

Quality Control



Basic Philosophy

We will raise customer satisfaction and deliver new value for society through our products and high-quality systems that best meet customer needs and by demonstrating the Sanki Engineering Group's technological capabilities and proposal skills. Additionally, to maintain and improve quality, we have established a quality management system (QMS).

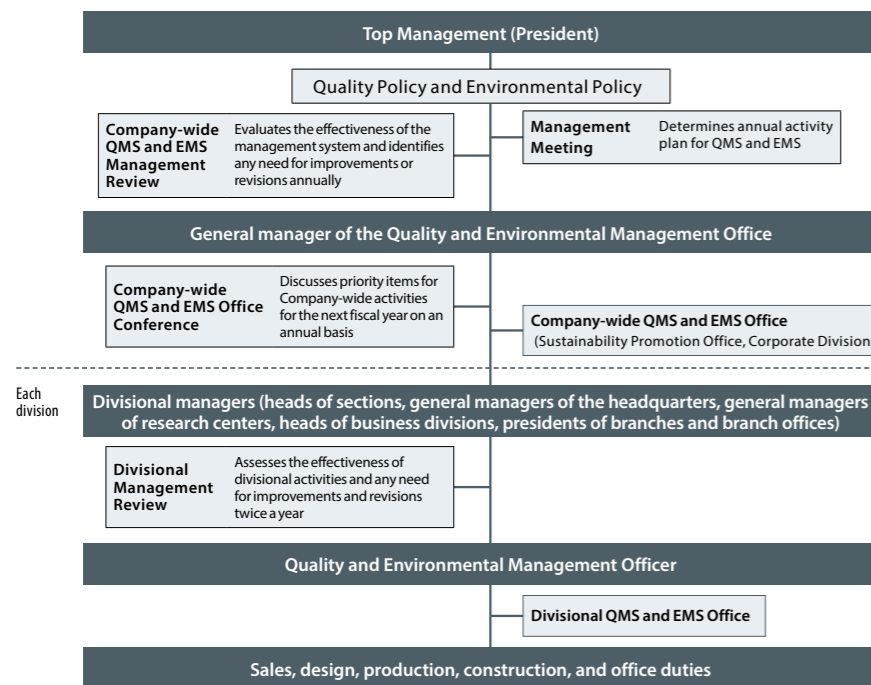
Initiatives for Ensuring Quality

Management System

We have integrated and implemented a QMS and EMS at each division in the Facilities Construction Business, Machinery Systems Business, and Environmental Systems Business. As of fiscal 2024, quality management across all domestic Group companies has been standardized, and we are promoting unified quality control throughout the Group.

Risk management is conducted in advance of the actual work for construction and production to maintain and enhance quality. We also recognize that responding to problems and complaints promptly and appropriately is a fundamental aspect of quality management. In addition, taking into account past instances of non-conformities in quality control, we are continuously working to raise the level of our management system.

Quality and Environmental Management System



Sharing Information and Preventing the Occurrence of Problems and Complaints

We accumulate and share our quality-related experiences across the Company by means of technical documents in order to prevent the occurrence of problems and complaints or, in the event they do occur, to handle them quickly and effectively. In



Scope of ISO 9001 Certification
<https://www.sanki.co.jp/en/csr/social/quality/>

Major Management System Strengthened in Fiscal 2023

- **Facilities Construction Business**
 - Enhanced design reviews
- **Machinery Systems Business**
 - Assessed preliminary quality risks, planned and implemented countermeasures through JOB patrols
 - Investigated the causes of incidents at complaint elimination meetings and formulated and implemented plans to prevent recurrence
- **Environmental Systems Business**
 - Further enhanced discussions at kick-off meetings



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Environmental Management System

Sharing Information and Preventing the Occurrence of Problems and Complaints

1. Flash report
2. Weekly report: A weekly trouble and complaint (TC) confirmation meeting is held with the participation of Group companies including overseas sites.
3. Monthly report: Incident reports and other information, including causes, corrective actions, and preventive measures, are distributed to construction engineers to ensure Company-wide knowledge in an effort to prevent the recurrence of problems.

In addition to efforts to share information, quality risk assessments are conducted by the Quality Risk Subcommittee set up under the Risk Management Committee. We also endeavor to prevent problems and complaints by identifying risks that may affect quality and quickly taking action. In fiscal 2023, we identified and investigated the root causes of problems and the substance of complaints and notified all worksites nationwide of the results. In addition, technical experts provide specific guidance to worksites with problems that continue to arise.

