserver.center/es/app/35/cypetherm_ce

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Optional modules are available which relate to 'Verification of surface and interstitial condensation formation', 'Calculation of the linear thermal transmittance of thermal bridges' and 'Energy diagnosis and analysis of improvement interventions' . More details at http://cypetherm-suite.en.cype.com/

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

User manual is available at https://www.cype.net/manuales/cypetherm_ce/manuale_cypetherm_ce.pdf Trainings are also provided and can be viewed at https://learning.cype.com/en/courses/

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EC 780

Tool Name:	EC 780
Version:	v4.0
Country:	Italy
Regions that is applicable:	Lombardia region
Developer/Provider:	Edilclima Srl
Website:	https://www.edilclima.it/software-termotecnica/prog-termotecnica-energetica/scheda/780

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

No specific mention of buildings. Seems applicable to all buildings.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It includes the generation of the .XML file that can be processed with the CENED 2.0 software for the drafting of the APE to be uploaded to the Regional Land Registry.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
NA			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
The price of the tool is €162.00.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

For the upgrade of products, prices are different. More details at https://www.edilclima.it/software-termotecnica/prog-termotecnica-energetica/scheda/780

8) Provide a link for downloading the tool.

Link :	https://www.edilclima.it/supporto/altri-download/free-trial

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Data exchange with the CENED+ version 1.2 software is possible.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Trainings are provided via publications and video tutorials at https://www.edilclima.it/eventi-e-formazione/materiale-didattico/videocorsi/

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Energetika 2000

Tool Name:	Energetika 2000
Version:	v. 13
Country:	Italy
Regions that is applicable:	Italy
Developer/Provider:	Topoprogram & Service (Giuseppe Mangione & C. SaS)
Website:	https://www.topoprogram.it/home/prodotti-software/prodotti-software-altro/energetika-2000/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

No specific information. Applicable to all buildings.

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1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

ENERGETIKA 2000 welcomes you with its main window, and then accompanies you throughout your work with its 6 folders, which put only the data and operations that are useful to you at your fingertips. The recommended tasks bar at a glance guides you on the next steps to take to complete your jobs quickly and without errors.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Registered by CTI.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
Paid tool			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription. For new customers, the price is € 450.00. For old customers, prices are different. More details at

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

https://www.topoprogram.com/38/3.-energetika-2000-per-certificazione-energetica/

8) Provide a link for downloading the tool.

Link:	https://www.topoprogram.it/download/trial/InstallaEnergetika2000Trial.zip

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Software is integrated with CAD and Superbonus Management.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

A brochure is available at https://www.topoprogram.it/download/ENERGETIKA%202000.pdf

Technical assistance is provided at https://www.topoprogram.it/home/assistenza-tecnica/

Thank you!

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Euclide Certificazione Energetica

Tool Name:	Euclide Certificazione Energetica
Version:	v14.01b
Country:	Italy
Regions that is applicable:	Italy (Regions that use national model, Piedmont, Liguria, Abruzzo, Veneto, Friuli Venezia Giulia, Emilia Romagna, Lombardia)
Developer/Provider:	Geo Network Srl
Website:	https://www.geonetwork.it/prodotto.aspx?page=licenza&id=23

Data Input and Compatibility:

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

1) Describe the type of buildings that can be input into the tool.

For residential and non-residential buildings.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Data is entered manually. Double data input mode is available: tabular or graphic (from DXF, PDF or raster file).

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Registered by CTI			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
Paid tool			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The price of the tool is €379. No details on annual fee, etc. available.

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8) Provide a link for downloading the tool.

Link :	https://www.geonetwork.it/euclide_certificazione_energetica/scheda/#lightbox_demo

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Euclide Energy Certification allows you to manage any type of practice relating to tax deductions for the energy efficiency of buildings (Ecobonus). It can be integrated with CENED+2 software.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

User manuals are provided at http://www.geonetwork.it/euclide_certificazione_energetica/manualistica/

Software support is provided at https://www.geonetwork.it/prodotto.aspx?page=licenza&id=23

Support is also provided at https://www.youtube.com/@GeoNetworkChannel

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Mc4 Suite 2023

Tool Name:	Mc4 Suite 2023
Version:	v. 2014-2.0
Country:	Italy
Regions that is applicable:	Italy
Developer/Provider:	Mc4Software Italia Srl
Website:	https://www.mc4software.com/novita-mc4suite-2023/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

No specific information on buildings. It seems it is applicable to all kinds of buildings.

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1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Import from BIM software possible. Mc4Suite 2023 in the OEM version is developed with the AutoCAD OEM 2023 graphics engine from Autodesk, with all its 2D-3D commands useful for drawing and drafting the project.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
Paid tool. Tool can be rented too for 365 days.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

There are several modules which come in addition with this software. Every module comes with a different price. More info at https://www.mc4software.com/negozio/

8) Provide a link for downloading the tool.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Link :	https://www.mc4software.com/download-versione/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Mc4Suite is both a BIM Tool , i.e. software capable of reading an architectural base in IFC format useful for thermal-energy simulation, and a BIM Platform in the design phase of plant networks, exportable in IFC format (BuildingSMART export IFC 2x3CV2 certification. 0-MEP).

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Support is provided at https://www.youtube.com/playlist?list=PLdR7Pv_6Rr8trodn_dn0pCsMsXka6p7yq

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Namirial Termo

Tool Name:	Namirial Termo
Version:	v6.0
Country:	Italy
Regions that is applicable:	All Italian regions including those with autonomous legislation
Developer/Provider:	Namirial SpA
Website:	https://www.edilizianamirial.it/software-certificazione-energetica/#moduli

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Updated to all the standards of the UNI/TS 11300 series and certified by the CTI , Termo allows you to calculate the energy performance of any type of building, residential or otherwise.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

This software allows import from several other softwares and specially BIM.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Registered by CTI.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The software comes with several modules. Every module has a different price. According to requirements, modules can be purchased. Details are given at https://www.edilizianamirial.it/software-certificazione-energetica/#moduli

8) Provide a link for downloading the tool.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Link :	https://software-edilizia.namirial.com/setups/mini/Namirial_Termo_Downloader.exe

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Thanks to the dedicated module, the Termo Energy Certification Software draws up EPC for all the Italian regions and generates XML files compliant with the various regional guidelines. Furthermore, the official and certified integration with the CENED+ 2.0 engine allows it to produce EPCs also for the Lombardy Region, without the need to use the app issued by the region.

Termo is also a powerful BIM Tool. Thanks to full integration with the ARCHLine.XP architectural module, it is now possible to import IFC files and carry out all the energy assessments of the various Termo modules while operating in a totally BIM environment.

Software Law 10 is the module that allows to carry out checks both according to the Ministerial Decree 06/26/2015 and in accordance with the various regional regulations.

The Energy Diagnosis software is the module that allows to carry out a systematic and documented assessment of the energy performance of any building in real conditions of use, i.e. in A3 mode.

This software also provides help with tax bonuses and ENEA (National Agency for Energy and Ecological Transition, ndr) practices, exports the calculation directly , associates the price list items and quickly creates all the estimates.

