

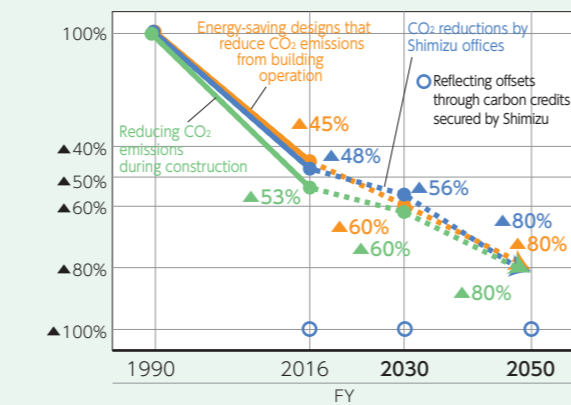
Contributing to the Environment: ① Mitigating global warming

Ecological Mission 2030-2050

Under Ecological Mission 2030-2050, which defines Shimizu's medium-long term goals for cutting CO₂ emissions, we're promoting companywide activities to reduce CO₂ generated by our construction and office business activities and CO₂ emissions generated by customers throughout building life cycles once they begin using the structures we have designed and built. These goals reflect Sustainable Development Goals (SDGs) no. 13 (climate action). We apply the percentage of the reduction achieved vs. fiscal 1990 as a KPI for each of these goals.

The state of three initiatives for which KPIs have been set and recent examples are described below.

Ecological Mission 2030-2050 medium to long-term targets



Reducing CO₂ emissions from Shimizu's own business activities

Efforts to reduce CO₂ emissions during construction

FY2016 performance 250,000 t-CO₂ emissions

vs. FY1990 **53.4%** reduction
 FY2017 target vs. FY1990 **53%** reduction

Hiroshima Branch: Construction on Hirase Dam
 Hirase Dam is a multipurpose dam located upstream on the Nishiki River. It is spanned by the Kintai Bridge, one of Japan's three most famous bridges.

The Hirase Dam project employs various methods to reduce CO₂ emissions during construction. Switching from 10-ton dump trucks to heavy dump trucks reduces the diesel fuel consumed in transporting excavated soil to build the dam body, while switching the construction site lighting to LED technology reduces the electricity needed. Both decisions help cut overall CO₂ emissions.

In addition, the 2,000 tons of the site's CO₂ emissions (fiscal 2016) have been offset using credits acquired from our CDM projects.



Hirase Dam (Iwakuni, Yamaguchi Prefecture)

Efforts to reduce CO₂ emissions at Shimizu's offices

FY2016 performance 9,000 t-CO₂ emissions

vs. FY1990 **48.3%** reduction
 FY2017 target vs. FY1990 **46%** reduction

Accredited as Top-Level Facility of Tokyo (Shimizu's head office building)

Shimizu's head office building was chosen as one of 8 top level facilities in fiscal 2016 by the Tokyo Metropolitan Government under 213 evaluation points. These points require reductions of greenhouse gas emissions from large business facilities and the implementation of emissions trading.

Completed in 2012, Shimizu's head office building embodies the ecoBCP concept as a fusion of energy conservation (eco) and business continuity planning (BCP). It adopts a wide range of facilities that deliver advanced environmental performance. Our various approaches towards energy saving have resulted in the building being chosen as a top-level facility.

We will continue to focus on energy conservation in an office building that's friendly to the environment.



Shimizu's head office building, chosen as a top-level facility business site (Chuo Ward, Tokyo)

Helping clients reduce their CO₂ emissions

Reducing CO₂ emissions during building use through energy-saving design

FY2016 performance 48,000 t-CO₂ emissions

vs. FY1990 **45.3%** reduction
 FY2017 target vs. FY1990 **44%** reduction

New Hall, Seicho-No-Ie, Ibaraki Prefecture

The New Hall is built amid lush natural surroundings in the city of Kasama, Ibaraki Prefecture. A single-story wooden structure is adopted in order to reduce total CO₂ emissions from construction and to make sustainable use of local forestry resources. This zero-energy building (ZEB) takes advantage of site characteristics to conserve energy in various ways, including natural ventilation, natural lighting, solar heat, geothermal heat, and use of other natural energy sources. It also incorporates energy-creating technologies such as solar power and an electricity storage system using electric vehicles. The building uses no fossil fuels whatsoever. Under the Building-Housing Energy-efficiency Labeling system (BELS) launched in April 2016 under the Building Energy Efficiency Act, New Hall became the first building in Japan to be certified as a ZEB. Since the completion of construction, the results by each component technology have been gathered and analyzed to make improvements and improve the building's energy self-sufficiency. In addition, the building contributes to the environment and to local economies by taking advantage of local production and consumption in aspects ranging from construction materials through energy sources. This includes materials produced in Ibaraki Prefecture for everything from the exterior wall to interior finishing materials and furniture, as well as the use of geothermal heat, solar heat, and firewood.



New Hall, Seicho-No-Ie, Ibaraki Prefecture (Kasama, Ibaraki Prefecture)

Other activities under the Ecological Mission

In addition to the Ecological Mission KPIs (shown at left), Shimizu strives to reduce CO₂ emissions and contribute to the global environment through independent emissions reduction activities throughout our supply chain.

Item	FY2016 performance
1. Improving structures and construction methods	42,000 t-CO ₂ reductions
2. Green procurement	56,000 t-CO ₂ reductions
3. Energy-saving renovation and building management	30,000 t-CO ₂ reductions
4. Acquiring volumes of construction byproducts	18,000 t-CO ₂ reductions
5. Renewable energy	10,000 t-CO ₂ reductions
6. Acquiring and using carbon credits	19,000 t-CO ₂ reductions

CDP evaluation of climate change performance

At the 2015 Japan session of CDP, Shimizu was evaluated and received an A rank on the Climate Performance Leadership Index (CPLI) for the fourth consecutive year. However, in 2016 we were evaluated and received a rank of B.

After we reviewed the reasons for the B ranking, we found that while our management of CO₂ emissions had remained as strong as it had been through 2015, other factors affected the evaluation, including a failure to report in accordance with the CDP's new protocol requirements. By revising our CDP reports starting in 2017, we plan to institute improvements that will ensure we regain the highest ranking.

CO₂ emissions independently verified by Ernst & Young Sustainability Co., Ltd.
 * See the Shimizu website (http://www.shimizu.co.jp/csr/environment/report/pdf/data_2017.pdf) for calculation standards