

How does building technology enable robust sustainability reports (ESG) for buildings?

The article shows the necessity of ESG and how this is possible with the SRI required in the EPBD



ALFRED FREITAG

Senior Consultant European Relations,
Belimo Automation AG, Switzerland
alfred.freitag@belimo.ch

The construction and real estate sectors are increasingly under pressure from legislators, investors, and society to provide transparent information on energy efficiency, safety, and comfort, key factors in Environmental, Social, and Governance (ESG) reporting. Numerous standards and labels exist, but their relevance to ESG goals remains a critical question. The Smart Readiness Indicator (SRI), introduced in the 2024 amendment of the EU Energy Performance of Buildings Directive (EPBD), emerges as a key tool for supporting ESG compliance, particularly in the building technology sector. This paper outlines the development of SRI, its role in enhancing transparency, and its potential to help consulting engineers and building stakeholders align with ESG criteria, ensuring future-proof and sustainable buildings. Additionally, it highlights the challenges and opportunities that arise from implementing EPBD regulations in the context of broader sustainability initiatives like the EU Green Deal and the Corporate Sustainability Reporting Directive (CSRD).

Keywords: Smart Readiness Indicator (SRI); Energy Performance of Buildings Directive (EPBD); ESG reporting; Building technology; Energy efficiency; EU Green Deal; Corporate Sustainability Reporting Directive (CSRD); Sustainable buildings; HVAC systems; Indoor air quality

Construction project clients and building owners are increasingly required by legislators and the public sphere to provide transparent information regarding energy efficiency, safety, and comfort. Many labels and standards exist, but how relevant are they when it comes to ESG?

The Smart Readiness Indicator (SRI) required by the 2024 amendment of the EU Energy Performance of Buildings Directive (EPBD) is a Europe-wide indicator demanded by EU member states that ideally supports ESG reporting.

In the following, we will explain how ESG reporting came about and how the SRI helps the building

technology sector achieve greater transparency, and consulting engineers in their roles as client trustees.

The challenges

The United Nations addressed the problems of climate change, resource scarcity, and the role of mankind back in 2000 and developed the Millennium Development Goals (MDGs). The resulting 17 SDGs (Sustainable Development Goals) were adopted in 2015 and included in the 2030 Agenda, which now calls for implementation at the global, national, and local levels. Many standards, such as ISO 14001, and decarbonization initiatives, such as the Paris Agreement 2 and the Science-Based Targets (SBTs), followed.



The expectations and requirements placed on companies by civil society, investors, business partners, and customers, consumers and employees, benchmarks and ratings, as well as legislators are constantly increasing. **The construction and real estate sector need to take this into account in order to maintain both its own marketability and the value of real estate.**

In 2019, the EU launched the Green Deal, which aims to reduce net greenhouse gas emissions in the EU to zero. It, therefore, defines the EU's political framework for environmentally friendly and sustainable measures. Its application is intended to drastically reduce greenhouse gas emissions and promote environmental and sustainability objectives. The EU Taxonomy Regulation was formulated in the interest of a clear definition of green, sustainable, and environmentally friendly economic activity. It can be used within the EU to determine whether an economic activity can be classified as environmentally sustainable.



1

Climate change mitigation



2

Climate change adaptation



3

Sustainable use and protection of water and marine resources



4

Transition to a circular economy



5

Pollution prevention and control



6

Protection and restoration of biodiversity and ecosystems

Requirements with direct influence on the construction and real estate sector

Various directives have been and are being issued by the EU to achieve the objectives of the Green Deal. These directives also have and will continue to have a direct impact on the construction and real estate sector.

Corporate Sustainability Reporting Directive

The Corporate Sustainability Reporting Directive (CSRD) has been in force since early 2023, and the EU member states are required to translate it into national law. Particularly, EU companies or non-EU companies with EU subsidiaries that meet two of the following three criteria must implement CSRD reporting for the financial year 2025: more than 250 employees, over €20 million in total assets, exceeding €40 million in sales.

Article 4 of the CSRD applies from 1 January 2024 to financial years beginning on or after such date. Companies must comply with the European Sustainability Reporting Standards (ESRS) for environmental, social, and governance (ESG) aspects. The relevant ESRS must be applied based on the significance of the sustainability topics. This makes the accurate recording and management of ESG key figures even more important than ever before. Key figures from buildings such as energy consumption are also part of this effort.

Corporate Sustainability Due Diligence Directive

The Corporate Sustainability Due Diligence Directive (CSDDD) has been in force since 25 July 2024 and the EU member states are required to translate it into national law within a period of two years. It applies to:

- EU companies that have more than 1,000 employees and annual net sales of more than €450 million;
- Foreign companies that generate more than €450 million net sales per year in the European Union.