The Solar Greenhouses module allows you to calculate the free direct and indirect contributions to the heated thermal zones for the improvement of the building's energy performance.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Videos are provided at the following link for user support

https://servicedesk-aec.namirial.com/hc/it/articles/6229051030545-TERMO-Ponti-Termici

Moreover, other support data is provided at https://www.edilizianamirial.it/software-certificazione-energetica/

Trainings are also provided and details can be viewed at links provided above.

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Termiko One

Tool Name:	Termiko One
Version:	version 2.1.3
Country:	Italy
Regions that is applicable:	Italy (Several regions, Lombardia for sure)
Developer/Provider:	Italsoft Group
Website:	https://www.italsoft.net/software-certificazione-energetica/termiko-one-3/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

No specification has been provided on types of buildings. It can be safely assumed that it can be applied for all kinds of buildings since it has modules which allow the integration of different things e.g., staircases, lifts, elevators etc. in the calculations. More details on https://www.italsoft.net/ept-nellindice-prestazione-energetica/

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

The software for energy certification and Law 10 Termiko One offers the possibility of inserting the entire structure made up of the various components and the rooms on each floor via graphic CAD input, i.e. drawing the structures on the appropriate table made available.

Drawing can also be imported from DWG/DXF format.

Data is entered manually.

Weather data for several regions is available which can be modified.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Registered tool by CTI.			

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
Paid tool. Details not provided openly.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Manufacturer needs to be contacted. There are no details provided online.

8) Provide a link for downloading the tool.

Link :	No link available.

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

One of the most used additional modules is the one relating to Accounting , which allows the definition of expense distribution criteria and general calculation settings. The software can be integrated with CENED2+.

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10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The company has its YouTube channel where few tutorials have been provided. https://www.youtube.com/user/italsoft

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TermiPlan

Tool Name:	TermiPlan
Version:	v 2024
Country:	Italy
Regions that is applicable:	All Italian regions (Campania, Calabria for sure)
Developer/Provider:	Analist Group Srl
Website:	https://www.analistgroup.com/it/software-certificazione-energetica

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

All types of buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

TermiPlan 2024 provides the possibility of using the "Manual Tabular Input" mode to enter the architectural characteristics of the building being calculated. The User can therefore avoid drawing the building in TermiPlan and speed up the workflow by directly inserting the measurements of the various elements. Such as, for example, walls, frames, doors and floors. More details at https://blog.analistgroup.com/termiplan-2024/

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Registered by CTI.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Yes	X	No	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	No	☐
As part of the software there is a generator Marketplace from which it is possible to import data and download the project file. Import drawings of any format and draw the floor plans independently. Thanks to the management of levels, it allows to create 3D even for multi-storey buildings.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	On-premise	X	Both	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	No	X
Paid tool.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The cost of the tool is €97/year.

8) Provide a link for downloading the tool.

Link:	A trial version can be downloaded at https://www.analistgroup.com/it/downloadtermiplandemo

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Continuous updates: it is always aligned with regulatory provisions for energy efficiency. Compliant with the 2023 Budget Law. Traditional APE: TermiPlan is the software for drafting the APE energy certificate, AQE, Real Estate Ads, Technical Report pursuant to Law 10/91.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Calculates the dispersions of Thermal Bridges and the thermal transmittance of opaque and glass surfaces to verify the energy status of a building.

Automatic checks: performs automatic checks on the performance and energy efficiency of the property (thermal transmittance, thermo-hygrometric checks) in the current state and after the improvement interventions.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Tutorial and manuals are provided at
https://www.youtube.com/watch?v=vWRS4mY0smM&list=PLHCnnXKQv-0GlQAyuzkhyFT69Ye_XDZFs

https://www.analistgroup.it/Download/TermiPlan/Manuale/Manuale_TermiPlan2023.pdf

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Termolog 14

Tool Name:	Termolog 14
Version:	v2023.1
Country:	Italy
Regions that is applicable:	Whole Italy
Developer/Provider:	Logical Soft Srl
Website:	https://www.logical.it/software-termotecnica

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

TERMOLOG is a BIM software for calculating the energy efficiency of buildings and targeted to Italy only. It is simple for common cases and powerful for more complex cases.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Imports and exports IFC and gbXML files. Imports and reprocess CAD, image, PDF and xml files from other softwares.

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
TERMOLOG imports all CAD file formats and BIM models: Import the project in IFC or gbXML format into TERMOLOG , generate the calculation model and perform project, certification or energy diagnosis checks. TERMOLOG is a simple BIM modeler for energy analysis with which to draw up the APE or the project and also export the IFC or gbXML file. Choose the powerful graphic input and import cadastral maps (images or PDF) to trace CAD plans (DWG or DXF). TERMOLOG directly recognizes the profiles of the rooms and the geometry of the dispersing envelope. IFC is the data exchange format chosen by 3D CAD such as Graphisoft Archicad and Allplan. gbXML. (GreenBuilding XML) is the format chosen by Autodesk Revit for data exchange in building energy analyses. In just a few steps, you can easily import the thermal properties of elements or individual materials without re-entering the data. TERMOLOG recreates the energy model and obtains shading from the profile of neighboring buildings or from the size of balconies and roofs.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
The tool needs to be purchased and later downloaded.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Yes	☐	**No**	**X**
Payment details are not available on the website. Manufacturer needs to be contacted.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

For the payment model, the manufacturer needs to be contacted.

8) Provide a link for downloading the tool.

Link :	https://www.logical.it/faq.aspx?faq=1718

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The software takes into account the bonus schemes of Italy: Ecobonus, Superbonus, Home Bonus, Architectural Barriers. It also automatically suggests the most advantageous incentive for each specific building. It integrates several types of data (energy, acoustic, structural analyses, calculations, parcel and PSC).

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

There is a complete support provided on youtube channel. Link is given below. https://www.youtube.com/playlist?list=PLrKyCa6AE5F3w-N-73xQ_NVbXzj2A5St2 Complete guides are provided on following link https://www.logical.it/corsi-formazione-logical/guide-professionisti-edilizia Moreover, blogs are also published on https://blog.logical.it/efficienza-energetica-edifici/

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TerMus

Tool Name:	TerMus
Version:	v.30
Country:	Italy
Regions that is applicable:	All Italian regions
Developer/Provider:	Acca Software SpA
Website:	https://www.acca.it/software-certificazione-energetica

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

It can be used for all kinds of buildings.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It creates the building energy model (BEM) from scratch with 2D/3D input and a catalog of BIM objects, starting from an IFC model or from a drawing in DXF/DWG format.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Registered by CTI.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

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Cloud-based	☐	**On-premise**	**X**	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	**X**
Paid tool.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

For performing Energy Performance Verification and Energy Certification (EPC), the cost of the tool is €699.00. For only energy certification, €399.00 is the cost.
The complete details for costs are given at https://www.acca.it/acquisti-termus

Manufacturer needs to be contacted as a tailor-made purchase can also be made.

8) Provide a link for downloading the tool.