The Group set a target of zero problems and complaints that are attributable to us during construction. However, in fiscal 2023, the number of problems and complaints increased by about 25% (28 cases) compared to the previous fiscal year, and we are working to prevent recurrence by analyzing the trends and root causes of the problems and substance of complaints. In fiscal 2024, in order to ensure high quality regardless of the construction period or workload, we will require line managers to attend problem prevention meetings, strengthen management systems, and prevent the repeated incidence of problems and reporting of similar complaints by further spreading awareness at worksites.

Understanding Customer Satisfaction and Reflecting Feedback

In our work to improve construction quality, we conduct a customer satisfaction survey at the completion of construction work and reflect the feedback in our operations. In fiscal 2023, we received highly positive feedback from about 91%* of the 768 respondents. Looking ahead, we will continue to incorporate customer opinions into our operations to enhance construction quality.

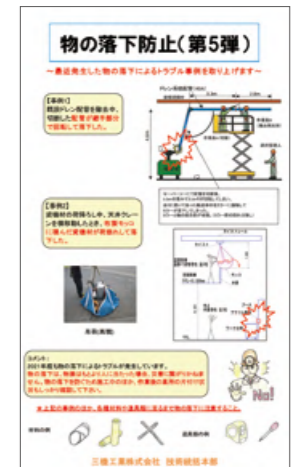
Initiatives for Ensuring Quality at Facilities Construction Sites

We are implementing a comprehensive approach that extends from design to construction to maintain and improve quality at construction sites. We are also seeking to reduce workload and rework, which often accumulates at construction sites, by providing operational support and promoting DX. This will boost productivity from both design and engineering perspectives.

Operational Support to Improve Productivity and Maintain High Quality

We believe it is important to reduce workloads that often accumulate at construction sites, create effective working environments, and improve conditions that encourage on-site staff to focus on their tasks while maintaining high quality. To achieve these goals, Sanki Engineering implements the Smile Site Plan, intended to create a rewarding workplace that satisfies both customers and the Company.

Under the Smile Site Plan, we are leveling operations by establishing and effectively implementing an operational support system for the processes of sales, design, procurement, construction management, and quality management to improve productivity while maintaining high quality. In fiscal 2023, we also reviewed the division of labor to establish an environment where field personnel can concentrate on their work. As a means for simultaneously improving productivity and maintaining high quality, we particularly emphasize design verification and pre-construction reviews before starting construction work, to raise productivity and avoid quality risks and to prevent rework, problems, and complaints. Going forward, we plan to standardize operations across all sites in accordance with the process map to further improve operational efficiency.



A poster for raising awareness of preventing problems and complaints is created monthly and displayed at worksites.

*Calculated by regarding the following responses as "highly positive feedback."
Facilities Construction Business
Score of 4 ("Somewhat satisfied") or higher out of 5
Machinery Systems Business
Score of 3 ("High") out of 3
Environmental Systems Business
Score of 70 points or higher out of 100



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Promoting the Smile Project

Initiatives for Improving Quality by Promoting DX

The BIM Promotion Center leads BIM efforts within the Company and subcontractors and in improving the usage rate of BIM-linked software as well as the participation rate in BIM education. In fiscal 2023, we conducted training for each branch, branch office, and subcontractor to encourage the use of BIM. BIM has already been successfully integrated into construction sites, and we will continue to increase its utilization.

In addition, we have developed the BIM Calculation Linkage Platform as a new solution for supporting processes from design to construction. Advanced technical calculations, which used to be time-consuming and labor-intensive, are now automated, allowing for prompt calculation results as well as high-quality design and construction.

The DX Promotion Office, established in fiscal 2023, is advancing the application of digital tools for design, construction, and completion operations. We are also bolstering the application of DX to operations across the Company, including construction sites, to save labor in construction work while improving construction quality by alleviating the burden of operations for establishing more comfortable workplace environments.

Initiatives for Design and Technical Operations

We are working on improving quality throughout the construction process from planning and design to completion. In design, we identify and resolve issues at an early stage to ensure quality early by enhancing design reviews and improving the design accuracy to prevent and reduce design-related problems.

In regard to construction, we facilitate onsite operations after the start of construction work by holding commencement discussions to decide on construction methods, procedures, and policies that result in higher quality and productivity. Moreover, we avoid falsifications and deficiencies in quality across all processes by having line staff and the Quality Control Center conduct stringent checks and follow-ups. To further improve quality and hand down technical expertise, highly skilled quality assurance administrators and technical experts conduct audits during and after construction and confirm quality and corrective measures while also mentoring junior employees. In fiscal 2023, we established a system that allows us to work alongside and receive guidance from highly skilled senior experts with a wealth of experience.