Companies are obliged to exercise due diligence in the context of their activities, those of their subsidiaries, and those of their business partners in the respective value chains regarding respecting human rights and ecological standards.

The construction and real estate sector significantly influence health and safety in buildings, such as indoor air quality and fire protection. This fact has to be taken into account throughout the entire life cycle of a building.

Health and Safety at the workplace



- Right to health
- Right to fair and dignified working conditions
- Right to safe and healthy working conditions

Environmental, Social, Governance (ESG)

Companies and investors use ESG criteria to assess environmental impact, social responsibility, and governance practices. Compliance with these criteria can

encourage companies and financial institutions to invest in sustainable business and construction projects in line with the EU taxonomy.

The **E** in ESG stands for the description of a company's impact on the environment. Aspects such as compliance with climate protection measures or containment of environmental pollution, in addition to a company's energy efficiency, resource consumption, and waste management practices, all have a role to play here. The **S** stands for the relationship a company has with its employees, customers, suppliers, communities, and other stakeholders. And finally, the **G** stands for ethical principles, integrity, transparency, composition of the steering committees, an independent audit, and compliance with regulations and laws.

Companies practice their business activities in rooms and buildings. These spaces influence all three ESG criteria. For that reason, they must be equipped to allow the company to achieve a corresponding ESG rating. The question of **How can building technology affect ESG criteria?** arises.

Energy Performance of Buildings Directive (EPBD) 2024

To achieve the goals of the Green Deal, the EPBD of 2018 had to be revised in what is called the "Recast," which was, in turn, approved in 2024. This Directive has been in force since 28 May 2024, and the EU member states are required to translate it into national law within two years.

In addition to the previous energy issues, Article 13 now addresses the safety and health of building users. Beyond that, Article 15 defines the assessment of the

smart readiness of buildings. It is prescribed for non-residential buildings with a rated output for a heating system, an air-conditioning system, a combined space heating and ventilation system, or a combined air-conditioning and ventilation system of more than 290 kW.

By 30 June 2026, the EU Commission will submit a report to the European Parliament and the Council on the review and implementation of the Smart Readiness Indicator (SRI). Based on this report, a delegated act will be issued by 30 June 2027.

Smart Readiness Indicator (SRI)

The "Smart Readiness Indicator" (SRI) prescribed in the EPBD is a common EU scheme for assessing the degree of technical readiness of buildings. The indicator provides information as to how smart/intelligent a building is. It provides a common basis for building stakeholders (owners, consulting engineers, solution providers, policymakers, etc.) to discuss how buildings can be made smarter and what benefits can be expected.



The SRI assesses the smart readiness of buildings or building units with respect to their capability of fulfilling three key functions:

- Optimization of energy efficiency and overall performance during utilization
- Adaptation of the operation to the needs of residents
- Adaptation to signals from the power grid (e.g. energy flexibility)

These smart readiness functions are broken down into seven impact, and nine technical domain scores.

Impact of the EPBD on ESG reporting

The EPBD requires independent control systems from the Member States to identify overall energy performance (Appendix VI), the renovation passports in accordance with Article 12, the smart readiness indicator, and the inspection reports for heating, ventilation, and air-conditioning systems.

For the criteria prescribed in ESG reporting, information on overall energy efficiency can be used as a source for the energy consumption criterion **E**. The smart readiness indicator SRI is suitable for proof of the indoor climate, which is important for the safety and health criterion **S**. Once the buildings and rooms are equipped with a building automation system as required by Article 13 (§ 9-11) of the EPBD, data will then be available for verification of the indoor climate, as is required by the legislator (Labor Act) in criterion **G**.

Exemplary depiction of the application of SRI for ESG reporting

The third floor at Belimo Headquarters in Hinwil, which is exclusively devoted to offices and meeting rooms, has been renovated. The conversion was identified as an optimum opportunity to research the connection between building technology and compliance with the ESG targets in one's own company.

A great deal was invested in technology with the aim of achieving high indoor air quality and energy efficiency. Belimo Energy Valves were installed for permanent hydronic balancing, and the radiators were fitted with tight-closing, blocking-proof ball valves with electric actuators. Indoor air quality in the zones is

demand-controlled using variable air volume (VAV) and is ensured by corresponding room controllers.

An SRI expert assessment, according to Method B, resulted in an SRI of 58%. In the three main functions, 70% was achieved for energy efficiency and maintenance, 71% for comfort, and 11% for power grid flexibility. In addition, varied results are obtained for the domain scores.