Link :	https://www.acca.it/Trial/TerMus

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

This software takes into account the Law 10 checks (Legge 10), EPC, energy diagnosis, EcoBonus. It quickly prints the technical report of the Law 10 project , the EPC (with export of the XML paths for the regional land registers) and the AQE. It can also make project energy efficiency interventions, verify the legal requirements and produce the documentation for Superbonus, EcoBonus and other tax bonuses (pre-/post-intervention comparison, conventional EPC). Moreover, it can carry out an energy diagnosis using a tailored rating for the design of improvement interventions.

It can quickly and precisely draw the energy model of the building in plan or in 3D with BIM objects such as walls, doors, windows, etc. equipped with all energetic properties. You can start from scratch or rebuild the energy model starting from a drawing in DXF / DWG format or from the IFC digital model of the building imported from architectural BIM authoring software such as Edificius ® , Revit ® , ArchiCAD ® , AllPlan ® , VectorWorks ® , etc). You also have a large library of BIM objects (materials, stratigraphies, generators, etc.) that is continuously updated (you can create new objects and collect them in a customized catalog). TerMus is able to automatically recognize the objects of the BIM model in IFC format, transforming

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them into objects ready to be equipped with energy information only, without the need to reconstruct their geometric characteristics. The geolocalized BIM energy model also allows thermal bridges, climate data, orientations and shading to be automatically identified and calculated.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Software training is provided at https://bimsoftwaretraining.accasoftware.com/it/?_gl=1%2A1olbs78%2A_ga%2AOTY5MjY4MzYwLjE3MDU0OTczMjQ.%2A_ga_K4Y50QD36K%2AMTcwNTQ5NzMyMy4xLjEuMTcwNTQ5NzM0OC4wLjAuMA..

Customer support is provided at https://www.acca.it/assistenza/termus

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Latvia

Tool Name:	national tool is under development, until it is developed commercial tools are allowed to be used (f.e. PassiveHaus, IDA ICE)
Version:	-
Country:	Latvia
Regions that is applicable:	whole country
Developer/Provider:	customer, owner - Ministry of Economy of Latvia
Website:	Under development

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

All buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
The tool will be updated after each national regulatory update.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒

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As there is no mandatory calculation methodology for the Europe, Latvia national tools only meet requirement that are coming from EU EPB directive and using EN standards to evaluate separate indicators, it is also not compatible with neither of voluntary methodologies (f.e. LEVEL(S), BREEAM, LEED).

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☒	**On-premise**	☐	**Both**	☒
It is planned to be cloud-based					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐
It is planned to be free.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

It is planned to be free.

8) Provide a link for downloading the tool.

Link:	under development

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

under development

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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under development

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Lithuania

NRG

Tool Name:	NRG
Version:	7
Country:	Lithuania
Regions that is applicable:	whole country
Developer/Provider:	Public institution Construction Sector Development Agency (Lithuanian abbreviation SSVA)
Website:	https://www.ssva.lt/cms/en

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

All buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☒	**No**	☐
The tool is updated after each national regulatory update.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒
As there is no mandatory calculation methodology for the Europe, Lithuanian national tools only meet requirement that are coming from EU EPB directive and using EN standards to evaluate separate indicators, it is also not compatible with neither of voluntary methodologies (f.e. LEVEL(S), BREEAM, LEED).			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☒
It is possible to use a tool during input and calculation phase without connecting to the internet, but it is necessary to connect to the cloud during registration phase					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐
The certification tools is free and available only for certified experts, that pay for their certification, but it is necessary to pay 37,5 eur for registration of every single certificate			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

37,5 eur for registration of every single certificate

8) Provide a link for downloading the tool.

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Link:	It is not possible to download a certification tool, but it is possible to download modelling according the same methodology tool that costs 726 eur + 363 eur for every next year: https://www.ssva.lt/nrgpro/version/7.0.1.1/ (limited demo version is available for 30 days for free)

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool gives easily understandable information about which partition causes highest heat losses

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Handbook and customer service – consultations both from methodology and from the tool usage sides

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Luxembourg

LUXEEB-F

Tool Name:	*LUXEEB-F (IBP)*
Version:	(
Country:	
Regions that is applicable:	
Developer/Provider:	Dev. Fraunhofer IBP (Institut für Bauphysik, Stuttgart Com. Heilmann Software
Website:	www.heilmannsoftware.de/ibp- lux

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Functional building

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1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐	**No**	☐
Align with Grand-Ducal Regulation of 9 June 2021 on the energy performance of buildings (RGD 2021)			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Developed on the basis of the new RGD 2021 regulations. However, it turned out that the software optimisation phase is taking longer than initially planned and announced by the developer.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

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8) Provide a link for downloading the tool.

Link :	https://www.heilmannsoftware.com/de/page/ibp18599-luxemburg/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Webinaire 1 650,00 EUR(+3% TVA), 24.09.2024, 28h https://www.houseoftraining.lu/training/passeport-energetique-des-batiments-fonctionnels-calculee-avec-le-logiciel-luxeeb-f-ibp-10200

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LuxEeB-H

Tool Name:	LuxEeB-H
Version:	Version 1.7
Country:	Luxembourg
Regions that is applicable:	Whole country
Developer/Provider:	Ministère de l'Economie et du Commerce extérieur Initialy developped in German language, translated.
Website:	https://guichet.public.lu/en/entreprises/sectoriel/energie/espace-experts-energie/experts-fonctionnel/fonctionnel/luxeeb-f-tool.html

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential buildings (existing buildings, extensions, new buildings)

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1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

LuxEeB-Tool uses Microsoft Excel and VBA (Visual Basic for Applications) macros.

Manual input.

Possible use of typical U-values for existing buildings.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		☐

Align with Grand-Ducal Regulation of 9 June 2021 on the energy performance of buildings (RGD 2021)

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐		☐

Unclear…

Compliant with RGD 2021 regulation

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

It seems not.

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

	☐	**On-premise**	☐		☐

The tool can be downloaded here: freely available at https://software.luxeeb.lu/Setup_Luxeeb.exe

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

	☐	**No**	☐

A License is necessary to run the free software

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7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Participants in all days of LuxEeB-F-BV or LuxEeB-F-V expert training acquire the right to a LuxEeB-F-tool software license, the cost of which per activation station is €800 excluding VAT.

However, the computer key for printing out calculations and energy performance certificates will be reserved for the experts required by the regulations on the energy performance of functional buildings.

The LuxEeB-F-tool software order form is distributed during the above-mentioned training courses.

(Source: https://guichet.public.lu/en/entreprises/sectoriel/energie/espace-experts-energie/experts-fonctionnel/fonctionnel/luxeeb-f-tool.html)

8) Provide a link for downloading the tool.

Link :	Freely available at https://software.luxeeb.lu/Setup_Luxeeb.exe

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The results cannot be modified, they are printed and the paper form is signed.

