

Green Building in Israel

Summary and recommendations of the
53rd Energy Forum discussion

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May, 2023

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Executive Summary

The buildings sector in Israel is mainly based, as of 2021, on residential construction areas (about 75% of the area of construction beginnings), and some (about 25%) non-residential construction – commerce, employment, industry, education, health, and more. The built environment is responsible for about 28% of energy consumption in the economy (15% in the domestic sector, and 13% in the commercial-public sector), about 56% of electricity consumption (31% in the domestic sector, and 25% in the commercial sector), and about 33% of total emissions of greenhouse gases by the Israeli economy.

Furthermore, the population rate growth in Israel is one of the highest among developed countries, which requires the continued development of buildings for residential, employment, and service needs. Hence, government goals for the efficiency and reduction of energy consumption are required to address and reduce consumption in these sectors, whether through the construction of energy-efficient buildings, increased efficiency of electrical appliances, or other means to change behavior patterns.

Green building, or sustainable building, is a multidisciplinary approach that seeks to use environmentally responsible and resource-efficient processes throughout the entire life cycle of the building, from choosing its location to the stages of planning, construction, operation, maintenance, renovation, and demolition.

The voluntary implementation may encounter significant difficulties, despite the inherent benefits of green building. Green building requires innovative processes and measures, while the construction market is characterized by high conservatism. In the immediate term, green building is usually several percent more expensive than conventional building, still it has the potential for economic savings in the long term. And in addition, sometimes there is a conflict between the various stakeholders – entrepreneurs, property owners, and users – because the payer and the beneficiary are not always identical. In light of this, it is very important to establish an orderly regulation in the field and its enforcement.

The Green Building Standard in Israel - Israeli Standard (SI) 5281 - was written in 2005 and was updated in 2011 and 2016. In 2013, it was decided at the Forum15 to gradually implement the standard as a mandatory specification for new construction in the authorities of the forum's members. In 2014 it was decided, together with the government housing director, that the construction and/or renovation of government buildings would be done in accordance with the standard. In 2020, the National Planning and Construction Council approved a regulation requiring the construction of new buildings according to the standard. Accordingly, in March 2022, the Green Building Standard became mandatory, and it will be gradually applied to most new construction until September 2023.

The standard addresses various aspects of buildings' planning and construction process and sets minimum quality requirements. As such constitutes a marker and catalyst for higher quality and more advanced construction, and has a beneficial effect on the construction market in Israel. However, the standard does not guarantee the treatment of all the aspects included in it because it requires compliance with several threshold clauses and allows the accumulation of additional points according to the planner's choice. In practice, the scoring in the standard is done for sections that are easy to implement and economically viable, while other aspects, both those included in the standard and those that are not, remain untreated.

In addition, the Green Building Standard focuses on the aspects of planning and construction of buildings. The certification of projects according to the standard is done after the completion of the project. No measurement is made of the building performance and the planned systems after occupancy. Moreover, the studies conducted in Israel, found that the actual electricity consumption savings are modest compared to the savings potential calculated in the simulations. Although new apartments (not necessarily green building apartments) are indeed more efficient than old ones, there is a high variation between apartments, which emphasizes that the tenants' behavior has a decisive impact on electricity consumption. Efficient building is perhaps a necessary condition for saving, but apparently not sufficient.

Moreover, energetic aspects can be measured relatively easily (given accessible information). Still, other aspects, such as the quality of life and the satisfaction of the building's users, which are of crucial importance, are very complex to quantify and require alternative evaluation processes.

The team of experts who participated in the forum put forward several important recommendations to ensure the continued development of the field of green building in Israel.

Access to information and data – the availability of information and data is critical for improving planning processes and promoting appropriate policy measures. Using data from the field in the planning stages makes it possible to produce reliable predictions that will lead to better decisions in these stages. Post-occupancy assessment makes it possible to understand where the gaps come from and how they can be reduced; and understanding the factors that affect consumption allows the formation of policy tools that will affect savings.

- It is recommended to examine mechanisms for establishing a mandatory requirement for data accessibility, especially when it comes to entities that significantly impact public aspects, such as local authorities, the electricity company, etc. One should strive for a broad range of accessibility obligations (for example, so that it also applies to self-managed schools), and for creating databases with a high level of detail.

- It is recommended to examine standardization that will ensure a high level of knowledge about materials used in the construction field and, in the process, provide information about their carbon footprint.
- Research must be promoted to establish local knowledge in the field. The research will use local data and help adapt data from other places to the Israeli conditions. It is worthwhile to expand and deepen the research regarding public buildings, with a special emphasis on educational buildings.

Characterization of the field of green building – systemic thinking is required in cooperation with various stakeholders, regarding the definition and content of green building in Israel, to promote Israel to meet advanced international standards in construction. This process is required to address issues such as:

- Incorporating aspects that focus on users and not only buildings, such as human health and well-being.
- Circular planning in general, and holistic energy calculations in particular, while referring to the complete life cycle of different means of production and materials.
- Models of productive buildings, from energy to other aspects, such as food production.
- Neighborhood and urban standards, mixing of uses, and mutual effects within the built environment. For example, the expected effects of the entry of electric vehicles into the market, or the effects on the urban heat island phenomenon.
- Implementing optimization for environmental planning in the early stages of planning, to achieve optimal results in the built environment.

Updates of the existing standard – within the framework of the existing standard, several aspects that require updating must be examined:

- Index of energy efficiency – the energy intensity of small households (low floor area) is higher than that of large households, but their total consumption is lower. It is proposed to examine the index for the energy efficiency of housing units and to tighten the requirements of the standard for large apartments (similar to the mechanism implemented in the LEED residential standard, which considers both the area of the apartment and the number of bedrooms in the house, as a measure of the number of people the house serves).
- Segmentations according to uses. It is recommended to expand the segmentation of public buildings, which are highly variable (an educational building is different from a sports hall, a community center or a mikvah), and to adapt the requirements to the unique characteristics.

Implementation – steps should be taken to promote the optimal implementation of the standard in all construction in Israel.

- Public construction can serve as a significant lever for the whole concept of green building and energy saving. It is also recommended to promote the implementation of the standard in government offices.
- Measures to improve existing buildings must be examined, by linking the green standard to the existing building. It is not necessarily required to focus on buildings that consume much energy, because it is certainly possible that in buildings where energy consumption is low, this is because the population residing there cannot afford to acclimatize them, and it is important to try to improve the quality of life of the people in these buildings, even if the change is manifested in an increase in energy consumption.
- The development of professional knowledge for those involved in the field should be promoted. In the process, new software for energy rating should be approved. The assimilation of the attribution model should be examined, as well as create a validation for the execution process in a way that will reduce the possibility of mistakes.

Supplementary measures to the standard – It is recommended to initiate supplementary measures to encourage savings (such as a tiered electricity tariff according to consumption) and distributed energy production (such as removing bureaucratic and financial barriers). Different tools must be adapted for different purposes and users – means for residential houses with an identity between the person who pays the electricity bills and the one who uses the building will not necessarily be suitable for educational or health institutions, and vice versa.