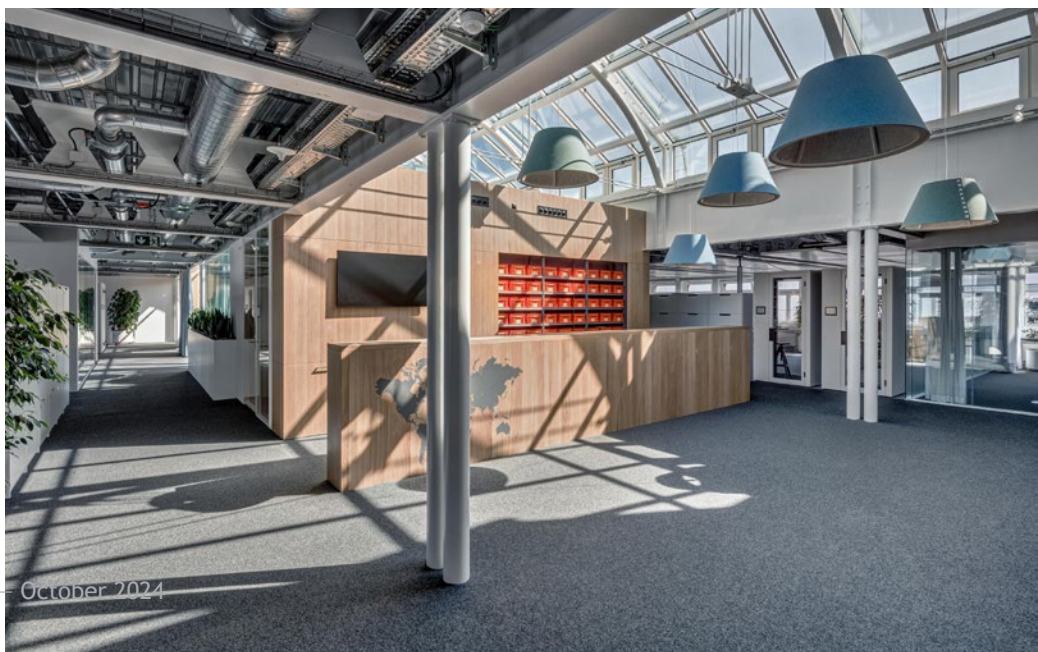
It should be considered that only one of the building floors was assessed. No water treatment or charging stations for electric vehicles or photovoltaic systems on the floor were evaluated.