2 outputs seem available:

A 5 pages 'certificat de performance énergétique' -

A 1 page 'ATTESTATION DE PERFORMANCE ENERGETIQUE' - This form includes checkboxes to help the person issuing the certificate to gather all the necessary data in accordance with the regulations. In this way, when the attestation is being prepared, an overview is provided of any missing data and of the data already collected.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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User manual available at: https://guichet.public.lu/dam-assets/entreprises/fr/sectoriel/energie/agrement-expert-cpe/manuel.pdf

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Lesosai

Tool Name:	Lesosai
Version:	2023
Country:	Suisse
Regions that is applicable:	Markets covered: Suisse: trois régions linguistiques, Luxembourg, Italie, Liechtenstein, Allemagne, Belgique
Developer/Provider:	E4tech Software SA
Website:	https://lesosai.com

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

All it seems

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual + BIM (https://lesosai.com/logiciel/bim-bem/)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐		☐
Unclear but it is updated every year Possibilities are there: https://lesosai.com/logiciel/base-et-modules/			

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3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐
Compliant with RGD 2021 regulation (LUX) Compliant with Normes SIA (Suisse)			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Not clear how it connects with DBL, but Lesosai is a platform for exchanging information with various tools (software, databases, etc.). https://lesosai.com/logiciel/bim-bem/			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

	☐	**On-premise**	☐		☐
Software versions available here: https://lesosai.com/logiciel/versions/version-lesosai-2023/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐
The software can be downloaded for free but its activation requires a paid License.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

One-time purchase - The price of the Lesosai 2024 update will be included in the purchase of a new Lesosai 2023 license (new customer). Modules can be ordered with the first order or at a later date. There is a list of modules available after payment: https://lesosai.com/tarifs/

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8) Provide a link for downloading the tool.

Link :	https://lesosai.com/logiciel/telechargements/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Certificat produced:

https://lesosai.com/logiciel/labels-et-certificats/

Lesosai enables plant dimensioning and data exchange in BIM/BEM, IFC, gbXML and BCF formats.

https://lesosai.com/logiciel/dimensionnement/

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Support documents here: https://lesosai.com/logiciel/telechargements/

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Malta

SBEMmt. v4.2c

Tool Name:	SBEMmt. v4.2c
Version:	v4.2c
Country:	Malta
Regions that is applicable:	Malta
Developer/Provider:	BRE, UK
Website:	https://bca.org.mt/epcs/

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	doc in pdf: https://bca.org.mt/wp-content/uploads/EPB-Calculation-Methodology-for-Non-Residential-Buildings-User-Guide-SBEMmt.pdf

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Non-residential buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

SBEMmt takes inputs from the software user (via the interface) and various databases, and by calculation, produces a result in terms of the annual CO2 emissions resulting from the energy used by the building and its occupants. Some of the inputs are standardized to allow consistent comparisons for energy rating purposes in new and existing buildings. This software models the building using relatively simple algorithms, based on monthly averages that take into account: a) Standard indoor set temperature conditions, occupancy, and schedules; b) Position and orientation of the structure; c) Building fabric characteristics; d) Heating, ventilation, and air-conditioning (HVAC) features; e) Domestic hot water (DHW); f) Lighting and daylighting; g) Passive design features; h) Selected renewables, other power cogeneration options (CHP) and heat recovery.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Yes. It is the only recognised software that can generate EPC for non-residential buildings in Malta.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

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Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	**X**	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link:	https://bca.org.mt/epcs/ + doc in pdf: https://bca.org.mt/wp-content/uploads/EPB-Calculation-Methodology-for-Non-Residential-Buildings-User-Guide-SBEMmt.pdf Not 100% clear process.

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

It only supports the delivery of EPC.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

A user guide is available on the web. https://bca.org.mt/wp-content/uploads/EPB-Calculation-Methodology-for-Non-Residential-Buildings-User-Guide-SBEMmt.pdf

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EPRDM

Tool Name:	Energy Performance Rating of Dwellings in Malta (EPRDM)
Version:	
Country:	Malta
Regions that is applicable:	Malta
Developer/Provider:	CASAingeniera
Website:	https://epc.gov.mt/calculation_software

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It requires entry of parameters which include dwelling parameters, U values (floors, roofs, walls), linear thermal transmittance, window data, internal heat capacity, boiler efficiency, efficiency of heat pumps and some parameters related to solar panels performance. This data is entered manually.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☐	**No**	☐
EPRDM is a national calculation tool for calculating energy performance rating of dwellings in Malta.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☐

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

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Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐
No information on it.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

8) Provide a link for downloading the tool.

Link :	No information available.

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

No information available.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

A user guide is available on web at following address:

https://bca.org.mt/wp-content/uploads/EPB-Calculation-Methodology-for-Residential-Buildings-Manual-EPRDM.pdf

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Netherlands

Tool Name:	Vabi, Uniec, BouwConnect, Susteen
Version:	
Country:	Netherlands
Regions that is applicable:	
Developer/Provider:	
Website:	

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non-residential buildings. New and existing buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Both are possible, depending on the software.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Certified software according to the assessment guideline BRL9501

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐

The NTA 8800 is based on the EPB norms

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

Depending on software supplier. See links of the suppliers in the first question.

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Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	On-premise	☐	Both	☒
Depending on software supplier. See links of the suppliers in the first question.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	No	☒
Depending on software supplier. See links of the suppliers in the first question.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Depending on software supplier. See links of the suppliers in the first question

8) Provide a link for downloading the tool.

Link:	

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Depending on software supplier. See links of the suppliers in the first question. Most of the software suppliers offer a broad range of energy performance software. (e.g. maatwerkadvies → tailor made advice)

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Depending on software supplier. See links of the suppliers in the first question.

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Poland

ArCADia-Thermocad

Tool Name:	ArCADia-Thermocad
Version:	ArCADia-Thermocad 10
Country:	Poland
Regions that is applicable:	Probable all regions
Developer/Provider:	Intersoft
Website:	https://arcadia-termocad.pl/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Every type of building (residential or non-residential) or part of a building.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

The tool allows you to import data from BIM software using a dwg file (ArCADia BIM).

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Improvements have been made to the methodology in accordance with the Regulation of the Minister of Development and Technology of March 28, 2023 amending the regulation on the methodology for determining the energy performance of a building or part of a building.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

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Yes	☒	**No**	☐
The program allows you to prepare a certificate using the calculation (asset rating) or consumption method (operational rating).			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
The tool probable is on-premise because the previous version was for windows 7/8/10. This version is available for windows 10/11. (The program installs and runs on Windows 7 and 8, but there may be cases where some features of the program do not work properly).					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool costs 1.350,00 PLN plus Vat (23%)			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The tool is one-time purchase.

8) Provide a link for downloading the tool.

Link:	https://www.intersoft.pl/cad/index.php?a=koszyk

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

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The tool co-operate with energy efficiency improvement program - energy saving houses, conducted by the National Fund for Environmental Protection and Water Management.
It has energy-saving recommendations.

The tool allows you to import and export of ArCADia BIM systems projects.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The company provide forum for the clients.

