For example, the energy performance of buildings can be calculated using ISO 16346:2013, "Energy performance of buildings – Assessment of overall energy performance." Complementing it are several other ISO standards that can be used to calculate the thermal properties of the building envelope (walls, roof and basement) and of the individual construction materials. These provide the reference for expressing performance in trade documents and building regulations all over the world.

Holm asserts that while the construction sector has historically been quite a national sector, it is gradually becoming more international. “Building suppliers are increasingly operating in different countries, and suppliers and constructors are also much more international themselves now,” he says.

With national governments coming under increasing pressure to maintain low carbon levels, it is encouraging to note that International Standards are being developed, Holm says. “We need this because, overall, the world is becoming more international and this includes the construction sector as well. Multiple standards are difficult to cope with; if you do a calculation with one standard or another, your result may not be the same.”

Furthermore, he adds, “standards reduce cost, make our buildings environmentally friendly and increase the comfort inside our buildings.” By cutting energy bills and retrofitting costs, they guarantee a healthier, more energy-efficient environment and increase people’s well-being.

**Constructing sustainably**

The Institute of International Harmonization for Building and Housing (IIBH) plays a critical role in efforts to support the development of the building and housing sector in Japan, not only through international harmonization of engineering, system, standards, and codes, but also through international exchange actions such as research and support.

Japan is already one of the world’s most energy-efficient countries thanks to efforts by the government and private companies. These days, the country has cutting carbon in its sights. The big challenge, says Nishino Kanako of the IIBH, is to outline the key actions required to transform how buildings are constructed. While transparent and scientific knowledge will offer improved performance and greater economic viability, Nishino recognizes that “there has not yet been such a situation in any part of the world.”

She acknowledges that much more can be done to aggressively pursue effective building codes and deep renovation programmes. “For strict policies, it is indispensable for society to obtain credible, reliable and effective tools for evaluating real building energy performance, which are supported by standards.”

According to Nishino, harmonization between national and international standards is critical. “The development of standards or any other tools should be reflected in International Standards. This is why IIBH is involved in International Standards development,” she says.