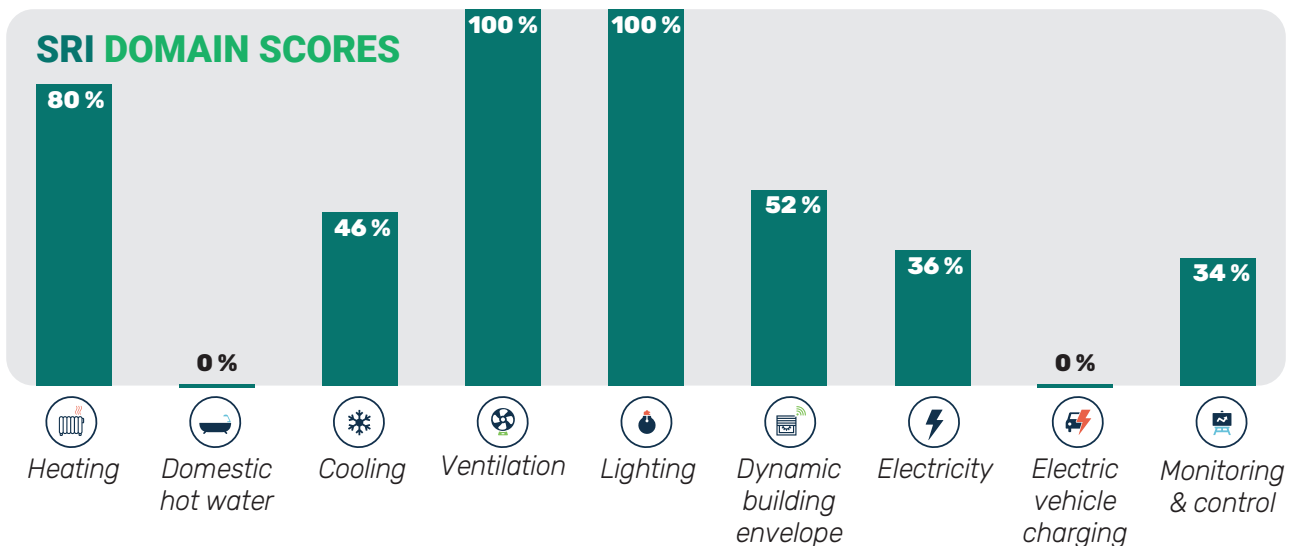
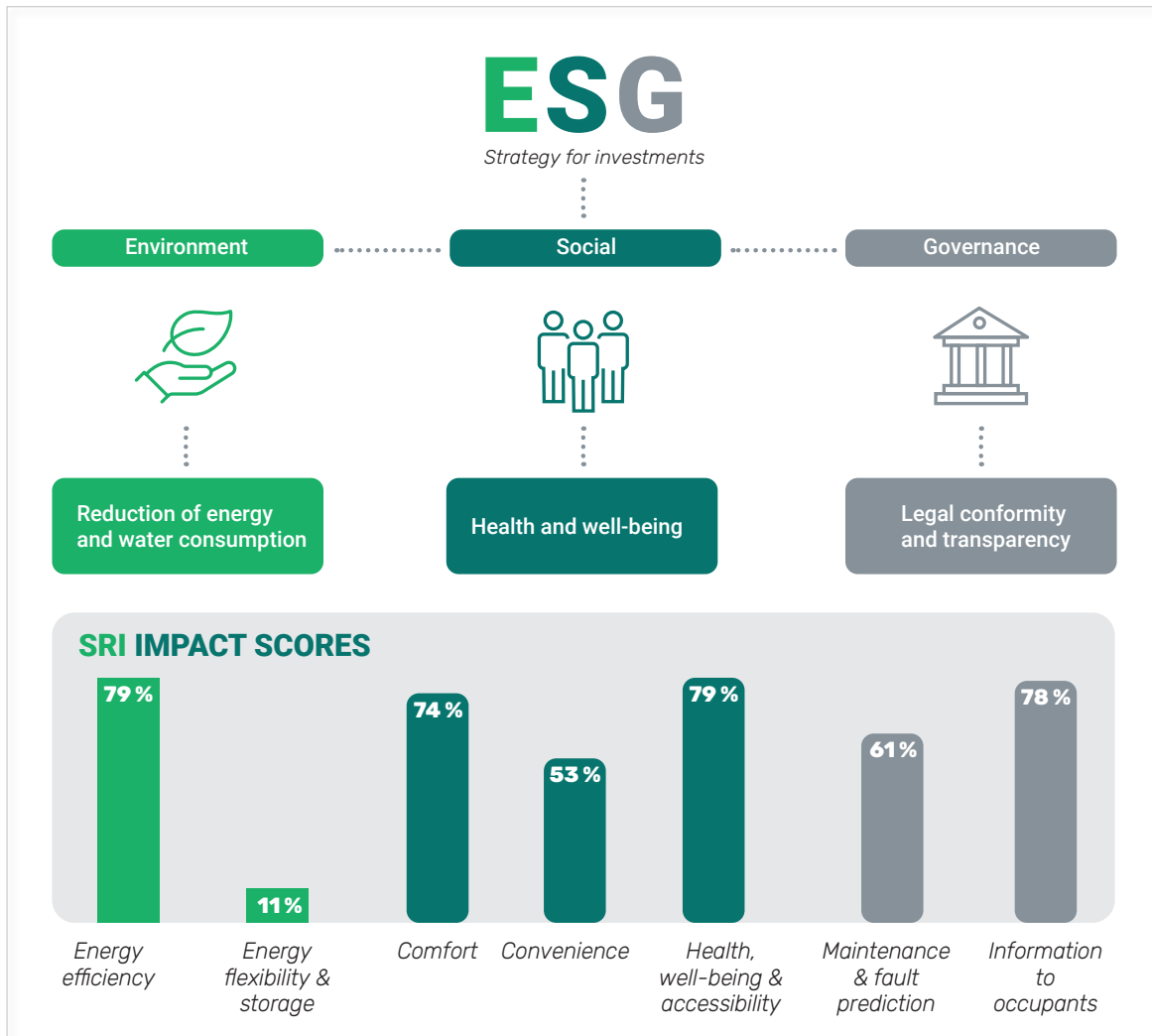
The resulting graphs and detailed results can be applied to sustainability reporting.

The SRI indicates potential for smart readiness improvement, in order to increase the value of a building. However, it also indicates whether the building is future proof with respect to the requirements for 2030/2050.

A sustainability report requires statements on compliance with laws such as the Labor Act. The corresponding reporting is needed to accomplish this. The SRI assessment shows whether the relevant services and functionalities are available. The SRI can be used for sustainability reporting in accordance with the Global Real Estate Sustainability Benchmark (GRESB). Should proof of compliance with labor laws be provided, the building technology needs functionalities required in EN ISO 52120-1 Class A/B, including a corresponding monitoring and reporting system.

EN ISO 52120, EPBD 2024, and the SRI are effective ESG-compliant building technology planning instruments.





Conclusion

The EU standards have been highly effective in helping companies meet ESG requirements set by legislators, such as the EPBD, CSRD, and CSDDD, while also addressing public demands for energy efficiency, safety, comfort, and transparency. However, it's crucial not to overlook the available funding that supports these

efforts. Implementing these standards offers multiple benefits, including legal compliance, transparent reporting that attracts investment, reduced energy and management costs, more attractive workplaces that provide a competitive edge in talent recruitment, and an enhanced company image. ■