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Audytor OZC

Tool Name:	Audytor OZC
Version:	Audytor OZC 7.0 pro
Country:	Poland
Regions that is applicable:	Probable all the regions
Developer/Provider:	Sancom
Website:	https://pl.sankom.net/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential building or part of a building

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Import and export drawings in DXF and DWG format (REVIT architecture 2011, 2012)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☒	**No**	☐
The tool works in accordance with the Regulation of the Ministry of Infrastructure of November 6, 2008 on the methodology for calculating the energy efficiency of a building.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
The tool is compatible with the European EPC because OZC tester performs calculations according to the applicable standard PN-EN ISO 13790:2009, the European ELOT standard.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
It is not clear. The tool is available for windows 10/11.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool costs 3.410,00 PLN plus Vat (23%).			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The tool is one-time purchase.

8) Provide a link for downloading the tool.

Link:	https://pl.sankom.net/sprzedaz/programy-audytor#!/products/1/audytor-ozc

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Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool will save the certificate in an XML file (compliant with the requirements of the registry) and upload it to the Central Register of Energy Performance of Buildings.
Import and export drawings in DWG format

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

They provide you manual, e-training course, presentation video, FAQs and trial version.

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Certo

Tool Name:	Certo
Version:	Certo 2015
Country:	Poland
Regions that is applicable:	Probable all regions
Developer/Provider:	D.A.E.S. (Lower Silesian Environmental Energy Agency)
Website:	http://cieplej.pl/index.php5

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential buildings, Non-residential buildings, Residential facilities, Part of buildings and other Private or Public buildings.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It is a manual entry tool.

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2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
The tool works in accordance with the Regulation of the Ministry of Infrastructure and Development which applied in April 17, 2015 on the methodology for determining the energy efficiency of a building.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
Probable, although it is not clear.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
The tool is on-premise because the current version is for windows 7/Vista/XP.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool costs 1.700,00 PLN plus Vat (23%).			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

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You must contact the company to access the tool. soft@lepszej.pl

8) Provide a link for downloading the tool.

Link :	www.lepszej.pl/soft/certo-2015/CERTO-2015.exe

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool is suitable with the Program of the National Fund for Environmental Protection and Water Management.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The tool provide guide, demo, examples, FAQs. The company has email especially for technical issues. It has free updates.

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Portugal

casA+

Tool Name:	casA+
Version:	
Country:	Portugal
Regions that is applicable:	
Developer/Provider:	ADENE
Website:	https://portalcasamais.pt/entrar/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Automatic data retrieve from the EPC and administrative information

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Renovation measures are based on the EPC recommendations calculated in accordance with Decree-Law No. 101-D/2020 of 7 December, which establishes the requirements applicable to buildings for the improvement of their energy performance and regulates the Energy Certification System of Buildings (SCE)

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒

No mention of using any European standards for calculating and it seems that the tool is only to be used in Portugal. Renovation measures are based on the EPC recommendations.

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4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☒	**No**	☐
Yes, it integrates a feature of Digital Building Logbook			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☒	**On-premise**	☐	**Both**	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐
The tool is provided for free by the state for house owners, but proposes 3 options for enterprises willing to be listed in the platform as service providers. The costs associated to these 3 options are the next ones: Free for only access to the platform, 250€/year for Basic formula and 350€/year for the Excellence formula			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription for enterprises willing to be registered in the platform as service providers and free for final users

8) Provide a link for downloading the tool.

Link :	

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

This tool has several functionalities: - after registration it retrieves automatically information from the EPC and administrative information; there is a possibility to archive documents such as the registry, floorplans, etc;

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- it lists measures taken from the EPC and adds other automatic suggestions from a database or selected by the user;
- the user can contact service providers for rates on each specific measure or service.

It also has specific simulators for some technologies (heating, appliances, lighting) and energy and resources consumption analysis.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Customer service of the platform and the ADENE team

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CYPETHERM SCE-CS Plus

Tool Name:	CYPETHERM SCE-CS Plus
Version:	2024.e
Country:	Portugal
Regions that is applicable:	All municipalities in the Portuguese territory
Developer/Provider:	Cype
Website:	https://info.cype.com/pt/produto/cypetherm-sce-cs-plus/#pll_switcher

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Commercial and service buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

2 ways to enter the geometry data:

1. Manual entry data into the tool;

2. Import data from a BIM software in DWG or DXF files.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

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Yes	☒	No	☐
The evaluation of the energy performance of commercial buildings, complying with the requirements of the Energy Certification System of Buildings (SCE) regulated by Decree-Law No. 101-D/2020			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	No	☒
No mention of using any European standards for calculation models. Although it, some additional reports on the ResearchGate platform (source below) mentions the next: "The European Union, with new energy and environmental targets set for 2020, published on 19 May 2010, the EPBD's recast Directive 2010/31/EU - Energy performance of buildings which has been transposed into national law through DL 118/2013, on August 20, 2013". The SCE is based on this national law. https://www.researchgate.net/publication/336053810_Buildings_Energy_Certification_System_in_Portugal_Ten_years_later			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	No	☒
It is not specified in the description			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	On-premise	☒	Both	☐

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	No	☒
No, the tool is not provided by the state, this is a commercial tool which is not free. It is available at the cost of 2100€			

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7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

One-time purchase

8) Provide a link for downloading the tool.

Link :	https://store.bimserver.center/pt/app/37/cypetherm_scecs_plus

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The dynamic multizone simulation of the building model is calculated with the EnergyPlusTM engine. The tool seems to be integrated with other tools of Cype https://info.cype.com/pt/categoria/eficiencia-energetica/

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

There is a technical support, a FAQ and a learning resources including manuals, tutorials, videos and webinars

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Hab DL 101-D/2020

Tool Name:	Hab DL 101-D/2020
Version:	1.06 (September 2021)
Country:	Portugal
Regions that is applicable:	
Developer/Provider:	Itecons
Website:	https://www.itecons.uc.pt/p3e/index.php

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

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Residential buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry data into the tool

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
Accordingly to the Decree-Law No. 101-D/2020 of December 7			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒
No mention of using any European standards for calculation models.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
It is not specified in the description			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☒
The calculation tool which is an XLS file makes it possible to fill all the information necessary for the issuance of Pre-Certificates and Energy Certificates, with which an XML file can be generated, through the cloud-based **XML Creation and Management Platform** (www.itecons.uc.pt/xmlsce), developed by Flor-de-Utopia, which can be afterwards imported into the ADENE portal (in the area of access reserved to Qualified Experts).					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒

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The XLS calculation tool is free, but the generation of the XML file through the **XML Creation and Management Platform** (www.itecons.uc.pt/xmlsce) is paid:

165€ for commercial and services buildings and 250€ for commercial and services, and housing buildings

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

12 months subscription

8) Provide a link for downloading the tool.