In fiscal 2023, 189 design reviews were implemented, an increase from the previous year, covering all target properties. These efforts have led to fewer corrections after construction and have helped prevent profitability from deteriorating.

Initiatives on Design and Technical Operations at Construction Sites

Before or Upon Receiving Orders	At Start of Construction	During Construction
<div>Design Review</div> <p>The Design Division, Design & Engineering Division, and Quality Control Center lead the design reviews to confirm whether the required level of quality is met, by scrutinizing construction operations from the aspects of quality and cost. Also, design drawings will be more accurate.</p> <div>Quality Risk Assessment</div> <p>The Quality Risk Subcommittee of the Risk Management Committee assesses quality risk. Divisions related to technology and the Quality Control Center set the quality targets and identify and address quality risks.</p>	<div>Commencement Discussions</div> <p>Divisions related to technology, onsite managers, and divisions related to branches and branch offices determine the construction method (procedures) and quality targets. The Quality Control Center checks aspects concerning quality, construction work, costs, processes, and safety; identifies items requiring changes in specifications and plans; and instructs on concrete measures.</p>	<div>Construction Audits</div> <p>Confirmation of construction work, including design changes, is led by divisions related to technology, onsite managers, divisions related to branches including branch offices, and the Quality Control Center.</p> <div>Completion Audits</div> <p>Check whether quality targets for the design are being achieved and offer instructions for corrections as needed.</p>

Digital Tools Developed by the Sanki Engineering Group

- Automated robotic air flow meter
 - Automatically measures the air flow at the air conditioner vent.
 - Expected to reduce manhours by 75% compared to the conventional process.



Air-flow measurement by an automated robot



Quality check by a quality assurance administrator

Enhancing Our Technologies

Technical Awards for Improving Construction Methods and Operational Processes

We have been presenting awards for excellent ideas that improve operational processes, such as raising efficiency, in addition to ideas that improve construction work. We received 2,078 applications in fiscal 2023.

Fostering Human Resources to Sustain Our Technological Competence

The Sanki Techno Center provides training to help employees acquire basic skills, brush up on their skills, and attain qualifications.

We also conduct training for construction managers every three years, with content corresponding to number of years of experience. We develop the skills of our engineers through hands-on practice and drills using actual machinery and facilities at the Sanki Techno Center.

Number of Personnel with Quality-Related Qualifications (as of April 1, 2024)

Qualification	FY2024	
	Non-consolidated	Consolidated
Professional engineers	84	101
Construction managing engineers (civil works, construction, electrical construction, pipe-laying works)	1,089	1,253
Architect	39	45
Facilities construction architect	180	190
Electrical engineers	160	237
Chief electrical engineers	27	36
First class instrument engineers	284	295
Fire protection engineers	675	733
Qualified managing engineers	1,537	1,821



Training for new employees



The 22nd Conference on Electrical Construction Quality

Note: Cumulative figures are shown for all qualifications.

Major Skill Development Activities for Fiscal 2023

Initiatives	Training	Description of Training	Results
Initiatives at the Sanki Techno Center	Training for new employees	•Seminar for new employees, basic skills training	68 participants
	Correspondence course for attaining qualifications	•Preparation for qualification exams for construction managing engineers and fire protection engineers	165 participants
	Training based on operational experience Third year in construction work Sixth year in construction work Ninth year in construction work	•3- to 5-day training sessions that are held 2 to 5 times per year at 3-year intervals •Standardized group-based training according to operational experience •Technical training using actual equipment and mock-ups •Drills for preventing problems and complaints required in construction management	Held 8 times 123 participants
Initiatives for passing on technology	On-the-job training by technical experts	•Practical on-the-job training offered by technical experts selected from all branches who participate in onsite commencement discussions and construction audits	24 technical experts made 1,187 site visits (cumulative total)
Initiatives for Group companies and subcontractors	Conference on electrical construction quality	•Test of practical skills for electrical technicians from subcontractors of all branches, written exam based on past cases. Participants receive the Sanki Engineering-certified Class A Electrical Engineer qualification	19 participating technicians from 17 subcontractors
	Explanation of problems and complaints	•Case studies at liaison meetings held at branches and branch offices	Number of sessions Tokyo branch: 67, Kansai branch: 26, Chubu branch: 11, Kyushu branch office: 81, Hokkaido branch office: 4, Chugoku branch office: 12, Tohoku branch office: 12, Hokuriku branch office: 11
	Training for subcontractors	•Safety and quality training for new employees of subcontractors •Safety and quality training for mid-level employees of subcontractors •Hazard experience training for foremen	13 times 158 participants