



Remarks on Special Issue on Civil Engineering

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On hearing the words “civil engineering,” they may remind you of infrastructure technologies for tunnels and bridges and those for high-rise buildings. It is not widely known that each steelworks consist of nearly all of the general infrastructures used in society including a dam and railway. An airport is probably one of the few things that steelworks do not have.

The steel industry is a gigantic facility-intensive industry. Equipment and facilities used in steelmaking are large and weighty; operate in complex movements; use large impacts and loads; are subject to high temperatures; and have other characteristics that are unfamiliar in everyday lives. Various infrastructures, which are required also by equipment and facilities for steelworks to steadily give the best performance, are supported by Nippon Steel & Sumitomo Metal Corporation's civil engineering.

Civil and construction engineers of steel manufacturers are involved in various work: Assessing the conditions of the ground and water sources when selecting the location of a steelworks; during the construction stage, developing the land and infrastructures such as harbors and roads and constructing the foundation of the facilities and plant buildings; and maintaining and managing all of these infrastructures and buildings after the operation begins. Most of the large-scale construction technologies in Japan have been developed by implementing those used in the U.S. and Europe. Meanwhile, Nippon Steel & Sumitomo Metal has developed many original technologies through the construction of several steelworks that have integrated steel-making facilities and has put them into practical use. For example, we devised methods for constructing steel structures and constructing a superheavy high-rise structure on soft ground. Since then, through the construction of new steelworks and renovation and the maintenance of existing facilities, we have been energetically pursuing more efficient construction methods and developing technologies to improve the maintenance and management of infrastructures.

These technologies of Nippon Steel & Sumitomo Metal originated from the construction of steelworks have evolved into those for the development of building materials (e.g., H-steel and steel pipe piles), for the construction of social infrastructures (e.g., bridges and pipe lines), and for the application of slag (e.g., blast-furnace cement and slag crushed stones), constituting the contribution to society made by the Nippon Steel & Sumitomo Metal Group.

This issue of Nippon Steel & Sumitomo Metal Technical Report introduces our technologies that allow for the reduction of costs and construction periods; technologies related to maintenance, management, and seismic retrofitting of infrastructures; and water treatment technologies for purifying water used in steelworks, selected from the construction technologies that Nippon Steel & Sumitomo Metal and group companies have and are currently being used in steelworks.

We hope readers will be interested in our civil engineering that support the stable operation of steelworks and that also contribute to social sustainable development and environment protection after reading this issue.