Link:	https://www.itecons.uc.pt/p3e/include/downloadFile.php?id=38&s=upEdudujErAmumEpEqum

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool also allows the technical-economic analysis of improvement measures. It is structured to allow the generation, in addition to the XML, of the Expert Report necessary for the issuance of EC.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

There is a readme.pdf file. Potential support by contacting developer team Itecons

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C&S DL 101-D/2020

Tool Name:	C&S DL 101-D/2020
Version:	1.03 (19th of October 2022)
Country:	Portugal
Regions that is applicable:	
Developer/Provider:	Itecons
Website:	https://www.itecons.uc.pt/p3e/index.php

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Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Commercial and services buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry data into the tool

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
Accordingly to the Decree-Law No. 101-D/2020 of December 7			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☐	**No**	☒
The calculation model for light and lighting of work places is based on the European standard EN 12464-1:2002 (E). No of other mentions about the European EPC methodology			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
It is not specified in the description			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☒
The calculation tool which is an XLS file makes it possible to fill all the information necessary for the issuance of Pre-Certificates and Energy Certificates, with which an XML file can be generated, through the cloud-based **XML Creation and Management Platform** (www.itecons.uc.pt/xmlsce), developed by Flor-de-Utopia, which can be afterwards imported into the ADENE portal (in the area of access reserved to Qualified Experts).					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

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Yes	☐	**No**	☒

The XLS calculation tool is free, but the generation of the XML file through the **XML Creation and Management Platform** (www.itecons.uc.pt/xmlsce) is paid:

165€ for commercial and services buildings and 250€ for commercial and services, and housing buildings

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

12 months subscription

8) Provide a link for downloading the tool.

Link:	https://www.itecons.uc.pt/p3e/include/downloadFile.php?id=46&s=AqAzAbytynYjesugApys

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool also allows the technical-economic analysis of improvement measures. It is structured to allow the generation, in addition to the XML, of the Expert Report necessary for the issuance of EC.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

There is a readme.pdf file. Potential support by contacting developer team Itecons

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Romania

AllEnergy

Tool Name:	AllEnergy
Version:	AllEnergy software PEC v1.1
Country:	Romania
Regions that is applicable:	Probable all regions
Developer/Provider:	Algorithm+ SLR
Website:	https://www.algorithm.ro/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

The tool is for buildings and apartments.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It is a manual entry tool.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

This software application is based on the Building Energy Performance Calculation Methodology, code MC 001/2022, which is based on formulas, data, relationships from the Romanian Building Energy Performance Standards.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐

It is not clear but probable as state-accredited software is compatible with the European EPC calculation methodology.

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

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Yes	☐	**No**	☐
It is not specified about further integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
The tool is on-premise as the current version is for windows 7/8/10/Vista/XP.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool costs 1.100€ (plus vat) or 500€ (plus vat) for the period of 12 months.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The tool has either one-time purchase or annual subscription.

8) Provide a link for downloading the tool.

Link :	www.algorithm.ro

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool has free updates.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The company provide technical support, manual, video, FAQs. www.algorithm.ro/asistenta-tehnica-allenergy-software

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TermicG

Tool Name:	TermicG software
Version:	TermicG
Country:	Romania
Regions that is applicable:	Probable all the regions
Developer/Provider:	Ideal Rocod SLR
Website:	https://softwarecalculg.ro/software-audit-energetic/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

The tool is for buildings, part of buildings and apartments.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It is a manual entry tool.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

In January 2023, the process of building assessment and drawing up the energy certificate was modified with the appearance of technical regulation MC001-2023. The tool has incorporated this technical regulation as well as Romanian's current calculation methodology.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐

It is not clear but probable as state-accredited software it is compatible with the European EPC calculation methodology.

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4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☒	**On-premise**	☐	**Both**	☐
The tool works online.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool with the basic software costs 1.000 lei (plus vat) for the period of 1 year.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

It is not clear what happens after the first year payment.

8) Provide a link for downloading the tool.

Link :	The tool works online. You have to order it from the company. contact@idealrocod.ro tel. 0770 293 644 https://termicg.ro/public/home

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool has energy-saving recommendations.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

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The company provides free course and free trial of the product for 14 days. You have to contact with the company for further details (contact@idealrocod.ro) The tool works online and has free updates.

Doset-PEC

Tool Name:	Doset-PEC
Version:	Doset-PEC2023
Country:	Romania
Regions that is applicable:	Probable all regions
Developer/Provider:	Dosetimpex SRL
Website:	https://www.dosetimpex.ro/doset-pec/doset-pec.php

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Building (apartment).

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

It is a manual entry tool.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
The Doset-PEC 2023 program is based on formulas, data, relationships from the Romanian building energy performance standards. The reproduction of these standards was made with the consent of the Romanian Standardization Association - ASRO, no. LUC/23/376/03.04.2023, as the copyright holder of the standards.			

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3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
The tool is compatible with the European EPC because OZC tester performs calculations according to the applicable standard SR-EN ISO 13790:2009, the European ELOT standard.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
It is not specified about further integration possibilities.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☐	**Both**	☐
It is not clear but probable the tool is on-premise.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
The tool costs 975,00€ plus Vat for the period of 1 year.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

The purchase contract covers a period of 3 years. During this period users benefit from all program updates for free. When the contract expires, you can choose a new "service-maintenance" type contract, through which you benefit from the updates provided to the program.

8) Provide a link for downloading the tool.

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Link :	You have to contact with the company (office@dosetimpex.ro) in order to sign contact and take the license to use the program. https://www.dosetimpex.ro/doset-pec/formular.php

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

It analyzes solutions and combinations of solutions related to the thermal rehabilitation of buildings.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The tool provide manual.
You can download a demo version of the Dossier-PEC 2023 beta program.
https://www.dosetimpex.ro/doset-pec/download/PachetProgramDoset-PEC-Demo.zip

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Slovenia

Tool Name:	Calculation tool + national EPC registry accessible by licensed independent experts only
Version:	
Country:	Slovenia
Regions that is applicable:	All
Developer/Provider:	Faculty of Mechanical Engineering, University of Ljubljana
Website:	https://www.energetika-portal.si/podrocja/energetika/energetske-izkaznice-stavb/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential and non-residential (office, educational and tertiary)

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1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
Fully in line.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
It complies with EPBD Annex 1 and CEN EPB standards.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☒
Subject of future consideration.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
It is a tool implemented in Excel Sheets. It can be downloaded from the official webpage of the Ministry of Environment, Climate and Energy.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☒	**No**	☐

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

/

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8) Provide a link for downloading the tool.

Link:	https://www.energetika-portal.si/podrocja/energetika/energetske-izkaznice-stavb/izracun-energijske-ucinkovitosti-stavb/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

The tool enables the calculation of energy performance indicators while the EPC is elaborated within the national EPC registry accessible by licensed independent experts only. The registry is linked to the national cadaster and real-estate database (building ID, location (x- and y-coordinates) and address) and supports preparation of recommended measures in EPC. When completed EPC is immediately visible in the national real-estate registry for public access.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Manual included with download.

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Spain

CE3

Tool Name:	CE3
Version:	v20160906
Country:	Spain
Regions that is applicable:	Spain
Developer/Provider:	Public funding (developed by APPLUS, Seville University and others)
Website:	https://energia.gob.es/Eficiencia/CertificacionEnergetica/DocumentosReconocidos/Paginas/procedimientos-certificacion-proyecto-terminados.aspx

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

- Single-family living buildings
- Block living buildings
- Individual living units belonging to block buildings (condo)
- Tertiary buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Similar (but simplified) to Hulc (same developers). All data introduced manually, including geometrical data. Only stencils can be used to help drawing 3D models.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

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Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
Not interoperable. Very closed/opaque software.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	**X**	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link:	https://energia.gob.es/desarrollo/EficienciaEnergetica/CertificacionEnergetica/DocumentosReconocidos/Paginas/procedimientos-certificacion-proyecto-terminados.aspx

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

NA

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

NA

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CE3X

Tool Name:	CE3X
Version:	v2.3
Country:	Spain
Regions that is applicable:	Spain
Developer/Provider:	CENER and EFINOVATIC
Website:	http://www.efinova.es/CE3X

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, small tertiary or large tertiary, and any grade from "A" to "G" can be obtained.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

For defining geometry, not 3D models are used. Only envelope elements are introduced, each of them characterized by dimensions (surface m2) and orientation.

Rest of the inputs manually or obtained from other plugins. A lot of plugins have been created to be connected with it and to facilitate entering input data, analyzing saving measures or outputs.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

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Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	**X**	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link :	http://www.efinova.es/CE3X

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

NA

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

A forum is available for providing support at http://www.efinova.es/asistenciaTecnica/0/

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CERMA

Tool Name:	CERMA
Version:	v5.11
Country:	Spain
Regions that is applicable:	Spain
Developer/Provider:	INSTITUTO VALENCIANO EDIFICACIÓN and ATECYR
Website:	https://productos.five.es/producto/cerma

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

- Single-family living buildings
- Block living buildings
- Individual living units belonging to block buildings (condo)
- Tertiary buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

For defining geometry, 3D models are not used. Only envelope elements are introduced, each of them characterized by dimensions (surface m2) and orientation.

Rest of the inputs are made manually.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

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4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	X	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	**X**	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link :	https://productos.five.es/producto/cerma

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Training is provided for this software at the following link: https://productos.five.es/categorias/tipos-oferta-formativa

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CYPETHERM HE Plus

Tool Name:	CYPETHERM HE Plus
Version:	v 2024.b
Country:	Spain
Regions that is applicable:	Spain
Developer/Provider:	CYPE Ingenieros (ES)
Website:	https://www.cype.es/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

- Single-family living buildings
- Block living buildings
- Individual living units belonging to block buildings (condo)
- Tertiary buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Data can be imported from other Cype software. Geometrical data is generated with the software "IFC Builder" by Cype. Other data can be imported from other Cype tools (HVAC etc.)

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

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NA

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	X	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link :	

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

- Interoperable with other Cype software - OpenBIM-based workflow - Simulation engine: Energy Plus

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Information about this software can be accessed at https://info.cype.com/es/software/cypetherm-he-plus/#pll_switcher

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LIDER-CALENER (HULC)

Tool Name:	LIDER-CALENER (HULC)
Version:	DB-HE 2019 2.0.2300.1172 of May 10, 2022
Country:	Spain
Regions that is applicable:	Spain
Developer/Provider:	Public initiative - Spanish Government (developed by Seville University and others)
Website:	https://www.codigotecnico.org/Programas/HerramientaUnificadaLIDERCALENER.html

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

- Single-family living buildings
- Block living buildings
- Individual living units belonging to block buildings (condo)
- Tertiary buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Input data is introduced manually. Geometrical data must be drawn directly (3D model). It is possible to import drawing files as stencil to draw on them. THe map of the building can be imported in 'dxf' format.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
/			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	**X**	**No**	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

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Yes	☐	**No**	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	**X**	**Both**	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	**X**	**No**	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link :	

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software etc.)

The general method and software of reference in Spain. It is valid both for obtaining the EPC and for verifying compliance with energy efficiency regulations. It was promoted by the government, which is also responsible for ensuring the necessary updates. It is used as a reference for validating and accrediting other possible softwares. However, despite being the reference software, it is not the most widely used (not very user-friendly).

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Training courses are being provided by some of the companies. One such example can be viewed on web at this link:

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https://www.certificadosenergeticos.com/manual-de-usuario-de-hulc-herramienta-lider-calener-unificada
User guide can be accessed at:

https://www.certificadosenergeticos.com/wp-content/uploads/2021/03/ManualDeUsuarioHULC-20151221.pdf

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SG SAVE

Tool Name:	SG SAVE
Version:	v3.5.0.2
Country:	Spain
Regions that is applicable:	Spain
Developer/Provider:	Isover, Saint Gobain Group
Website:	https://www.isover.es/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

- Single-family living buildings
- Block living buildings
- Individual living units belonging to block buildings (condo)
- Tertiary buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Please check the R2MI file excel.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Private software accredited by the Spanish Ministry.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

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Yes	X	No	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	No	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	On-premise	X	Both	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	X	No	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link :	Please check the R2MI excel file.

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Please check the R2MI excel file.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

All support can be accessed at following web link https://www.efinovatic.es/descargas/SaintGobain/setupSGSave-v3.502.exe

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TeKton3D TK-CEEP

Tool Name:	TeKton3D TK-CEEP
Version:	v1.7.94.8
Country:	Spain
Regions that is applicable:	Being used internationally
Developer/Provider:	iMventa ingenieros
Website:	https://www.imventa.com/tk-ceep

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Newly built buildings.
Existing buildings or parts of buildings.
Private block and single-family residential buildings.
Tertiary buildings of any size.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

TK-CEEP uses EnergyPlus TM as a calculation engine for building energy simulation. EnergyPlus TM is currently the most prestigious building energy simulation program internationally. It has been developed by the United States Department of Energy (DOE), its operation is based on the Heat Balance method (ASHRAE Heat Balance) and on the approach of a simultaneous and integrated solution between the conditions of the different areas of the building. and the response of the air conditioning systems.

This software also adds a new export option to the IDF format, used by EnergyPlus.

2) Does the tool align with the national EPC calculation methodology? Please elaborate.

Yes	**X**	**No**	☐
Yes. It has been accredited as official by the Ministry since 02/11/2021.			

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

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Yes	X	No	☐
/			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	No	☐
NA			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	On-premise	X	Both	☐
/					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	X	No	☐
/			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

NA

8) Provide a link for downloading the tool.

Link :	https://www.imventa.com/tk-ceep

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

Please check the R21MI excel file.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

Training is provided for this software by the developer: https://www.imventa.com/formacion An online manual is also available at https://www.imventa.com/ayuda/

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Sweden

BIM Energy

Tool Name:	BIM Energy (BIM Energy Evaluation and BIM Energy Renovation
Version:	
Country:	Sweden
Regions that is applicable:	Globally
Developer/Provider:	StruSoft AB
Website:	https://bimenergy.com/software/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Tool works for all types of buildings, residential and commercial.
The same calculation core is used in both VIP and BIM Energy.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry is also available in BIM Energy, as well as creation of the building's geometry in a 3D-model in the application.

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
Tool aligns with BBR, Boverket's building regulations. Boverket is the Swedish National Board of Housing, Building and Planning.			

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3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
BIM is validated according to Ashrae 140 and EN15265.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
No mention.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☒	**On-premise**	☐	**Both**	☐
BIM Energy is web-based and runs in the browser.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
250€/month/person. However, a free trial license can be downloaded from the website. The free trial is for 2 weeks.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription

8) Provide a link for downloading the tool.

Link :	https://bimenergy.com/#trial-license

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

BIM Energy is recommended when performing energy analysis of existing buildings for the EPCs and to evaluate the profitability of different renovation measures. The

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user selects a climate file from the map (outdoor temperature, solar radiation, wind, humidity) which can be used from locations globally.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

The company provides free trials, video guides, webinars, training, unlimited support and continuous software development. (https://bimenergy.com/video-tutorials/)

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EnergyCalc

Tool Name:	EnergyCalc
Version:	
Country:	Sweden
Regions that is applicable:	EU?
Developer/Provider:	Control Engineering Sweden AB
Website:	www.energycalc.se

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Residential, non-residential and other buildings

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐
EnergyCalc is built entirely according to calculation standards from ISO that are recommended by the Boverket, Swedish National Board of Housing, Building and Planning, and the EU. “EnergyCalc uses ISO calculation standards. The standards were developed for the EU EBPD regulation so they should be applicable for at least all of the EU. But EnergyCalc			

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has focused on the Swedish market, so the program is only available in Swedish. We also have an excel sheet especially aimed at the Swedish BBR regulation.”

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
Used standards: ISO 13790 ISO 6946 ISO 13786 ISO 13789 ISO 13370			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
No mention.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
It is an excel-based calculation tool.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
4800 SEK/year = ~424€/year Support and consulting 850 SEK/h=~75€/h			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription

8) Provide a link for downloading the tool.

Link :	http://www.controlengineering.se/energi/energycalcinst.exe (free version)

Additional Features and Support:

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9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

No mention.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

http://energycalc.se/hjalp-och-info/ Help and info (Swedish) http://energycalc.se/wp-content/uploads/2023/05/EnergyCalc_Manual.pdf User manual (Swedish)

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TMF Energi

Tool Name:	TMF Energi
Version:	9.41
Country:	Sweden
Regions that is applicable:	Sweden
Developer/Provider:	RISE (Research Institutes of Sweden)
Website:	https://www.tmf.se/bransch-naringspolitik/branschutveckling/teknik--forskning/tmf-energi/

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

Single-family buildings and multifamily buildings.

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry (but inputs can be linked to another Excel that might get its data from BIM software)

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

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Tool aligns with BBR, Boverket's building regulations. Boverket is the Swedish National Board of Housing, Building and Planning.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐
Calculations are mainly based on the standard EN ISO 52016-1:2017. However, infiltration is calculated according to a general advice in ISO 13789:2008. Calculation of heat pump performance is based on measured laboratory data according to EN 14511-series of standards. Calculations of ventilation heat recovery performance are based on measured laboratory data according to EN 13141-7.			

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐
No mention.			

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐
Tool is excel-based.					

6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒

Version	**New subscription**	**Continuation of subscription**
Single-family building	10 000 SEK/~880 €	4000 SEK/ ~350€
Multifamily building	10 000 SEK/~880 €	4000 SEK/ ~350€
Combination of single-family and multifamily buildings	15 000 SEK/~1320€	6000 SEK/ ~530€

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7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription

8) Provide a link for downloading the tool.

Link:	https://www.tmf.se/imagevault/publishedmedia/zhqs6n8r3ipptqbvbb9t/TMF_Energi_demoversion_9.41_-_20231018.xlsx?download=0 (Demo version and password: bbr29tmf23test

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

No.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

A short user manual, a free online course yearly (in Swedish) and support (mainly via email). In addition, the program is quite self-instructional when moving the cursor over cells in the Excel sheet. User manual: https://www.tmf.se/imagevault/publishedmedia/p67uv6zhc45b9binqg49/Handledning_TMF_Energi_version_9-41_smh_2023-10-18.pdf?download=0

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VIP-Energy

Tool Name:	VIP-Energy
Version:	
Country:	Sweden
Regions that is applicable:	Sweden
Developer/Provider:	StruSoft AB (Structural Design Software)

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Website:	https://www.vipenergy.net/English_Home.htm

Data Input and Compatibility:

1) Describe the type of buildings that can be input into the tool.

VIP-Energy can be used for all types of buildings (residential and commercial).

1) Describe the process of data input into the tool. (e.g., manual entry, import from BIM software, etc.)

Manual entry

2) Does the tool align with national EPC calculation methodology? Please elaborate.

Yes	☒	**No**	☐

Tool aligns with BBR, Boverket's building regulations. Boverket is the Swedish National Board of Housing, Building and Planning. The software is used for the energy performance calculation that is needed in the building permit application for Swedish projects.

3) Is the tool compatible with the European EPC calculation methodology? Please provide details.

Yes	☒	**No**	☐

The program as a whole is validated according to Ashrae 140-2007 and EN15265. Calculation functions for 2D and 3D models are validated according to ISO 10211:2007.

4) Can the tool integrate with the Digital Building Logbook (DBL)? Describe the integration capabilities.

Yes	☐	**No**	☐

No mention.

Accessibility and Usage:

5) Is the tool cloud-based, on-premise, or both? Please specify.

Cloud-based	☐	**On-premise**	☒	**Both**	☐

VIP-Energy is a traditional desktop application.

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6) Is the tool provided for free by the state? If not, what is the cost of the tool?

Yes	☐	**No**	☒
250€/month/person. However, the more people you add to the subscription, the more discount you will get. The free trial is for 2 weeks.			

7) If the tool is a paid service, detail the payment model. (e.g., one-time purchase, annual subscription, etc.)

Annual subscription

8) Provide a link for downloading the tool.

Link :	https://strusoft.com/software/strusoft-installer/license-activation/

Additional Features and Support:

9) What additional features does the tool offer? (e.g., energy-saving recommendations, integration with other software, etc.)

No mention.

10) Describe the user support available for the tool. (e.g., tutorials, customer service, community forums, etc.)

User manual: https://www.vipenergy.net/Manual_ENG.htm

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REFERENCES

1) https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/smart-readiness-indicator/implementation-tools_en
2) International Organization for Standardization & International Electrotechnical Commission & Institute of Electrical and Electronics Engineers. (2011). Software, systems and enterprise — Architecture description (ISO/IEC/IEEE Standard No. 42010:2011)
3) https://www.easysri.eu/en
4) European Space Agency. (2021): https://www.esa.int/Enabling_Support/Space_Engineering_Technology/Shaping_the_Future/Technology_Readiness_Levels_TRL
5) TWI Global. (2021):

   https://www.twi-global.com/technical-knowledge/faqs/technology-readiness-levels
6) NASA. (2021): https://www.nasa.gov/directorates/somd/space-communications-navigation-program/technology-readiness-levels/

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